

QUADREL

LABELING SYSTEMS

Operating & Maintenance
Manual
For

CONCRETE SEALANTS, INC

KIRK RUDY BOX LABELER

Automatic Labeling System

Labeler Model #: Q125 SERVO
Serial #: 84210-100

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 TERM AND CONDITIONS INCONSISTANT 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 REQUIREMENTS. 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.

LIMITATION 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 of this 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:

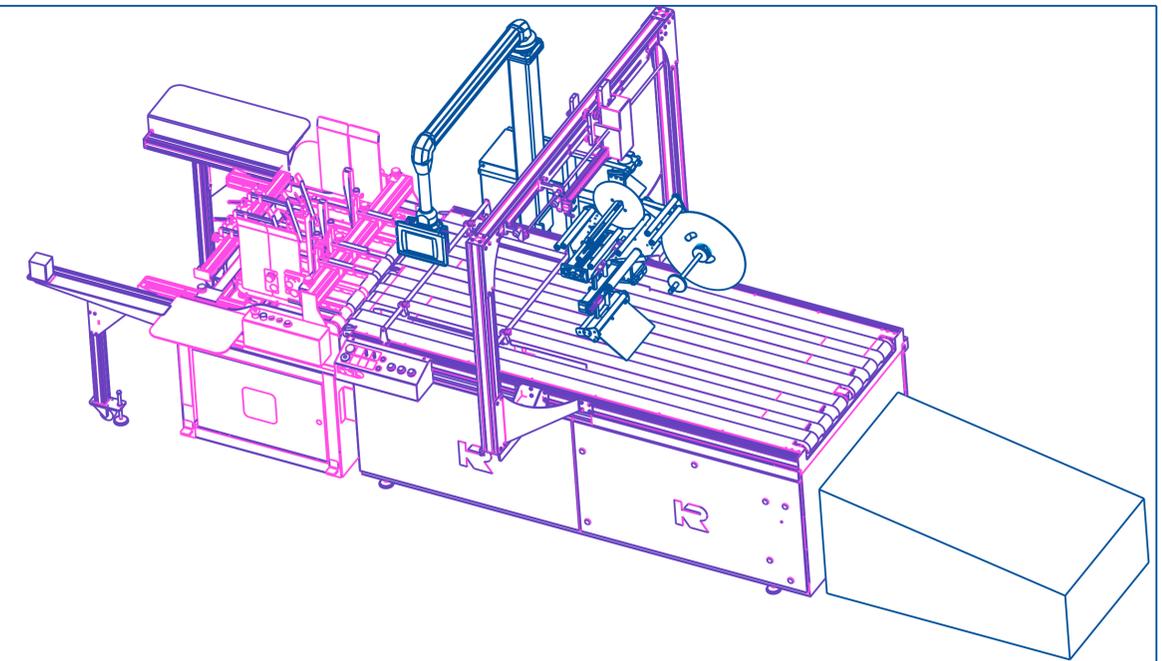
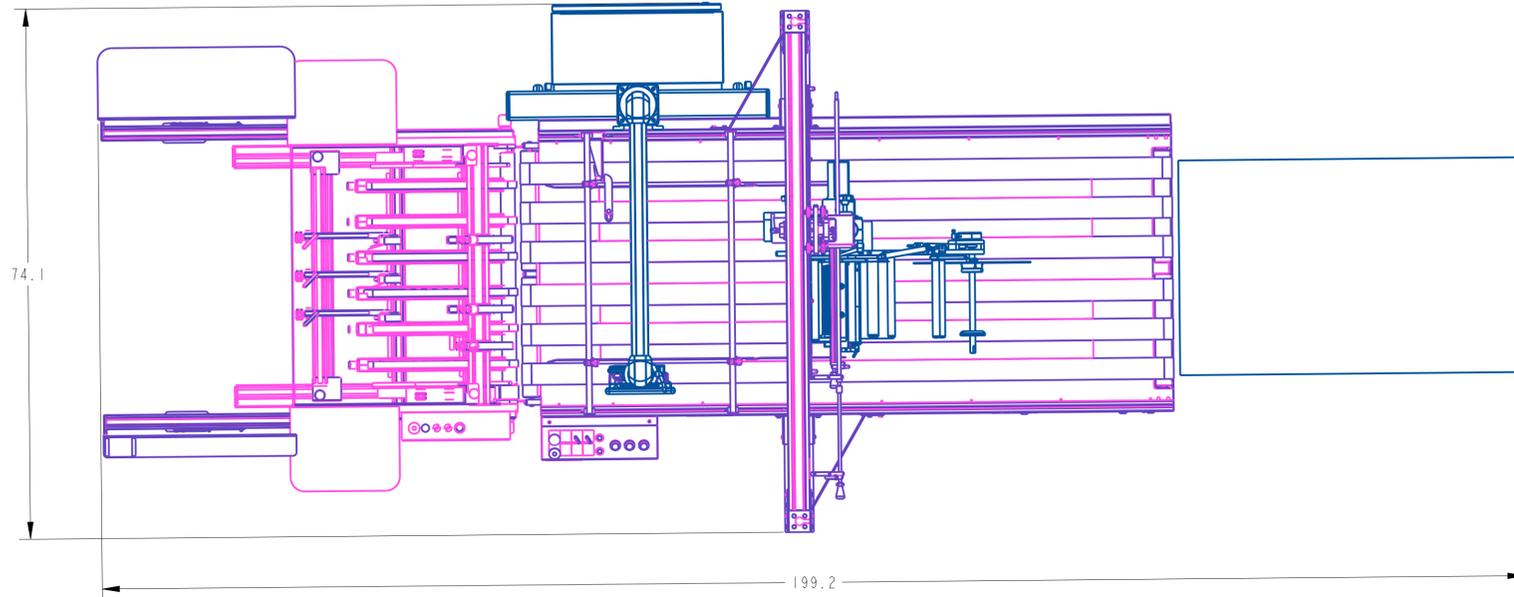
In the event of order cancellation, the 50% down payment is non-refundable. Customer may also be responsible for additional charges covering engineering resources expended and committed materials depending upon the custom nature of the project and the point in the order process in which the cancellation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

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

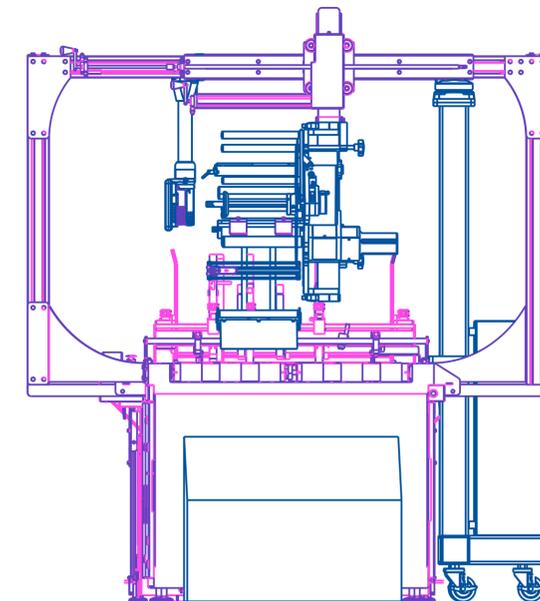
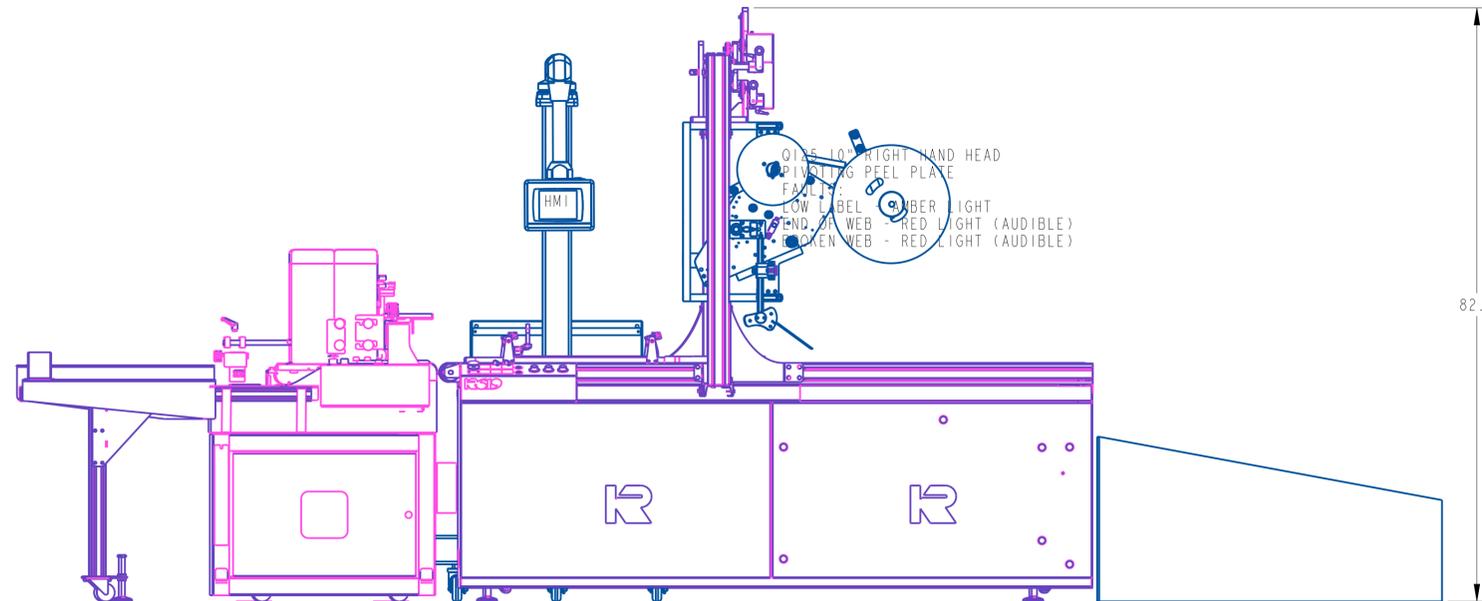
Please sign and acknowledge acceptance to these terms and conditions _____ Date _____

ELECTRICAL ENCLOSURE SIZE AND LOCATION
MAY CHANGE DUE TO COMPONENTS AND REQUIREMENTS

ELECTRICAL ENCLOSURE: 30"X25"X10"



SCALE 1/16



B	0ct-08-25	ADDED HMI BOOM AND STAND	RDL
A	0ct-01-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY

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
ALL ANGLES ARE 90°

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

SCALE: 5/64
DATE: 0ct-01-25
DRW BY: RDL
CHK BY:
APPR BY:

KIRK RUDY BOX LABELING SYSTEM

MAT'L CONCRETE SEALANTS INC
APPROVAL DRAWING

84210-100

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Quadrel Labeling Systems Quality Manual

Quality Statement:

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.

A handwritten signature in black ink that reads "C. Wepler".

Chuck Wepler
General Manager / President

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.

All rights reserved while every precaution has been taken in the preparation of this manual, Quadrel Labeling Systems Inc. cannot be held responsible for errors, omissions, damages, loss of production, or revenues resulting from the use of the information contain herein.

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: 220 Volts, SINGLE (1)_Phase, 60 Hz, 8 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, JEWELRY 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.

WARNING

1. READ AND UNDERSTAND THE OPERATION MANUAL AND ALL SAFETY LABELS BEFORE OPERATING THIS MACHINE.
2. ONLY A TRAINED PERSON IS TO BE PERMITTED TO OPERATE THIS MACHINE. TRAINING SHOULD INCLUDE INSTRUCTION IN OPERATION UNDER NORMAL CONDITIONS AND EMERGENCY SITUATIONS.
3. THIS MACHINE IS TO BE SERVICED ONLY BY TRAINED AND AUTHORIZED PERSONNEL. FOLLOW LOCK-OUT PROCEDURES BEFORE SERVICING.
4. NEVER REACH INTO THE MACHINE FOR ANY REASON UNLESS THE MACHINE IS AT A COMPLETE STOP.
5. NEVER LEAVE THE MACHINE STOPPED IN SUCH A MANNER THAT ANOTHER WORKER CAN START THE MACHINE WHILE YOU ARE WORKING ON OR WITHIN THE MACHINE.
6. NEVER CHANGE OR DEFEAT THE FUNCTION OF ELECTRICAL INTERLOCKS OR OTHER MACHINE "SHUTDOWN" SWITCHES.
7. BEFORE STARTING THIS MACHINE, CHECK THAT: ALL PERSONS ARE CLEAR OF THE MACHINE; NO MAINTENANCE WORK IS BEING PERFORMED ON THE MACHINE; ALL GUARDS ARE IN PLACE.
8. ROUTINE INSPECTIONS AND CORRECTIVE/PREVENTATIVE MAINTENANCE MEASURES ARE TO BE CONDUCTED TO ENSURE THAT ALL GUARDS AND SAFETY FEATURES ARE RETAINED AND FUNCTION PROPERLY.

Using VFDs On GFCI Devices

By Bill Szatkiewicz, Senior Software Engineer
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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.

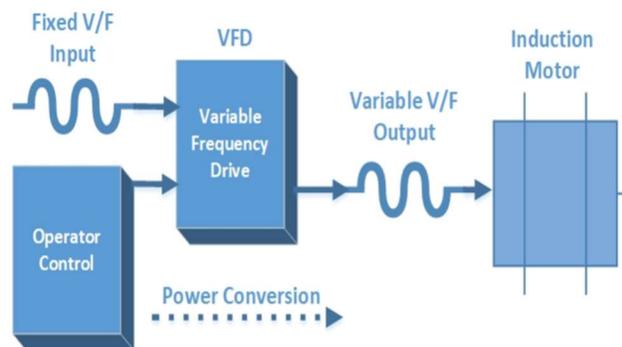


Figure-1: Typical VFD System

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 & Installation of 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.

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.

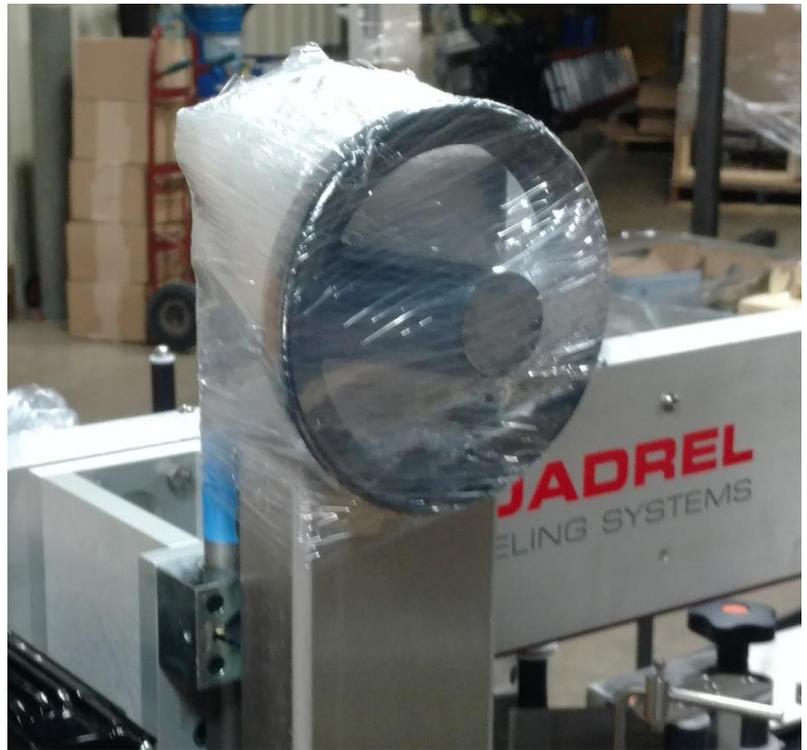
Remove the hand wheel from the wrap, then fasten the hand wheel to the square end on the lead screw using a 3/32 "L" handle Allen wrench.

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)



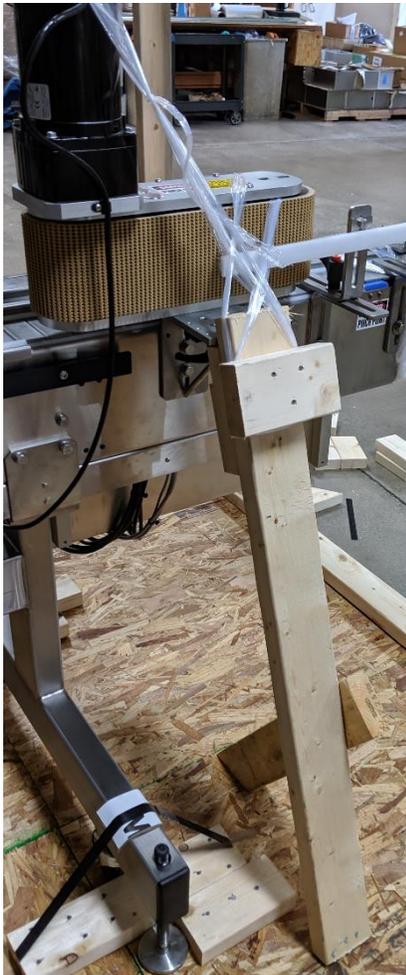
All top and bottom labeling heads will be supported



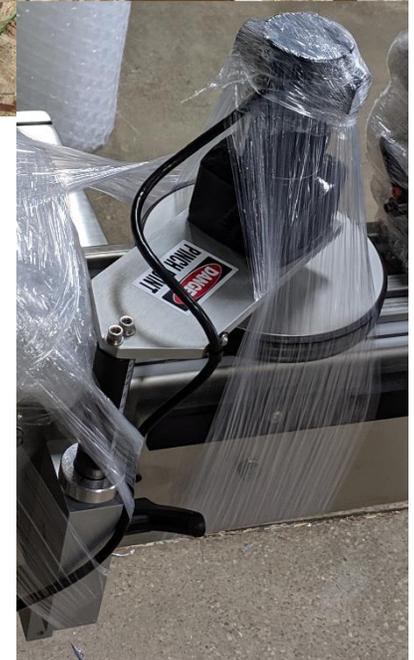
similar to the image shown on the left.

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.

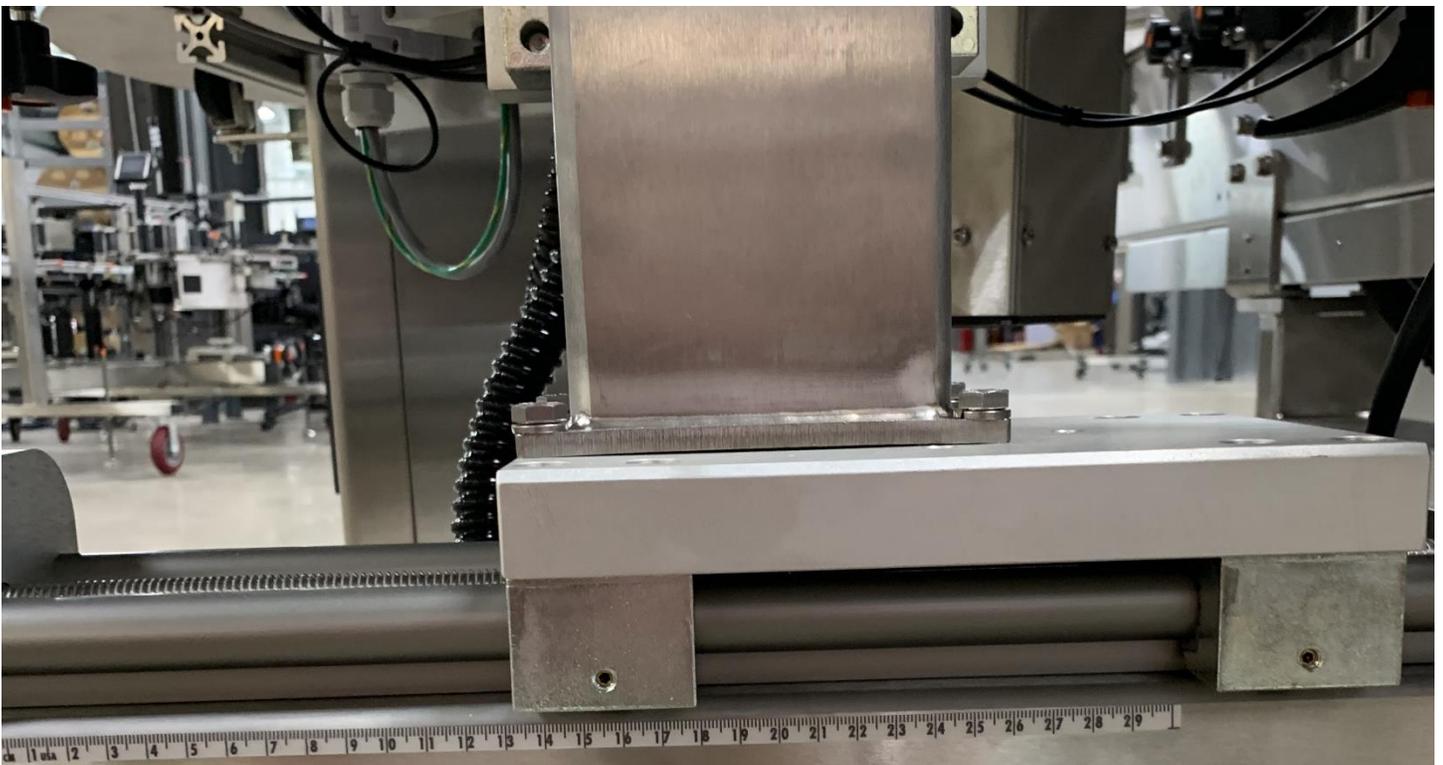


Pacing wheels supported as shown





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.

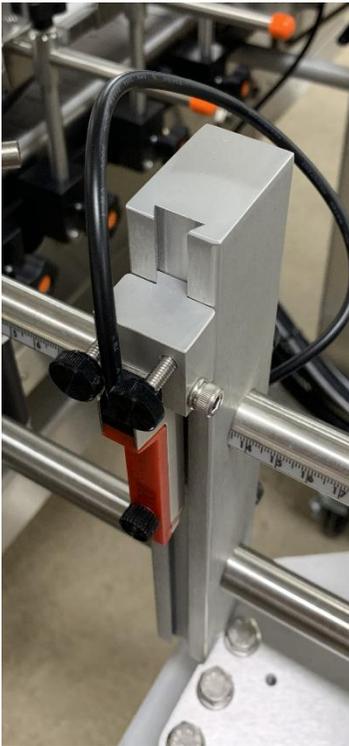


First back the head out all the way. Locate your peel plate assembly and slide it into the holes in the drive roll assembly (as shown on the left of the image above). Make sure you take the bolts out of the end of the rods before putting them into the drive roll assembly.



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 collar facing towards you 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.

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 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.



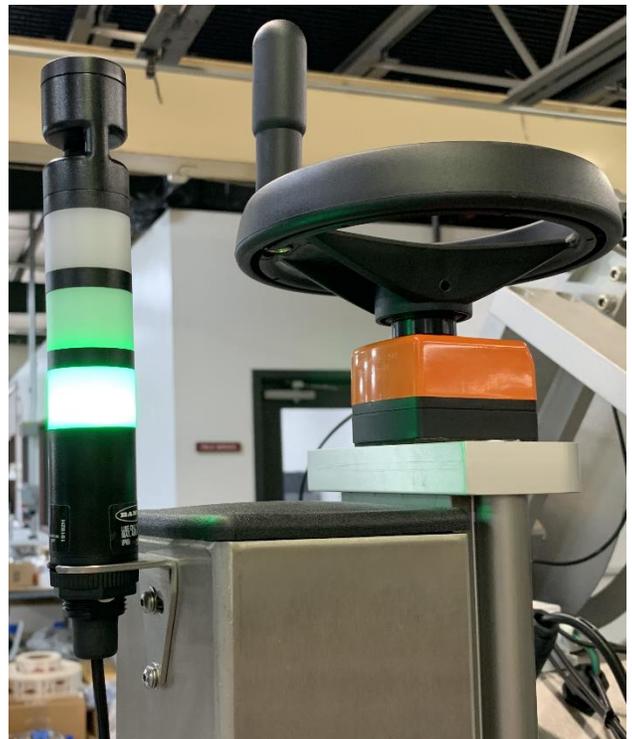
End transfers will be wrapped in bubble wrap and plastic wrap. They will be located in a box on the pallet with your machine or wrapped to the machine itself.

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.

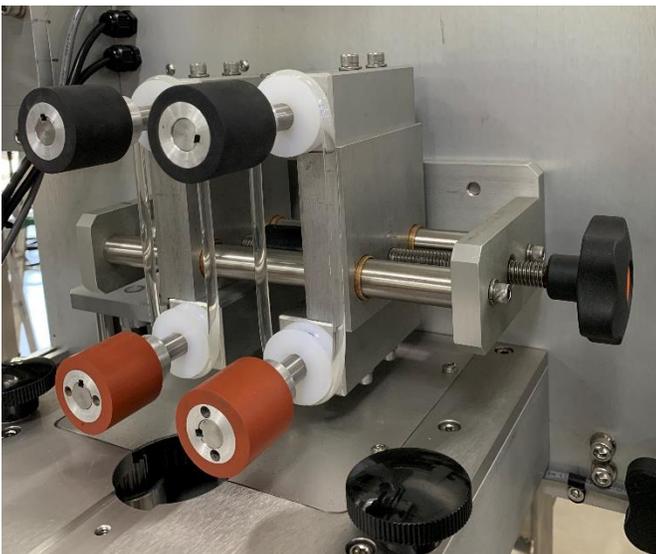
The pallet will contain boxes with. Misc assemblies and or parts (ie mandrels).



Below is an image of the mandrel. The mandrel is the most precise and important part of the sleeve 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 placed 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.

When shipping a proline 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 our professional technicians a call.

FAMILY GUIDE

QUADREL

LABELING SYSTEMS

Operator Interface Guide

Q125 Labeling System

For Use with Files 84210_v000

Allen Bradley Panel View Touch Screen with Allen Bradley CompactLogix PLC

General Overview:

The Operator interface communicates to one PLC through an Ethernet connection. The application file is stored in the terminal's internal memory area and is executed on power-up. The actual data written to any parameter is stored in the PLC and is saved in its battery backed-up memory area.

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Opening Splash Screen

Upon initial power up, the terminal will initialize and display a splash screen. Once this screen appears it sends a signal to the PLC to start executing logic.



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. Many buttons and toggles may be password protected, which will appear differently if the current user does not have proper access.

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 dark orange border. These are used to reflect numbers or recipe descriptions.

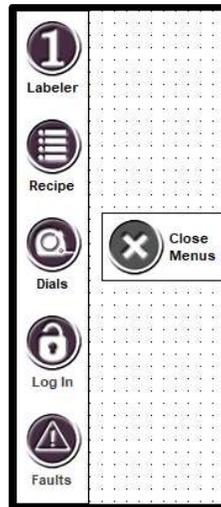
Numeric and Text Inputs: If a number or text can be entered, the button will have a dark green background with white text. The right side of the button will have a touch icon signify that it is an entry box.



System Menu:

Pressing the System Menu button in the top left corner of the screen will cause the menus to appear as pictured below.

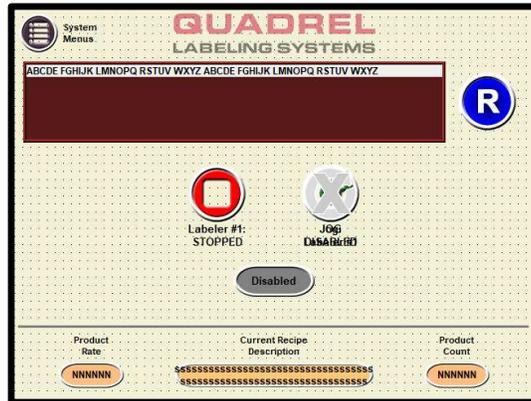
Press any button to navigate to that menu, or the Close Menu button to close the menu bar.





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).



Menu/Setup Navigation Buttons:

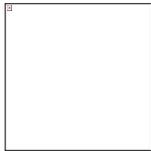
These purple buttons across the top allow the operator to access the various screens that make up the entire touchscreen application. If you are currently on one of the screens, that screen's button will be green in color.

Fault/Message window:

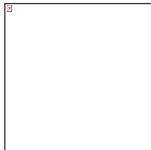
Displays current alarms and status messages about the status of the labeling system. The Faults Menu button can be used to display more messages or a history if needed. Pressing a reset button on the touch screen or physical button on the machine will clear these messages if the fault was remedied.

Labeler Run/Stop:

Each 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 Status Indicator:

The status indicator below the Run/Stop button will identify which fault state the labeler is in.

Ready/OK(green): The labeler has no fault conditions and may operate normally.

Warning (yellow): The labeler has a warning present (typically low on labels). The labeler may operate normally, but will require attention soon.

Faulted (red): The labeler has a fault on it that will prevent it from dispensing labels.

Disabled (grey): Each labeler can be disabled in the Labeler Service menu. Faults and functions will be ignored.

Product Rate (Parts Per Minute):

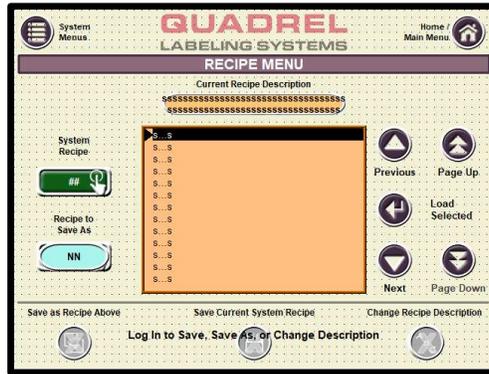
This indicator will reflect how many parts per minute are being labeled by the system. This number will average out over a period of time and may need at least 10 products in order to start calculating a rate.

Current Recipe Description:

This display reflects the description for the currently selected recipe. Recipes are explained in the Recipe / Labeler Menu.



Recipe Menu:



Current Recipe Description:

The description display at the top of the screen reflects the stored description for the recipe currently loaded.



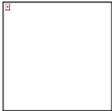
Change Recipe Description (Supervisor Level): Pressing this button will allow the operator to change the current recipe description. Note that the current recipe must be saved to retain the new description.

System Recipe (Load):

When the system is stopped, a new recipe number can be entered. When this number is changed, the newly entered recipe settings will automatically be loaded to the system.

Recipe to Save As (Supervisor Level):

Enter a target recipe to overwrite in this box. Note that the “Save As” button must be pressed in order to execute a save.



Save As Recipe Above (Supervisor Level): Pressing this button will save all current recipe values to the Recipe Number entered in the “Recipe to Save As” box. Note that pressing this button will not change the system recipe, it only writes values to the target recipe.



Save Current System Recipe (Supervisor Level): Pressing this button will save all current recipe values to the currently loaded recipe.

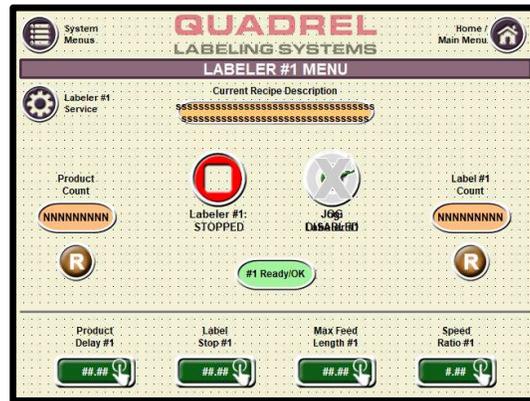
Load Recipe by Description:

The center table shows the stored description for each recipe. The navigation buttons to the right of the table can be used to select descriptions. When the desired recipe is highlighted, the “Load Selected” button must be pressed to load that recipe to the system.



Labeler Menu:

The Labeler Menu contains parameters related to dispensing labels on products.



Labeler Run/Stop:

Each 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 Status Indicator:

The status indicator below the Run/Stop button will identify which fault state the labeler is in.

Ready/OK (green): The labeler has no fault conditions and may operate normally.

Warning (yellow): The labeler has a warning present (typically low on labels). The labeler may operate normally, but will require attention soon.

Faulted (red): The labeler has a fault on it that will prevent it from dispensing labels.

Disabled (grey): Each labeler can be disabled in the Labeler Service menu. Faults and functions will be ignored.

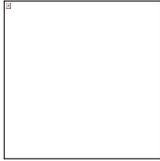
Crossing (purple): If a crossover is in progress, the indicator under the running labeler will turn purple and indicate which direction the crossover is occurring.

Product Count and Reset:

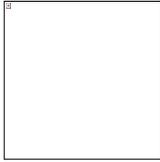
This counter reflects how many Products have passed the product detect sensor while any labeler is Running. The reset button below the counter will set this value to 0. The Product count and reset are global, so they will be identical on all labeler menus.

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.

Label Count and Reset:

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

Product Delay:

Product Delay (in inches) controls the point at which the labeler dispenses a label. A lower product delay value will cause the labeler to dispense “earlier” as the product passes by. A higher product delay value will cause the labeler to dispense “later” as the product passes.

Label Stop:

Label Stop (in inches) 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.

Note that a high label stop can result in more than one label being dispensed at once.

Max Feed:

The Max Feed Length (in inches) determines how much of the liner will advance when no label division is detected by the Label Sensor. If this value is lower than the physical length of the label, poor label stop will result. This value is typically set to a value at least ¼” longer than the actual label length.

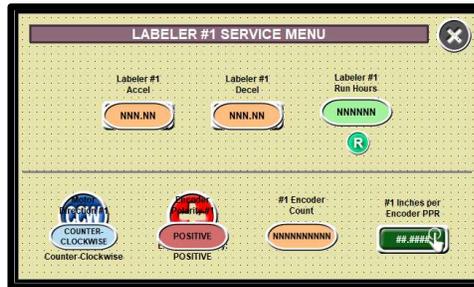
Labeler Speed Ratio:

Labeler Speed Ratio is the value that determines the speed of the labeler in relation to the conveyer belt.



Labeler Service Menu:

Each Labeler Service Menu contains parameters and toggles related to the Labeler that are not typically accessed on a regular basis. The Labeler Service Menu button is only visible when logged in.



Acceleration and Deceleration (Supervisor Level):

These are the ramp values used by the labeler drive when dispensing labels while running. A lower value will result in a longer Acceleration or Deceleration rate.

Direction (Quadrel Level):

The Direction button sets the direction of the drive roller. This should be set at the factory and not need to be changed. Note that the drive must be re-enabled after changing the direction.

Polarity (Quadrel Level):

The polarity of the encoder count can be changed with this button. The encoder count must increment in a positive direction for the labeler to dispense labels while running. If the Encoder Count is counting in a negative direction, the Polarity button must be toggled. (note that the Polarity may not match the actual counting direction).

Toggle the labeler from Stop to Run for new Ramp values to take effect.

Labeler Run Hours and Reset (Supervisor Level):

This counter will count the hours that the Labeler has been in the run mode while the conveyor is running. The reset button is only visible when logged in at the Supervisor Level.

Encoder Count:

This is the current encoder count as interpreted by the Labeler drive. This value may not equal that of any other drives on the system.

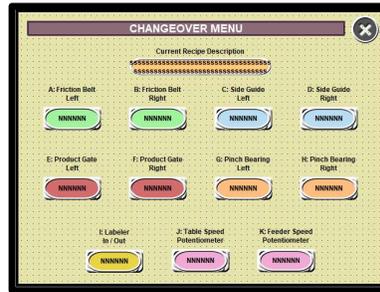
Labeler Inches per Encoder PPR (Quadrel Level):

This value determines the dispensing speed of the labeler in relation to the encoder. This value will equal the inches of conveyor travel per encoder pulses listed on the encoder itself.

Re-enable the drive after changing the settings to properly take effect.



Dials / Changeover Menu:

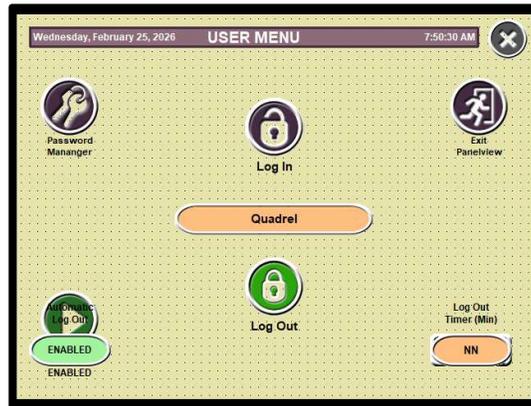


The Changeover / Dial settings menu contains indicators that make changing over from one product to another easier. These values can only be changed when logged in at the Supervisor level.



User Menu:

The User Menu enables alternate login levels to access protected screens and buttons. You can access this Menu by pressing the Lock icon (pictured left).



Log In: Press this button to enter a user password.



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



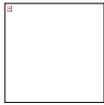
Password Menu: This will open up a security prompt before opening the password menu, where the passwords for the Maintenance and Supervisor levels are set.

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.

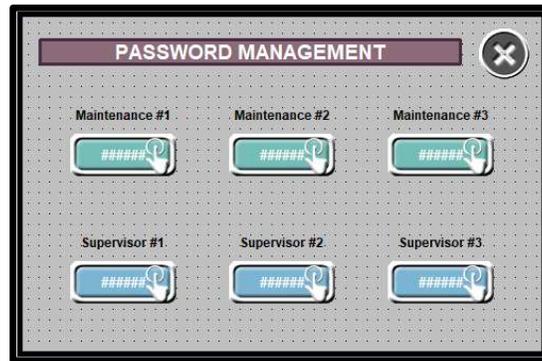
Log Out Timer (Supervisor Level):

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.

Quadrel:

There is a hard coded Quadrel level password that cannot be viewed or changed. This is typically only used when a machine is first commissioned to set motor directions or global variables that do not change on a regular basis.



Fault Menu:

The Fault Menu displays all fault messages, shows system level counters, and gives access to a Fault History. You can access this Menu by pressing the Alert icon.



Fault Display:

The Fault dialog box will display all of the active faults on the machine.

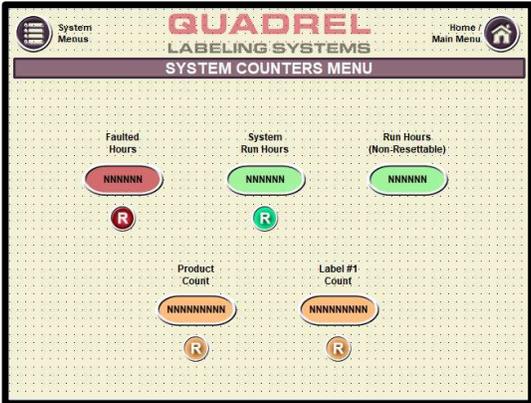
Fault Reset:

Used to reset active faults displayed above.



Counters Menu:

The Counters Menu shows system level counters and status indicators. Counters may be reset when logged in at the Supervisor level.





Fault History:

The Fault History will store the last 128 fault message events.



Fault Messages and Indicators:

Green Lamp:

Steady: The Green lamp will be steady while the system is running.

Amber Lamp:

Flash: The Amber lamp will flash while a warning is active on the system.

Red Lamp:

Flash: The Red lamp will flash while a fatal fault is active.

Buzzer: The Audible Alarm will long pulse (1 second) when a fatal fault is present. The buzzer will short pulse before the system starts.

Overhead Light Strip:

White: No faults are present on the system.

Amber Steady: A Labeler has an active warning.

Amber Flashing: A system warning is active (does not include the labeler warnings). Red

Steady: A Labeler has an active fatal fault.

Red Flashing: A system fatal fault (does not include the labeler fatal faults).

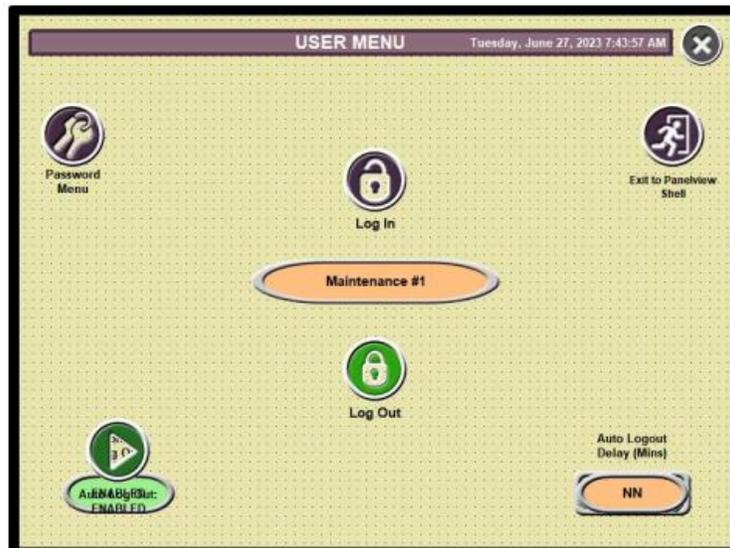
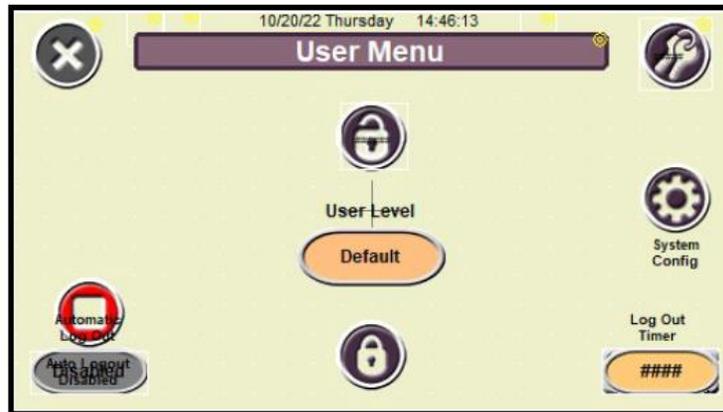
Warning Messages: Warning messages identify a status or event that may need action soon. The machine will not stop from a warning message, but a warning may turn into a fatal fault that will stop the machine. Many warning messages will automatically clear once the problem is remedied.

Fatal Messages: Fatal messages will cause the system to stop immediately or initiate a cycle stop. Fatal faults are typically associated to events that prevent labels being applied properly, safety related faults, or other events that may prevent proper machine operation.

Messages	Cause/Solution
Warning Messages	
PLC Cycled without Screen. Restart System or Touch Screen	The PLC waits for a signal from the touch screen after power-up to verify communications before executing logic. If the PLC is cycled from power or downloading, the screen must be cycled as well.
Labeler #1 Drive Power Off / Faulted Warning	The drive that controls the labeler is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Labeler #1 End of Web Warning. Correct Before Running.	The End Of Web sensor (between the drive system and unwind) on the Labeler is active and the Labeler is Stopped. Placing the Labeler into Run will generate a Fatal Fault.
Labeler #1 Broken Web Warning. Correct Before Running.	The Broken Web sensor (between the drive system and rewind) on the Labeler is active and the Labeler is Stopped. Placing the Labeler into Run will generate a Fatal Fault.
Labeler #1 Drive Program Stopped Warning	The internal program of the labeler drive is not executing logic. Pressing the Reset button or re-enabling the drive should remedy this problem.
Labeler #1 Disabled. Navigate to Labeler #1 Service Menu	The labeler has been disabled from its Service Menu. Re-Enable the drive before attempting to run it.
Labeler #1 Missing Label / Maximum Feed Length Reached	The labeler's drive has reported a maximum feed length movement while jogging. If there was no missing label on the web, ensure the "Max Feed Length" in the labeler menu is set to the proper value.
Labeler #1 Torque Limit Warning. Check for Jams	The labeler drive has a warning on it, which is typically when it reaches a Torque Command limitation. Verify the labeler is not attempting to run at excessive speeds.
Labeler #1 Low Label Supply	The label supply on the labeler has been determined low by the sensor fiber under the flange.
PLC Battery Low Voltage. Replace Immediately	The battery that stores the program in the PLC has low voltage. Replace the battery using the proper procedure to avoid losing the internal program.

Messages	Cause/Solution
Fatal Messages	
Safety Relay Active. Check E-Stops, Re-set	The Safety relay has been activated by an Emergency Stop. Unlatch all Emergency Stops, close all doors, and press the Reset button to reset the safety relay.
PLC Faulted	The PLC has become faulted. If resetting power to the system does not clear this fault, contact Quadrel technical support.
Labeler #1 Drive Power Off / Faulted	The drive that controls the labeler is faulted or turned off. If pressing the reset button does not clear this message, verify that the drive is powered up.
Labeler #1 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.
Labeler #1 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 #1 Drive Program Stopped Fault	The internal program of the labeler drive stopped executing logic while it was running or attempted to run. Reset the drive or re-enable the drive.
Labeler #1 Disabled. Navigate to Labeler #1 Service Menu	The labeler has been disabled from its Service Menu while it was running or attempted to run. Re-Enable the labeler from its service menu.
Labeler #1 Missing Label / Maximum Feed Length Reached	The labeler's drive has reported a maximum feed length movement while running. If there was no missing label on the web, ensure the "Max Feed Length" in the labeler menu is set to the proper value.
Labeler #1 Torque Limit Fault. Check for Jams	The labeler drive has a warning on it, which is typically when it reaches a Torque Command limitation, and the labeler was also placed into "run." Verify the labeler is not attempting to run at excessive speeds.

To set user passwords during initial setup navigate to the passwords screen, then Log in using password "7670" Once logged in users can set passwords per HMI Guide.



USER MENU 

Sunday mm/dd/yy HH:MM:SS

 Passwords



Current User:
Default



 Log Out
Disabled

Log Out
Timer:
12:34 

Setup sheets

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: 13.75 x 8 x 5.5 Label Size: 8.25 x 11

Labeler #1 Menu

	Factory	User
Recipe	1	
Product Delay #1	04	
Label Stop #1	5.4	
Max Feed Length #1	12.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Negative
Encoder Polarity	Clockwise
#1 Inches per Encoder PPR	60000

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	320	320
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: *PC-11-10* Label Size: *11" label*

Labeler #1 Menu

	Factory	User
Recipe	<i>2</i>	
Product Delay #1	<i>23.90</i>	
Label Stop #1	<i>2.80</i>	
Max Feed Length #1	<i>12.00</i>	
Speed Ratio #1	<i>1</i>	

Labeler Setup Menu

Labeler #1 Accel	<i>3.0</i>
Labeler #1 Decel	<i>3.0</i>
Direction	<i>Clockwise</i>
Encoder Polarity	<i>Negative</i>
#1 Inches per Encoder PPR	<i>6.0250</i>

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	<i>160</i>	<i>160</i>
Side Guide	SG-L / SG-R	<i>215</i>	<i>215</i>
Product Gate	PG-L / PG-R	<i>450</i>	<i>450</i>
Pinch Bearing	PB-L / PB-R	<i>350</i>	<i>350</i>
Labeler In / Out		<i>124</i>	
Table Main Speed Potentiometer		<i>10</i>	
Feeder Speed Potentiometer		<i>4</i>	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-11-10 Label Size: 2" corner Label

Labeler #1 Menu

	Factory	User
Recipe	3	
Product Delay #1	25.00	
Label Stop #1	1.05	
Max Feed Length #1	3.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	213	213
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		97	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-11-10 Label Size: 3" Bottom middle

Labeler #1 Menu

	Factory	User
Recipe	4	
Product Delay #1	30.00	
Label Stop #1	1.05	
Max Feed Length #1	4.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	213	213
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-11-10 Label Size: 4" Corner Label

Labeler #1 Menu

	Factory	User
Recipe	5	
Product Delay #1	25.00	
Label Stop #1	2.00	
Max Feed Length #1	6.0	
Speed Ratio #1	1.00	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	213	213
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		97	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-11-10 Label Size: 6" Corner Label

Labeler #1 Menu

	Factory	User
Recipe	5	
Product Delay #1	25.0	
Label Stop #1	1.6	
Max Feed Length #1	7.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	213	213
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		977	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: *PG-14-9* Label Size: *4" Center*

Labeler #1 Menu

	Factory	User
Recipe	<i>7</i>	
Product Delay #1	<i>25.5</i>	
Label Stop #1	<i>2.8</i>	
Max Feed Length #1	<i>5.0</i>	
Speed Ratio #1	<i>1.0</i>	

Labeler Setup Menu

Labeler #1 Accel	<i>3.0</i>
Labeler #1 Decel	<i>3.0</i>
Direction	<i>Clockwise</i>
Encoder Polarity	<i>Negative</i>
#1 Inches per Encoder PPR	<i>6.0250</i>

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	<i>160</i>	<i>160</i>
Side Guide	SG-L / SG-R	<i>185</i>	<i>185</i>
Product Gate	PG-L / PG-R	<i>450</i>	<i>450</i>
Pinch Bearing	PB-L / PB-R	<i>350</i>	<i>350</i>
Labeler In / Out		<i>124</i>	
Table Main Speed Potentiometer		<i>10</i>	
Feeder Speed Potentiometer		<i>4</i>	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: *PC-14-9* Label Size: *6" Center*

Labeler #1 Menu

	Factory	User
Recipe	<i>8</i>	
Product Delay #1	<i>25.5</i>	
Label Stop #1	<i>2.8</i>	
Max Feed Length #1	<i>7.0</i>	
Speed Ratio #1	<i>1.0</i>	

Labeler Setup Menu

Labeler #1 Accel	<i>3.0</i>
Labeler #1 Decel	<i>3.0</i>
Direction	<i>Clockwise</i>
Encoder Polarity	<i>Negative</i>
#1 Inches per Encoder PPR	<i>6.0250</i>

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	<i>160</i>	<i>160</i>
Side Guide	SG-L / SG-R	<i>185</i>	<i>185</i>
Product Gate	PG-L / PG-R	<i>450</i>	<i>450</i>
Pinch Bearing	PB-L / PB-R	<i>350</i>	<i>350</i>
Labeler In / Out		<i>124</i>	
Table Main Speed Potentiometer		<i>10</i>	
Feeder Speed Potentiometer		<i>4</i>	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: *PC-14-9* Label Size: *8.5" Center*

Labeler #1 Menu

	Factory	User
Recipe	<i>9</i>	
Product Delay #1	<i>25.5</i>	
Label Stop #1	<i>2.8</i>	
Max Feed Length #1	<i>9.0</i>	
Speed Ratio #1	<i>1.0</i>	

Labeler Setup Menu

Labeler #1 Accel	<i>3.0</i>
Labeler #1 Decel	<i>3.0</i>
Direction	<i>Clockwise</i>
Encoder Polarity	<i>Negative</i>
#1 Inches per Encoder PPR	<i>6.0250</i>

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	<i>160</i>	<i>160</i>
Side Guide	SG-L / SG-R	<i>185</i>	<i>185</i>
Product Gate	PG-L / PG-R	<i>450</i>	<i>450</i>
Pinch Bearing	PB-L / PB-R	<i>350</i>	<i>350</i>
Labeler In / Out		<i>124</i>	
Table Main Speed Potentiometer		<i>10</i>	
Feeder Speed Potentiometer		<i>4</i>	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: PC-14-10 Label Size: 10" Center

Labeler #1 Menu

	Factory	User
Recipe	10	
Product Delay #1	25.5	
Label Stop #1	2.8	
Max Feed Length #1	12.00	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	60050

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	185	185
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: PC-14-9 Label Size: 11" Center

Labeler #1 Menu

	Factory	User
Recipe	11	
Product Delay #1	26.0	
Label Stop #1	2.8	
Max Feed Length #1	12.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	185	185
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: PG-14-9 Label Size: 4" Bottom Middle

Labeler #1 Menu

	Factory	User
Recipe	12	
Product Delay #1	30	
Label Stop #1	2.7	
Max Feed Length #1	6.50	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	185	185
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: R-14-9 Label Size: 6" Bottom middle

Labeler #1 Menu

	Factory	User
Recipe	13	
Product Delay #1	30	
Label Stop #1	2.7	
Max Feed Length #1	6.5	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	140	140
Side Guide	SG-L / SG-R	185	185
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-14-9 Label Size: 2" Corner

Labeler #1 Menu

	Factory	User
Recipe	14	
Product Delay #1	25.00	
Label Stop #1	1.05	
Max Feed Length #1	4.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	190	190
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		118	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-14-9 Label Size: 4" COMES

Labeler #1 Menu

	Factory	User
Recipe	15	
Product Delay #1	25.00	
Label Stop #1	2.0	
Max Feed Length #1	5.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	190	190
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		118	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: 6-14-9 Label Size: 6" Comes

Labeler #1 Menu

	Factory	User
Recipe	16	
Product Delay #1	25.00	
Label Stop #1	2.00	
Max Feed Length #1	7.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	190	190
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		118	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-14-9 Label Size: 3" Bottom middle

Labeler #1 Menu

	Factory	User
Recipe	17	
Product Delay #1	37.0	
Label Stop #1	1.05	
Max Feed Length #1	4.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	60250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	190	190
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		118	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: PC-14-10 Label Size: 4" Center

Labeler #1 Menu

	Factory	User
Recipe	18	
Product Delay #1	25.0	
Label Stop #1	2.8	
Max Feed Length #1	5.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	172	172
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: *PK-14-10* Label Size: *8.5" Center*

Labeler #1 Menu

	Factory	User
Recipe	<i>14</i>	
Product Delay #1	<i>25.5</i>	
Label Stop #1	<i>2.8</i>	
Max Feed Length #1	<i>10</i>	
Speed Ratio #1	<i>1.0</i>	

Labeler Setup Menu

Labeler #1 Accel	<i>3.0</i>
Labeler #1 Decel	<i>3.0</i>
Direction	<i>clockwise</i>
Encoder Polarity	<i>Negative</i>
#1 Inches per Encoder PPR	<i>6.0250</i>

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	<i>160</i>	<i>160</i>
Side Guide	SG-L / SG-R	<i>172</i>	<i>172</i>
Product Gate	PG-L / PG-R	<i>450</i>	<i>450</i>
Pinch Bearing	PB-L / PB-R	<i>350</i>	<i>350</i>
Labeler In / Out		<i>104</i>	
Table Main Speed Potentiometer		<i>10</i>	
Feeder Speed Potentiometer		<i>4</i>	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: PC-14-10 Label Size: 10" Center

Labeler #1 Menu

	Factory	User
Recipe	2.0	
Product Delay #1	25.50	
Label Stop #1	2.70	
Max Feed Length #1	12.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	172	172
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: *PC-4-10* Label Size: *11" center*

Labeler #1 Menu

	Factory	User
Recipe	<i>21</i>	
Product Delay #1	<i>25.5</i>	
Label Stop #1	<i>2.0</i>	
Max Feed Length #1	<i>12.0</i>	
Speed Ratio #1	<i>1.0</i>	

Labeler Setup Menu

Labeler #1 Accel	<i>3.0</i>
Labeler #1 Decel	<i>3.0</i>
Direction	<i>Clockwise</i>
Encoder Polarity	<i>Negative</i>
#1 Inches per Encoder PPR	<i>6.0250</i>

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	<i>160</i>	<i>160</i>
Side Guide	SG-L / SG-R	<i>172</i>	<i>172</i>
Product Gate	PG-L / PG-R	<i>450</i>	<i>450</i>
Pinch Bearing	PB-L / PB-R	<i>350</i>	<i>350</i>
Labeler In / Out		<i>124</i>	
Table Main Speed Potentiometer		<i>10</i>	
Feeder Speed Potentiometer		<i>4</i>	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: *PG-14-10* Label Size: *6"* *Bottom middle*

Labeler #1 Menu

	Factory	User
Recipe	<i>22</i>	
Product Delay #1	<i>25.5</i>	
Label Stop #1	<i>2.8</i>	
Max Feed Length #1	<i>7.0</i>	
Speed Ratio #1	<i>1.0</i>	

Labeler Setup Menu

Labeler #1 Accel	<i>3.0</i>
Labeler #1 Decel	<i>3.0</i>
Direction	<i>Clockwise</i>
Encoder Polarity	<i>Negative</i>
#1 Inches per Encoder PPR	<i>6.0250</i>

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	<i>160</i>	<i>160</i>
Side Guide	SG-L / SG-R	<i>172</i>	<i>172</i>
Product Gate	PG-L / PG-R	<i>450</i>	<i>450</i>
Pinch Bearing	PB-L / PB-R	<i>350</i>	<i>350</i>
Labeler In / Out		<i>124</i>	
Table Main Speed Potentiometer		<i>10</i>	
Feeder Speed Potentiometer		<i>4</i>	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-11-10 Label Size: 2" Corner

Labeler #1 Menu

	Factory	User
Recipe	23	
Product Delay #1	25.00	
Label Stop #1	1.05	
Max Feed Length #1	3.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0850

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	170	170
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		104	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-1410 Label Size: 4" Comer

Labeler #1 Menu

	Factory	User
Recipe	24	
Product Delay #1	25.00	
Label Stop #1	1.05	
Max Feed Length #1	6.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	170	170
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		61	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-14-10 Label Size: 6" COMPS

Labeler #1 Menu

	Factory	User
Recipe	25	
Product Delay #1	25.0	
Label Stop #1	2.0	
Max Feed Length #1	9.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	170	170
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: C-14-10 Label Size: 3" Bottom Middle

Labeler #1 Menu

	Factory	User
Recipe	26	
Product Delay #1	32.0	
Label Stop #1	1.05	
Max Feed Length #1	4.0	
Speed Ratio #1	1.0	

Labeler Setup Menu

Labeler #1 Accel	3.0
Labeler #1 Decel	3.0
Direction	Clockwise
Encoder Polarity	Negative
#1 Inches per Encoder PPR	6.0250

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	160	160
Side Guide	SG-L / SG-R	170	170
Product Gate	PG-L / PG-R	450	450
Pinch Bearing	PB-L / PB-R	350	350
Labeler In / Out		124	
Table Main Speed Potentiometer		10	
Feeder Speed Potentiometer		4	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #: *PC-14-10* Label Size: *Double Label*

Labeler #1 Menu

	Factory	User
Recipe	<i>27</i>	
Product Delay #1	<i>25.50</i>	
Label Stop #1	<i>2.8</i>	
Max Feed Length #1	<i>12.0</i>	
Speed Ratio #1	<i>1.0</i>	

Labeler Setup Menu

Labeler #1 Accel	<i>3.0</i>
Labeler #1 Decel	<i>3.0</i>
Direction	<i>clockwise</i>
Encoder Polarity	<i>Negative</i>
#1 Inches per Encoder PPR	<i>6.0250</i>

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R	<i>160</i>	<i>160</i>
Side Guide	SG-L / SG-R	<i>172</i>	<i>172</i>
Product Gate	PG-L / PG-R	<i>450</i>	<i>450</i>
Pinch Bearing	PB-L / PB-R	<i>350</i>	<i>350</i>
Labeler In / Out		<i>124</i>	
Table Main Speed Potentiometer		<i>10</i>	
Feeder Speed Potentiometer		<i>4</i>	

QUADREL

LABELING SYSTEMS

LABELER SERIAL NUMBER: 84210-100

Box #:

Label Size:

Labeler #1 Menu

	Factory	User
Recipe		
Product Delay #1		
Label Stop #1		
Max Feed Length #1		
Speed Ratio #1		

Labeler Setup Menu

Labeler #1 Accel	
Labeler #1 Decel	
Direction	
Encoder Polarity	
#1 Inches per Encoder PPR	

Mechanical Settings

		Left Side	Right Side
Friction Belt	FB-L / FB-R		
Side Guide	SG-L / SG-R		
Product Gate	PG-L / PG-R		
Pinch Bearing	PB-L / PB-R		
Labeler In / Out			
Table Main Speed Potentiometer			
Feeder Speed Potentiometer			

WARNING



! WARNING

1. READ AND UNDERSTAND THE OPERATION MANUAL AND ALL SAFETY LABELS BEFORE OPERATING THIS MACHINE.
2. ONLY A TRAINED PERSON IS TO BE PERMITTED TO OPERATE THIS MACHINE. TRAINING SHOULD INCLUDE INSTRUCTION IN OPERATION UNDER NORMAL CONDITIONS AND EMERGENCY SITUATIONS.
3. THIS MACHINE IS TO BE SERVICED ONLY BY TRAINED AND AUTHORIZED PERSONNEL. FOLLOW LOCK-OUT PROCEDURES BEFORE SERVICING.
4. NEVER REACH INTO THE MACHINE FOR ANY REASON UNLESS THE MACHINE IS AT A COMPLETE STOP.
5. NEVER LEAVE THE MACHINE STOPPED IN SUCH A MANNER THAT ANOTHER WORKER CAN START THE MACHINE WHILE YOU ARE WORKING ON OR WITHIN THE MACHINE.
6. NEVER CHANGE OR DEFEAT THE FUNCTION OF ELECTRICAL INTERLOCKS OR OTHER MACHINE "SHUTDOWN" SWITCHES.
7. BEFORE STARTING THIS MACHINE, CHECK THAT: ALL PERSONS ARE CLEAR OF THE MACHINE; NO MAINTENANCE WORK IS BEING PERFORMED ON THE MACHINE, ALL GUARDS ARE IN PLACE.
8. ROUTINE INSPECTIONS AND CORRECTIVE/PREVENTATIVE MAINTENANCE MEASURES ARE TO BE CONDUCTED TO ENSURE THAT ALL GUARDS AND SAFETY FEATURES ARE RETAINED AND FUNCTION PROPERLY.

- 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.

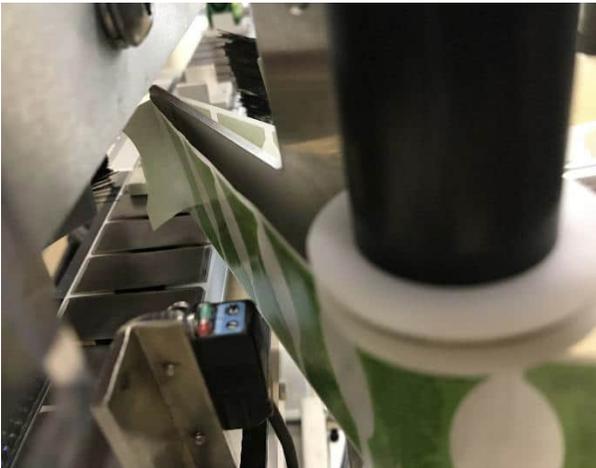


- 3) Follow the threading diagram on the labeling head for routing the web.
- 4) Thread through the dancer to the peel plate.

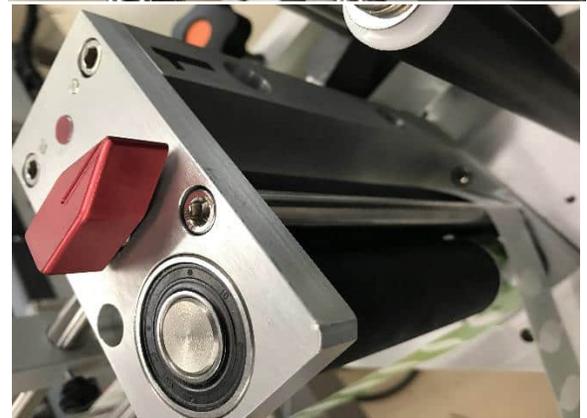
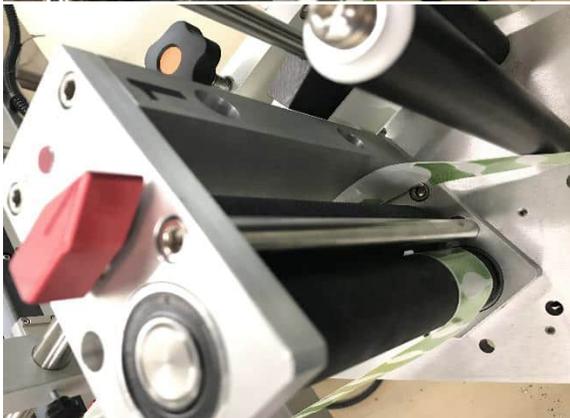
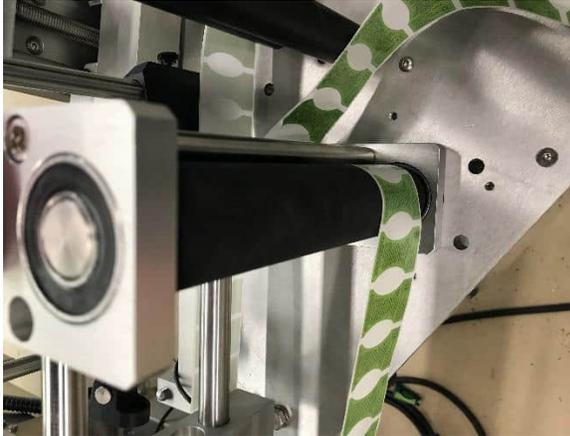




- 5) Feed the label around the peel plate and under the pressure shoe if (if there is one). Feed the label up the head to the pull roll. Pull all the slack out.



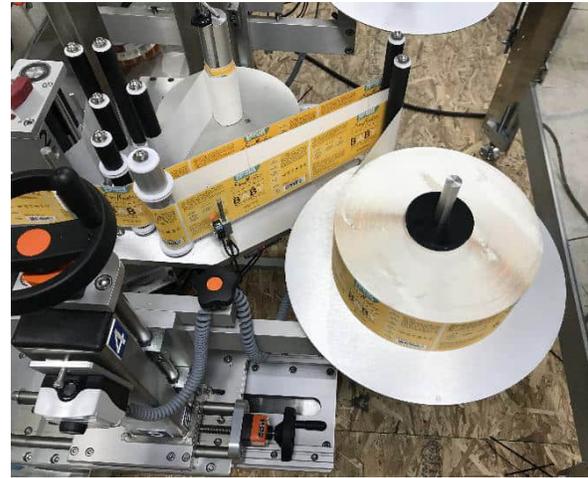
- 6) Wrap labels around the rubber roller as shown, then around the knurled roller. Make sure the knurled roller is not locked in by turning the red knob to the left or right of the red dot. When you have the labels completely threaded you can turn the knob to the red dot.



- 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.

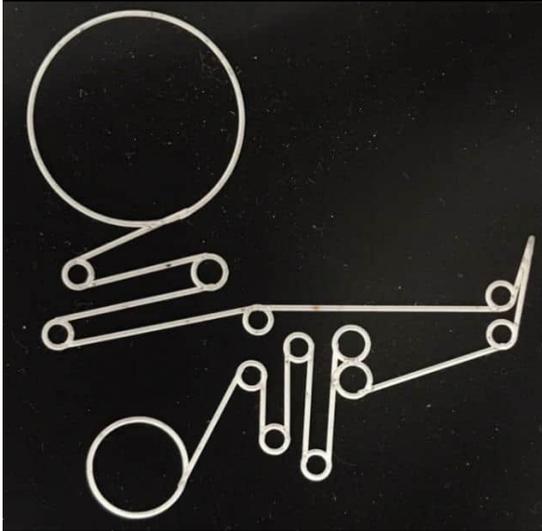


CAUTION

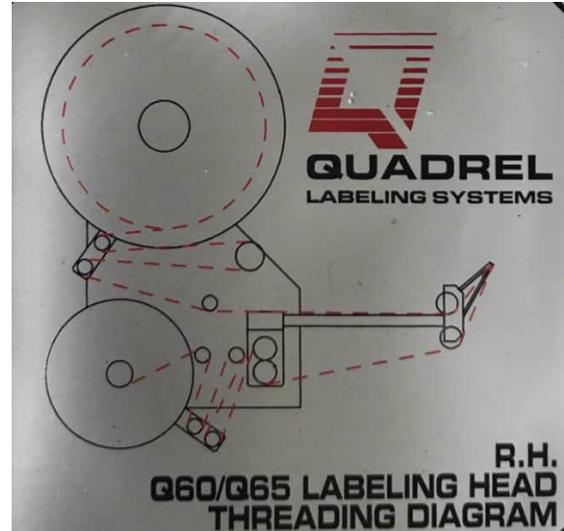
There are many pinch points on a labeler. to avoid injury read and understand the owner’s manual before operating.

6.1.2 THREADING DIAGRAMS

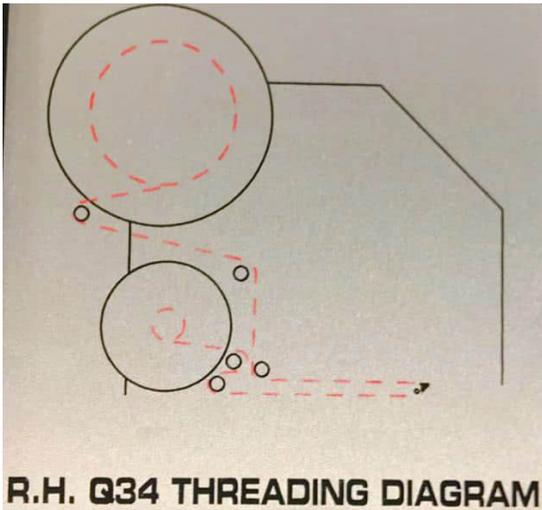
Here are the following threading diagrams for our standard labeling heads.



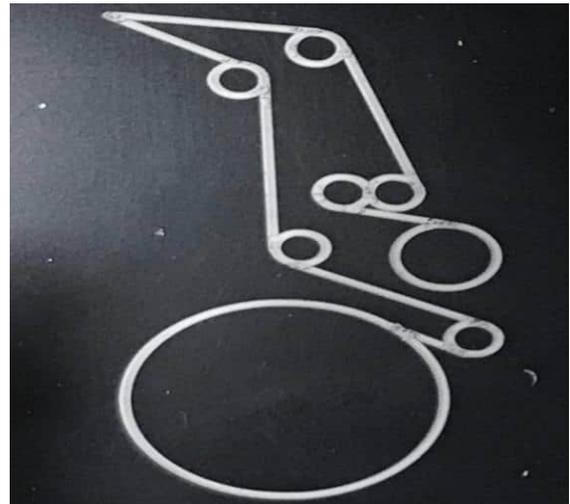
Q120/Q125/Q115/Q110



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 will move the labeler out.



To adjust the angle of the labeling head you first need to loosen the large $\frac{3}{4}$ -10 nut with a $1\frac{1}{4}$ " wrench and the $\frac{5}{16}$ -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.





QUADREL LABELING SYSTEMS

Q125

LABELING HEAD

GENERAL DESCRIPTION

- The Q125 has been developed as a heavy duty automatic labeling head system for integration into high speed, high rate production environments. The labeling head can be configured for either wrap or wipe on applications. The Q125 uses a servo drive and motor system that can be used independently or in conjunction with a PLC. All settings are controlled from a touch screen interface for easy setup and adjustments. In addition, a built in system of fault logic can easily interface with a host of optional sensors.

PRINCIPLE OF FUNCTION

- The Q125 labeling head applies pressure sensitive labels onto moving products. Various principles are involved to achieve accurate label application. In general, a labeling system integrates three (3) basic functions:
 - **Product Handling:** The most common product handling component is the conveyor. Conveyors allow the product to transport smoothly through the labeling station. The Q125 labeler can be supplied either as a stand alone head (head on a stand) or integrated into a complete conveying/product handling system. An encoder from the product handling system must be tied into the labeler's drive.
 - **Label Application:** Usually the label is "tacked" directly to the product during the label dispensing cycle. Secondary label applicators such as brushes, roller or wrap belts are used to finish the label application and to ensure good adhesion.
 - **Label Dispensing:** The Q125 utilizes two movement types to dispense labels. The first movement is a fixed speed, "jog" movement that is used during setup purposes. Jogging labels verifies proper label threading and labeler operation prior applying labels to products. The second movement is a synchronized "run" movement that is used to apply labels on passing products. The labeler's drive system will synchronize speed with the product handling system from an encoder. This eliminates the need to change settings based on system speed and allows for accurate and repeatable labeling.

SEQUENCE OF OPERATION:

- The electrical and mechanical operating sequence described below is intended only to acquaint the operator with the operation of the label dispensing head and its related control circuitry.

- The Jog function is used for manual set-up of label dispensing. Under proper conditions, a jog sequence will dispense one label. Labels must be threaded properly and the labeler stopped (indicated on the touch screen) before Jogging labels.

- The Jog cycle is described in the following manner:
 1. After verifying that labels are threaded properly and the labeler is stopped, a jog button (physical green button near the labeler or a button on the touch screen) must be pressed.
 2. The labeler will start dispensing labels at a fixed speed.
 3. The labeler's drive will monitor a label gap sensor input before finishing a dispensing cycle.
 4. Once the label's gap is detected by the sensor, the labeler will continue dispensing the label for a length defined by the "Label Stop" parameter on the touch screen. This distance is entered as inches.
 5. After the Label Stop distance is reached, the Jog cycle is complete and the labeler stops dispensing labels.
 6. If no label gap is detected, the labeler will only index a maximum distance which is set by the "Max Feed" parameter on the touch screen. This distance is entered as inches.

- When the labeler is in the "Run" mode it will automatically dispense labels on products that are passing by. Labels must be threaded properly and the labeler placed in the Run mode (indicated on the touch screen) to automatically dispense labels
 1. A product activates the Product Detect sensor.
 2. The labeler drive captures the position of the product on the product handling system and starts an internal delay, which is the "Product Delay" parameter on the touch screen.
 3. The Product Delay is equal to inches, so once the product travels the Product Delay distance from the product detect sensor, a label will be dispensed.
 4. The labeler dispenses a label at the speed of the product which is multiplied by the "Speed Ratio" parameter found on the touch screen. The ratio is a multiplier, so a value of 1.0 determines the labeler will dispense at the exact speed of the conveyor.
 5. The labeler monitors the label gap sensor in the same manner of the Jog movement before finishing the dispensing cycle.

ASSEMBLY TITLE: Q125 LABELING HEAD ASSEMBLY

DRAWING NO.: NONE

GENERAL FUNCTION:

- Applies labels to the front and/or back, top/bottom of the products
- Wraps labels around cylindrical products

SET-UP AND ADJUSTMENTS:

- Tighten all loose connections and screws
- As noted in each sub-assembly

MAINTENANCE:

- Remove glue residue and labels from all rollers and idlers
- As noted in each sub-assembly

TROUBLESHOOTING:

- As noted in each sub-assembly

ASSEMBLY TITLE:

Q125 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 feet 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.

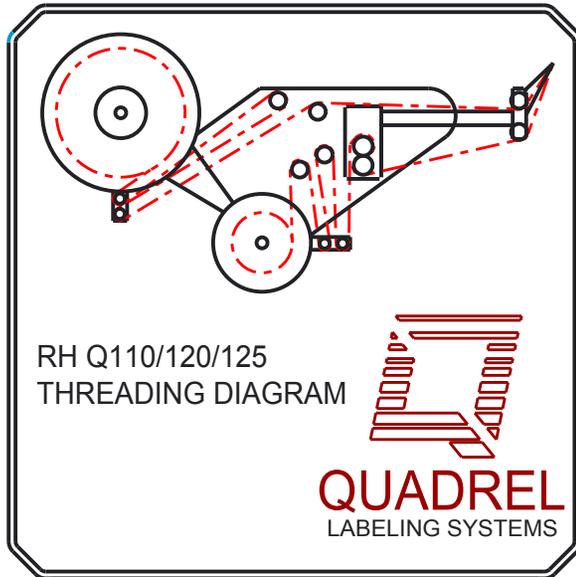
TROUBLESHOOTING:

PROBLEM

- Web break
- No Web Tension

WHAT TO DO

- Check web path and insure web routed correctly.
- Debris causing web tear and break. Clear as needed.
- 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".

A	5-8-19	NEW DRAWING
REV	DATE	DESCRIPTION

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE $X \pm .1$ $.XX \pm .01$ $.XXX \pm .005$ ANGLES $\pm 30'$ 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: 5-8-19 DRW BY: TJS CHK BY: APPR BY:
	Q110/120/125 R.H. THREADING DIAGRAM	
MAT'L	SEE NOTES	A26222-110RH

ASSEMBLY TITLE: Q110 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:

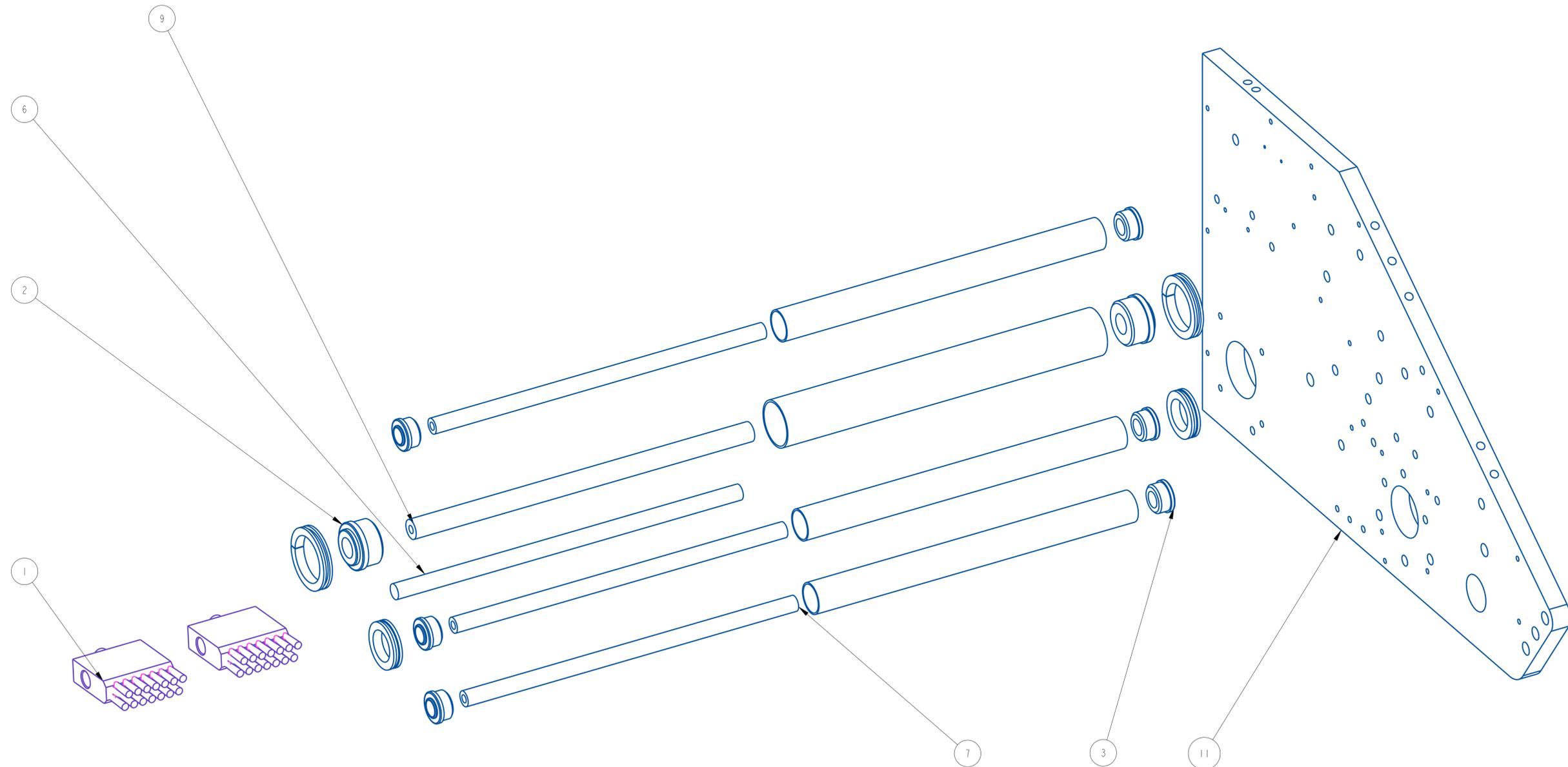
- None

TROUBLESHOOTING:

- None



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	00669-01	BRAKE BRUSH 2 x 7 nylon	23100SPC-010RH
2	2	181062-000	BEARING, ROLL END	23100SPC-010RH
3	6	181063-000	BEARING, ROLL END	23100SPC-010RH
4	2	361198-000	COLLAR, GUIDE, 1" ID	23100SPC-010RH
5	2	361199-000	COLLAR, GUIDE, 1-1/2 IN. ID	23100SPC-010RH
6	1	A20654-001	ADJ. ROD	23100SPC-010RH
7	3	A20928-000	ROLLER SHAFT	23100SPC-010RH
8	1	A21259-004	ROLLER	23100SPC-010RH
9	1	A21618-002	IDLER SHAFT	23100SPC-010RH
10	3	B20071-011	IDLER ROLLER (DANCER)	23100SPC-010RH
11	1	D22800-0105C	SIDE PLATE, MOD.	23100SPC-010RH



REV	DATE	DESCRIPTION	BY
A	Oct-10-25	NEW DRAWING	RDL

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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
ALL ANGLES ARE 90°

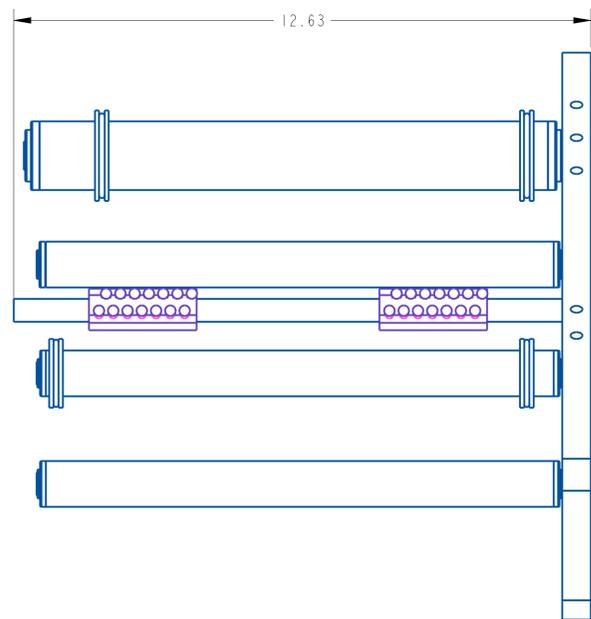
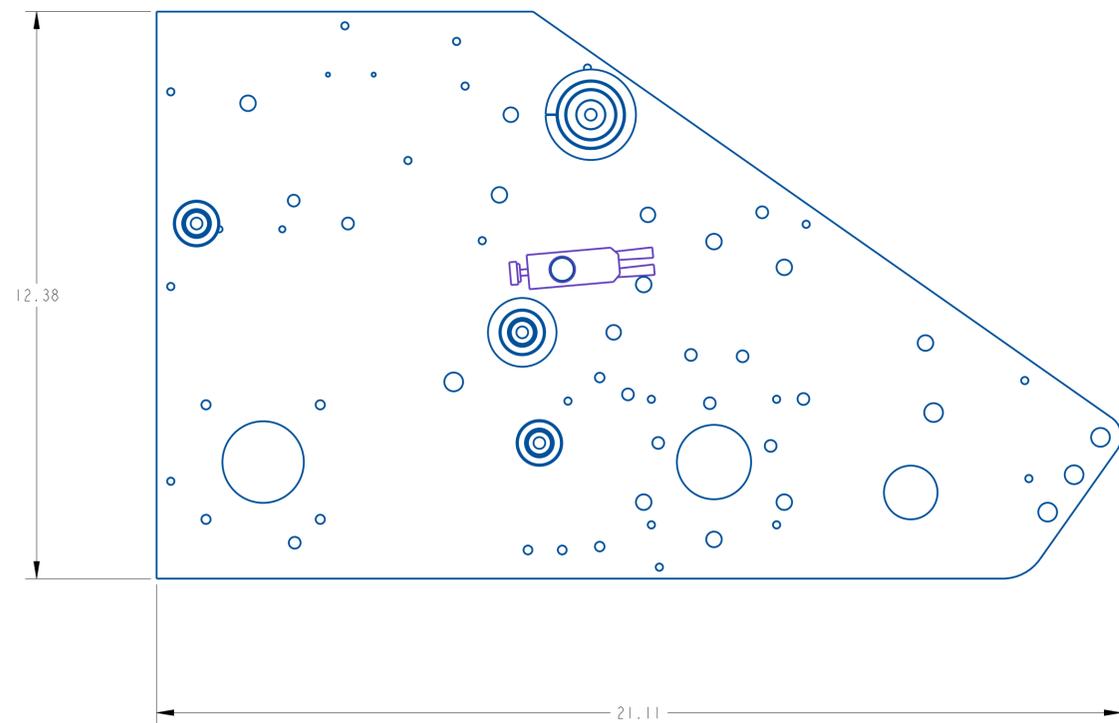
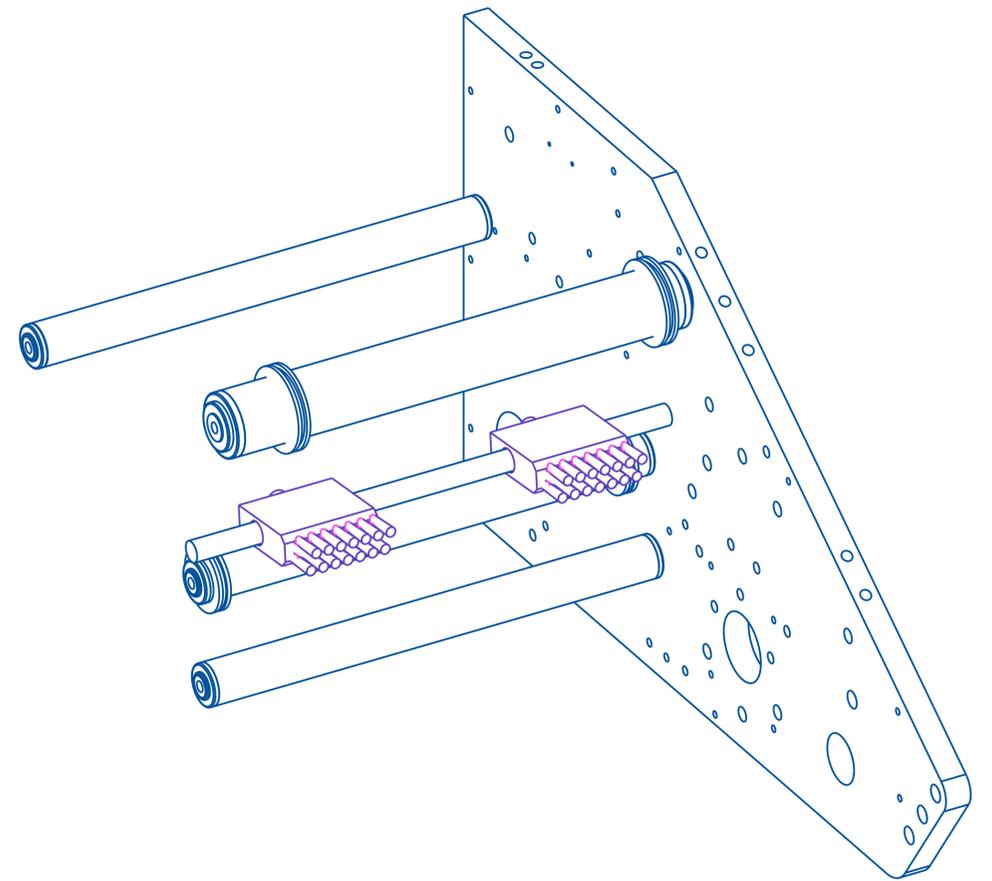
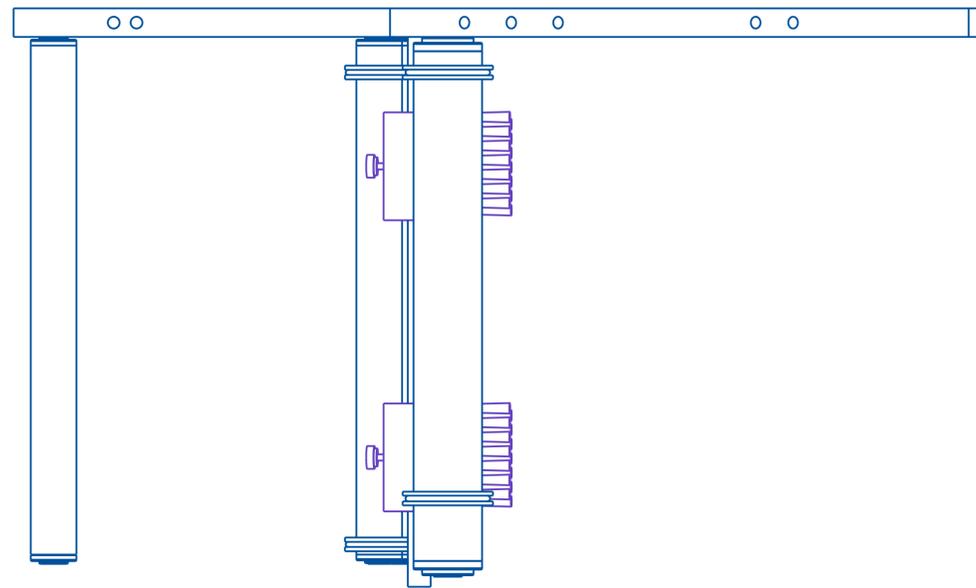
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 9/16
DATE: Oct-10-25
DRW BY: RDL
CHK BY:
APPR BY:

10" SIDE PLATE ASSEMBLY, COMPACT

MAT'L

23100SPC-010RH



REV	DATE	DESCRIPTION	BY
A	Oct-10-25	NEW DRAWING	RDL

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UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE
X ± .01
XX ± .005
ANGLES ± .30°
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030
ALL ANGLES ARE 90°

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

SCALE: 1/2
DATE: Oct-10-25
DRW BY: RDL
CHK BY:
APPR BY:

10" SIDE PLATE ASSEMBLY, COMPACT
MAT'L
23100SPC-010RH

ASSEMBLY TITLE:

Q120 UNWIND ASSEMBLY

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 Q120 head. Use the knurled ring to adjust the dancer tension.**

MAINTENANCE:

- Clean all the parts that may acquire glue residue

TROUBLESHOOTING:

PROBLEM

- Unwind roll run-away
- Unwind roll not stopping
- Drive roll stalling
- Brush taking fixed shape

WHAT TO DO

- Tighten dancer spring, check nut or replace dancer spring, if necessary.
- Replace brake ring-belt if broken, or unevenly worn.
- Release web tension produced by brake brush.
- Turn brush around



ASSEMBLY TITLE: Q120 LABELING HEAD - DANCER ARM ASSEMBLY

DRAWING NO.: None Applicable

GENERAL FUNCTION:

- The dancer arm and braking mechanism are used to control the unwind unit which will only advance a few inches of web at any time
- The position of the dancer arm affects the advancement of the web off the label roll.

SET UP AND ADJUSTMENTS:

- The dancer normal position of the dancer arm is reached when the dancer arm locks the supply reel.
- The spring tension can be adjusted to correctly locate the dance arm
- The spring may be adjusted by turning the threaded tensioner located near the unwind unit.
- The spring should be tight enough to bring the dancer arm back to its normal position and hold it with some force, but not tight enough to tear the web during label feed.
- Spring adjustment is also possible by rotating the spring mounting pin on the spring take up pulley around the mounting shaft.
- While in its normal position, the dancer arm roller should not interfere with the supply reel flange.

MAINTENANCE:

- Replace dancer spring if final spring tension is too soft.

TROUBLESHOOTING:

PROBLEM

- Web break
- Too much web slack
- Dancer arm hits supply flange position by loosening the brake cam.

WHAT TO DO

- Lower spring tension on dancer arm
- Increase spring tension
- Correct dancer arm final

ASSEMBLY TITLE:

**Q120 LABELING HEAD - BRAKE BRUSH
ASSEMBLY**

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

- Web break

- Motor stall

- Too much web slack

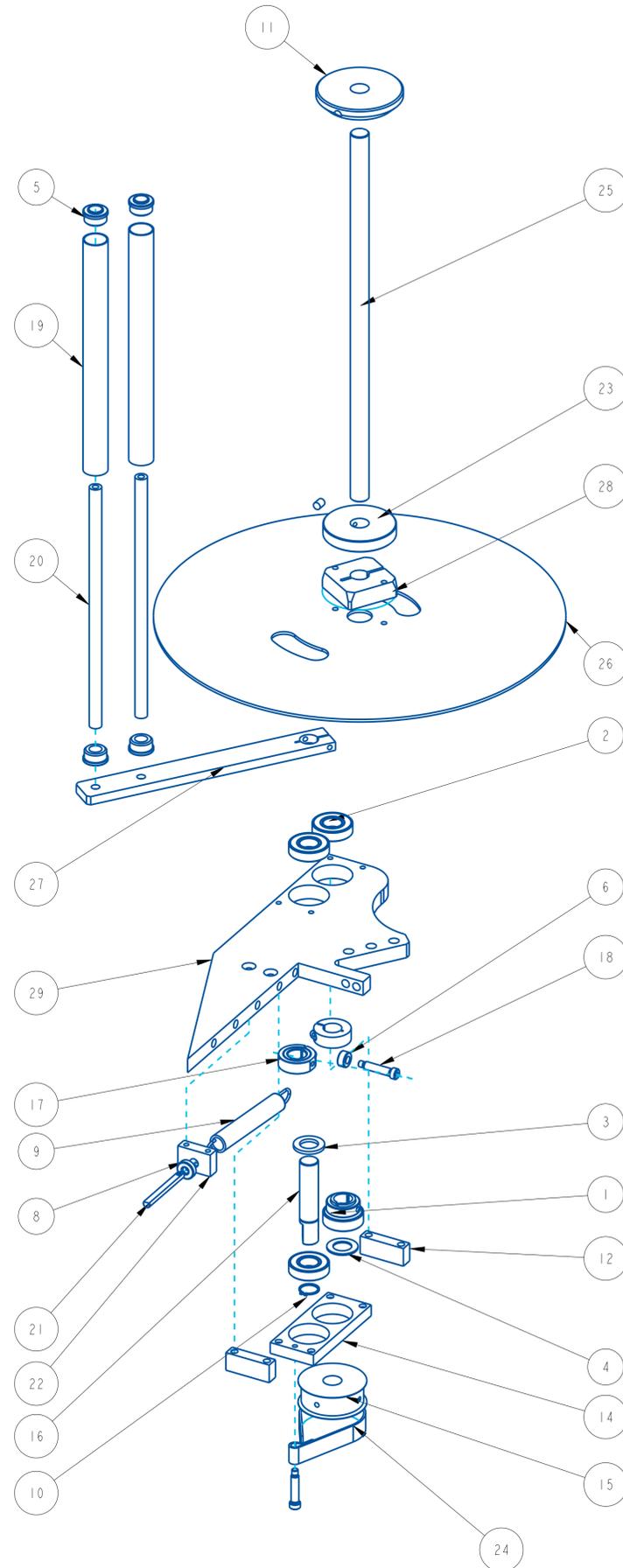
WHAT TO DO

- Too much brake tension. Decrease until no slack in web.

- Debris or brake flaw causing web tear

- Decrease brake tension

- Increase brake tension



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	111044-000	BEARING, 3/4 ID CLAMP TYPE	23100U-010RH
2	3	111074-000	BEARING, BALL	23100U-010RH
3	1	151001-000	BEARING, THRUST WASHER	23100U-010RH
4	1	151006-000	BEARING, THRUST WASHER	23100U-010RH
5	4	181063-000	BEARING, ROLL END	23100U-010RH
6	1	361165-000	COLLAR, SETSCREW, 5/16" BORE	23100U-010RH
7	1	361183-000	COLLAR, 3/4 ID ONE PIECE- S.S.	23100U-010RH
8	1	801601-000	CHECK NUT	23100U-010RH
9	1	811216-000	EXTENSION SPRING, STAINLESS	23100U-010RH
10	1	871025-000	EXTERNAL SNAP RING	23100U-010RH
11	1	A20583-000	QUICK LOCK COLLAR REWORK	23100U-010RH
12	2	A20585-000	SUPPORT SPACER	23100U-010RH
13	1	A20586-000	WHITE NYLON SLUG	23100U-010RH
14	1	A20590-000	BEARING PLATE	23100U-010RH
15	1	A20591-000	UNWIND BRAKE DRUM	23100U-010RH
16	1	A20592-200	UNWIND DANCER SHAFT	23100U-010RH
17	1	A20595-000	DANCER COLLAR	23100U-010RH
18	2	A20596-000	DANCER BOLT	23100U-010RH
19	2	A20931-000	IDLER ROLLER TUBE 12"	23100U-010RH
20	2	A20932-000	DANCER ROLL SHAFT 12"	23100U-010RH
21	1	A23131-000	STUD	23100U-010RH
22	1	A23298-000	BLOCK, SPRING TENSION	23100U-010RH
23	1	A23406-000	SUPPLY REEL CENTER HUB	23100U-010RH
24	1	A25825-000_22620	BRAKE BAND	23100U-010RH
25	1	B20345-000	UNWIND SHAFT 12.50"	23100U-010RH
26	1	B20980-001	UNWIND FLANGE	23100U-010RH
27	1	B21113-000	DANCER ARM, 16" UNWIND	23100U-010RH
28	1	B21931-001	CORE HUB	23100U-010RH
29	1	C21236-120	UNWIND SUPPORT PLATE	23100U-010RH

REV	DATE	DESCRIPTION	BY
A	Oct-13-25	NEW DRAWING	RDL

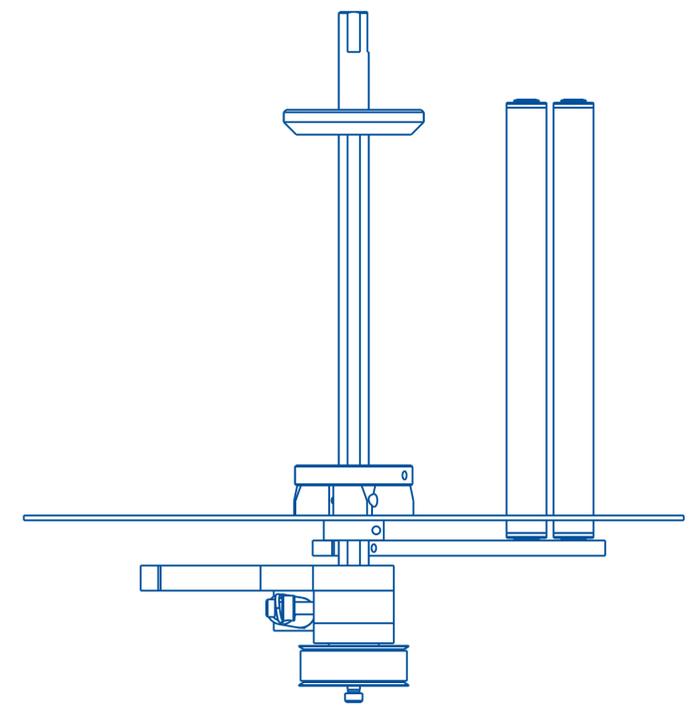
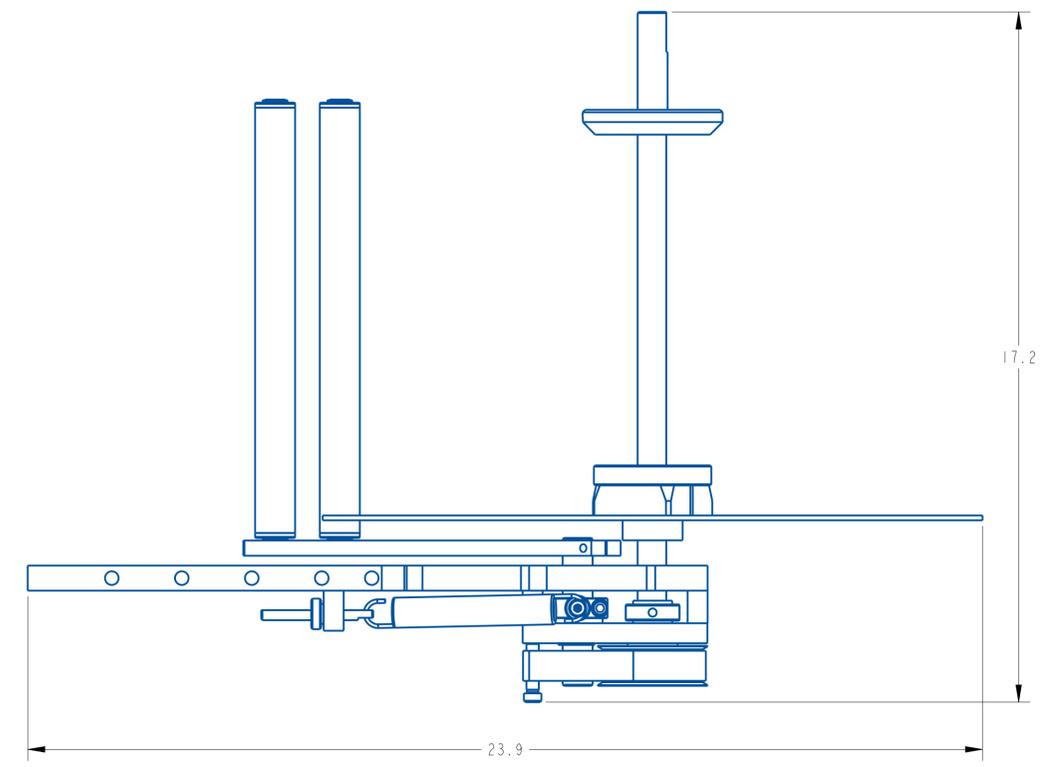
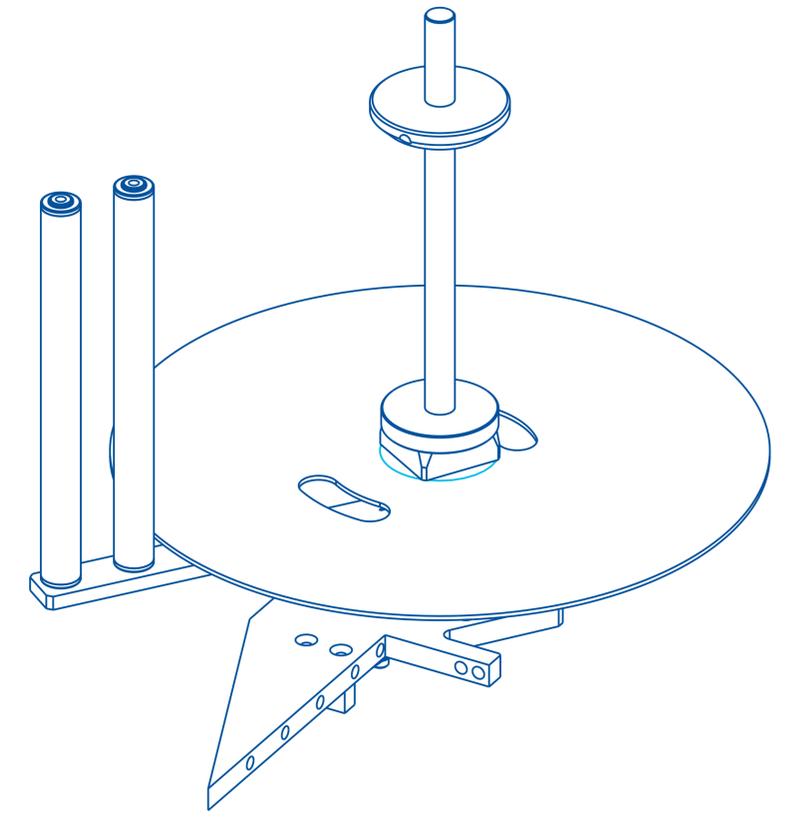
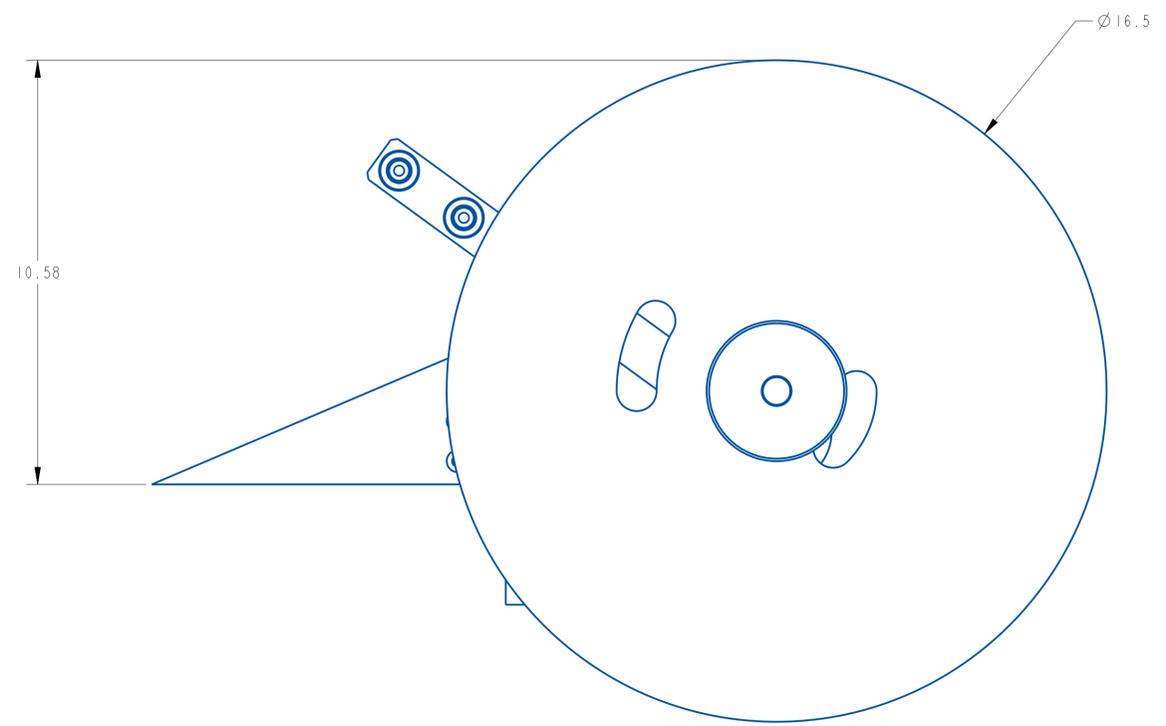
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UNLESS OTHERWISE SPECIFIED
 DIMENSIONAL TOLERANCE
 .X ± .1
 .XX ± .01
 .XXX ± .005
 ANGLES ± .30°

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

SCALE: 5/16
 DATE: Oct-13-25
 DRW BY: RDL
 CHK BY:
 APPR BY:

10" UNWIND ASSEMBLY
 MAT'L 23100U-010RH



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A	Oct-13-25	NEW DRAWING	RDL
REV	DATE	DESCRIPTION	BY

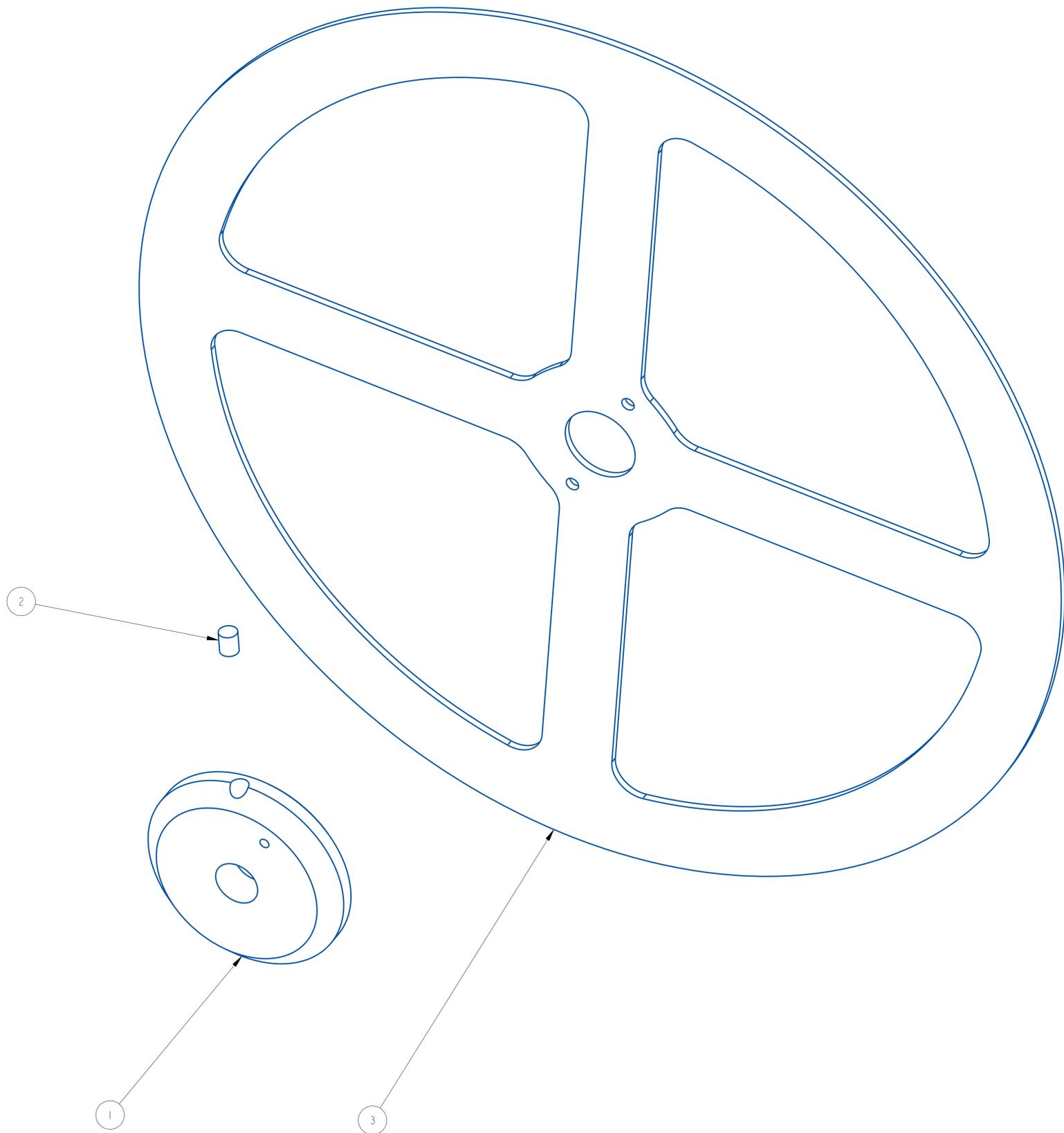
UNLESS OTHERWISE SPECIFIED
 DIMENSIONAL TOLERANCE
 .x ± .1
 .xx ± .01
 .xxx ± .005
 ANGLES ± .30°
 SURFACE FINISH 125
 BREAK ALL EDGES .005/.015
 CORNER RADIUS .010/.030
 ALL ANGLES ARE 90°

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

SCALE: 7/16
 DATE: Oct-13-25
 DRW BY: RDL
 CHK BY:
 APPR BY:

10" UNWIND ASSEMBLY
 MAT'L
 23100U-010RH

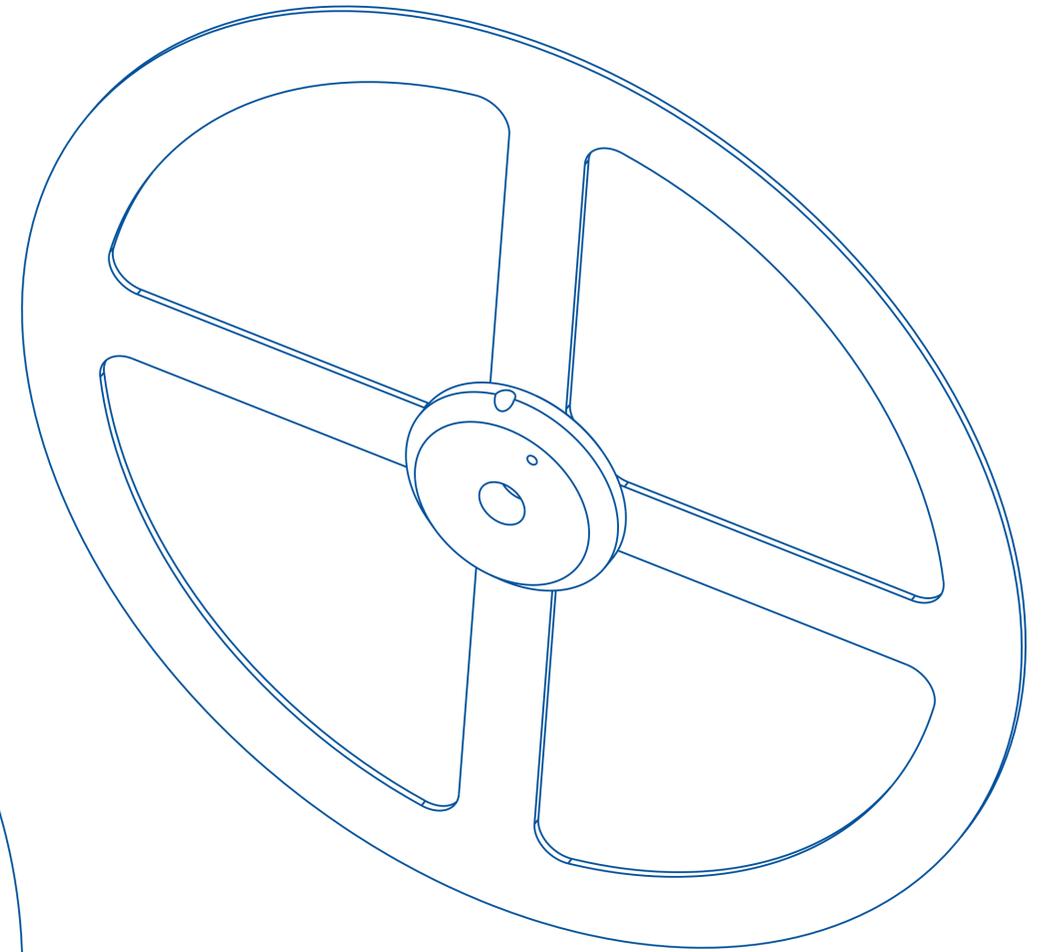
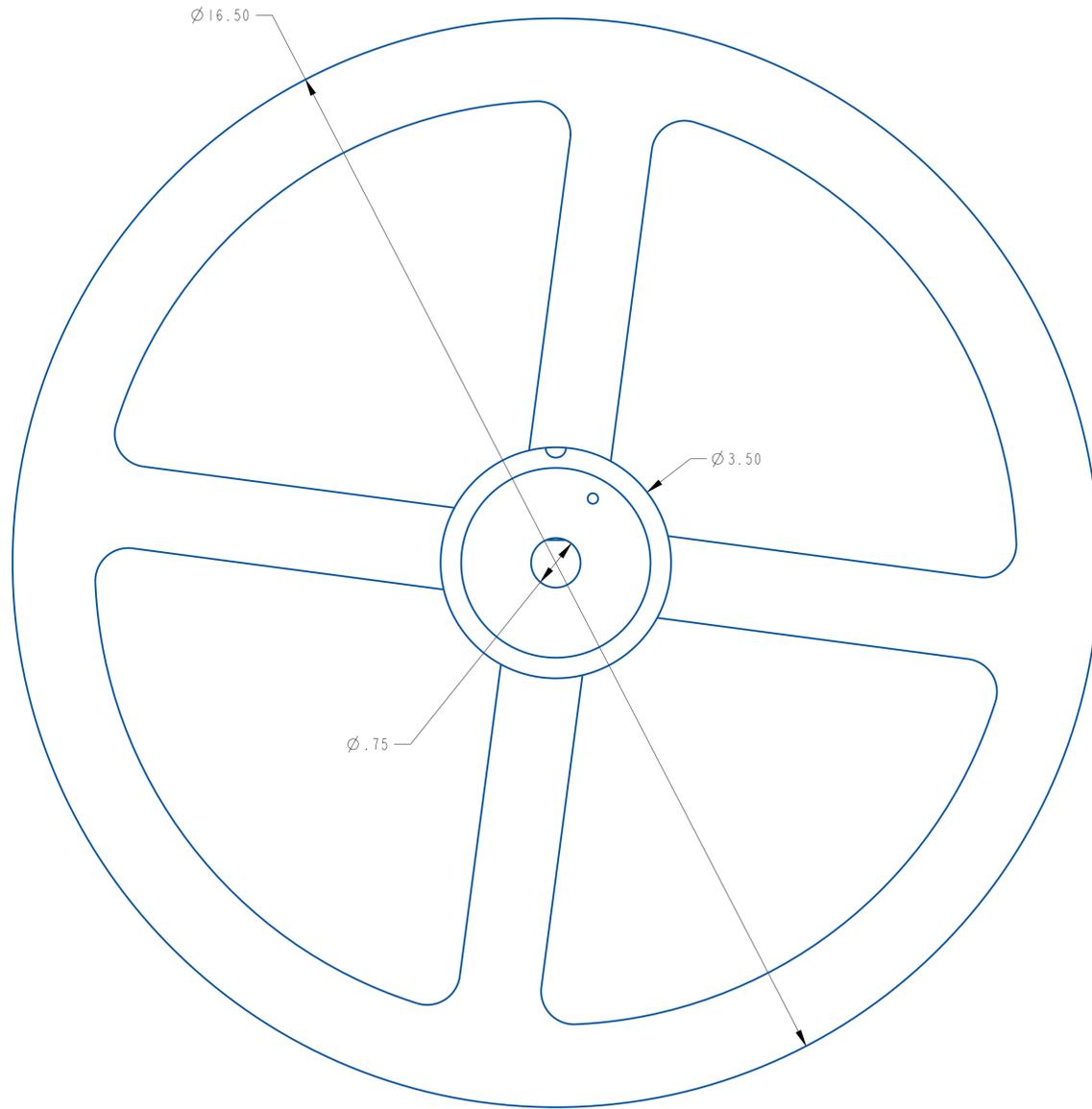
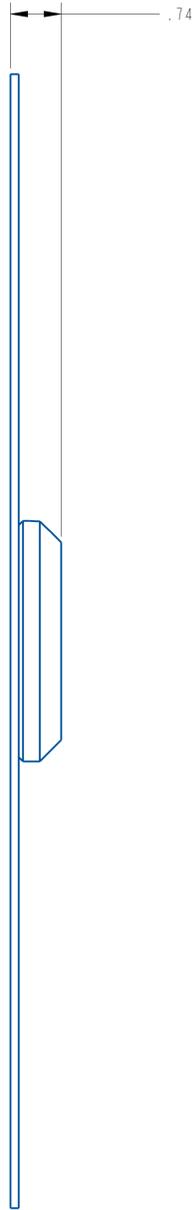
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	A20583-005	QUICK LOCK COLLAR	22604-000
2	1	A20586-000	WHITE NYLON SLUG	22604-000
3	1	B20980-200	UNWIND FLANGE	22604-000



REV	DATE	DESCRIPTION	BY
B	Feb-28-24	WAS A21775-000	TAZ
A	02/24/24	NEW DRAWING	SEM

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<small>UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE</small> X ± .1 XX ± .01 XXX ± .005 ANGLES ± .30° SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°	 QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 1/1
		DATE: 02/24/24
		DRW BY: SEM
		CHK BY: 02/25/2024-SEM
16" OUTSIDE FLANGE KIT 3/4" BORE		MAT'L
		22604-000



B	Feb-28-24	WAS A21775-000	TAZ
A	02/24/24	NEW DRAWING	SEM
REV	DATE	DESCRIPTION	BYE

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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
ALL ANGLES ARE 90°



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

SCALE: 3/4
DATE: 02/24/24
DRW BY: SEM
CHK BY: 02/25/2024-SEM
APPR BY:

16" OUTSIDE FLANGE KIT 3/4" BORE

MAT'L 22604-000

ASSEMBLY TITLE: Q120 PEEL PLATE ASSEMBLY

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

- Too much label flag at peel plate
- Too little label flag at peel plate
- Web moving up and down peel plate

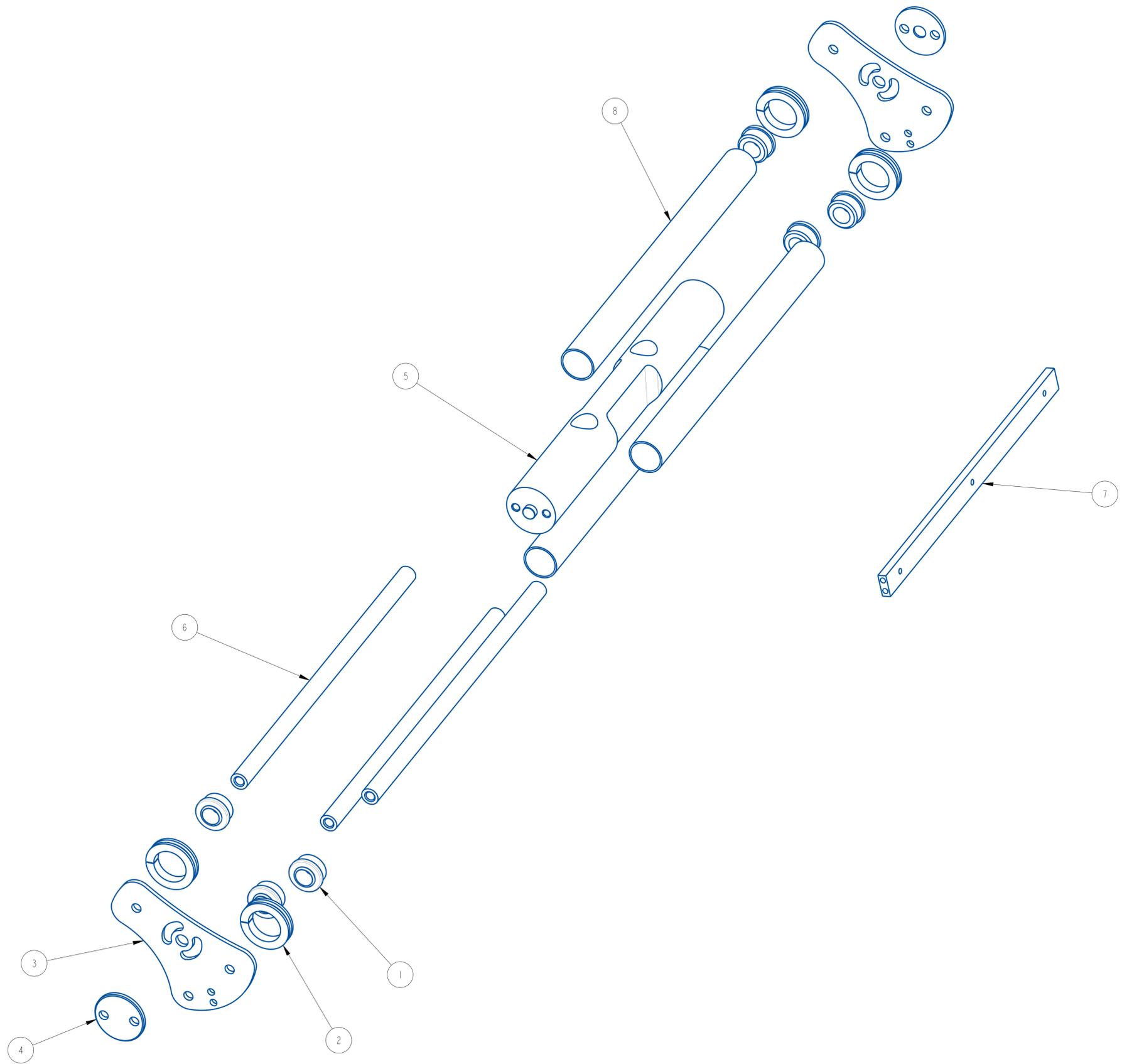
WHAT TO DO

- Move slot sensor away from peel edge
- Move slot sensor towards peel plate edge
- Make sure guide collars are properly positioned on idler roll.



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	6	181063-000	BEARING, ROLL END	21721-000
2	4	361198-000	COLLAR, GUIDE, 1 IN. ID	21721-000
3	2	A22065-000	PEEL PLATE MOUNTING PLATE	21721-000
4	2	A22066-000	WASHER	21721-000
5	1	A22094-004	PEEL PLATE ROD MTG BAR	21721-000
6	3	A22102-002	P.P. IDLER SHAFT	21721-000
7	1	A24534-000	PEEL PLATE MOUNTING BAR, 10"	21721-000
8	3	B20740-002	IDLER ROLLER-(PEEL PLATE)	21721-000

NOT SHOWN:
 B21629-000 PEEL PLATE
 791852-000 PEEL PLATE TAPE



REV	DATE	DESCRIPTION	BY
B	Feb-16-24	UPDATED DRAWING AND BOM	CRT
A		NEW DRAWING	

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± 30° SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.30	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 5/8 DATE: DRW BY: CRT CHK BY: APPR BY:
	10" PEEL PLATE ASSEMBLY		
	MAT'L	BOM 21721-000	21721-000

ASSEMBLY TITLE:

Q120 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 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:

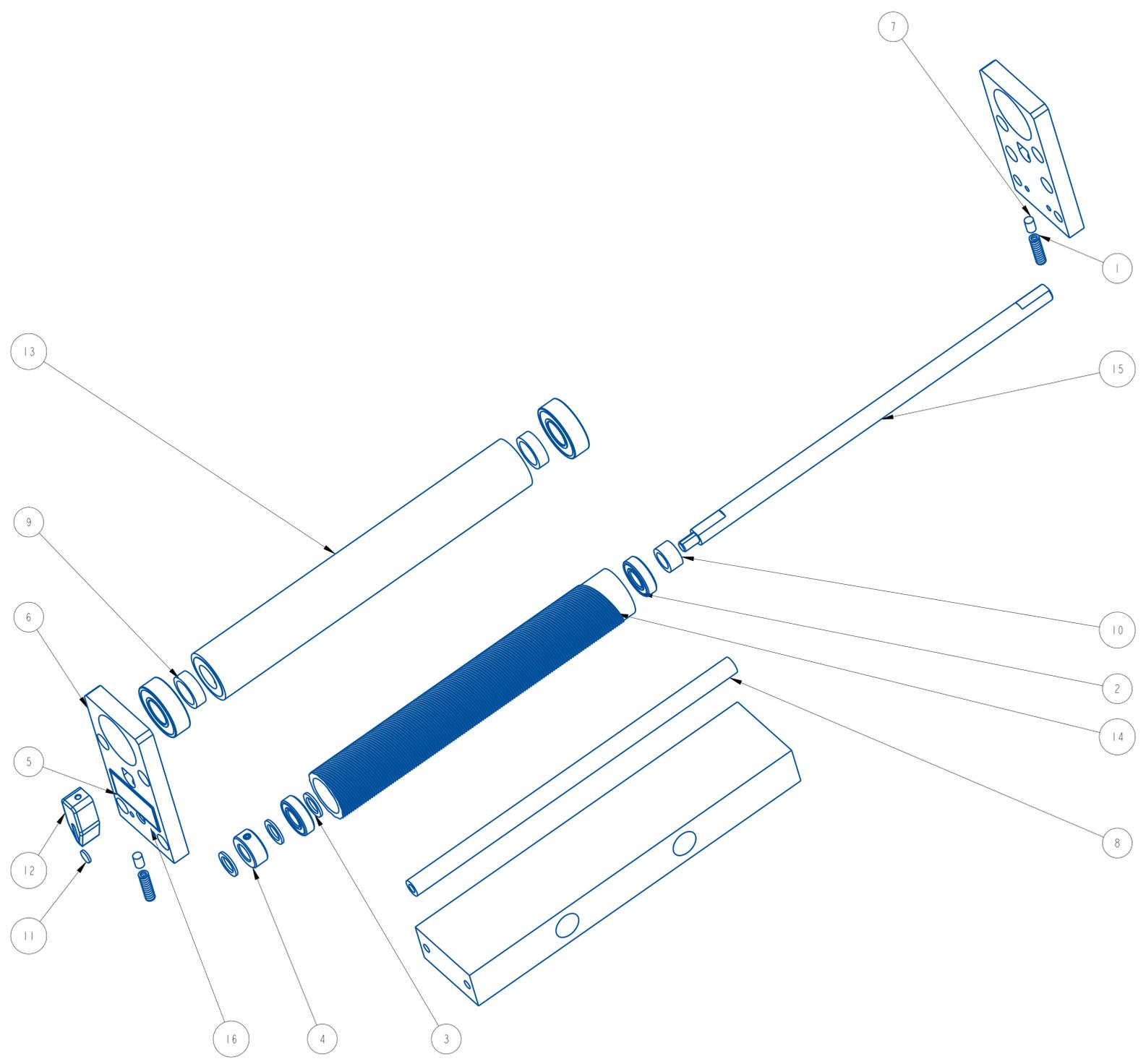
PROBLEM

- Meter pulley rubbing against side plate
- Web slips
- Drive roll not rotating when stepping motor rotates
- Pinch roll not providing enough pressure against drive roll
- Drive roll unevenly worn causing tracking problem

WHAT TO DO

- Center pulley on motor shaft and tighten two (2) set screws in pulley.
- Drive roller not closed. Turn drive roll arm to closed position.
- Replace timing belt from motor to drive roll
- Replace pinch roll spring
- Increase tension on drive roll by adjusting spring loaded locking pins.
- Replace drive roll





ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	00301-17	SPRING, .275 x .052 x .94	23100DR-010RH
2	2	111072-000	BEARING, BALL	23100DR-010RH
3	3	151004-000	BEARING, THRUST WASHER	23100DR-010RH
4	1	362161-000	COLLAR, SETSCREW, 1/2 IN. ID	23100DR-010RH
5	1	791789-000	NAMEPLATE	23100DR-010RH
6	1	21701DY-000_LH	3 PIECE ROLL ASSEMBLY	23100DR-010RH
7	2	A20567-000	WHITE NYLON SLUG	23100DR-010RH
8	1	A20929-000	PINCH POINT GUARD ROD 12" WEB	23100DR-010RH
9	2	A23125-000	SPACER	23100DR-010RH
10	1	A23751-000	SPACER	23100DR-010RH
11	1	A25249-000	INDEX DOT	23100DR-010RH
12	1	A25250-000	IND KNOB	23100DR-010RH
13	1	B20342-000	PULL ROLL, 10"	23100DR-010RH
14	1	B20344-000	KNURLED ROLL	23100DR-010RH
15	1	B20346-000	KNURLED ROLL SHAFT, 12"	23100DR-010RH
16	1	SYE121		23100DR-010RH

REV	DATE	DESCRIPTION	BY
A	Oct-13-25	NEW DRAWING	RDL

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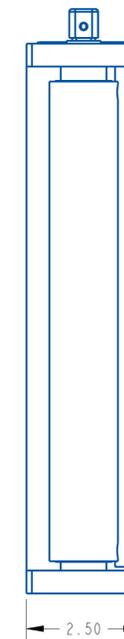
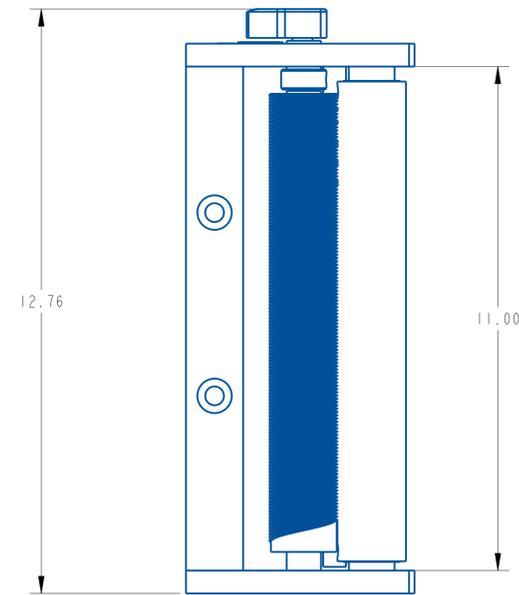
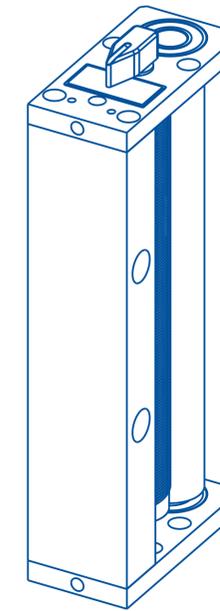
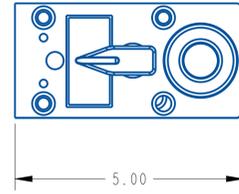
QUADREL LABELING SYSTEMS
 7670 JENTHER DRIVE
 MENTOR, OHIO 44060
 (440) 602-4700

SCALE: 9/16
 DATE: Oct-13-25
 DRW BY: RDL
 CHK BY:
 APPR BY:

10" DRIVE ROLL ASSEMBLY

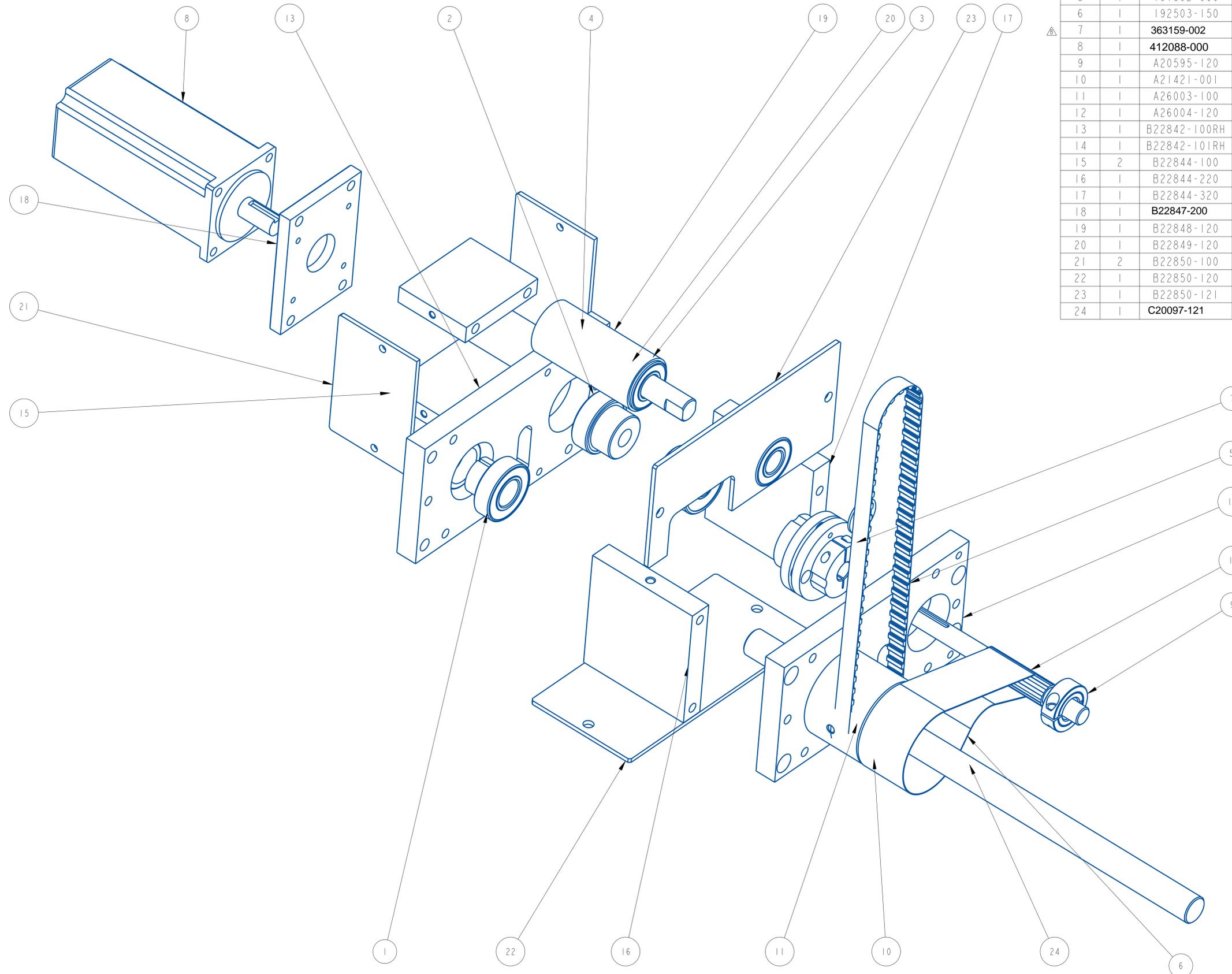
MAT'L: 23100DR-010RH

UNLESS OTHERWISE SPECIFIED
 DIMENSIONAL TOLERANCE
 .X ± .01
 .XX ± .005
 .XXX ± .005
 ANGLES ± .30°
 SURFACE FINISH 125
 BREAK ALL EDGES .005/0.15
 CORNER RADIUS .010/0.30
 ALL ANGLES ARE 90°



REV	DATE	DESCRIPTION	BY
A	Oct-13-25	NEW DRAWING	RDL

THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY		SCALE: 1/2
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 ALL ANGLES ARE 90°		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700
DATE: Oct-13-25		DRW BY: RDL
CHK BY:		APPR BY:
10" DRIVE ROLL ASSEMBLY		MAT'L
SHEET 2 OF 2		23100DR-010RH



ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	111044-000	BEARING, 3/4 ID CLAMP TYPE	23125D-000RH
2	2	111072-100	BEARING BALL, LOCKING COLLAR .5" IDx1.574"OD	23125D-000RH
3	2	111075-000	BEARING, BALL	23125D-000RH
4	2	151008-000	BEARING, THRUST WASHER	23125D-000RH
5	1	191592-000	BELT, TIMING, 1/2P	23125D-000RH
6	1	192503-150	TIMING BELT	23125D-000RH
7	1	363159-002	SERVO COUPLING-1/2"BORE & KEY 14 MM BORE	23125D-000RH
8	1	412088-000	SERVO MOTOR, 60MM, IFT LEADS	23125D-000RH
9	1	A20595-120	COLLAR REWORK	23125D-000RH
10	1	A21421-001	DRIVE PULLEY (MODIFIED)	23125D-000RH
11	1	A26003-100	DRIVE PULLEY	23125D-000RH
12	1	A26004-120	SERVO MOTOR PULLEY	23125D-000RH
13	1	B22842-100RH	BEARING PLATE	23125D-000RH
14	1	B22842-101RH	BEARING PLATE	23125D-000RH
15	2	B22844-100	SPACER	23125D-000RH
16	1	B22844-220	SPACER	23125D-000RH
17	1	B22844-320	SPACER	23125D-000RH
18	1	B22847-200	MOTOR MOUNTING PLATE	23125D-000RH
19	1	B22848-120	TENSION ROLLER	23125D-000RH
20	1	B22849-120	TENSIONER SHAFT	23125D-000RH
21	2	B22850-100	COVER	23125D-000RH
22	1	B22850-120	COVER	23125D-000RH
23	1	B22850-121	COVER	23125D-000RH
24	1	C20097-121	PULL ROLL DRIVE SHAFT	23125D-000RH

B	Jun-20-17	WAS 363157-000	MW
A	29-OCT-15	NEW DRAWING	CRT
REV	DATE	DESCRIPTION	BY

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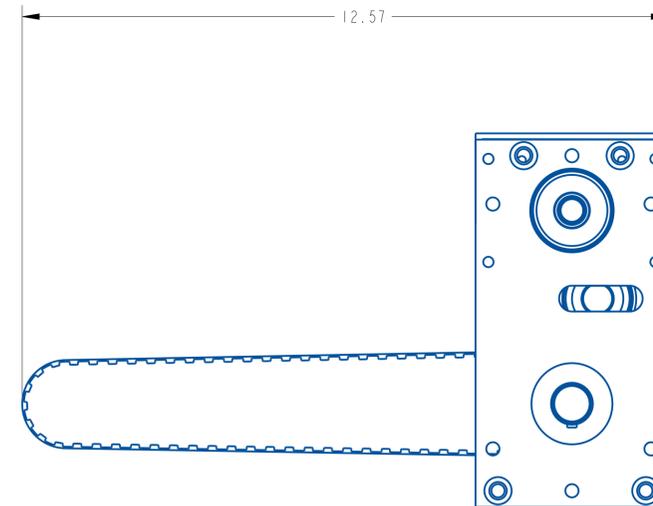
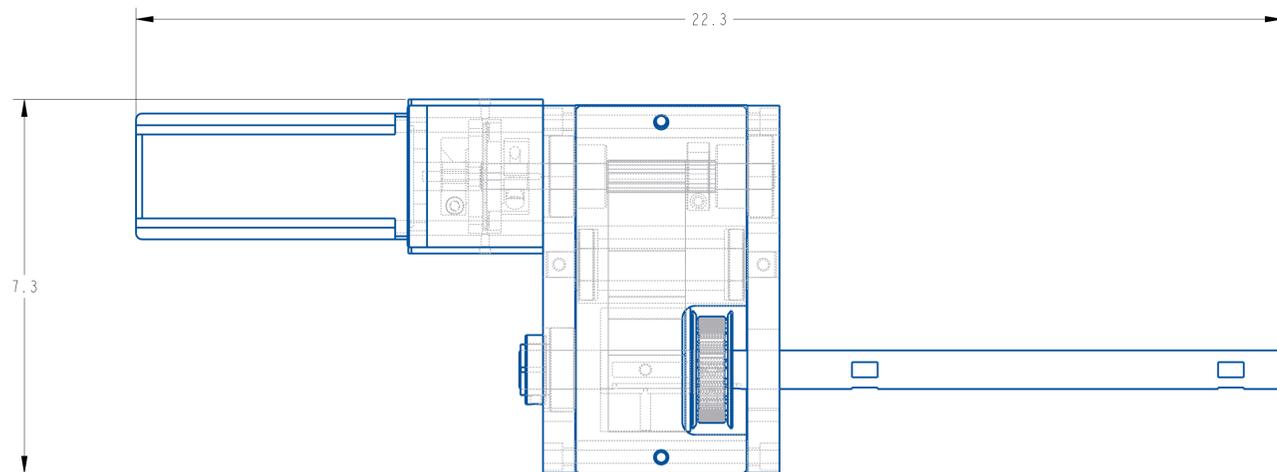
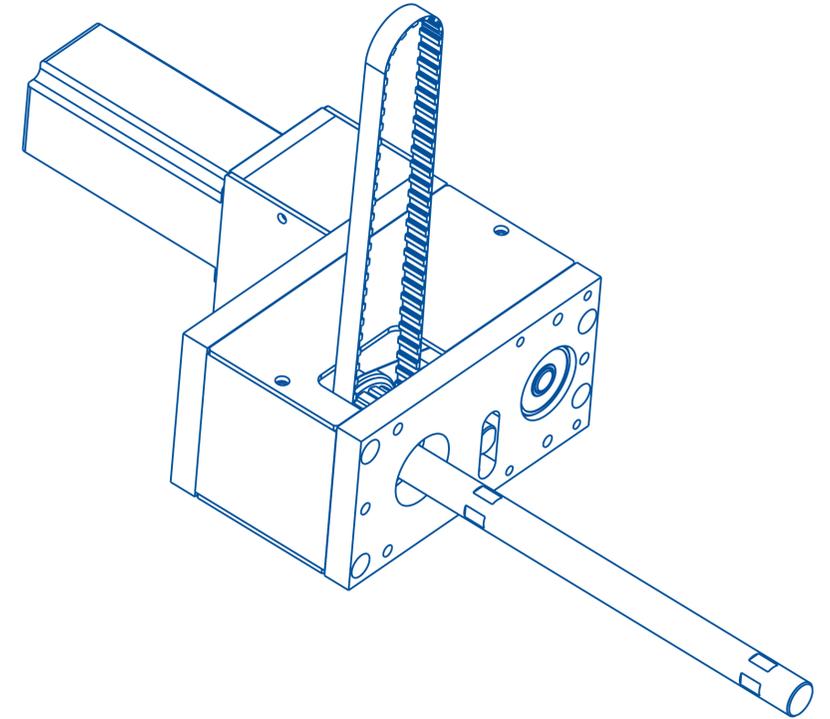
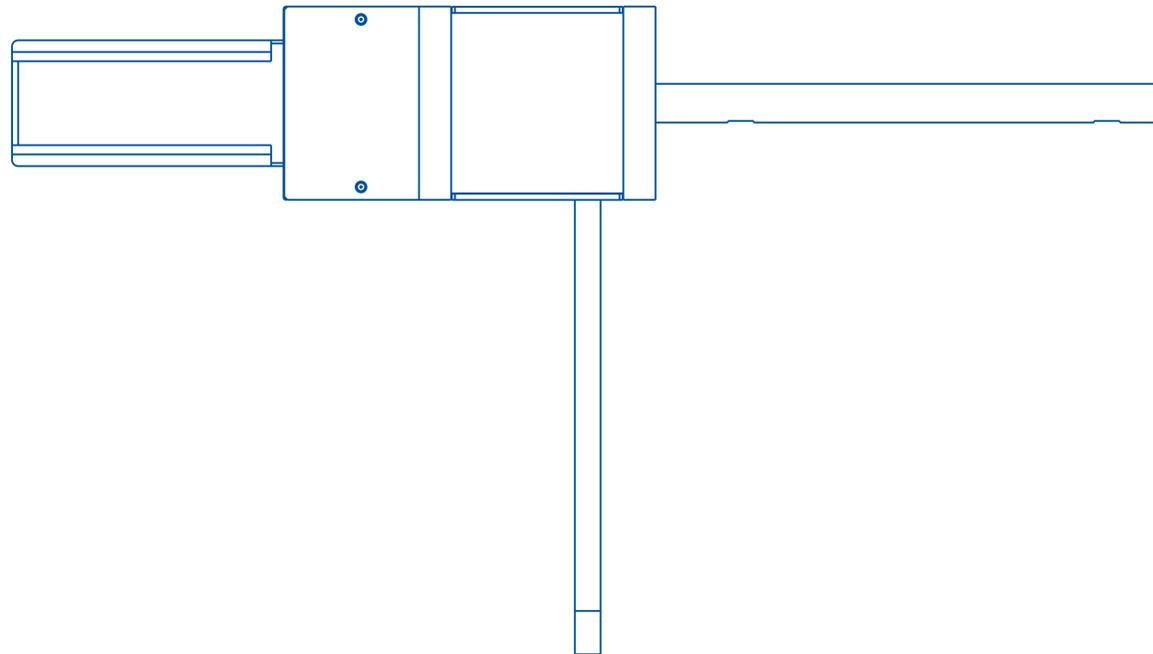
QUADREL LABELING SYSTEMS
 7670 JENTHER DRIVE
 MENTOR, OHIO 44060
 (440) 602-4700

SCALE: 3/4
 DATE: 29-OCT-15
 DRW BY: CRT
 CHK BY: 09/05/2025-SEM
 APPR BY:

Q120 10" SERVO DRIVE & REWIND, RH

SURFACE FINISH 125
 BREAK ALL EDGES .005/0.15
 CORNER RADIUS .010/0.30

MAT'L 23125D-010RH



REV	DATE	DESCRIPTION	BY
A	06-OCT-15	NEW DRAWING	CRT

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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
ALL ANGLES ARE 90°

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

SCALE: 9/16
DATE: 06-OCT-15
DRW BY: CRT
CHK BY: 09/05/2025-SEM
APPR BY:

Q120 10" SERVO DRIVE & REWIND, RH

MAT'L

23125D-010RH

Servo Belt Removal & Installation

Remove the clear cover on the side of the coupling of the servo motor. Then loosen the 4 5/16-18 socket heads holding the motor mounting plate to the spacer blocks. (Shown in image on the right)



Loosen the 2 bolts on the coupling. Then remove the motor and coupling assembly. (Shown in image on the left)

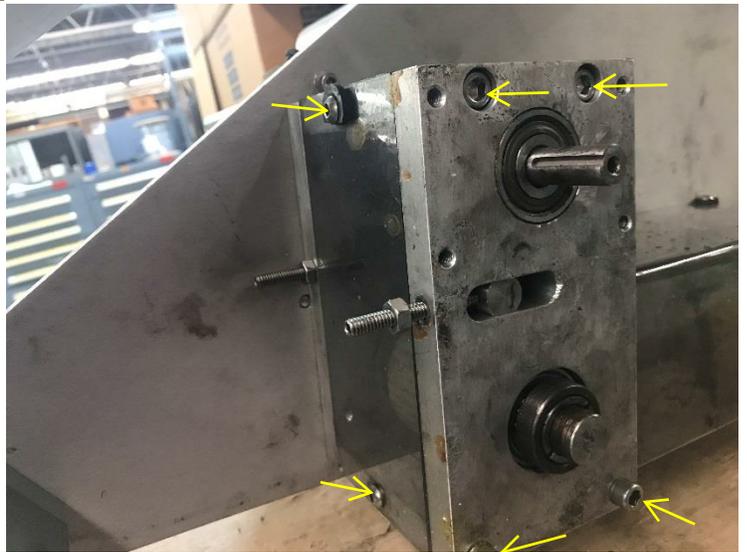
Loosen the tension on the servo belt by removing loosening the 2 jam nuts on the set screws shown and removing the set screws. (Shown in image on the right)





Loosen set screw in the collar on the end of the drive shaft. Then remove the collar. (Shown in image on the left)

Remove the 4 5/16-18 socket head bolts that hold the bottom plate to the spacer blocks. Then remove the two button head screws holding the lexan cover on and remove cover. (Shown in image on the right)



Remove the set screw on the eccentric collar then spin the collar to loosen from shaft. (Shown in image on the left)

Once the bolts are removed, remove the bottom plate. This may take some prying and finessing, be careful to not bend the plate, shafts, or ruin the bearings during the removal of the plate. Once removed clean the plate and bearings. (Shown in image on the right & bottom)



If Equipped

Remove the cover over the rewind kinetrol and other side of the servo belt. (Shown in image on the left)

Remove the tensioner, belt and smaller diameter shaft with the pulley teeth on it. (Shown in image on the right)



Once removed clean all surfaces shafts bearing and check the rewind belt for cracks or uneven wear. You can use a scotch brite pad the clean up the shafts and ect. (Shown in image on the left)

Check the lock collar on the shaft with the pulley grooves ensure the collar is tight and the stack up is correct. The washer goes on top of the collar and shall be flush with the end of the pulley grooves as shown in the image below. Slide the collar over the end of the shaft as shown. This stack up is extremely important.



Ensure your belt is riding properly on the kinetrol pulley. The belt should be running in the middle of the pulley of as close to centered as you can get. Spin the kinetrol and ensure the belt is tracking well. (Shown below)



To adjust this rotate the pulley until you see the set screw. Loosen the set screws and slide the pulley accordingly. Slide the larger pulley down or up as well these pulleys should be together. (Shown in image on the right)

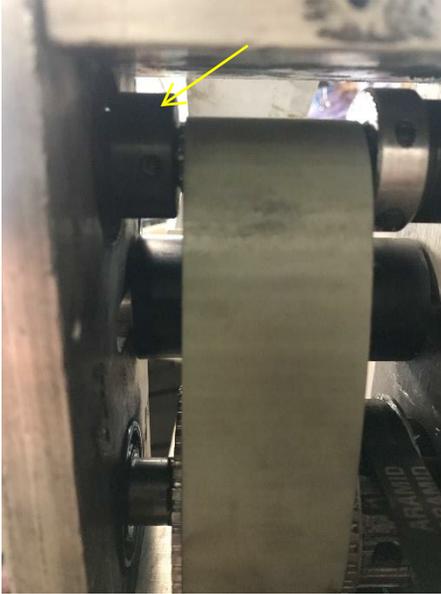


After you have cleaned everything up, checked the rewind belt and properly checked alignment of the pulleys. It is now time to re-assemble. Start by putting the belt in then the tensioner. Ensure the idler has the oil lite washers installed on the top and bottom of the idler. (Shown in the image to the left)

NOTE Blue Loctite is recommended on all fasteners.

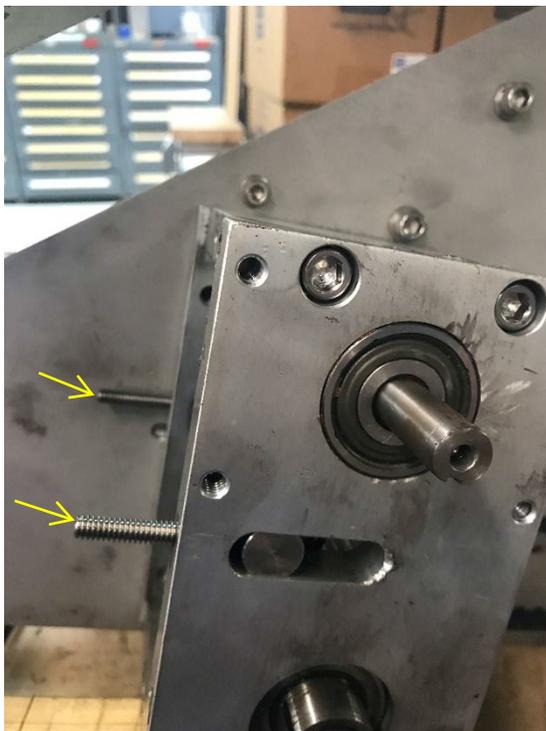
Place the eccentric collar over the smaller diameter shaft and slide the bottom servo plate on. Ensure the tensioner is positioned properly in the slot on the bottom plate with the oil lite washer in place. Fasten the plate to the spacer blocks. Once fastened rotate the eccentric collar to lock it into place make sure it is tight this is very important. Lock into place with set screw. (Shown in image below)

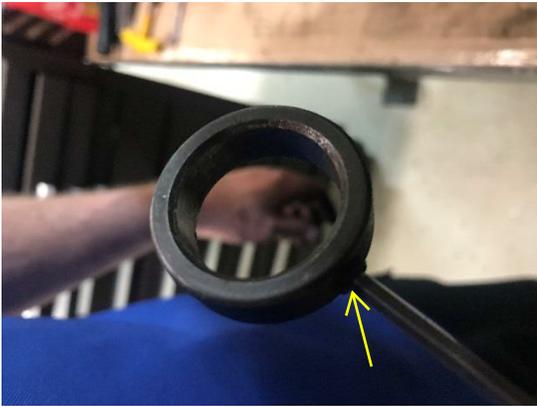
NOTE Blue Loctite is recommended on all fasteners.



Thread in the set screws evenly to set tension on the belt the belt should not be too tight if you reach around the back you can push against the belt as you tighten it. This is more of a touch setting you do not want the belt to be solid to the touch more like 1/8th - 1/4th inch of travel when you push on the belt. If it is too loose it can skip teeth. When the tension is set lock into place using the jam nuts. (Shown in image below)

NOTE Do NOT loctite set screws for the tensioner.





Fasten the collar to the end of the larger diameter shaft as shown.

NOTE Blue Loctite is recommended on all fasteners.



Place the lexan covers on the 2 sides of the servo belt assembly and the cover over the rewind kinetrol assembly. Make sure the fasteners has blue Loctite and rubber grommets. (Shown in image on the left)

Place the servo motor coupling over the end of the smaller diameter shaft. Fasten the motor mounting assembly to the bottom plate using blue Loctite. Align the coupling centered between the shafts so the coupling has enough to fasten to on each of the shafts. Fasten the coupling to the shafts. Mount the lexan covers make sure the fasteners has blue Loctite and rubber grommets. (Shown in image on the right)

NOTE Blue Loctite is recommended on all fasteners.



ASSEMBLY TITLE:

Q120 REWIND ASSEMBLY

GENERAL FUNCTION:

- The rewind drum rolls up the liner
- The rewind pin, when pulled out, 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 between the drum and pin.
- 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

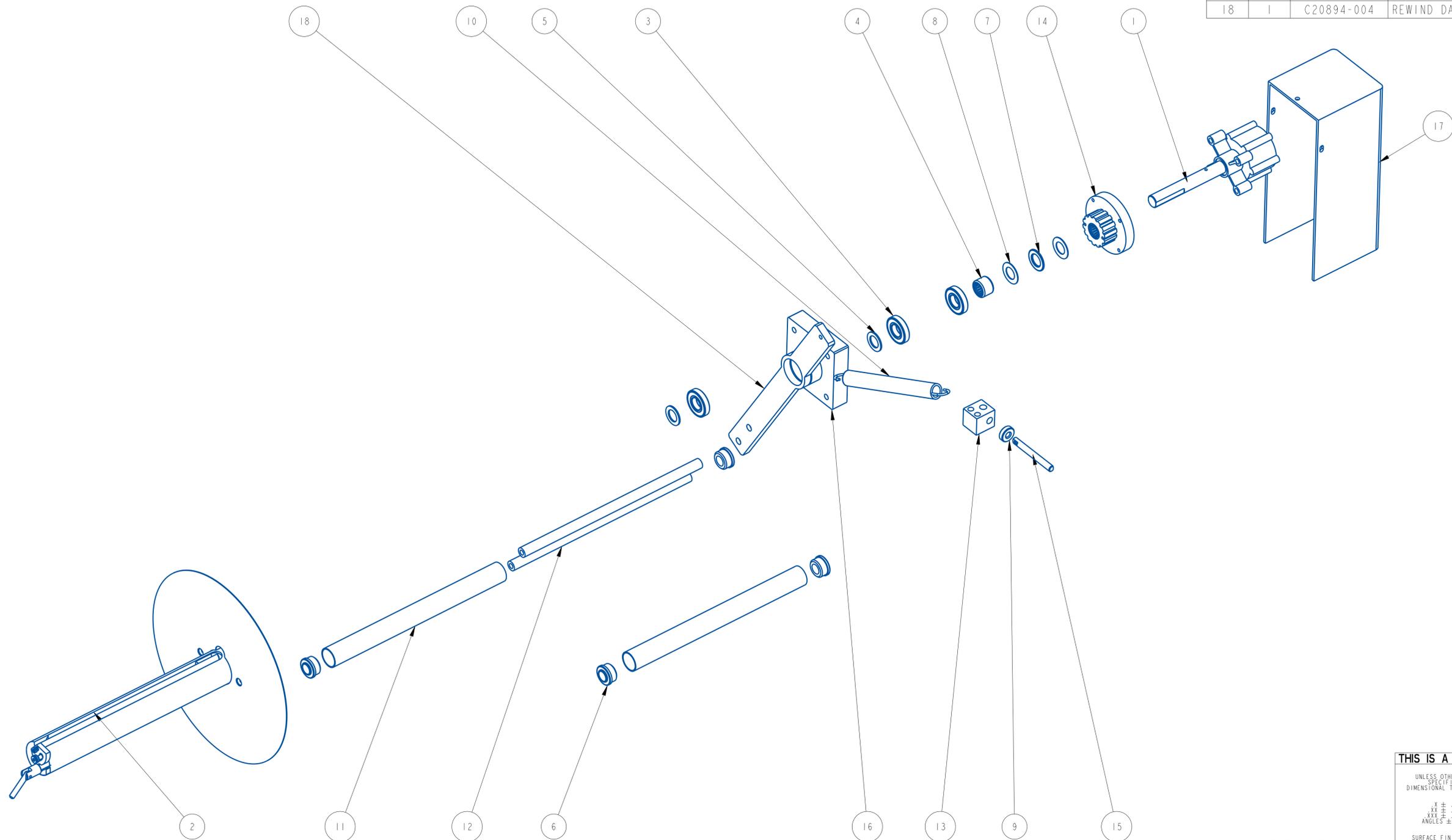
- Rewind drum not rotating when stepping motor rotates
- Rewind drum not keeping up with drive roll
- Web winding too tight on hub
- Grinding in rewind hub

WHAT TO DO

- Replace timing belt from motor to rewind
- Tighten adjusting knob
- Loosen adjusting knob
- Replace friction disc by removing knob and sliding off rewind drum



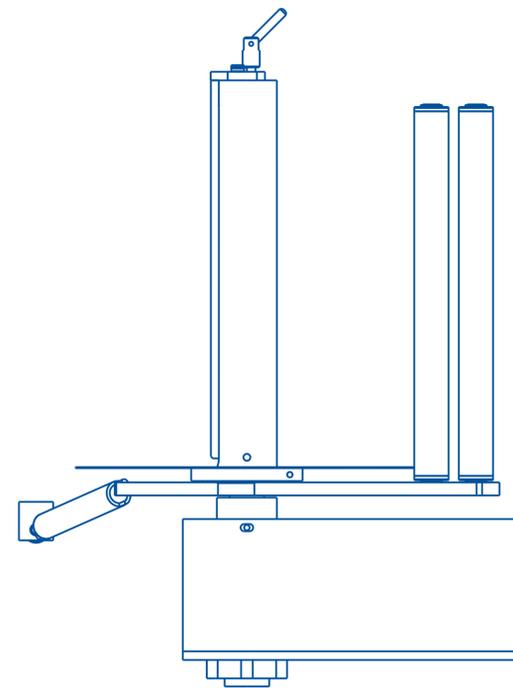
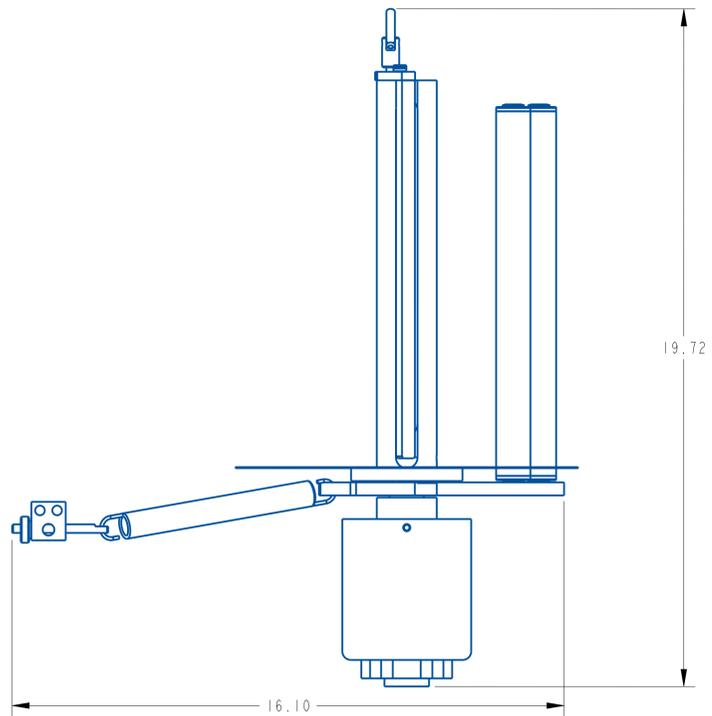
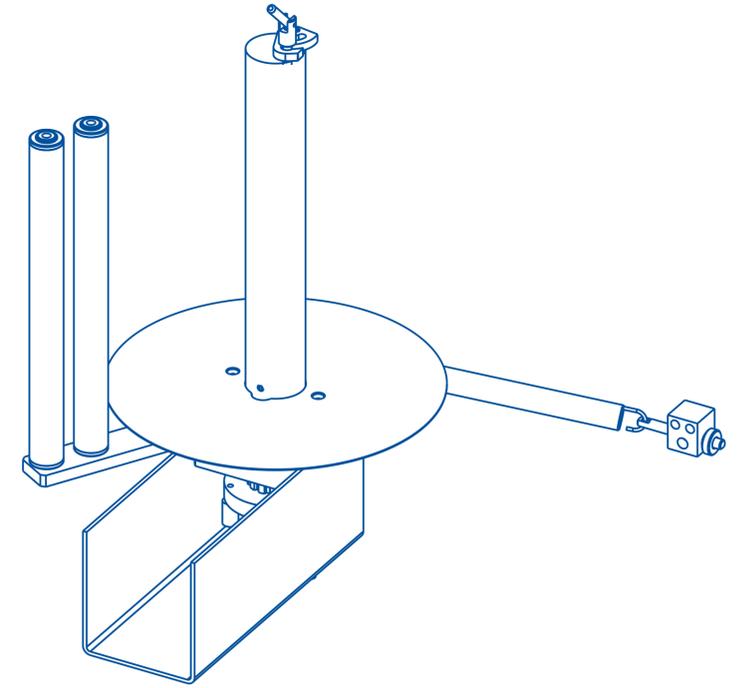
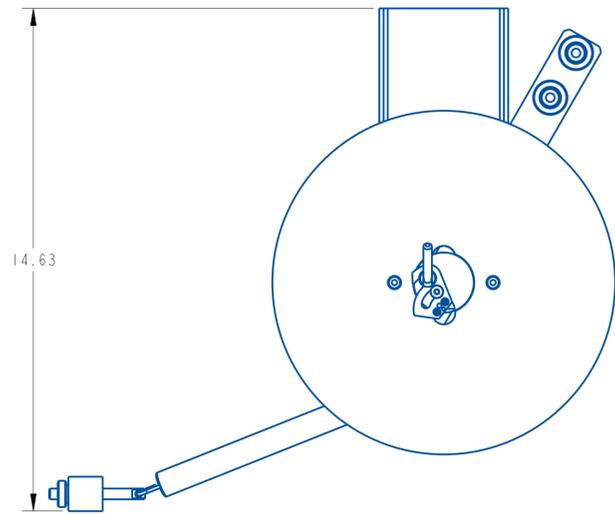
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	20499-001	DASHPOT & SHAFT ASSEMBLY	23100R-010RH
2	1	22189-000	COLLAPSIBLE REWIND	23100R-010RH
3	3	111075-000	BEARING, BALL	23100R-010RH
4	1	121067-000	BEARING, NEEDLE	23100R-010RH
5	2	151008-000	BEARING, THRUST WASHER	23100R-010RH
6	4	181063-000	BEARING, ROLL END	23100R-010RH
7	1	181081-000	BEARING, NEEDLE ROLLER	23100R-010RH
8	2	181082-000	BEARING, THRUST WASHER	23100R-010RH
9	1	801601-000	CHECK NUT	23100R-010RH
10	1	811216-000	EXTENSION SPRING, STAINLESS	23100R-010RH
11	2	A20931-000	IDLER ROLLER TUBE 12"	23100R-010RH
12	2	A20932-000	DANCER ROLL SHAFT 12"	23100R-010RH
13	1	A21479-000	SPRING ADJUSTMENT BLOCK	23100R-010RH
14	1	A22120-000	REWIND PULLEY ASSEMBLY	23100R-010RH
15	1	A23131-000	STUD	23100R-010RH
16	1	B20004-007	REWIND BEARING PLATE	23100R-010RH
17	1	B20005-120	GUARD	23100R-010RH
18	1	C20894-004	REWIND DANCER ARM	23100R-010RH



REV	DATE	DESCRIPTION	BY
A	12/03/25	NEW DRAWING	SEM

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<small>UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE</small> X ± .1 XX ± .01 XXX ± .005 ANGLES ± 30°	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 3/8 DATE: Oct-02-25 DRW BY: RDL CHK BY: APPR BY:	
	10" REWIND ASSEMBLY RHH		
	MAT'L	23100R-010RH	23100R-010RH

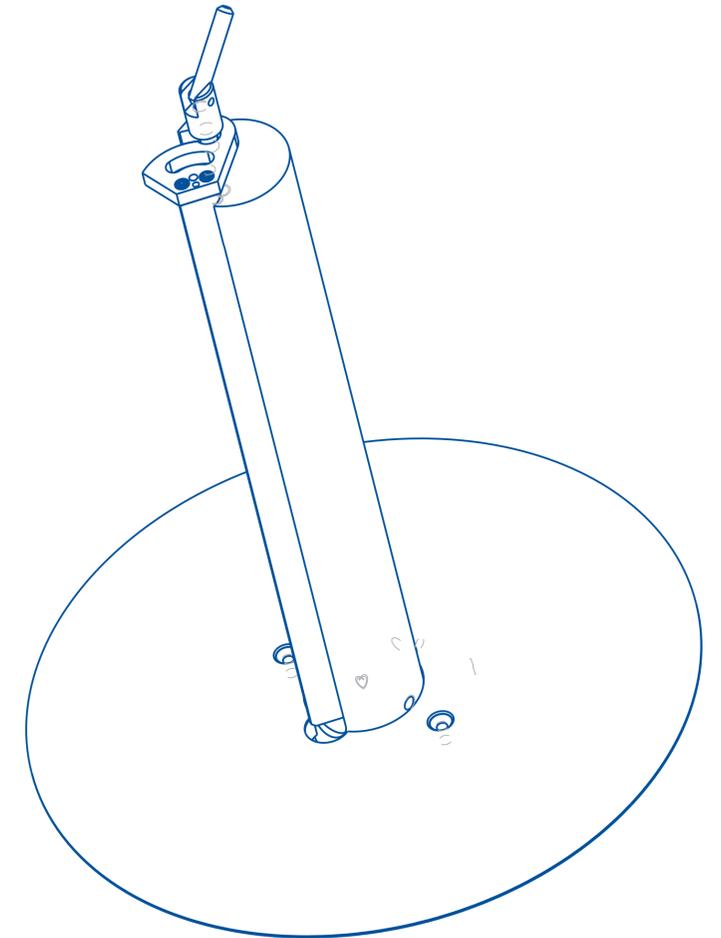
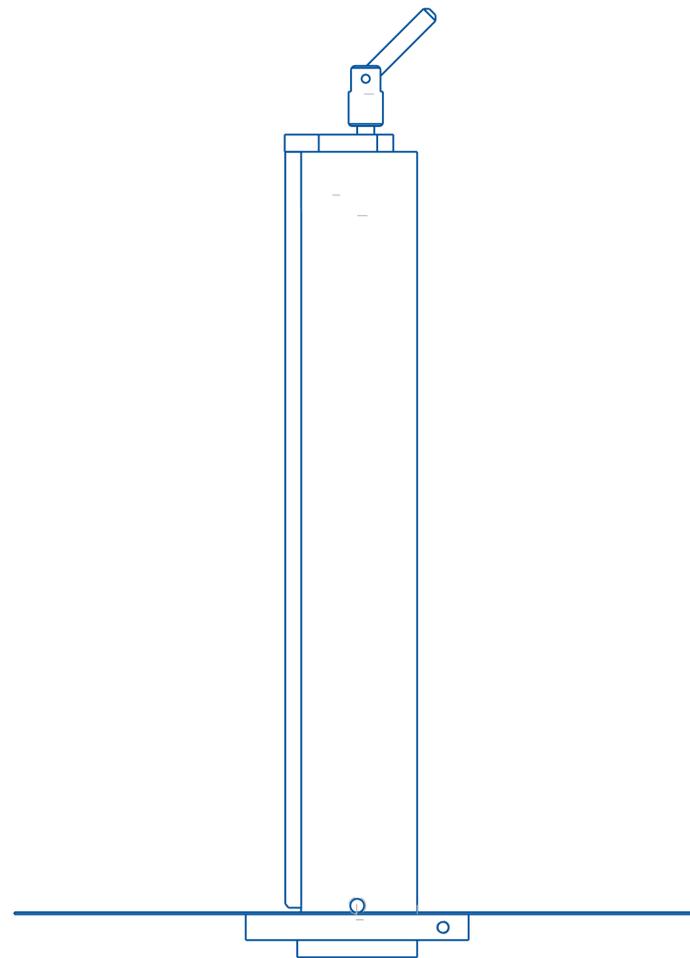
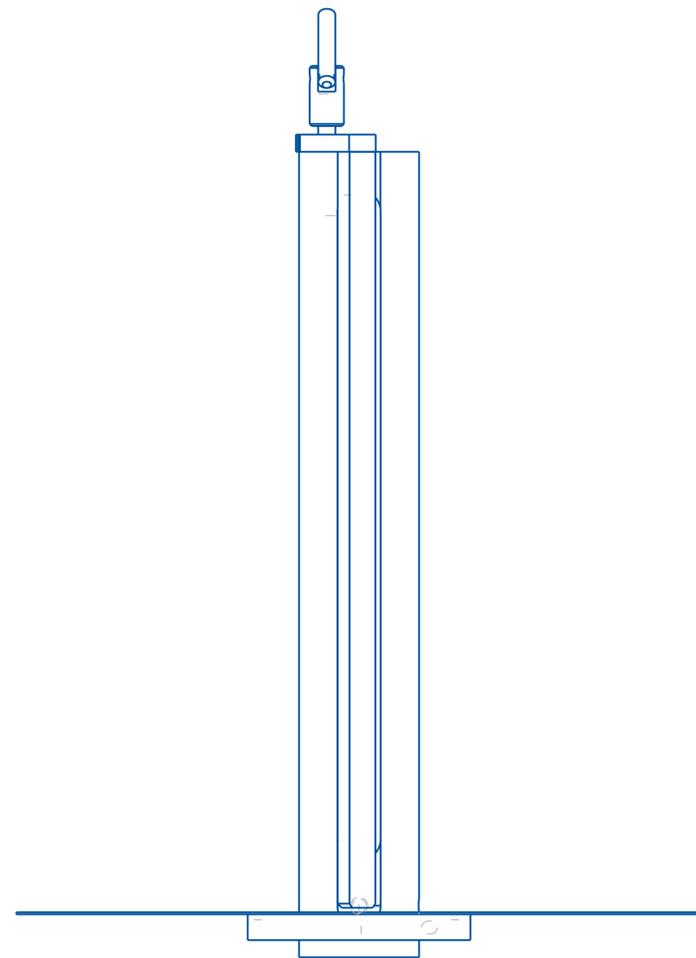


REV	DATE	DESCRIPTION	BY
A	0ct-02-25	NEW DRAWING	RDL

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE	.x ± .1 .xx ± .01 .xxx ± .005 ANGLES ± .30°	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 3/8 DATE: 0ct-02-25 DRW BY: RDL CHK BY: APPR BY:
SURFACE FINISH 125 BREAK ALL EDGES .005/ .015 CORNER RADIUS .010/ .030 ALL ANGLES ARE 90°		10" REWIND ASSEMBLY RHH	
MAT'L	23100R-010RH		23100R-010RH

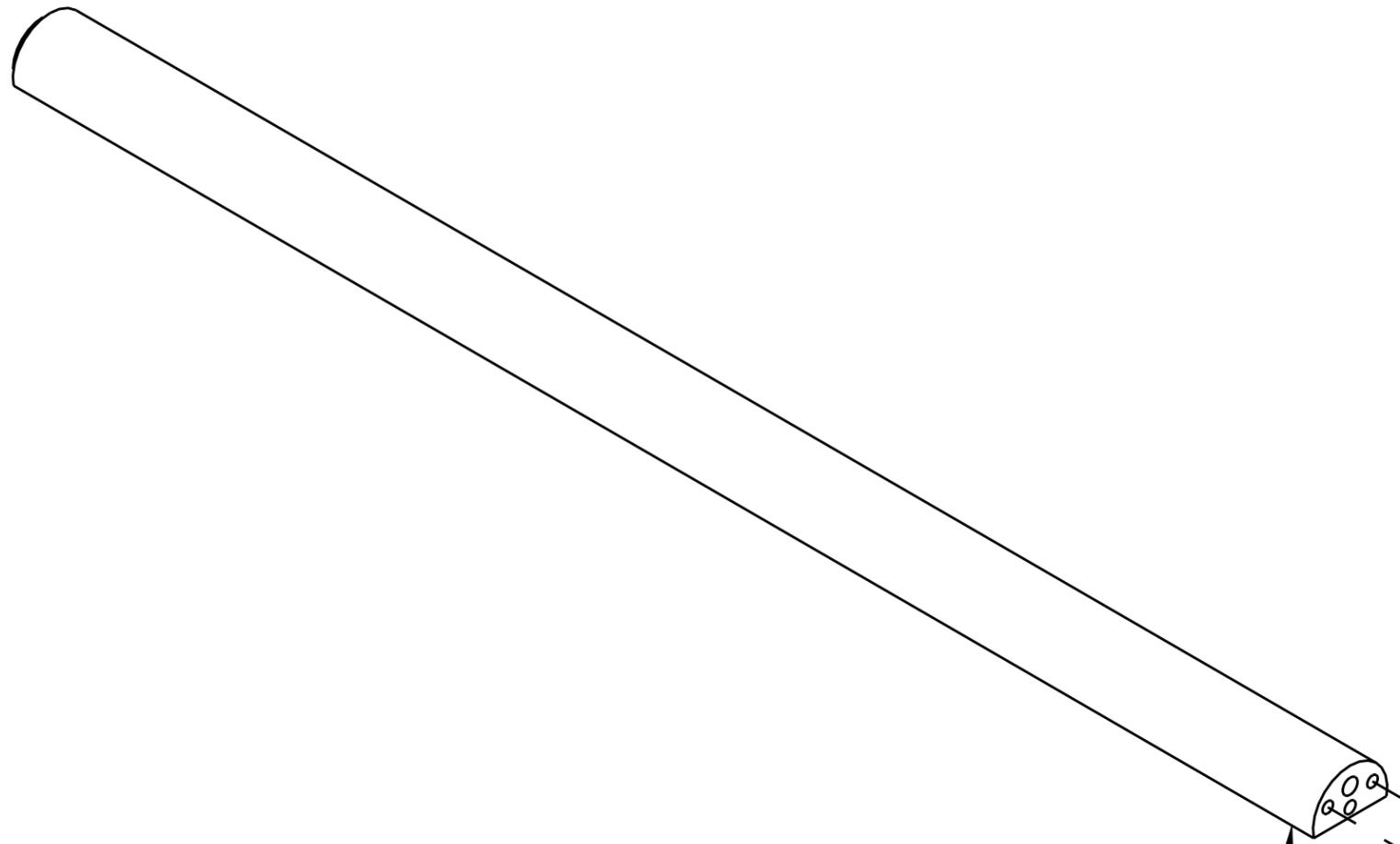
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	22597-000	COLLAPSIBLE REWIND LOCKING HANDLE	22189-000
2	1	8411145-000<CSSD>		22189-000
3	1	A21226-000	REWIND FLANGE HUB COLLAR	22189-000
4	1	A22085-001	COLLAPSIBLE REWIND REEL	22189-000
5	1	B22103-002	10" COLLAPSIBLE REWIND DRUM	22189-000
6	1	B22141-002	SHAFT ASSEMBLY	22189-000
7	1	SYE103		22189-000



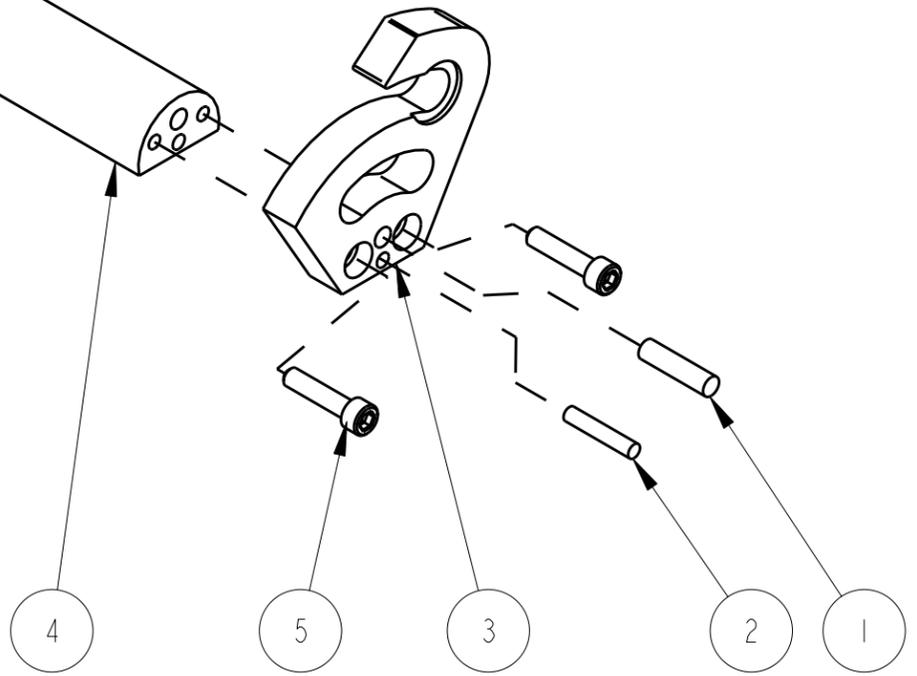
REV	DATE	DESCRIPTION	BY
A	06/09/2008	NEW DRAWING	SEM

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 3/4 DATE: 06/09/2008 DRW BY: SEM APPR BY:
.X ± .1 .XX ± .01 .XXX ± .005 ANGLES ± .30°	COLLAPSIBLE REWIND	
SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	MAT'L 22189-000	D22393-000



ITEM	QTY	PART NO.	DESCRIPTION
1	1	871352-000	DOWELL, PIN 1/8" x 1/2" SS.
2	1	871371-000	DOWELL, PIN 3/32" x 1/2" SS.
3	1	A22081-001	COLLAPSIBLE REWIND CAM
4	1	A25272-002	COLLAPSIBLE REWIND SHAFT
5	2	SHCS	4-40 X 1/2 LG. SHCS



REV	DATE	DESCRIPTION
A	06/09/2008	NEW DRAWING

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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
(216) 975-0006

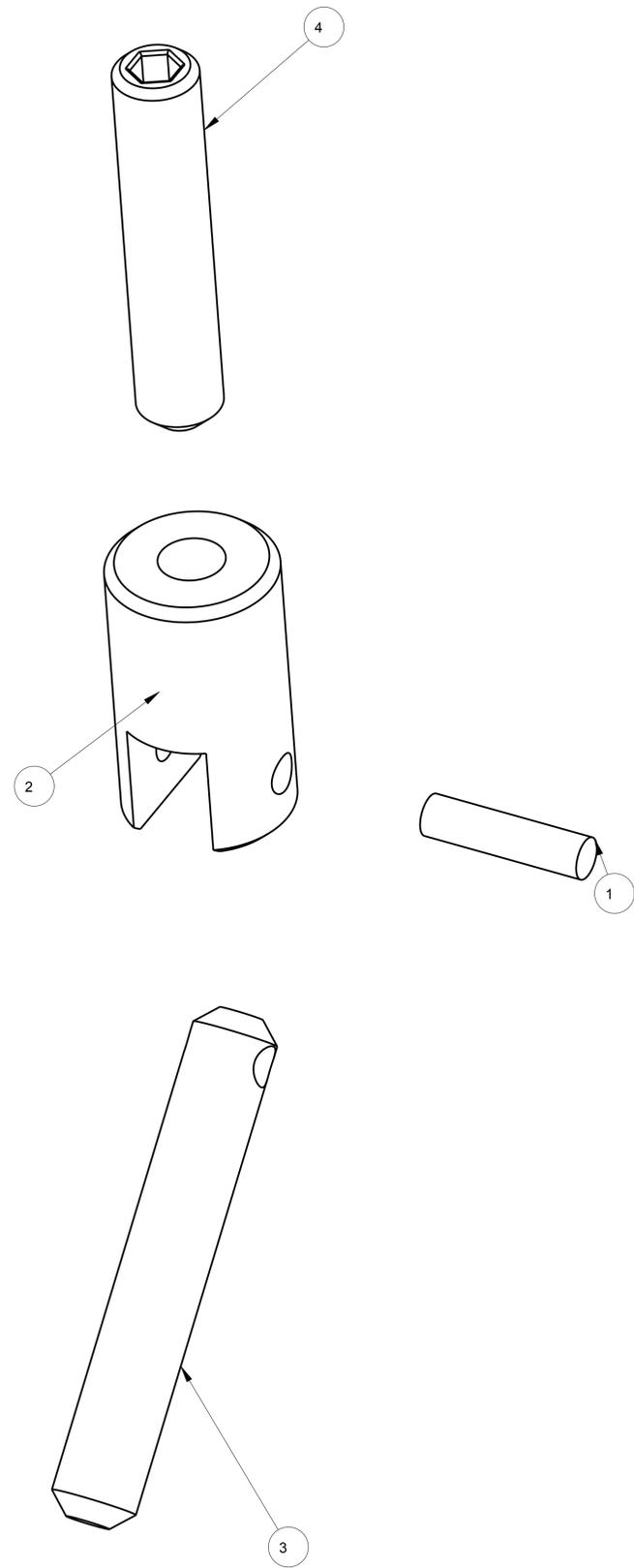
SCALE: 1/1
DATE: 06/09/2008
DRW BY: SEM
CHK BY:
APPR BY:

SHAFT ASSEMBLY 10.0"

MAT'L

B22141-002

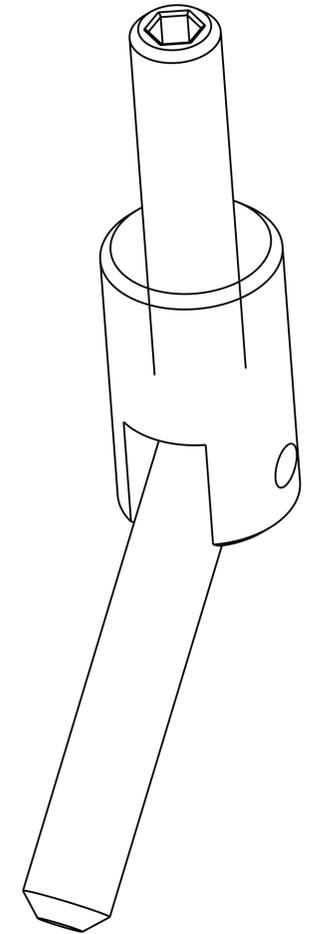
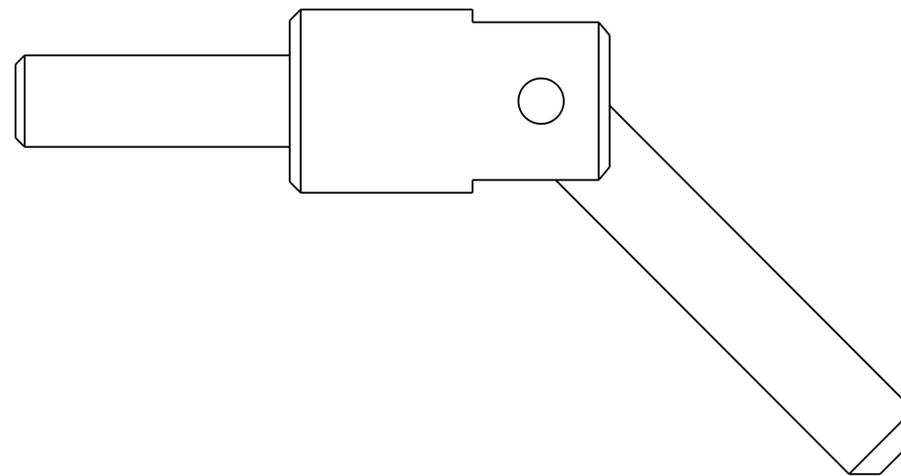
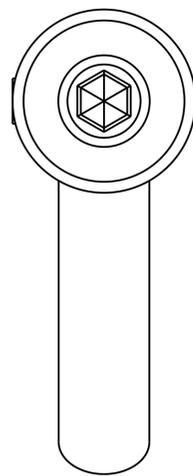
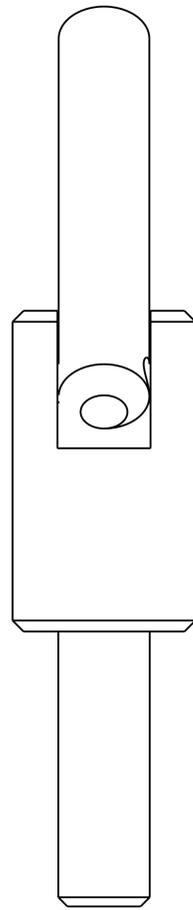
ITEM	QTY	PART NO.	DESCRIPTION
1	1	871352-000	DOWELL,PIN 1/8" x 1/2" SS.
2	1	A26128-000	CLEVIS
3	1	A26129-000	HANDLE
4	1	SYE601	1/4-20 X 1-1/4 LG. SET SCREW



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

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE .X± .1 .XX± .01 .XXX± .005 ANGLES ± .30°	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		
	SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	MAT'L 22597-000	22597-000



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		MAT'L 22597-000	

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REV	DATE	DESCRIPTION	BY
A	12-11-14	NEW DRAWING	
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			
			22597-000

ASSEMBLY TITLE: Q60 KINETROL REWIND

GENERAL FUNCTION:

- The rewind drum rolls up the liner
- The collapsible rewind shaft when closed allows the liner to be removed easily. The normal running position for the shaft is in the open position
- The rewind flange supports and guides the liner
- The Kinetrol 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 and is set at the factory.

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 between the drum and pin
- Tighten adjusting knob just enough to allow the rewind drum to keep up with the drive roll.
- Loosen set screw before adjustment and re-tighten after adjustment

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

TROUBLESHOOTING:

PROBLEM

- Rewind drum not rotating when stepping motor rotates
- Rewind drum not keeping up with drive roll
- Web winding too tight on hub
- Grinding in rewind hub

WHAT TO DO

- Replace timing belt from motor to rewind
- Adjust clutch dial (1 being loosest & 10 being tightest)
- Loosen adjusting knob
- Replace Kinetrol

Set screw location



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:

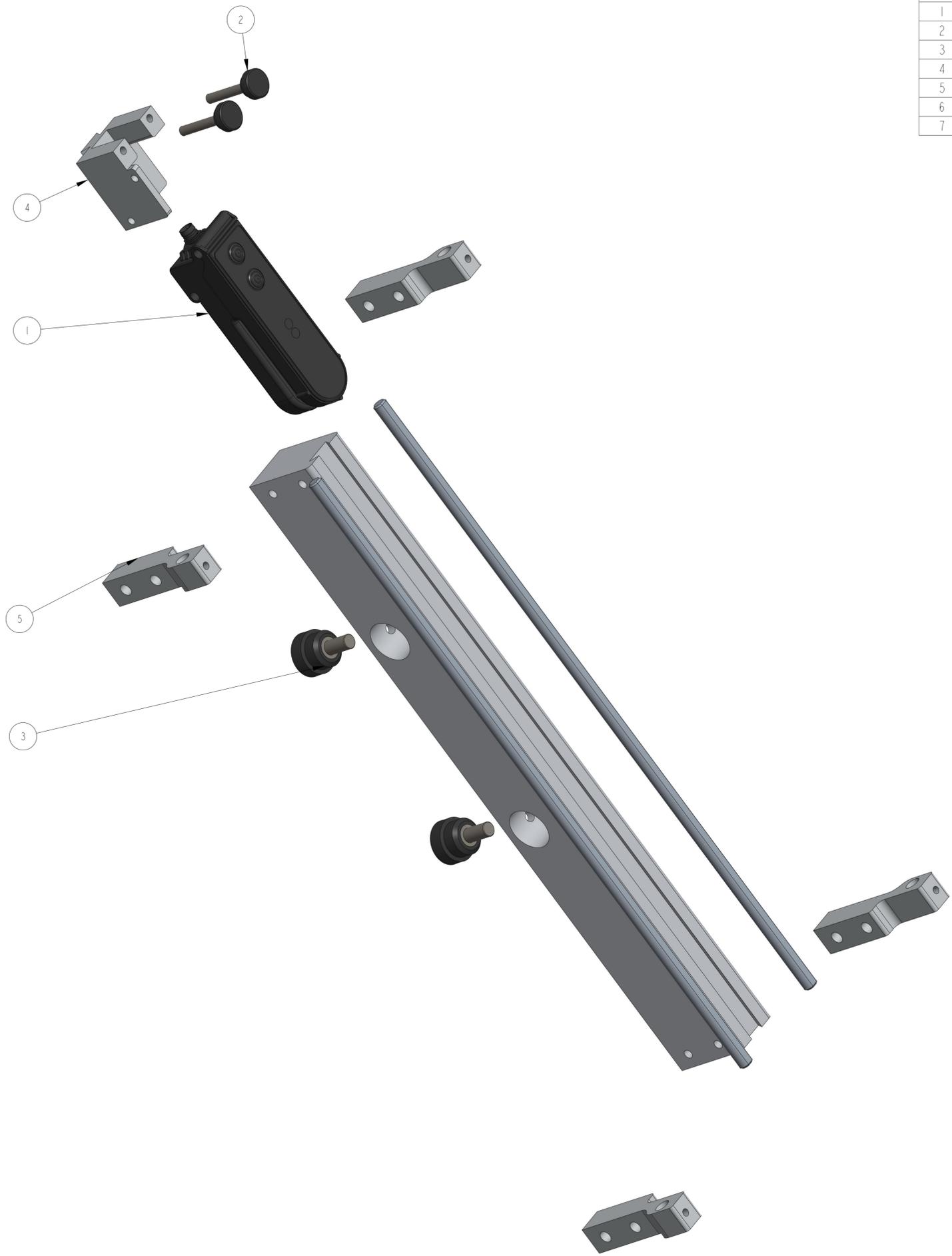
- See attached cut sheet

MAINTENANCE:

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

TROUBLESHOOTING:

<u>PROBLEM</u>	<u>WHAT TO DO</u>
- 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	201444-300		20033-310
2	2	801297-000	THUMB SCREW	20033-310
3	2	801299-000	KNOB WITH STUD	20033-310
4	1	A21391-301	SLOT SENSOR ADAPTER	20033-310
5	4	A21749-300	SLOT SENSOR SUPPORT ROD MTG BLOCK	20033-310
6	2	A21770-310	SUPPORT ROD WITH FLAT	20033-310
7	1	B20852-310	7 IN. WEB SLOT SENSOR MTG. BAR	20033-310

REV	DATE	DESCRIPTION	BY
A	Mar-05-21	NEW DRAWING	TAZ

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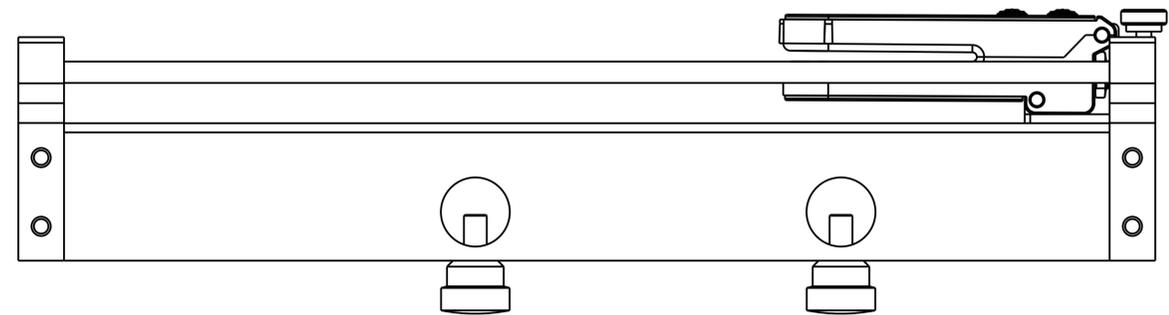
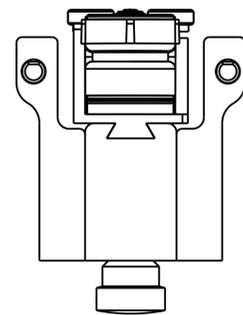
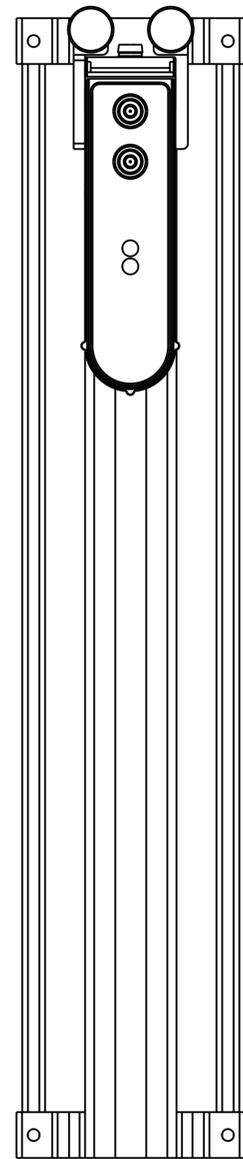
QUADREL LABELING SYSTEMS
 7670 JENTHER DRIVE
 MENTOR, OHIO 44060
 (440) 602-4700

SCALE: 1/1
 DATE: Mar-05-21
 DRAWN BY: TAZ

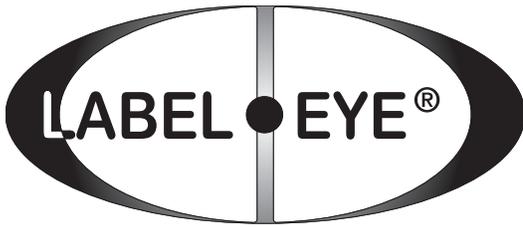
LABEL DETECT ASSEMBLY 10"

MAT'L	20033-310	20033-310
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UNLESS OTHERWISE SPECIFIED
 DIMENSIONAL TOLERANCE
 .XX ± .01
 .XXX ± .005
 ANGLES ± 30°
 SURFACE FINISH: 125
 BREAK ALL EDGES .005/.015
 CORNER RADIUS .010/.030



UNLESS OTHERWISE SPECIFIED		NEW DRAWING	
DIMENSIONAL TOLERANCE		DATE	DESCRIPTION
x ± .01	7670 JENTHER DRIVE	Mar-04-21	TJS
.xxx ± .005	MENTOR, OHIO 44060	SCALE	1/1
ANGLES ± 30°	(440) 602-4700	DATE	Mar-04-21
SURFACE FINISH 125		DRAWN BY	TJS
BREAK ALL EDGES .0057, .015		LABEL DETECT ASSEMBLY	
CORNER RADIUS .0107, .030		MAT'L	20033-310
		20033-310	



LABEL•EYE Set-Up Instructions

Standard LABEL•EYE

Normal Label Opacity AUTOSET Button

This category includes most paper or metallized 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.

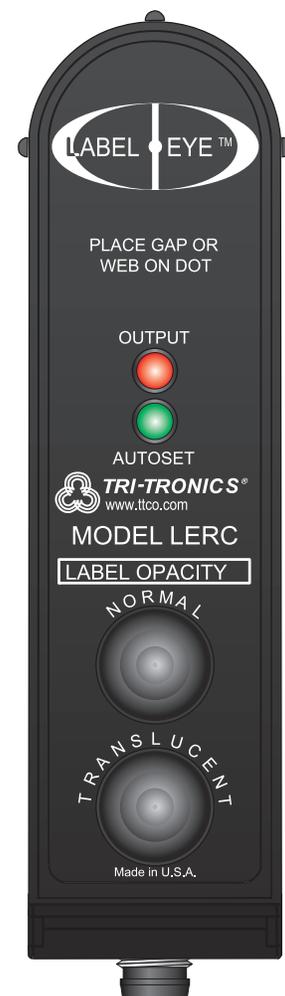
On rare occasions, when the light is unable to penetrate the backing materials, both the red and green led indicators will blink four times. When this indication occurs, the sensor will be unable to detect the presence of the labels.

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.



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.

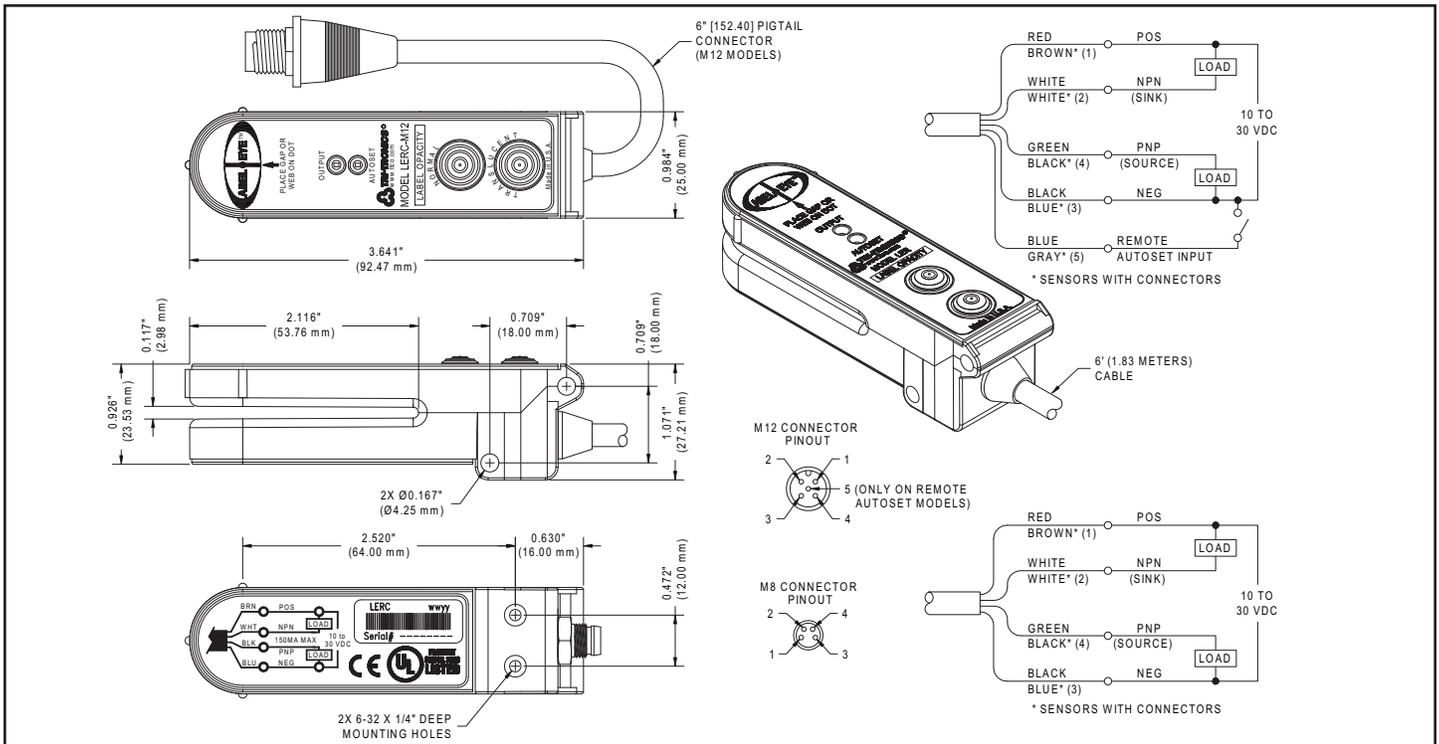
Model Numbers:

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



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

070-0150 Rev 5

ASSEMBLY TITLE: LOW LABEL FAULT ASSEMBLY

DRAWING NO.:

GENERAL FUNCTION:

- The low label supply fault indicates a depleting supply of labels. It consists of a fiber optic sensor that is set at the desired position on the roll of labels.
- When the label supply passes below the sensor range, a signal is generated this will light the yellow stack lamp and enunciate a low label condition on the operator's touch screen display.
- The male connector provides quick connection to the labeling head.

SET UP AND ADJUSTMENTS:

- Set the sensor eye just before the cardboard inner core, approximately ¼" below the supply reel flange and lined up with the sensing hole in the flange.

MAINTENANCE:

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

TROUBLESHOOTING:

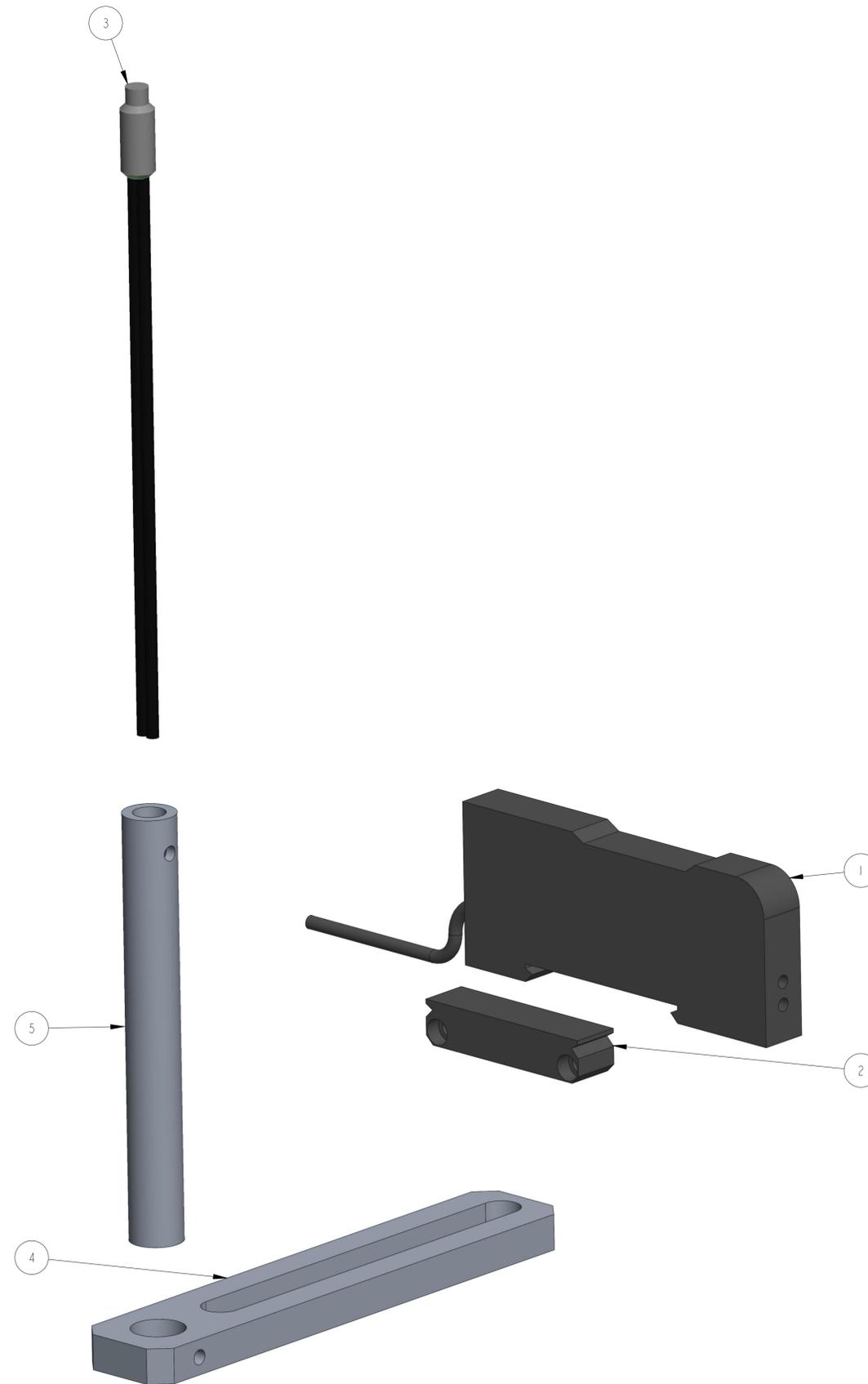
<u>PROBLEM</u>	<u>WHAT TO DO</u>
- No power to the sensor	- Check male connector and tightly secure connection to the head.

NOTE: The labeler will continue to operate until the operator pauses the labeler or the label supply completely depletes past the broken web sensor.

To reset the fault condition, replenish the label supply and press the labeler run button from run to pause and back to run.

ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	202201-000	DUAL DIGITAL FIBER AMPLIFIER	20776-006
2	1	202201-001	DUAL DIGITAL FIBER AMPLIFIER	20776-006
3	1	203170-000	CABLE, FIBER , REFLECTIVE, KEYENCE #FU-67V	20776-006
4	1	A23727-000	LOW LEVEL BRACKET	20776-006
5	1	A23728-000	LOW LEVEL SENSOR TUBE	20776-006

*NOT SHOWN
252019-000 CONNECTOR



REV	DATE	DESCRIPTION	BY
A	Apr-07-21	NEW DRAWING	TJS

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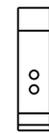
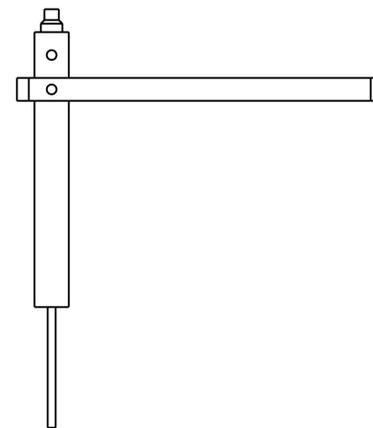
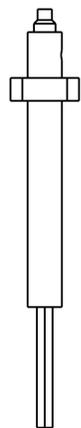
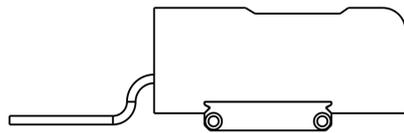
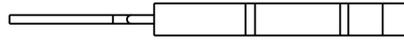
QUADREL LABELING SYSTEMS
7670 JENTHER DRIVE
MENTOR, OHIO 44060
(440) 602-4700

SCALE: 2/1
DATE: Apr-07-21
DRAWN BY: TJS

MAT'L: 20776-006 & 20776-006P
20776-006

LOW LABEL

UNLESS OTHERWISE SPECIFIED
DIMENSIONAL TOLERANCE
XX ± .01
XXX ± .005
ANGLES ± 30°
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030

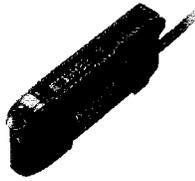


THIS IS A PRO-ENGINEER DOCUMENT AND MAY NOT BE MODIFIED MANUALLY			
UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE		QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	
X ± .1 XX ± .01 XXX ± .005 ANGLES ± 30°		SCALE: 1/1 DATE: Apr-07-21 DRAWN BY: TJS	
SURFACE FINISH: 125 BREAK ALL EDGES: .005/.015 CORNER RADIUS: .010/.030		LOW LABEL MAT'L 20776-006 & 20776-006P 20776-006	

REV	DATE	DESCRIPTION	BY
A	Apr-07-21	NEW DRAWING	TJS



Digital Fiberoptic Sensor FS-N40 Series Instruction Manual



Read this manual before using the product in order to achieve maximum performance. Keep this manual in a safe place after reading it so that it can be used at any time.

For detailed FS-N40 Series setting methods and for details on the functions of the FS-N40 Series, see the "FS-N40 Series User's Manual".

■ Symbols

The following symbols are used in this instruction manual to enable the recognition of important information at a glance. Be sure to read these messages carefully.

	It indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	It indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	It indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	It indicates a situation which, if not avoided, could result in product damage as well as property damage.

1 Before Operation

Safety Precautions

	<ul style="list-style-type: none"> This product is only intended to detect objects. Do not use this product for the purpose of protecting a human body or a part of a human body. This product is not intended for use as an explosion-proof product. Do not use this product in a hazardous location and/or potentially explosive atmosphere.
	<ul style="list-style-type: none"> This is a direct current (DC) power supply type sensor. Application of an alternating current may result in explosion or fire.
	<ul style="list-style-type: none"> Use separate conduits for power lines and high-voltage lines. Use of a common conduit may result in device malfunction due to noise or damage to the sensor. Always ground the frame ground terminal when using an off-the-shelf switching regulator. Do not use this product outdoors.

Precautions on Regulations and Standards

■ CE Marking

KEYENCE Corporation has confirmed, on the basis of the following specifications, that this product complies with the essential requirements of the applicable EU Directive(s). Be sure to consider the following specifications when using this product in the member states of the European Union.

● EMC Directive, applicable standard: EN60947-5-2, Class A

Ensure that the cable length is 30 meters or less. These specifications do not give any guarantee that the end-product with this product incorporated complies with the essential requirements of the EMC Directive. The manufacturer of the end-product is solely responsible for confirming the compliance of the end-product itself according to the EMC Directive.

■ UL Certificate

This product is a UL/c-UL certified product.

- UL File No.: E301717
- Category: NRKH/NRKH7(NRKH2/NRKH8: FS-N42N(P))
- Enclosure Type 1 (based on UL50)

Be sure to consider the following specifications when using this product as a UL/c-UL certified product.

- Use a power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Connect the power supply, external input, and control output to a single power supply with Class 2 output.
- Use OP-73864, OP-73865 or OP-85498 cable with FS-N41C when the field wiring is required.

■ FCC Regulations

This product complies with the following regulations specified by the FCC.

- Applicable regulation FCC Part 15 Subpart B Class A
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

• FCC Caution

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Package Contents

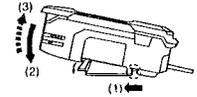
- Main unit
- Instruction manual

2 Installation and Wiring

Mounting the Main Unit

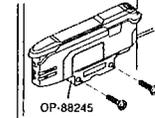
■ Mounting the Main Unit on a DIN rail

- 1 Align the claw at the bottom of the main unit with the DIN rail, as shown in the figure. While pushing the main body in the direction of arrow 1, push down in the direction of arrow 2.
- 2 To remove the sensor, raise the main body in the direction of arrow 3 while pushing the main body in the direction of arrow 1.



■ Installation on a wall (main unit only)

- 1 Attach the main unit to the optional mounting adapter (OP-88245), and then insert M3 screws into the two locations shown in the figure to secure the main unit in place.

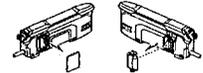


Connecting Multiple Amplifiers

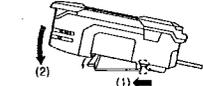
Up to 16 expansion units can be connected to 1 main unit. However, each dual output type will be treated as 2 expansion units.

	When connecting to multiple amplifiers or when mounting main units together, mount the units on a DIN rail installed on a metal surface.
	<ul style="list-style-type: none"> • Be sure to turn the power off before connecting multiple expansion units. • Do not touch the expansion connector.

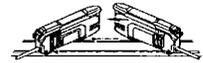
- 1 Remove the protection covers from the main unit and expansion unit(s).



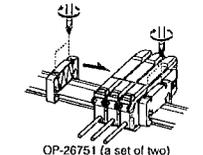
- 2 Install the amplifiers on the DIN rail one at a time.



- 3 Slide the main unit and expansion unit(s) together. Mate the two claws of the expansion unit with the recesses on the main unit side until a click is heard/felt.



- 4 Attach the end units (optional, sold separately: OP-26751) to the DIN rail on both sides of the amplifiers in the same way as step (2).



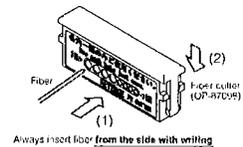
- 5 Secure the amplifiers between the end units. Tighten the screws from the top (two screws x two units) with a Phillips screwdriver to fix the end units in place.

OP-26751 (a set of two)

Fiber Unit Installation

■ Using a fiber cutter

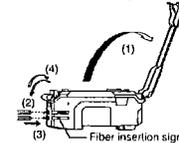
- 1 Insert the fiber into the cutter hole.
- 2 Bring down the blade in a single, swift motion to cut the fiber. (Do not use a hole that has already been used.)



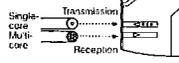
Always insert fiber from the side with writing

■ Connecting to the amplifier unit

- 1 Open the cover (1), and then lower the lever in the direction indicated by (2).
- 2 Insert the fiber unit into the installation holes (approximately 14 mm). (3)
- 3 Move the lever back in the direction indicated by (4).

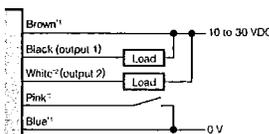


	When installing a coaxial reflective fiber in the main unit, install the single-core fiber in the transmission installation hole and the multi-core fiber in the reception installation hole.
--	---



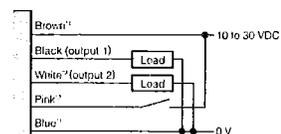
Wiring (Cable Type)

● FS-N41N/N42N/N43N/N44N



- *1 FS-N41N/N43N only
- *2 FS-N43N/N44N only

● FS-N41P/N42P/N43P/N44P



- *1 FS-N41P/N43P only
- *2 FS-N43P/N44P only

Wiring (M8 Connector Type: FS-N41C)

Select NPN or PNP and the function of I/O pin (2) during the initial settings.

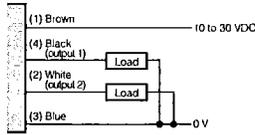
Sensor pin layout



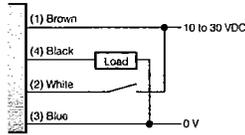
FS-N41C supports "IO-Link: Specification V.1.1/COM2 (38.4 kbps)".
The setting file (IODD) can be downloaded from Keyence's web site
(<http://www.keyence.com>).

● When using the sensor in PNP mode

OUT1 + OUT2

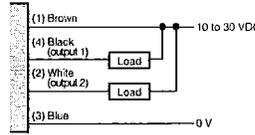


OUT1 + INPUT

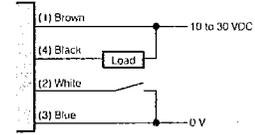


● When using the sensor in NPN mode

OUT1 + OUT2



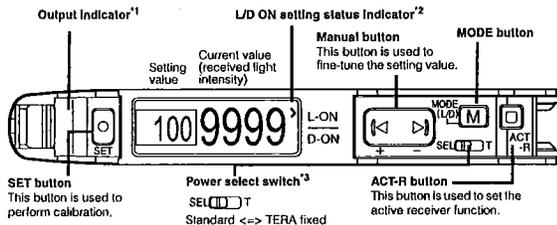
OUT1 + INPUT



The wire colors indicate the colors when using an OP-73864/73865 M8 connector cable (sold separately).

3 Basic Settings

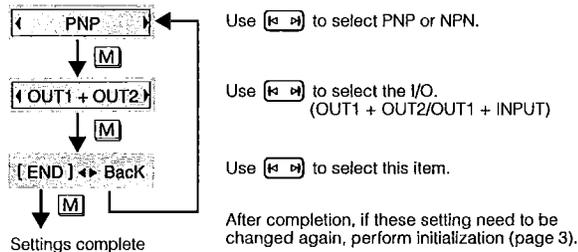
■ Names and functions



- *1 On dual output types (including the FS-N41C), the indicator operates according to the output channel selected with the output channel selection switch.
- *2 On dual output types (including the FS-N41C), this becomes the output indicator. It displays the current output status of channels 1 and 2.
- *3 On dual output types (including the FS-N41C), this becomes the output channel selection switch. It is not present on zero line types (FS-N40).

■ Initial settings (FS-N41C only)

When turning on the sensor for the first time, or when the sensor has been initialized, select the initial settings shown below.



■ Basic settings

● Switching the output style (Light ON/Dark ON)

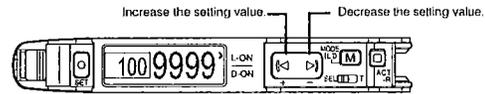
- 1 Press **[M]** once. Switch L-On/D-On
- 2 Use **[< >]** to switch the output style.
- 3 Press **[M]** three times.

● Switching the display language

- 1 Press **[M]** twice. Language / 语言
- 2 Use **[< >]** to select the language.
- 3 Press **[M]** twice.

● Fine-tuning the setting value (threshold)

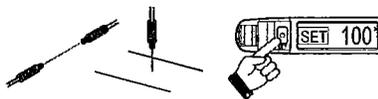
Use **[< >]** to adjust the value. Hold down the button to make adjustments more quickly.



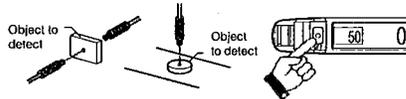
■ Basic calibration methods

● 2-point calibration (the most basic setting method)

- 1 Press **[SET]** with no object to detect present.



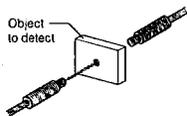
- 2 Press **[SET]** with an object to detect present.



This sets the setting value to the midpoint between the received light intensities of points 1 and 2. If "..." blinks for 2 seconds on the display, the difference between the received light intensities is small, and detection may be unstable.

● Maximum sensitivity calibration

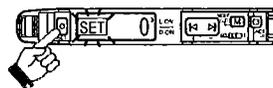
Through model: With an object to detect present



Reflective model: With no object to detect present



- 1 With the items arranged as shown in the figures on the left, hold down **[SET]** for 3 seconds or more. When **[SET]** blinks, release this button.



The setting value is set slightly higher than the received light intensity when the setting was configured.

4 Useful Functions

● Initialization

Initialize all the settings and return the sensor to its factory default state.

- 1 Hold down and for 3 seconds or more.
- 2 Press once.
- 3 Press once.
- 4 Press once.

● Key lock

Disable button operations.

- 1 Hold down and for 3 seconds or more.

Cancel: Use the same procedure.

● Active receiver (ACT-R)

This function makes the fiber unit's receiver blink in green.

Operation when the sensor is shipped from the factory

When the sensor output is ON, the fiber unit's receiver lights in green. (This is linked to the output.)

To change the normal lighting status of the receiver (change the settings)

- 1 Press three times.
- 2 Use to select the status from those shown below.

Output Link: The receiver will light when the output is ON.
Reversed Op: The receiver will light when the output is OFF.
Always On: The receiver will be lit always.
Disable: The receiver will be off always.

- 3 Press twice to return to the normal status.

To force the receiver to blink in green (pairing mode)

- 1 Press once.
- 2 Press .
- 3 The light-receiving side blinks in green.
- 4 Press four times to return to the normal status.

● Saturation avoidance function

Use this function when the received light intensity does not change from the maximum displayed value.

- 1 Press and simultaneously.

Cancel: Use the same procedure.

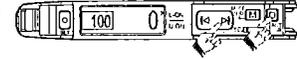


● Zero shift function

Use this function to change the received light intensity display to zero.

- 1 Press and simultaneously.

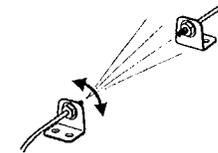
Cancel: Hold down and for 3 seconds or more.



To make it easy to perform optical-axis alignment (optical-axis alignment assist mode)

- 1 Press twice.
- 2 Press to make the light-receiving side blink in green.
- 3 Move the tip of the fiber unit within the movable range.

The light-receiving side lights in green near the peak light intensity within the range in which the tip moved.
Align the optical axis within the middle of the range in which the light-receiving side lights.



- 4 When you finish the alignment, press three times.
The sensor returns to the normal status.

5 Specifications

The response times are listed on the following page.

Model	NPN output		FS-N41N		FS-N42N		FS-N43N		FS-N44N		FS-N41C ¹ (selectable output)		FS-N40
	PNP output	FS-N41P	FS-N42P	FS-N43P	FS-N44P	MS connector ²		Expansion unit					
Cable/conductor	Cable										MS connector ²		-
Main unit/expansion unit	Main unit	Expansion unit		Main unit	Expansion unit		Main unit		Expansion unit		Expansion unit		-
Number of control outputs	1	1		2	2		2 ³		2 ³		None ⁴		
Number of external inputs	-	-		1	1		1 ³		1 ³		-		
Light source LED	Transmitter side: Red, four-element LED (wavelength: 660 nm)												
Control output	Open-collector, 30 V or less 100 mA or less per output, 100 mA or less total for 2 outputs (when used as a solitary unit) 20 mA (when used as an expansion unit)												
	Residual voltage	NPN 1.4 V or less (output current: 10 mA or less) 2 V or less (output current: 10 to 100 mA) PNP 1.6 V or less (output current: 10 mA or less) 2.2 V or less (output current: 10 to 100 mA)											
External input	Input time: 2 ms (ON)/20 ms (OFF) or longer ⁵												
Unit expansion (excluding the FS-N41C)	Up to 16 units (17 units connected in total including the main unit). However, each two output type will be treated as two expansion units.												
Protection circuit	Protection against reverse power connection, output overcurrent, output surge, and reverse output connection												
Mutual interference prevention	S-HSPD/HSPD: 0 units, FINE: 4 units, TURBO/SUPER/ULTRA/MEGA/TERA: 8 units (The mutual interference prevention values are twice those shown here when Double Is set.)												
Power supply	Power supply voltage												
	10 to 30 VDC (including 10% ripple (P-P) or less), class 2 or LPS ⁶												
Power consumption ⁷	During normal operation: 870 mW or less (34 mA or less at 24 V/62 mA or less at 12 V) ECO ON: 800 mW or less (31 mA or less at 24 V/56 mA or less at 12 V) ECO FULL: 710 mW or less (28 mA or less at 24 V/49 mA or less at 12 V)												
	One output type (FS-N41P/N42P) and FS-N41C During normal operation: 910 mW or less (36 mA or less at 24 V/65 mA or less at 12 V) ECO ON: 840 mW or less (33 mA or less at 24 V/60 mA or less at 12 V) ECO FULL: 750 mW or less (30 mA or less at 24 V/52 mA or less at 12 V)												
Two output type (FS-N43P/N44P) During normal operation: 990 mW or less (39 mA or less at 24 V/72 mA or less at 12 V) ECO ON: 920 mW or less (36 mA or less at 24 V/66 mA or less at 12 V) ECO FULL: 830 mW or less (33 mA or less at 24 V/59 mA or less at 12 V)													
Ambient light	Incandescent lamp: 20,000 lx or less, sunlight: 30,000 lx or less												
Ambient temperature	-20°C to +55°C (no freezing) ⁸												
Vibration resistance	10 to 55 Hz; double amplitude 1.5 mm, 2 hours each for X, Y, and Z axes												
Shock resistance	500 m/s ² ; 3 times each for X, Y, and Z axes												
Case material	Main unit and cover: polycarbonate												
Weight	Approx. 79 g	Approx. 48 g	Approx. 83 g	Approx. 73 g	Approx. 25 g	Approx. 23 g		-		-		-	

¹ IO-Link Specification V1, MCOM2 (38.4 kbps) is supported.
² Ensure the cable length is 30 m or less for the MS connector type. In case of connecting with IO-Link, set it to 20 m or less.
³ Output 2 and the external input are selectable.
⁴ This counts as 1 output when connecting multiple units to the FS-MCBNP, NLP Series.
⁵ The input time becomes 25 ms (ON)/25 ms (OFF) when external calibration input is selected.

⁶ When expanding the system to 9 or more units, use a power supply voltage of 12 V or higher.
⁷ The load current is excluded. The power consumption including the load when the maximum number of units are connected is 38 W max.
⁸ When expanded by 1 to 2 units: -20°C to +55°C. When expanded by 3 to 10 units: -20°C to +50°C. When expanded by 11 to 16 units: -20°C to +45°C. When using 2 outputs, 1 unit is counted as 2 units. Note that all the temperature prescriptions assume that the sensor has been mounted on a DIN rail installed on a metal surface. Exercise special care when installing the product in an airtight space.

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- (1) KEYENCE warrants the Products to be free of defects in materials and workmanship for a period of one (1) year from the date of shipment. If any models or samples were shown to Buyer, such models or samples were used merely to illustrate the general type and quality of the Products and not to represent that the Products would necessarily conform to said models or samples. Any Products found to be defective must be shipped to KEYENCE with all shipping costs paid by Buyer or offered to KEYENCE for inspection and examination. Upon examination by KEYENCE, KEYENCE, at its sole option, will refund the purchase price of, or repair or replace at no charge any Products found to be defective. This warranty does not apply to any defects resulting from any action of Buyer, including but not limited to improper installation, improper interfacing, improper repair, unauthorized modification, misapplication and mishandling, such as exposure to excessive current, heat, condensation, moisture, vibration or outdoors air. Components which wear are not warranted.
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If the Products/Samples purchased by Buyer are to be resold or delivered to a third party, Buyer must provide such third party with a copy of this document, all specifications, manuals, catalogs, leaflets and written information provided to Buyer pertaining to the Products/Samples.

E 1101-3

6 Detailed Settings

Hold down **[M]** for 3 seconds or more to enter the settings menu. Then, press **[M]** to change the item and press **[← →]** to switch the setting value. Press **[M] + [END]** when an item is being set to return to the previous item.

A Power Modes Press **[← →]** to select the value.

Select from eight power modes. The initial setting is FINE.

Mode	S-HSPD ^{*1}	HSPD	FINE	TURBO
Response time	23 μs	50 μs	250 μs	500 μs
Maximum displayable light intensity	9999			

Mode	SUPER	ULTRA	MEGA	TERA
Response time	1 ms	4 ms	16 ms	64 ms
Maximum displayable light intensity	9999			

B Switch L-on/D-on Press **[← →]** to select the value.

- Light ON • Dark ON

C Display Bar Press **[← →]** to select the value.

- OFF • ON

[END] <> ADVANCE Press **[← →]** to select the value.

End **[M]** ADVANCE
Settings complete

D Detection Mode ^{*3} Press **[← →]** to select the value.

Select from the following operation modes.

- Standard • Preset • Percent
- Zeroshift • Area detection • Area % Mode
- DATUM • Rising edge • Falling edge

E Output timer ^{*4} Press **[← →]** to select the value.

F Ext. Input Press **[← →]** to select the value.

This can only be used on types that support an external input. It is possible to select from the following values.

- OFF • External Set • Zero shift
- Reset • LED OFF • Pause
- Sleep

When connected to the multi-output unit FS-MC8N/P or the communication unit NU Series, this setting can be configured on types that do not support an external input.

G Saturate Cancel Press **[← →]** to select the value.

H Attenuation Press **[← →]** to select the value.

I Zero Shift Press **[← →]** to select the value.

J Limit Detection ^{*4} Press **[← →]** to select the value.

If Limit Detection is set to ON, a notification of a drop in light intensity is shown on the display when the light intensity drops due to factors such as dirt. With dual output types, it is also possible to output alarms to an external device. When connected to the multi-output unit FS-MC8N/P, it is possible to output alarms from the "common output" of the FS-MC8N/P even for types that do not support the alarm output.

K Auto Power Press **[← →]** to select the value.

L Hysteresis Press **[← →]** to select the value.

M Language Press **[← →]** to select the value.

Select from English (initial setting), Japanese, Chinese, and German.

N Flip Display Press **[← →]** to select the value.

O Sub Display Press **[← →]** to select the value.

P ACT-R Press **[← →]** to select the value.

Q Brightness Press **[← →]** to select the value.

R ECO ^{*6} Press **[← →]** to select the value.

S Initialize Press **[← →]** to select the value.

T Custom Setting Press **[← →]** to select the value.

U Interference ^{*5} ^{*7} Press **[← →]** to select the value.

V Key Lock Method Press **[← →]** to select the value.

W Display Gain ^{*5} Press **[← →]** to select the value.

X IO-Link Mode ^{*8} Press **[← →]** to select the value.

Y IO Data Format ^{*8} Press **[← →]** to select the value.

Z I/O Selection ^{*8} Press **[← →]** to select the value.

Settings complete

Output 2 setting

1 **2** When using a dual output type, if the output channel selection switch is set to the "2" side, output 2 can be set.

Hold down **[M]** for 3 seconds or more to enter setup mode.

a Second Output Press **[← →]** to select the value.

b Switch L-On/D-On Press **[← →]** to select the value.

c Output timer 2 Press **[← →]** to select the value.

Settings complete

^{*1} When S-HSPD is selected for Power Modes Output 2 of dual output types is fixed to OFF.
^{*2} This is 65535 when connected to an NU Series unit.
^{*3} When S-HSPD is selected for Power Modes Area detection, Area % Mode, DATUM, Rising edge, or Falling edge cannot be selected.
^{*4} This cannot be used when S-HSPD is selected for Power Modes.
^{*5} This cannot be used when S-HSPD or HSPD is selected for Power Modes.
^{*6} When S-HSPD is selected for Power Modes, FULL cannot be selected for the ECO function.
^{*7} The IO-Link communication cannot be used when FULL is selected for ECO (FS-N41C).
^{*8} This item is not displayed on the FS-N41C.
^{*8} This item is only displayed on the FS-N41C.

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GERMANY Ph: +49 6102 36 89-0	MEXICO Ph: +52-55-8850-0100	SWITZERLAND Ph: +41 43-45577 30	

ASSEMBLY TITLE: BROKEN WEB / END OF WEB

DRAWING NO:

GENERAL FUNCTION:

- The broken web fault indicates that the labeler label stock has broken after the labeler pull roll. It consists of a reflective sensor and a reflector. The sensor is capable of reading clear or opaque label liner.

-When the broken web passes through the sensor, a signal is generated, that signal will shut the conveyor system down and light the red lamp on the stack lamp assembly.

-To reset the fault condition, rethread labels and press labeler run/pause to turn off the red light and place the labeler in run mode. The conveyor will restart and the labeling process will continue.

SET-UP AND ADJUSTMENTS:

- The sensor is set in light on operation mode. It is a retro-reflective operation. To set the sensor, refer to the following manufacture's instruction sheet.

- Ensure that all label material is removed from the sensor and reflector area for proper set up.

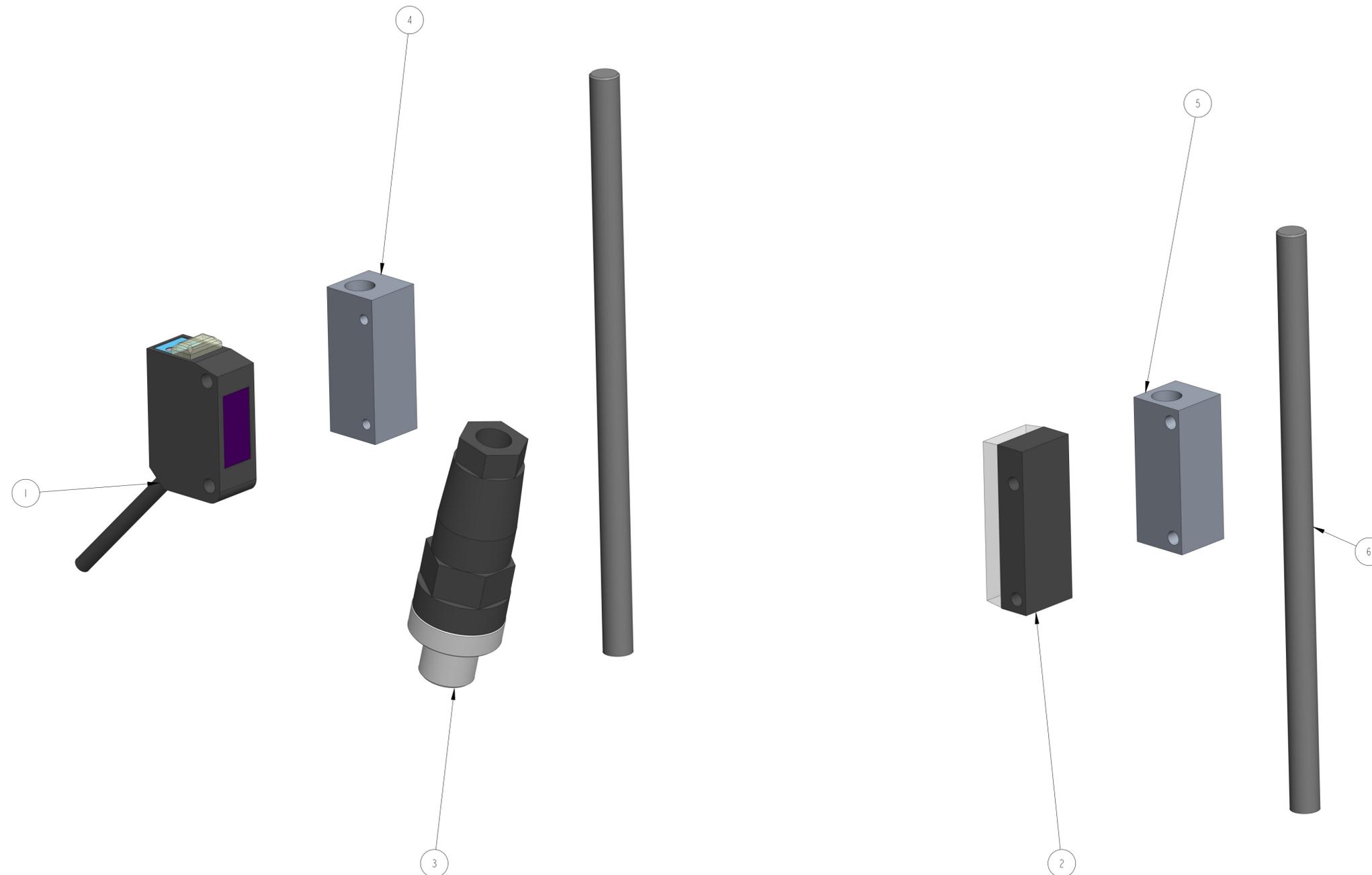
MAINTENANCE:

- See Maintenance Section

TROUBLESHOOTING:

- See Troubleshooting Section

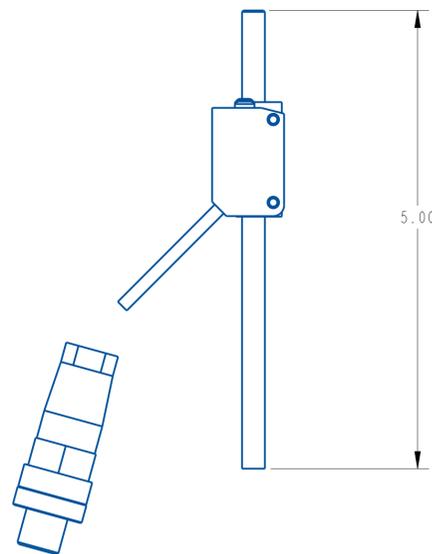
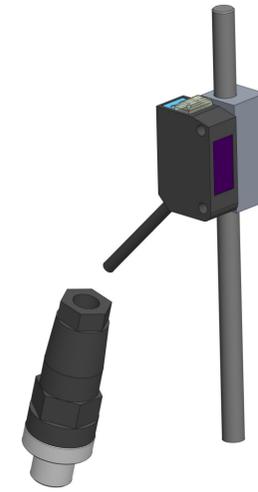
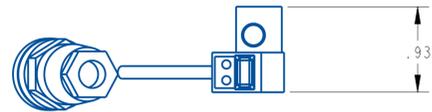
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	202192-002	CLEAR PRODUCT SENSOR	21606-012
2	1	203161-000	REFLECTOR	21606-012
3	1	252019-000	4 PIN MALE CONNECTOR	21606-012
4	1	A24242-000	SENSOR MTG. BLOCK	21606-012
5	1	A24243-000	REFLECTOR MTG. BLOCK	21606-012
6	2	A25772-000	POST, SENSOR	21606-012



REV	DATE	DESCRIPTION	BY
A	11/11/24	NEW DRAWING	SEM

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

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 2/1 DATE: 11/11/24 DRW BY: SEM CHK BY: CREO_CHK APPR BY:
.1 .01 .005 ANGLES ± 30°	BROKEN WEB/END OF WEB, PNP DUAL POSTS, USE PZ-G62P	
SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.30	MAT'L	21606-012



REV	DATE	DESCRIPTION	BY
A	11/11/24	NEW DRAWING	SEM

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

UNLESS OTHERWISE SPECIFIED		QUADREL LABELING SYSTEMS		SCALE:
DIMENSIONAL TOLERANCE		7670 JENTHER DRIVE		1/1
x ± .1		MENTOR, OHIO 44060		DATE: 11/11/24
xx ± .01		(440) 602-4700		DRW BY: SEM
xxx ± .005				CHK BY: CREO_CHK
ANGLES ± .30°				APPR BY:
SURFACE FINISH 125		BROKEN WEB/END OF WEB, PNP DUAL POSTS, USE PZ-G62P		
BREAK ALL EDGES .005/0.15		MAT'L		
CORNER RADIUS .010/0.30				
ALL ANGLES ARE 90°				

PZ-G Series

Instruction Manual

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

96M11227



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.

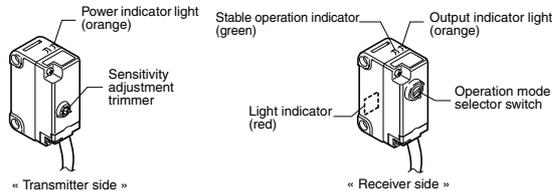
- UL File No. E301717
- Category NRKH,NRKH7
- Enclosure Type 1 (Based on UL50)

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

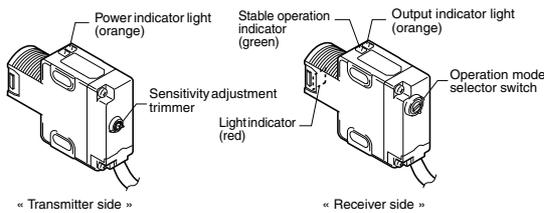
- Use the power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Power supply/ Control input/ Control output circuits shall be connected to a single Class 2 source only.
- Use with the over current protection device which is rated 30V or more and not more than 1A.

Part Names

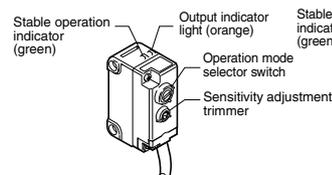
PZ-G5xN/G5xP



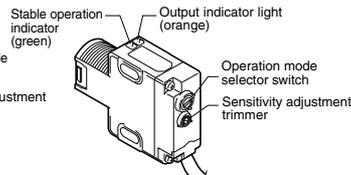
PZ-G5xB



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



PZ-G4xB/G10xB/G6xB

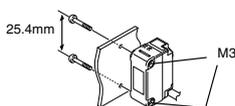


* The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

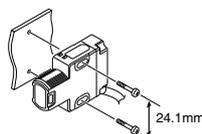
Mounting Method

Side Mounting (Prepare M3 screws)

Tightening torque: 0.5 N·m or less



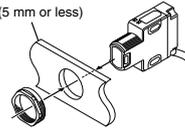
Tightening torque: 0.5 N·m or less



Mounting with the M18 nut (includes nut type)

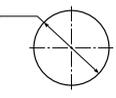
The M18 nut is also available separately as OP-84225 (2 pcs. supplied).
Tightening torque: 1.0 N·m or less

Panel (5 mm or less)



Panel cut size

$\phi 18.5 \pm 0.2$ mm



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.



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)

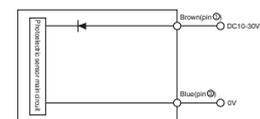
The following assumes DARK-ON (D) is set.

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)	

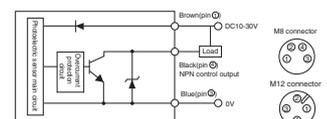
Reference To use the sensor in LIGHT-ON mode, adjust the mode selector switch to "L".

I/O Circuit Diagram

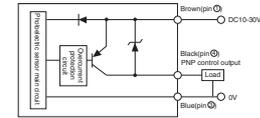
PZ-G5xN/G5xP/G5xB (Transmitter side)



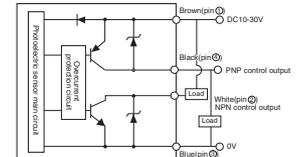
PZ-G5xN (Receiver side)/ G4xN/G10xN/G6xN



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



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



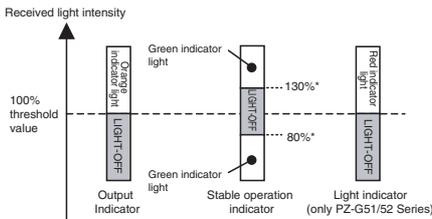
* The pin numbers represent those of the connector type / pigtail quick disconnect type. The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

[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 thru-beam 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		Thru-beam		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	
Nut	Cable	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	M12 connector	Bipolar	PZ-G51B	PZ-G52B	PZ-G41B	PZ-G42B	PZ-G101B	PZ-G102B	PZ-G61B	PZ-G62B				
		(NPN+PNP)	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, Polybutylene terephthalate (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 × 2 (nut thru-beam type), M18 nut × 1 (other nut types)												
Weight		Rectangular cable type: Approx. 60 g (Approx. 50 g for thru-beam 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 thru-beam 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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Specifications are subject to change without notice.

A7WW1-MAN-0069

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11227E 1070-1 96M11227J

Printed in Japan



ASSEMBLY TITLE: BROKEN WEB / END OF WEB

DRAWING NO:

GENERAL FUNCTION:

- The broken web fault indicates that the labeler label stock has broken after the labeler pull roll. It consists of a reflective sensor and a reflector. The sensor is capable of reading clear or opaque label liner.

-When the broken web passes through the sensor, a signal is generated, that signal will shut the conveyor system down and light the red lamp on the stack lamp assembly.

-To reset the fault condition, rethread labels and press labeler run/pause to turn off the red light and place the labeler in run mode. The conveyor will restart and the labeling process will continue.

SET-UP AND ADJUSTMENTS:

- The sensor is set in light on operation mode. It is a retro-reflective operation. To set the sensor, refer to the following manufacture's instruction sheet.

- Ensure that all label material is removed from the sensor and reflector area for proper set up.

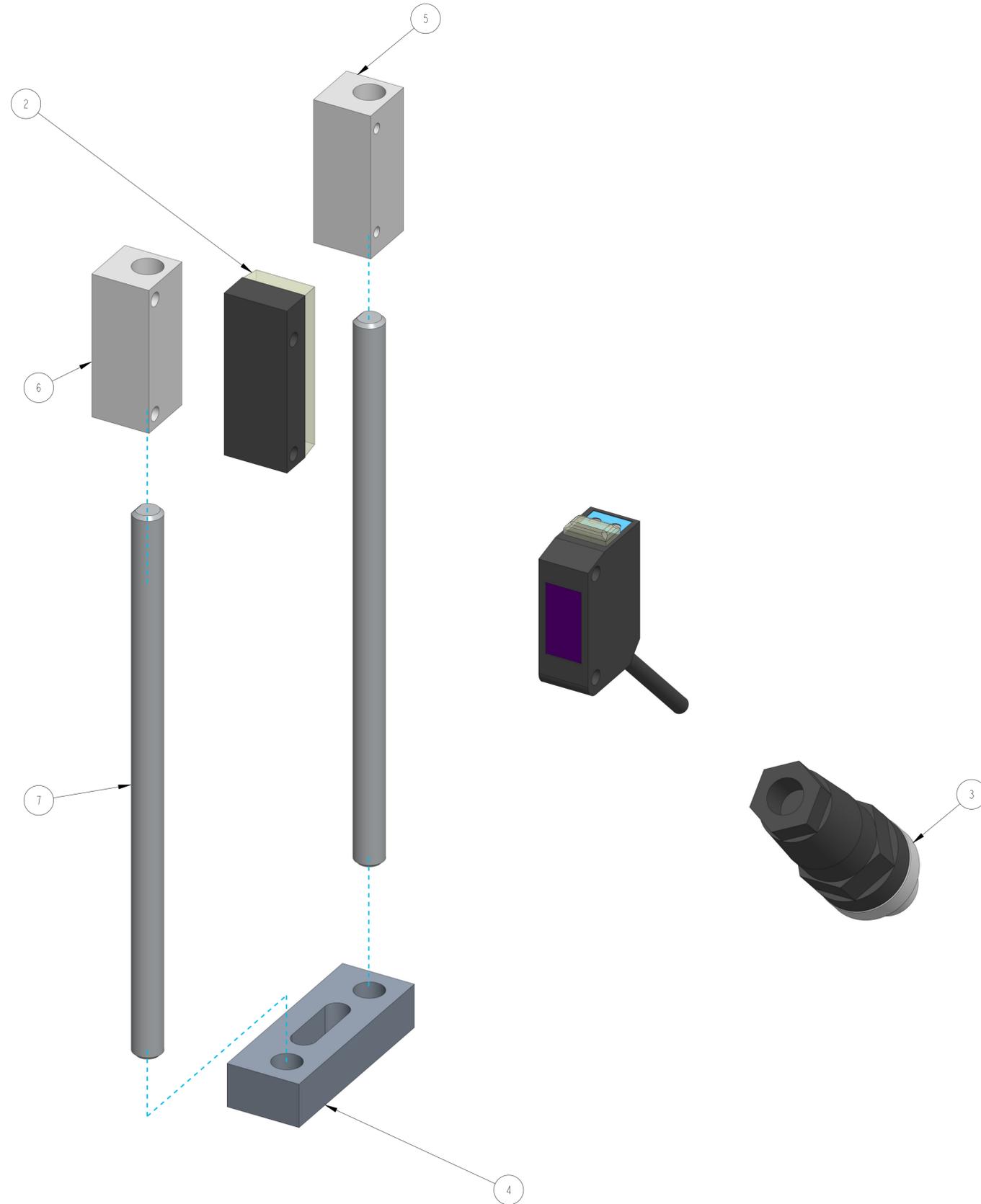
MAINTENANCE:

- See Maintenance Section

TROUBLESHOOTING:

- See Troubleshooting Section

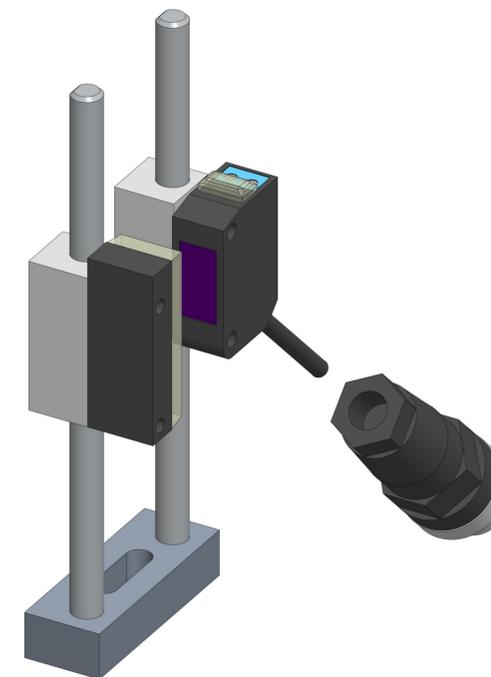
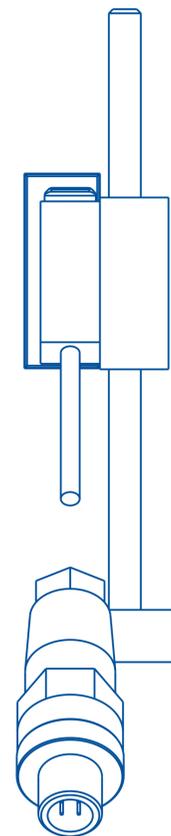
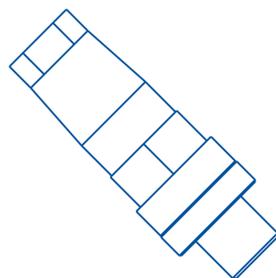
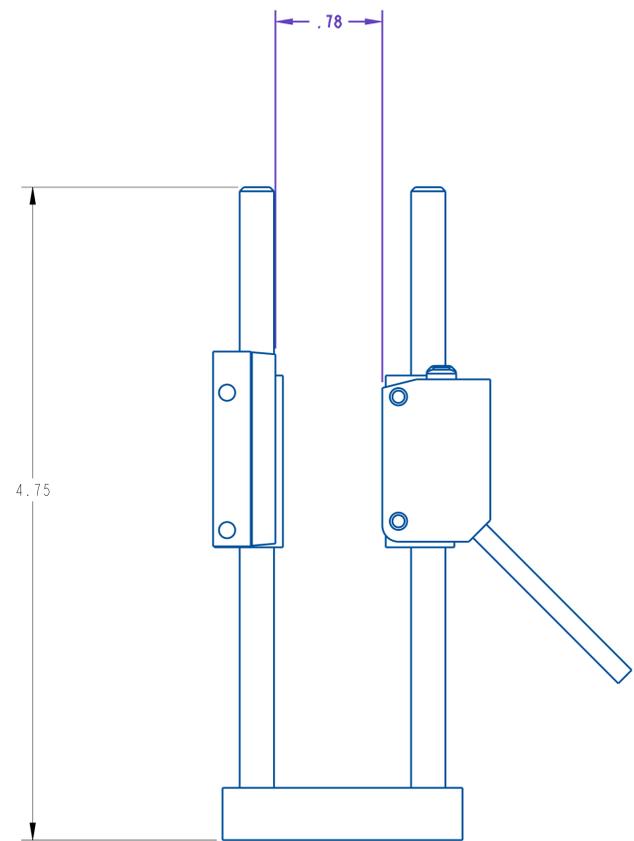
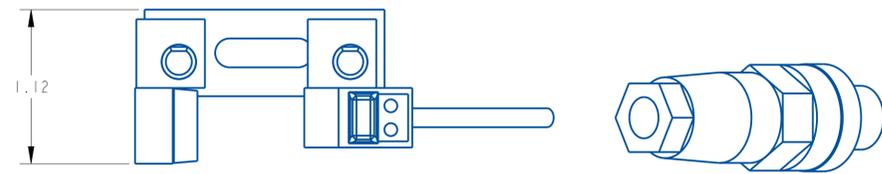
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	202192-002	CLEAR PRODUCT SENSOR	21606-013
2	1	203161-000	REFLECTOR	21606-013
3	1	252019-000	4 PIN MALE CONNECTOR	21606-013
4	1	A24241-000	MOUNTING BLOCK	21606-013
5	1	A24242-000	SENSOR MTG. BLOCK	21606-013
6	1	A24243-000	REFLECTOR MTG. BLOCK	21606-013
7	2	A24244-000	SUPPORT ROD WITH FLAT	21606-013



REV	DATE	DESCRIPTION	BY
A	11/11/24	NEW DRAWING	SEM

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

UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE .1 .01 .005 ANGLES ± 30°	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 2/1 DATE: 11/11/24 DRW BY: SEM CHK BY: &CREO_CHK APPR BY:
SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.30		BROKEN WEB/END OF WEB, PNP SINGLE BASE, USE PZ-G62P MAT'L 21606-013



REV	DATE	DESCRIPTION	BY
A	11/11/24	NEW DRAWING	SEM

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
ALL ANGLES ARE 90°

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

BROKEN WEB/END OF WEB, PNP SINGLE BASE, USE PZ-G62P

MAT'L

21606-013

PZ-G Series

Instruction Manual

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

96M11227



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.

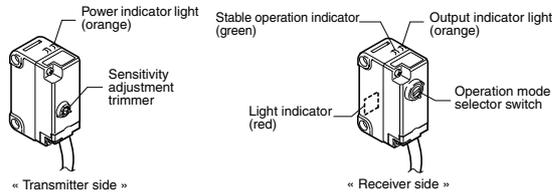
- UL File No. E301717
- Category NRKH,NRKH7
- Enclosure Type 1 (Based on UL50)

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

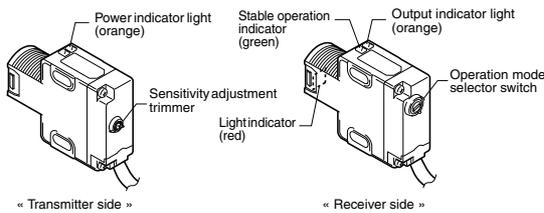
- Use the power supply with Class 2 output defined in NFPA70 (NEC: National Electrical Code).
- Power supply/ Control input/ Control output circuits shall be connected to a single Class 2 source only.
- Use with the over current protection device which is rated 30V or more and not more than 1A.

Part Names

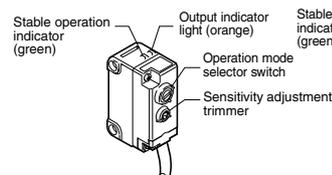
PZ-G5xN/G5xP



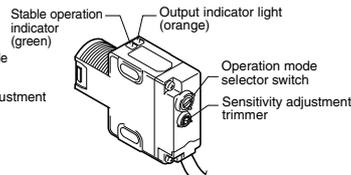
PZ-G5xB



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



PZ-G4xB/G10xB/G6xB

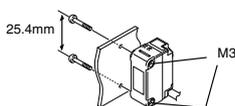


* The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

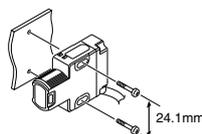
Mounting Method

Side Mounting (Prepare M3 screws)

Tightening torque: 0.5 N·m or less



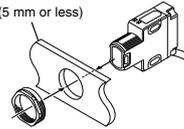
Tightening torque: 0.5 N·m or less



Mounting with the M18 nut (includes nut type)

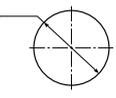
The M18 nut is also available separately as OP-84225 (2 pcs. supplied).
Tightening torque: 1.0 N·m or less

Panel (5 mm or less)



Panel cut size

$\phi 18.5 \pm 0.2$ mm



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.



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)

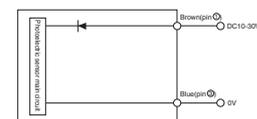
The following assumes DARK-ON (D) is set.

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)	

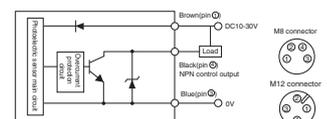
Reference To use the sensor in LIGHT-ON mode, adjust the mode selector switch to "L".

I/O Circuit Diagram

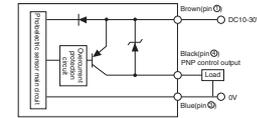
PZ-G5xN/G5xP/G5xB (Transmitter side)



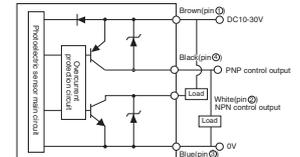
PZ-G5xN (Receiver side)/ G4xN/G10xN/G6xN



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



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



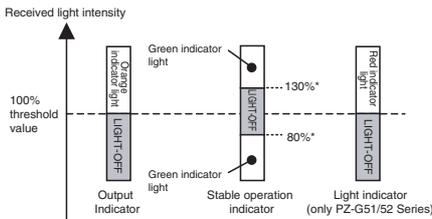
* The pin numbers represent those of the connector type / pigtail quick disconnect type. The model name with "C" (PZ-GxxCx) is the connector type, and the model name with "E" (PZ-GxxEx) is the pigtail quick disconnect type.

[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 thru-beam 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		Thru-beam		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
Nut	Cable	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	M12 connector	Bipolar	PZ-G51B	PZ-G52B	PZ-G41B	PZ-G42B	PZ-G101B	PZ-G102B	PZ-G61B	PZ-G62B						
		(NPN+PNP)	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 x 30 cm white mat paper)	300 mm (10 x 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 x 4 mm (when the detecting distance is 10 mm)					
Light source (LED)			Red LED	Infrared LED x 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, Polybutylene terephthalate (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 thru-beam type), M18 nut x 1 (other nut types)														
Weight		Rectangular cable type: Approx. 60 g (Approx. 50 g for thru-beam 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 thru-beam 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

1-3-14, Higashi-Nakajima, Higashi-Yodogawa-ku,
Osaka, 533-8555, Japan

PHONE: +81-6-6379-2211 www.keyence.com

Specifications are subject to change without notice.

A7WW1-MAN-0069

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11227E 1070-1 96M11227J

Printed in Japan



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.

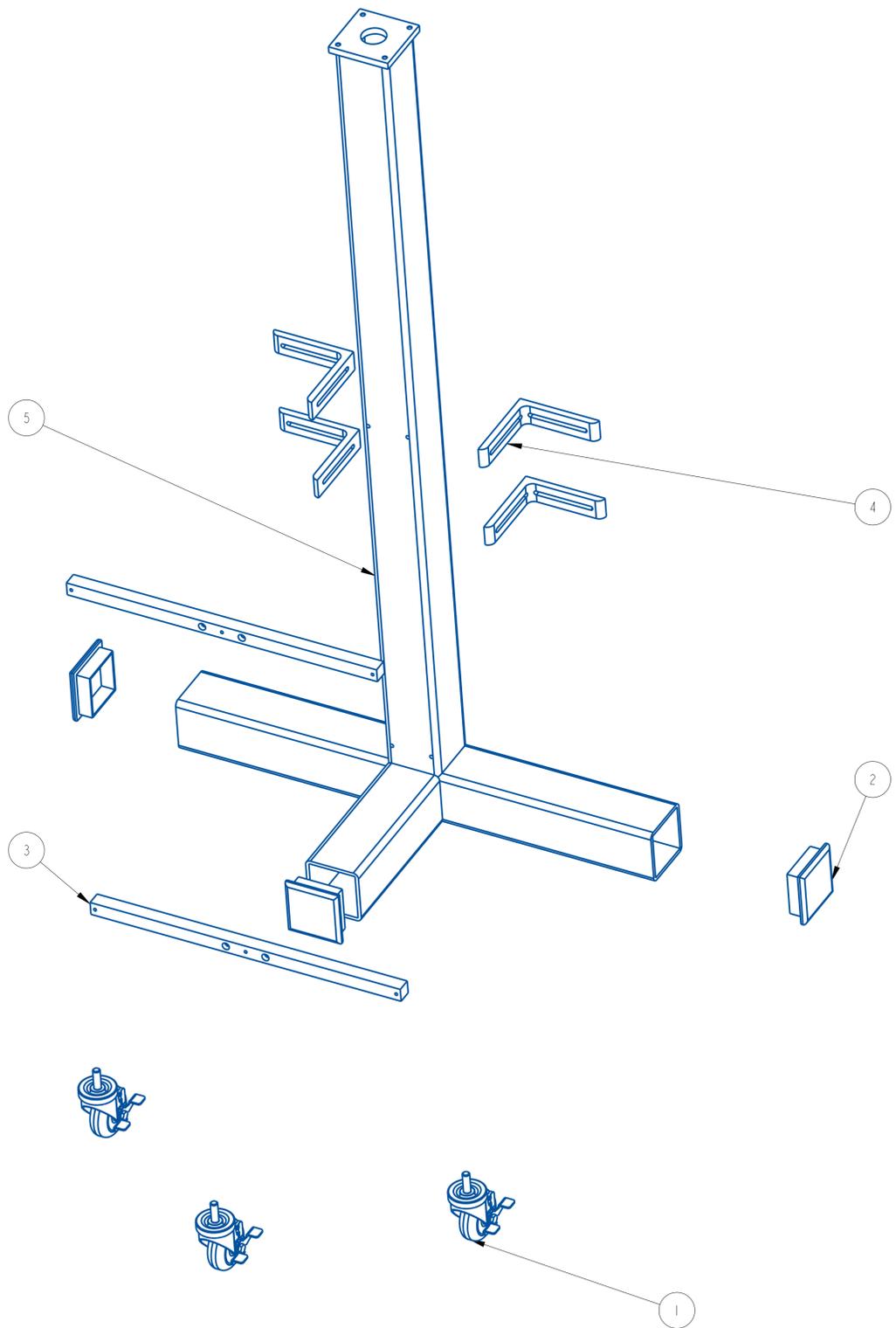
SET-UP AND ADJUSTMENTS:

- 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.

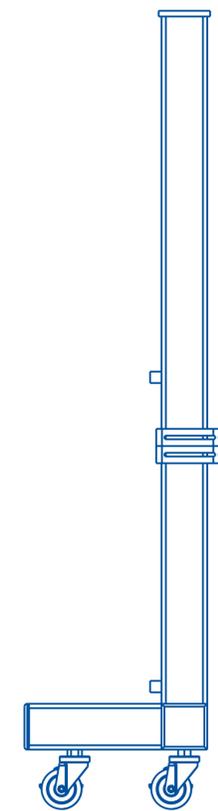
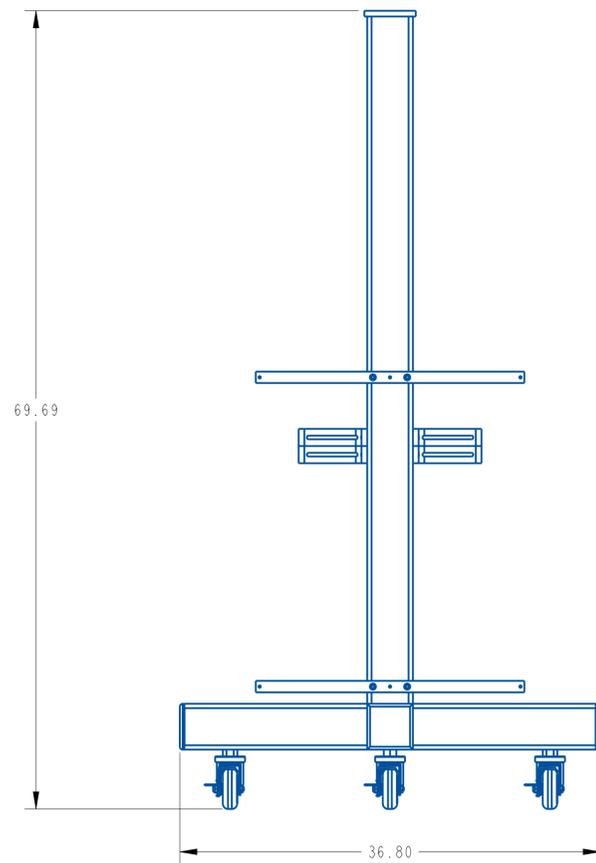
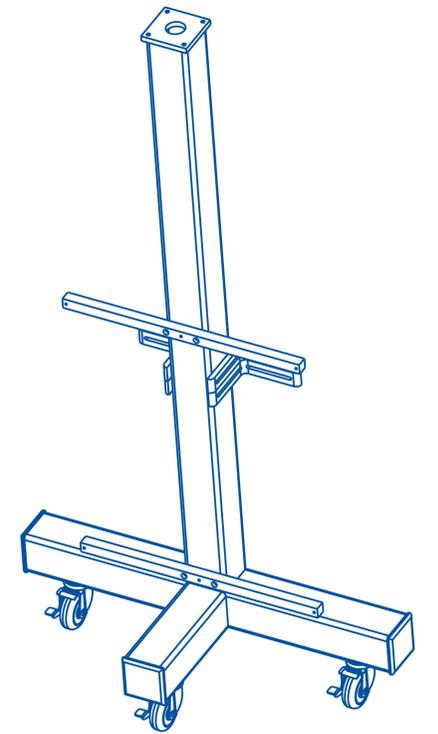
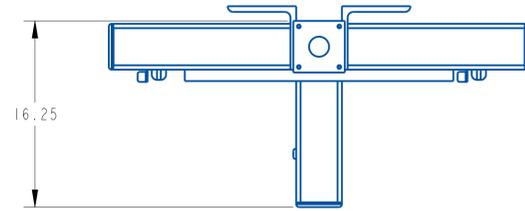
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	3	791449-000	SWIVEL CASTER	22918-000
2	3	792065-000	CAP INSERT FOR 4X4 TUBE (1/4WALL)	22918-000
3	2	B22001-001	ENCLOSURE MOUNTING BAR	22918-000
4	4	C20175-000	MOUNTING ANGLE	22918-000
5	1	D26025-000	ELECTRICAL ENCLOSURE STAND WELDMNT	22918-000



REV	DATE	DESCRIPTION	BY
A	Oct-13-25	NEW DRAWING	RDL

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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 ALL ANGLES ARE 90°	 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 3/16
		DATE: Oct-13-25
		DRW BY: RDL
		CHK BY:
ELECTRICAL ENCLOSURE STAND ASSEMBLY		APPR BY:
MAT'L		22918-000



REV	DATE	DESCRIPTION	BY
A	Oct-13-25	NEW DRAWING	RDL

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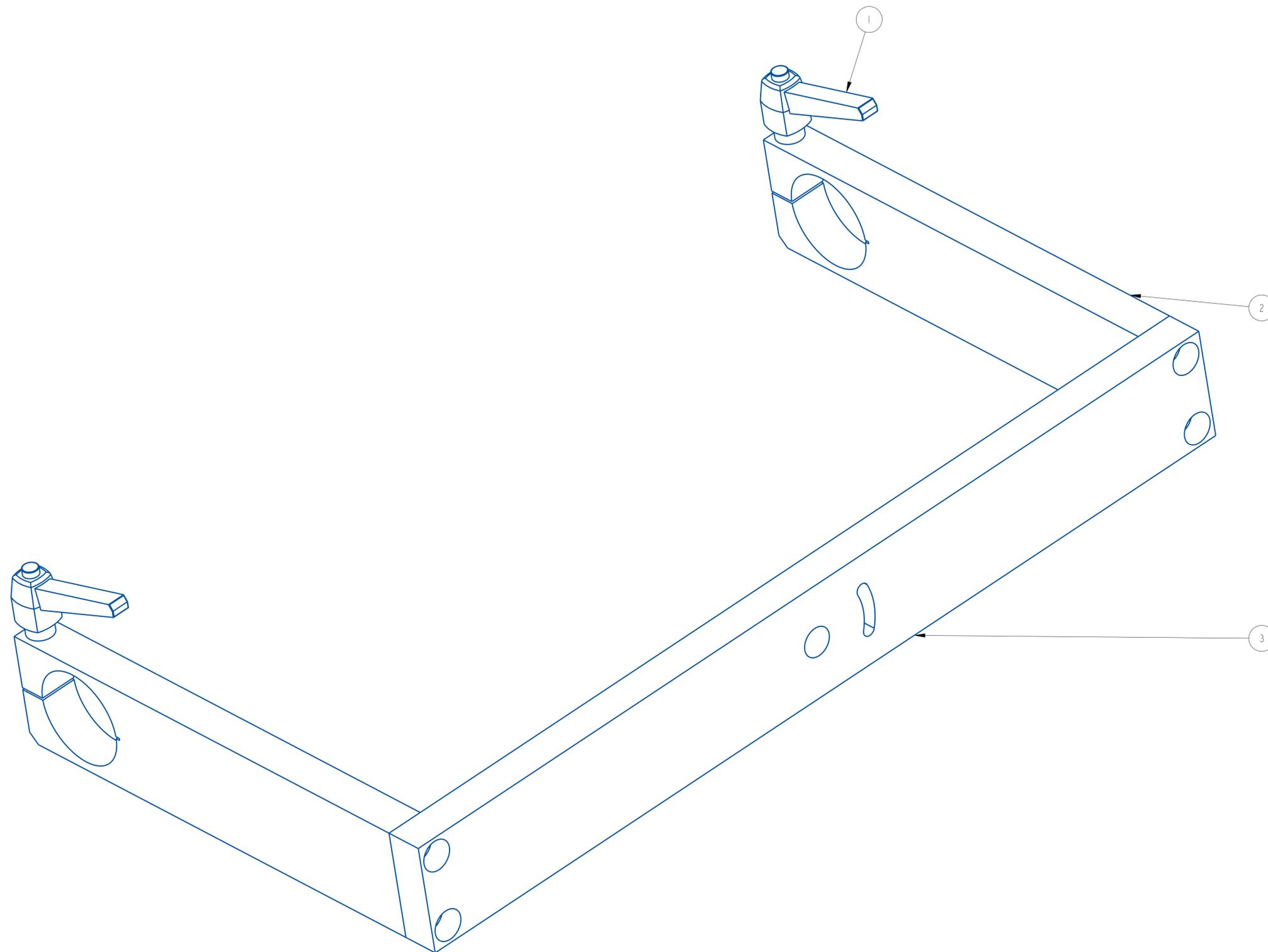
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DIMENSIONAL TOLERANCE
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XX ± .01
XXX ± .005
ANGLES ± .30°
SURFACE FINISH 125
BREAK ALL EDGES .005/.015
CORNER RADIUS .010/.030
ALL ANGLES ARE 90°

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

ELECTRICAL ENCLSOSURE STAND ASSEMBLY

MAT'L 22918-000

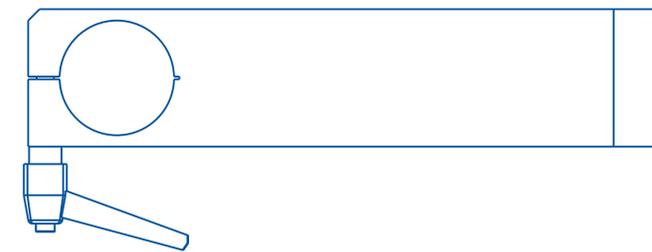
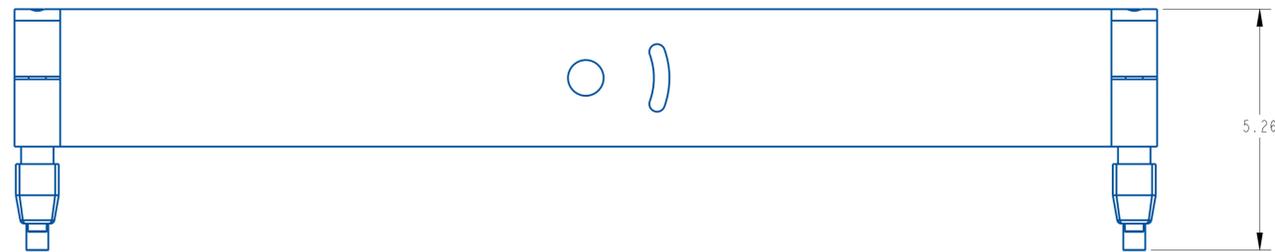
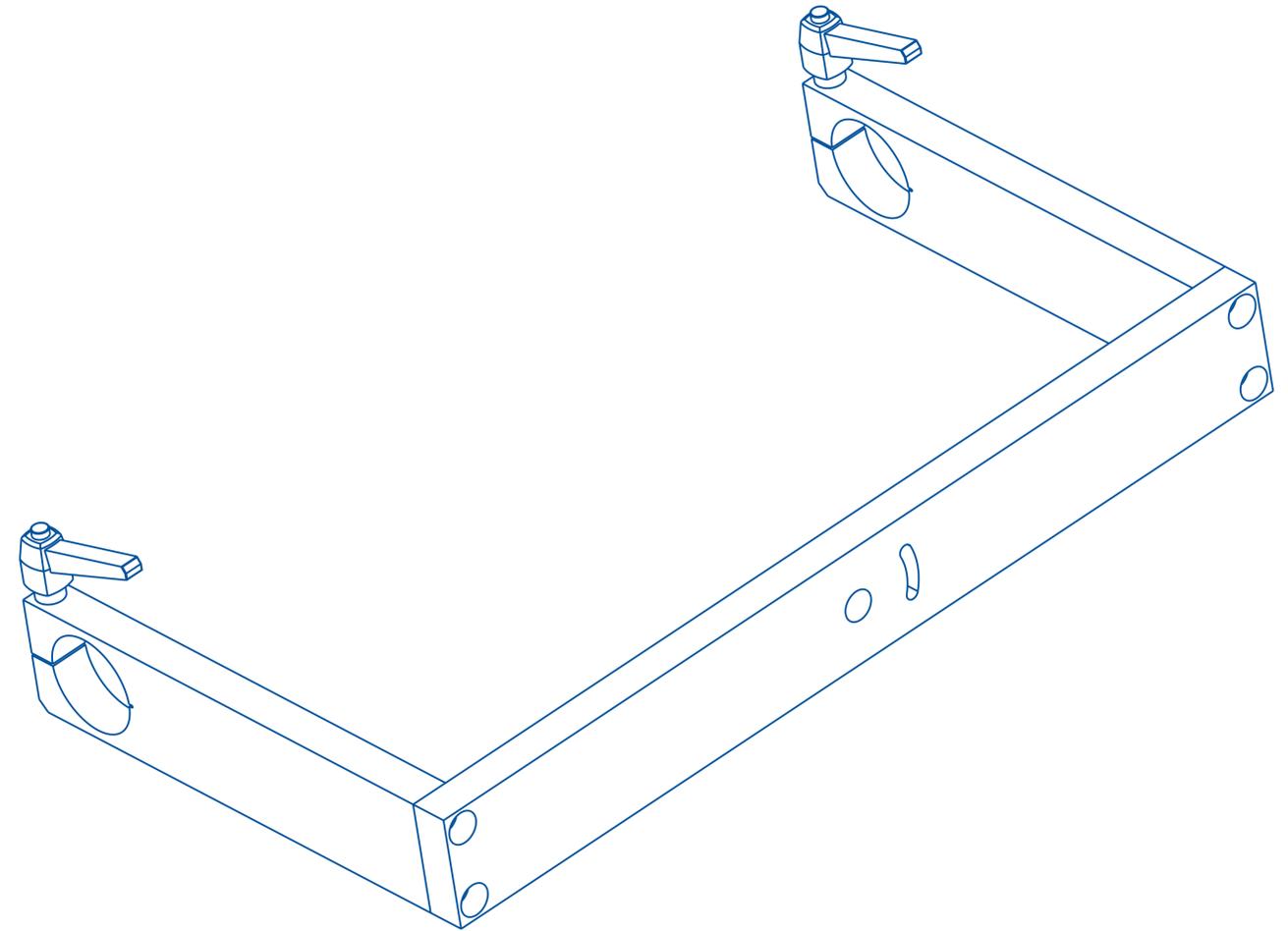
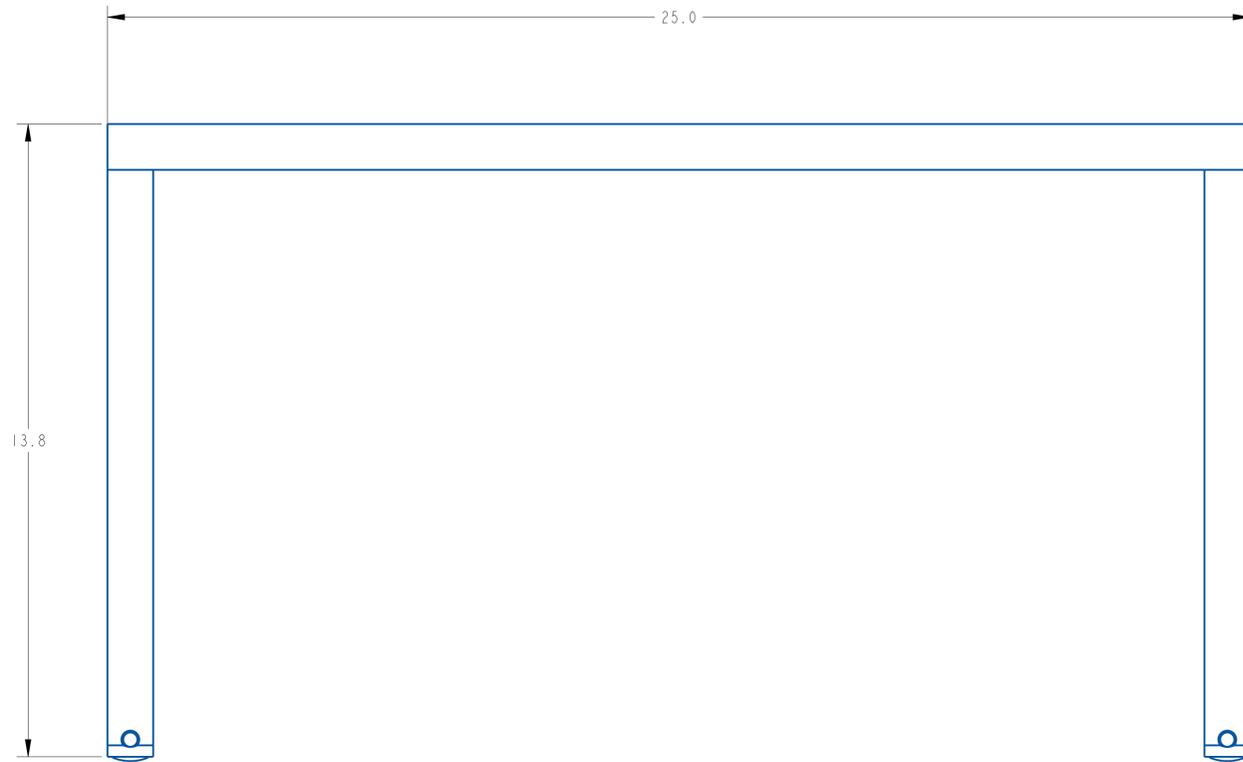
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	2	801850-000	CLAMPING LEVER	22816-000
2	2	B21190-200	YOKE SIDE PLATE	22816-000
3	1	B21555-000	MTG YOKE BACK PLATE	22816-000



REV	DATE	DESCRIPTION	BY
A	3-20-19	NEW DRAWING	TJS

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± 30°	 QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700	SCALE: 3/4
		DATE: 3-20-19
		DRW BY: TJS
		CHK BY: 03/28/2024-SEM
0105/110/120/125 HEAD ON A STAND TOP APPLY YOKE ASSEMBLY		APPR BY:
SURFACE FINISH 125 BREAK ALL EDGES .005/0.15 CORNER RADIUS .010/0.30		MAT'L 22816-000



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REV	DATE	DESCRIPTION	BY
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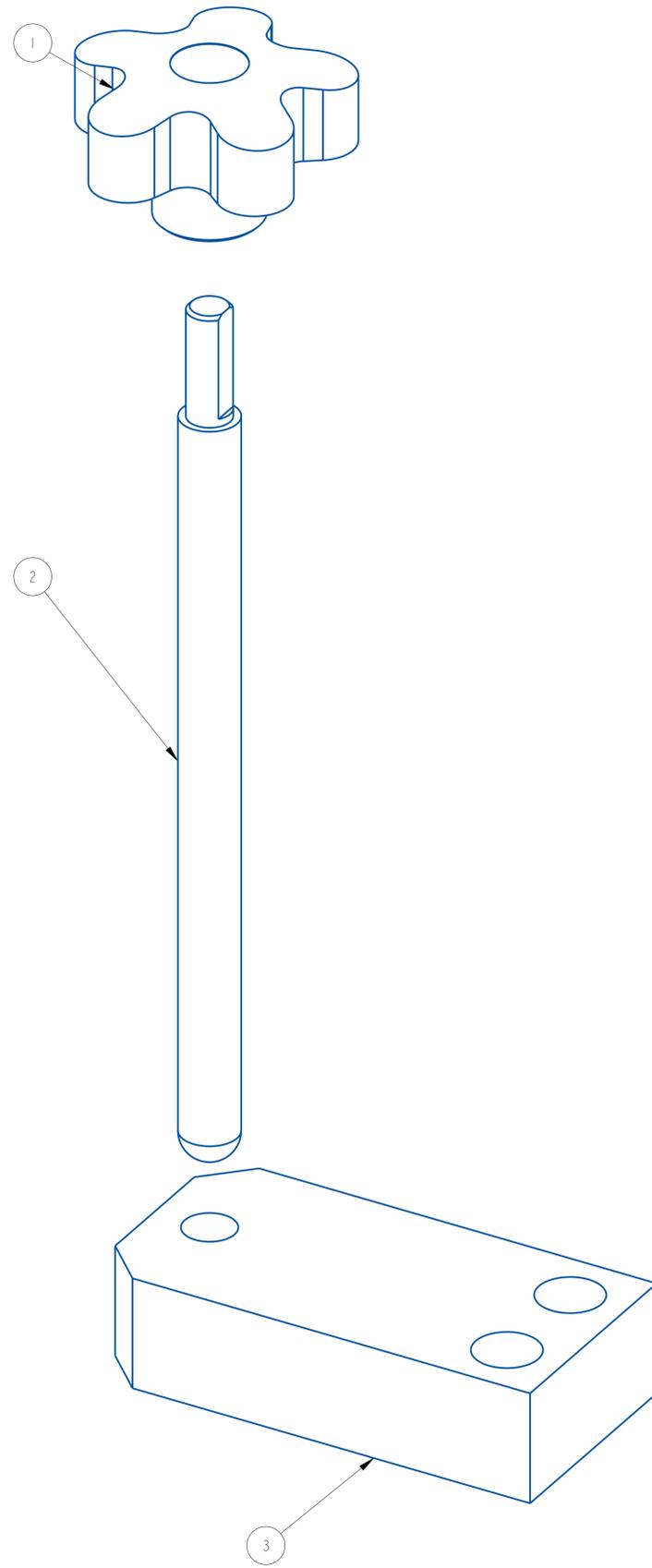
UNLESS OTHERWISE SPECIFIED
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 .x ± .1
 .xx ± .01
 .xxx ± .005
 ANGLES ± .30°
 SURFACE FINISH 125
 BREAK ALL EDGES .005/.015
 CORNER RADIUS .010/.030
 ALL ANGLES ARE 90°

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

SCALE: 1/2
 DATE: 3-20-19
 DRW BY: TJS
 CHK BY: 03/28/2024-SEM
 APPR BY:

0105/110/120/125 HEAD ON A STAND TOP APPLY YOKE ASSEMBLY
 MAT'L: 22816-000

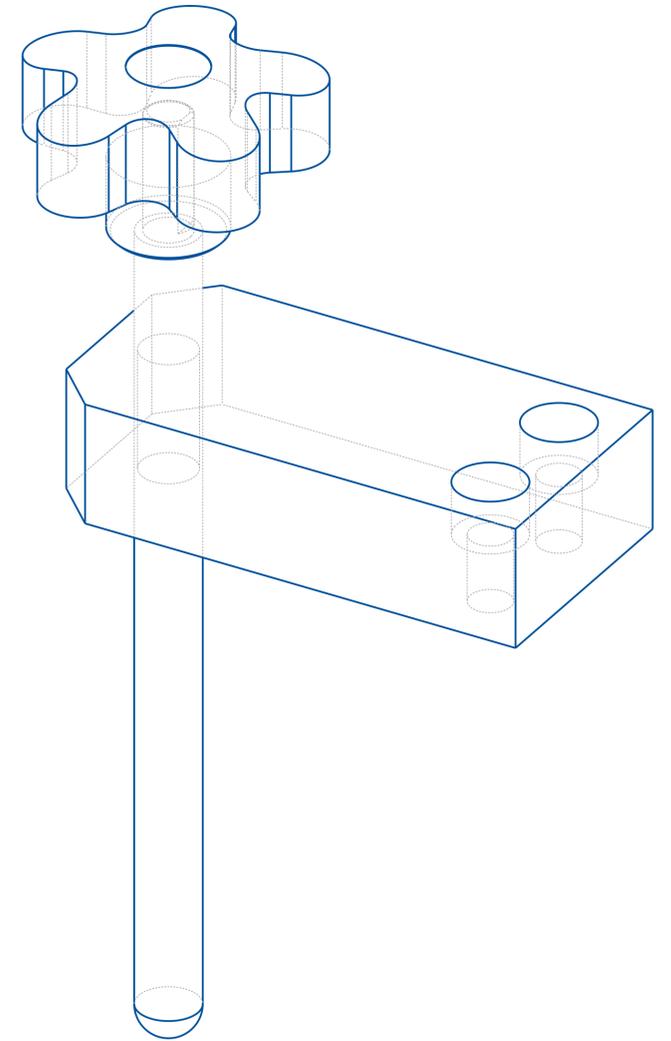
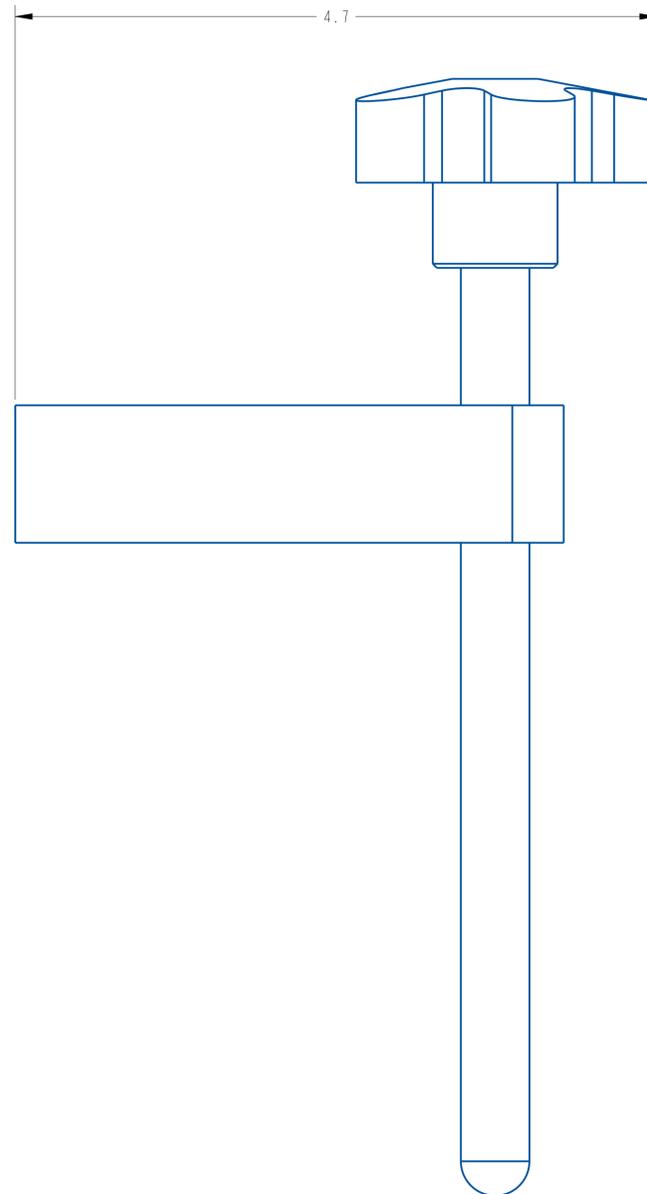
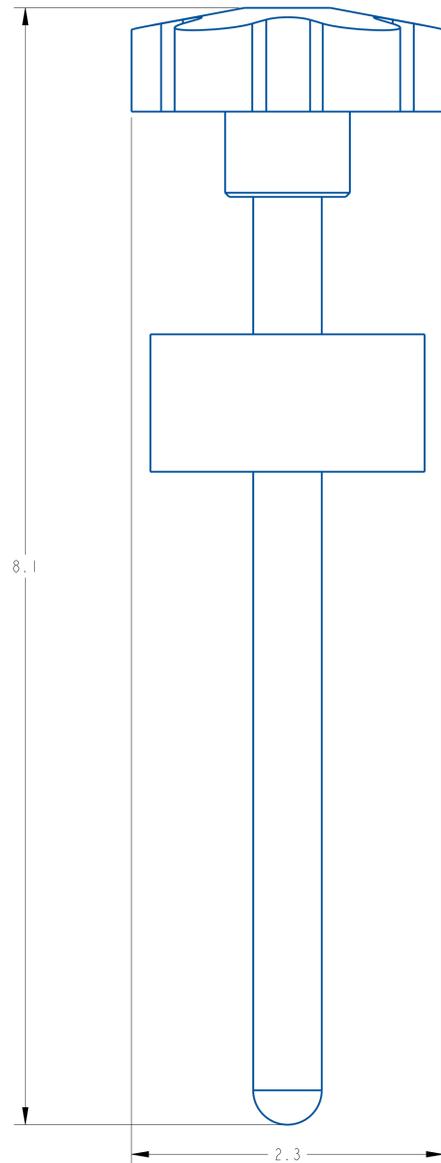
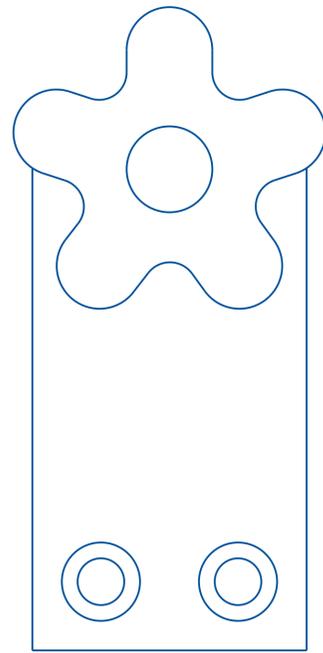
ITEM	QTY	PART NO.	DESCRIPTION	PARENT ITEM
1	1	793045-000	DIAMOND KNURL KNOB	22824-003
2	1	A26179-007	KNOB STUD	22824-003
3	1	C21348-005	ADJUSTMENT PLATE	22824-003



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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: 3/2 DATE: Oct-10-25 DRW BY: RDL APPR BY:	
	ADJUSTMENT BLOCK ASSEMBLY		
	MAT'L	22824-003	22824-003



REV	DATE	DESCRIPTION	BY
A	Oct-10-25	NEW DRAWING	RDL

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UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE X ± .1 XX ± .01 XXX ± .005 ANGLES ± 30°	QUADREL LABELING SYSTEMS 7670 JENTHER DRIVE MENTOR, OHIO 44060 (440) 602-4700		SCALE: 3/2 DATE: Oct-10-25 DRW BY: RDL APPR BY:
	ADJUSTMENT BLOCK ASSEMBLY		
	SURFACE FINISH 125 BREAK ALL EDGES .005/.015 CORNER RADIUS .010/.030	MAT'L 22824-003	22824-003
	SHEET 2 OF 2		

ASSEMBLY TITLE: PRODUCT DETECT ASSEMBLY

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-stream 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:

- No label trigger or intermittent trigger.

WHAT TO DO:

- 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).

**203300-000 PRODUCT DETECT SENSOR, LASER
202161-000 CABLE, M12
252019-000 CONNECTOR
A20653-008 CLAMPING ROD**

Q3X Laser Contrast Sensor



Quick Start Guide

Laser Expert™ diffuse sensor with bipolar (1 PNP & 1 NPN) output. Patent pending.

This guide is designed to help you set up and install the Q3X Sensor. For complete information on programming, performance, troubleshooting, dimensions, and accessories, please refer to the Instruction Manual at www.bannerengineering.com. Search for p/n 181485 to view the manual. Use of this document assumes familiarity with pertinent industry standards and practices.



WARNING: Not To Be Used for Personnel Protection

Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

Features

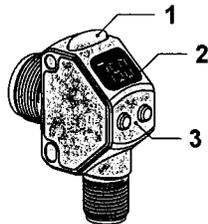


Figure 1. Sensor Features

1. Output Indicator (Amber)
2. Display
3. Buttons

Display and Indicators



Figure 2. Display in Run Mode

1. Stability Indicator (STB = Green)
2. Active TEACH Indicators
 - DYN = Dynamic TEACH selected (Amber)
 - WND = Symmetric window thresholds are active (Amber)

In Run mode, the 3-digit, 7-segment display provides real time information about signal strength for all models and target position for models with a fixed background suppression distance. The numeric value of 0 to 990 represent the amount of the received light divided by the threshold, and represents the excess gain of the sensing event expressed as a percentage of the switch point. This value is called normalized signal strength (NSS). A NSS display range of 999 indicates a saturated received light signal, meaning that low contrast detection is not possible.

In single threshold teach modes (Two-Point Static, Dynamic, Light Set, or Dark Set), the output switches at a displayed value of 100 (excess gain of 1.0).

For models with a specified background suppression distance, \overline{LWT} indicates that a target is present at a distance beyond the background suppression distance and is being suppressed. In Light Operate mode, the output switches off when \overline{LWT} displays. For the LD50 models, the sensor's output state when displaying \overline{LWT} can be controlled using the \overline{LED} menu. By default, the sensor treats a target in the background as a dark signal and honors the LO/DO selection.

A displayed value of - - - indicates no light received or a loss of signal.



In Window Set teach mode, the value 100 represents the taught signal strength. The displayed value is the percentage of the received light divided by the taught signal strength. The output switches at displayed values above and below 100 as determined by the user-selected window offset percentage.

Output Indicator

- On—Outputs conducting (closed)
- Off—Outputs not conducting (open)

Stability Indicator (STB)

- On—Stable light signal received
- Flashing—Light intensity is within the switching threshold hysteresis band
- Off—No light signal received

Active TEACH Indicators (DYN and WND)

- DYN and WND off—Two-Point Static, Light Set, or Dark Set TEACH mode selected (Two-Point Static TEACH is the default).
- DYN and/or WND flashing—The sensor is in TEACH mode.
- DYN on—Dynamic TEACH mode selected
- WND on—Symmetric Window thresholds are active. The switch points are above and below 100 by the offset percentage

Buttons



Use the sensor buttons **(-)(MODE)** and **(+)(TEACH)** to program the sensor. See *Sensor Programming* on page 4 for programming instructions.

(-)(MODE)

- Decrease gain: press and release **(-)(MODE)**, then press and hold **(-)(MODE)** to rapidly decrease gain
- Enter Setup mode: press and hold **(-)(MODE)** for longer than 2 seconds
- Navigate the sensor menu: press **(-)(MODE)**
- Change setting values: press and hold **(-)(MODE)** to decrease numeric values

(+)(TEACH)

- Increase gain: press and release **(+)(TEACH)**, then press and hold **(+)(TEACH)** to rapidly increase gain
- Start the currently selected TEACH mode: press and hold **(+)(TEACH)** for longer than 2 seconds (Two-Point Static TEACH is the default)
- Navigate the sensor menu: press **(+)(TEACH)**
- Change setting values: press and hold **(+)(TEACH)** to increase numeric values

(-)(MODE) and (+)(TEACH)

- Select menu items in Setup mode: press **(-)(MODE)** and **(+)(TEACH)** simultaneously
- Select and save a parameter and return to Run mode: press **(-)(MODE)** and **(+)(TEACH)** simultaneously for longer than 2 seconds

When navigating the menu systems, the menu items loop.

Laser Description and Safety Information



CAUTION: Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure. Do not attempt to disassemble this sensor for repair. A defective unit must be returned to the manufacturer.

Sensor Menu Map

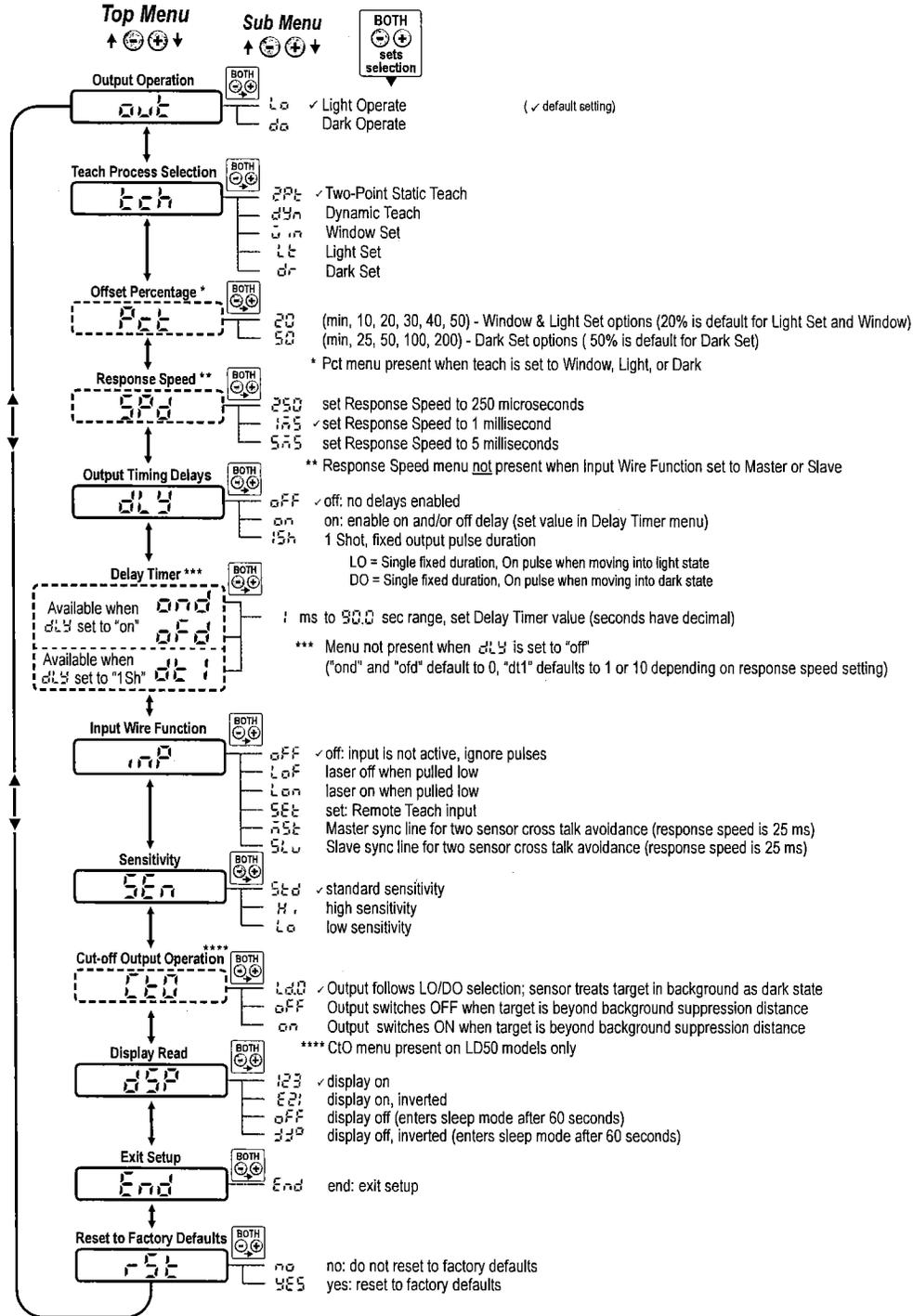


Figure 10. Setup Mode Menu Map

1957

COMPLIES WITH 21 CFR 1040.10 AND 1040.11 EXCEPT FOR DEVIATIONS PURSUANT TO LASER NOTICE No. 56, DATED JUNE 24, 2007.
BANNER ENGINEERING CORP.
9714 10TH AVENUE NORTH
MINNEAPOLIS, MN 55441

SERIES
Q3X



LASER LIGHT
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT

COMPLIES WITH IEC 60825-1:2007

Laser wavelength: 655 nm
Output: < 0.42 mW
Pulse Duration: 5 μ s

Installation

Install the Safety Label

The safety label must be installed on Q3X sensors that are used in the United States.



NOTE: Position the label on the cable in a location that has minimal chemical exposure.

1. Remove the protective cover from the adhesive on the label.
2. Wrap the label around the Q3X cable, as shown.
3. Press the two halves of the label together.

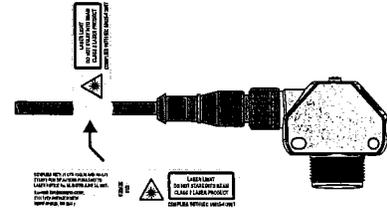


Figure 3. Safety Label Installation

Sensor Orientation

Correct sensor-to-target orientation is important to ensure proper sensing. To ensure reliable detection, orient the sensor as shown in relation to the target to be detected.

For models with background suppression, make sure the intended target is inside of the contrast sensing range and that any background objects are positioned beyond the background suppression distance.

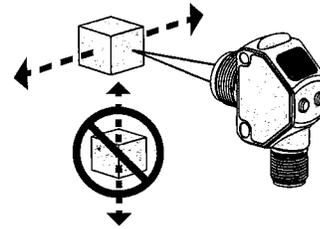
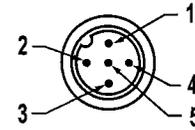
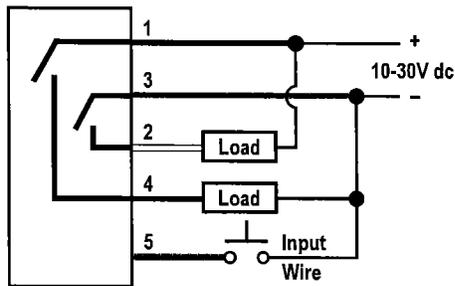


Figure 4. Optimal Orientation of Target to Sensor

Sensor Mounting

1. If a bracket is needed, mount the sensor onto the bracket.
2. Mount the sensor (or the sensor and the bracket) to the machine or equipment at the desired location. Do not tighten at this time.
3. Check the sensor alignment.
4. Tighten the screws to secure the sensor (or the sensor and the bracket) in the aligned position.

Wiring Diagram



Key

- 1 = Brown
- 2 = White
- 3 = Blue
- 4 = Black
- 5 = Gray



NOTE: Open lead wires must be connected to a terminal block.



NOTE: The input wire function is user-selectable; see the Instruction Manual for details. The default for the input wire function is off (disabled).

Cleaning and Maintenance

Handle the sensor with care during installation and operation. Sensor windows soiled by fingerprints, dust, water, oil, etc. may create stray light that may degrade the peak performance of the sensor. Blow the window clear using filtered, compressed air, then clean as necessary using 70% isopropyl alcohol and cotton swabs or water and a soft cloth.

Sensor Programming

Program the sensor using the buttons on the sensor or the input wire (limited programming options; see the Instruction Manual for details).

In addition to programming the sensor, use the input wire to disable the buttons for security, preventing unauthorized or accidental programming changes. See the Instruction Manual for more information.

Setup Mode

1. Access Setup mode from Run mode by pressing and holding **MODE** for longer than 2 seconds.
2. Use \ominus or \oplus to navigate through the top menu.
3. Select the desired submenu by pressing \ominus and \oplus simultaneously.
4. Press \ominus or \oplus to view the available options in the submenu.
5. Select a submenu option.
 - Press \ominus and \oplus simultaneously to select and save a submenu option and return to the top menu.
 - Press \ominus and \oplus simultaneously for longer than 2 seconds to select and save a submenu option and return to Run mode.



NOTE: The current submenu selection is solid, all other selections flash.

To exit Setup mode from the top menu and return to Run mode, navigate to **Exit** and press \ominus and \oplus simultaneously, or press and hold \ominus and \oplus simultaneously for longer than 2 seconds to return to Run mode from anywhere in the top menu.

Basic TEACH Instructions

Use the following instructions to teach the Q3X sensor. The instructions provided on the sensor display vary depending on the type of TEACH mode selected. Two-point TEACH is the default TEACH mode.

1. Press and hold **TEACH** for longer than 2 seconds to start the selected TEACH mode.
2. Present the target.
3. Press **TEACH** to teach the target. The target is taught and the sensor waits for the second target, if required by the selected TEACH mode, or returns to Run mode.

Complete steps 4 and 5 only if prompted by the sensor for the selected TEACH mode:

4. Present the second target.
5. Press **TEACH** to teach the target. The target is taught and the sensor returns to Run mode.

See the Instruction Manual for detailed instructions and other available TEACH modes.

Manual Adjustments

Manually increase or decrease gain using \ominus or \oplus .

1. From Run mode, press either \ominus or \oplus one time. The current signal strength value flashes slowly.
2. Press \ominus to decrease the sensor's gain or \oplus to increase the sensor's gain, or press and hold \ominus or \oplus to rapidly decrease or increase gain. After 1 second, the normalized signal strength flashes rapidly, the new setting is accepted, and the sensor returns to Run mode.

Locking and Unlocking the Sensor Buttons

Use the lock and unlock feature to prevent unauthorized or accidental programming changes.

To lock or unlock the sensor using the buttons, press and hold \oplus and immediately press \ominus four times.

Performance Curves

Performance is based on a 90% reflectance white test card.

Q3XTBLD Models

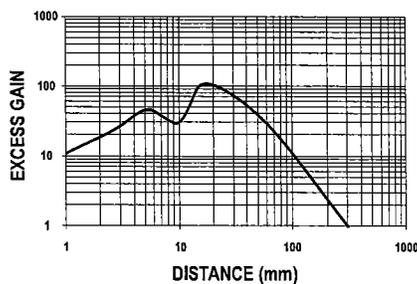


Figure 5. Excess Gain for Standard Sensitivity

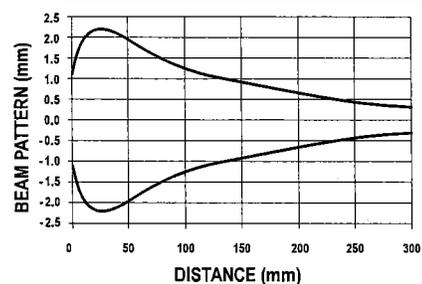


Figure 6. Beam Pattern



NOTE: For High Sensitivity the Excess Gain increases by a factor of 1.5. For Low Sensitivity the Excess Gain decreases by a factor of 0.75

Q3XTBLD50 Models (A 6% black card sensing cut-off distance will be 95% of a 90% reflective white card.)

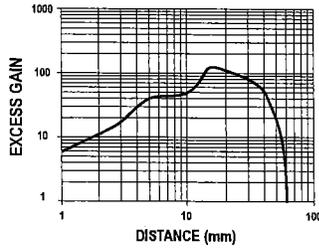


Figure 7. Excess Gain for Standard Sensitivity

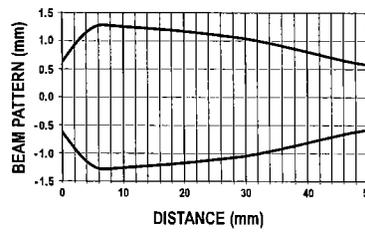


Figure 8. Beam Pattern

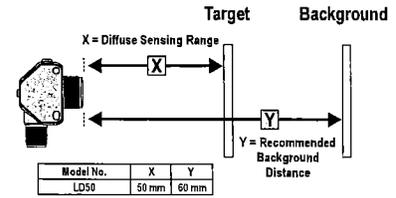


Figure 9. Q3XTBLD50 Contrast Detection versus Background Suppression



NOTE: For High Sensitivity the Excess Gain increases by a factor of 1.5. For Low Sensitivity the Excess Gain decreases by a factor of 0.75

Banner Engineering Corp. Limited Warranty

Banner Engineering Corp. warrants its products to be free from defects in material and workmanship for one year following the date of shipment. Banner Engineering Corp. will repair or replace, free of charge, any product of its manufacture which, at the time it is returned to the factory, is found to have been defective during the warranty period. This warranty does not cover damage or liability for misuse, abuse, or the improper application or installation of the Banner product.

THIS LIMITED WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER EXPRESS OR IMPLIED (INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE), AND WHETHER ARISING UNDER COURSE OF PERFORMANCE, COURSE OF DEALING OR TRADE USAGE.

This Warranty is exclusive and limited to repair or, at the discretion of Banner Engineering Corp., replacement. **IN NO EVENT SHALL BANNER ENGINEERING CORP. BE LIABLE TO BUYER OR ANY OTHER PERSON OR ENTITY FOR ANY EXTRA COSTS, EXPENSES, LOSSES, LOSS OF PROFITS, OR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES RESULTING FROM ANY PRODUCT DEFECT OR FROM THE USE OR INABILITY TO USE THE PRODUCT, WHETHER ARISING IN CONTRACT OR WARRANTY, STATUTE, TORT, STRICT LIABILITY, NEGLIGENCE, OR OTHERWISE.**

Banner Engineering Corp. reserves the right to change, modify or improve the design of the product without assuming any obligations or liabilities relating to any product previously manufactured by Banner Engineering Corp.

Specifications

Sensing Beam

Visible red Class 2 laser, 655 nm

Supply Voltage (Vcc)

10 to 30 V dc

Power and Current, exclusive of load

Supply Power: < 675 mW

Current consumption: < 28 mA at 24 V dc

Sensing Range

Model	Contrast Sensing Range	Background Suppression Distance
Q3XTBLD-Q8	0 to 300 mm (11.81 in)	Not Applicable
Q3XTBLD50-Q8	0 to 50 mm (1.97 in)	60 mm (2.36 in)

Output Configuration

Bipolar (1 PNP & 1 NPN) output

Output Rating

Off-state Leakage Current: < 10 µA

NPN On-state saturation voltage: < 200 mV at 10 mA and < 1.0 V at 100 mA

PNP On-state saturation voltage: < 1 V at 10 mA and < 2.0 V at 100 mA

Input Wire

Allowable Input Voltage Range: 0 to Vcc

Active Low (internal weak pullup—sinking current): Low State < 2.0 V at 1 mA max.

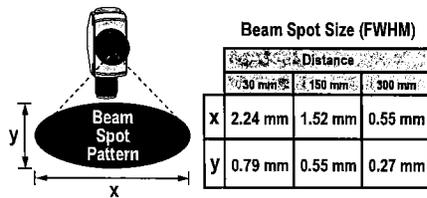
Supply Protection Circuitry

Protected against reverse polarity and transient over-voltages

Repeatability

60 µs

Beam Spot Size



Response Speed

User selectable:

- 250 — 250 microseconds
- 100 — 1 millisecond
- 500 — 5 milliseconds

Delay at Power Up

1 s

Ambient Light Immunity

> 5000 lux

Maximum Torque

Side mounting: 1 N·m (9 in·lbs)

Nose mounting: 10 N·m (88 in·lbs)

Connector

5-pin Euro M12 Integral Connector

Construction

Housing: Nickel-plated zinc die-cast

Side cover: Nickel-plated aluminum

Lens cover: Scratch-resistant PMMA acrylic

Lightpipes and display window: Polysulfone

Adjustment buttons: 316 stainless steel

Vibration

MIL-STD-202G, Method 201A (10 to 60 Hz, 0.06 in (1.52 mm) double amplitude, 2 hours each along X, Y and Z axes), with sensor operating

Shock

MIL-STD-202G, Method 213B, Condition I (100G 6x along X, Y and Z axes, 18 total shocks), with sensor operating

Environmental Rating

IEC IP67 per IEC60529

IEC IP68 per IEC60529

IEC IP69K per DIN40050-9

Operating Conditions

Temperature: -10 °C to +50 °C (+14 °F to +122 °F)

Humidity: 35% to 95% relative humidity

Storage Temperature

-25 °C to +75 °C (-13 °F to +167 °F)

Certifications



Class 2 power
Ind. Cont. Eq.
3TJJ

UL Environmental Rating: Type 1

Class 2 Power supply/source to be provided with 1A overcurrent protection device. Power supply could be current limiting or an 1A external fuse is required on the power output.

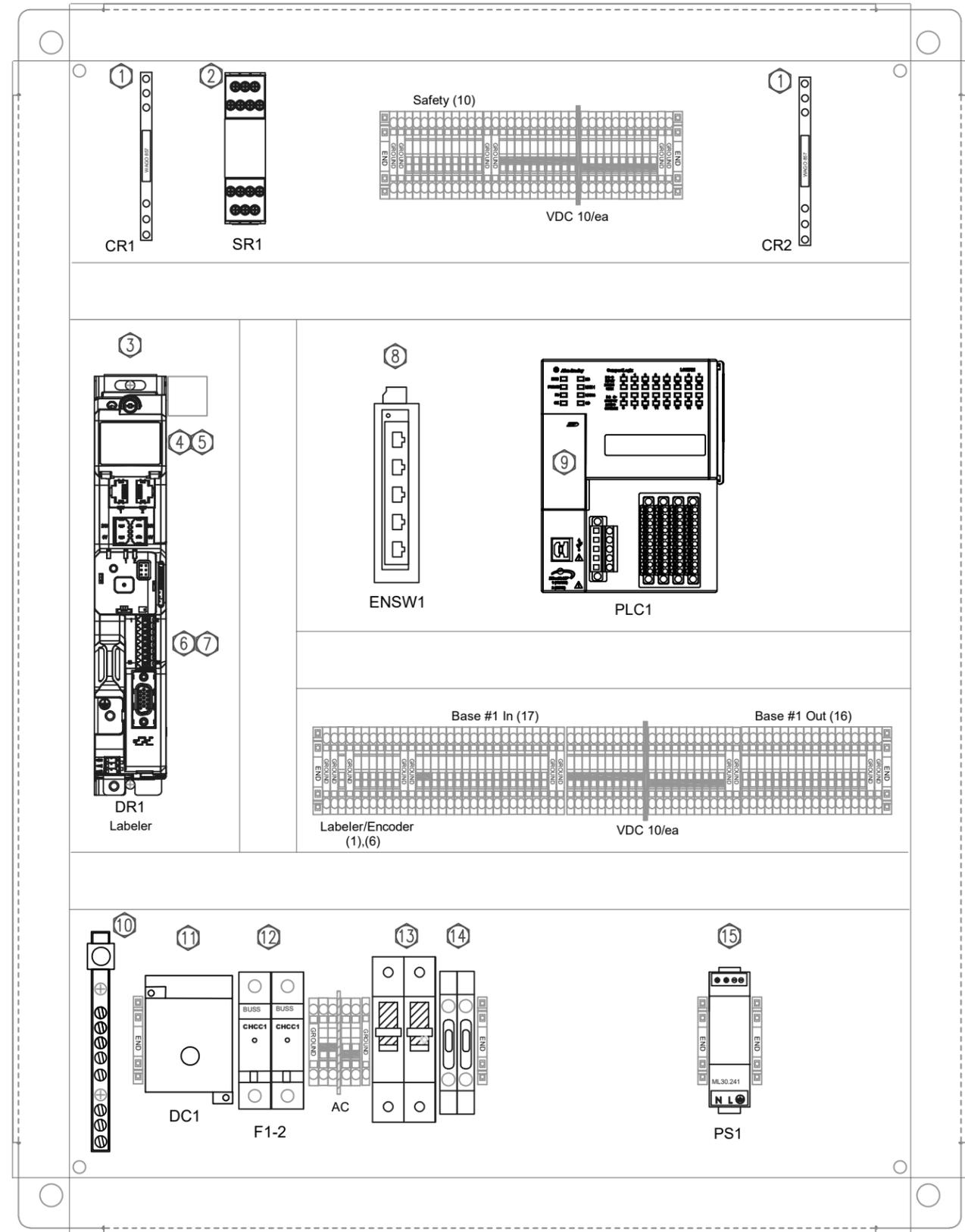
Electronics

1" Wireway Unless Noted
 Component Hardware: 8-32 SHCS
 Wireway/Din Rail Hardware: 8-32 BHCS

--	262822-001	1	Ethernet Cable, 3ft
--	262822-006	2	Ethernet Cable, 2ft
--	251801-000	2	2 Position Jumper, ST2.5
--	251859-000	4	10 Position Jumper, ST1.5
--	251855-000	3	2 Position Jumper, ST1.5
--	251798-000	3	Partition Plate, ST1.5-4
--	251796-000	2	Phoenix Contact 3031238 Ground Terminal
--	251797-000	4	Phoenix Contact 3031212 Terminal Block
--	251795-000	6	Phoenix Contact 3022276 End Terminal
--	251854-000	17	Phoenix Contact 3031513 Ground Terminal
--	251853-000	96	Phoenix Contact 3031076 Terminal Block
--	251799-000	3	End Cap, ST1.5-2,5
--	241053-000	2	Fuse, 3A, 1.25x.25 Bussman MDL-3-R
--	241186-000	2	Fuse, 8A, CC Bussman LP-CC-8

15	211528-005	1	Power Supply, 24V, 2.5A
14	251788-001	2	Fuse Holder, 300V, Indicating
13	241116-001	1	Circuit Breaker, 2 Pole, 10A
12	241285-000	2	Fuse Holder, CC
11	272117-002	1	C3 Disconnect, 25A Base Mount
10	251830-002	1	Ground Bar
9	221616-006	1	PLC, Allen Bradley CompactLogix L16-ER
8	221682-000	1	Ethernet Switch, 5 Port
7	412410-002	1	DB44 Cable, Female, for IO Plus
6	411902-001	1	IO 24 Plus Module
5	411902-000	1	PTi Module
4	411901-000	1	Option Card Mounting Kit
3	411900-000	1	Servo Drive, Digitax HD M750
2	221650-005	1	Safety Relay, Phoenix PSR-ME20
1	202628-000	2	Relay, 24V

SCE-30P24



UNLESS OTHERWISE SPECIFIED DIMENSIONAL TOLERANCE .X ± .XTOL .XX ± .XXTOL .XXX ± .XXXTOL ANGLES ± ANG.TOL SURFACE FINISH FINISH.TOL 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: 11MAR2026
MAT'L 84210E-000	Custom ML125 Panel Layout	DRAWN BY: CMT
		REVISED:
		B84210-000P

Q125 LABELING SYSTEM
 220VAC SINGLE PHASE, 8A
 COMPACTLOGIX L24ER PLC
 NIDEC SERVO

Page Listing:
 1: Main AC, Safety Relay
 2: Labeler
 3: PLC, HMI
 4: Sensors

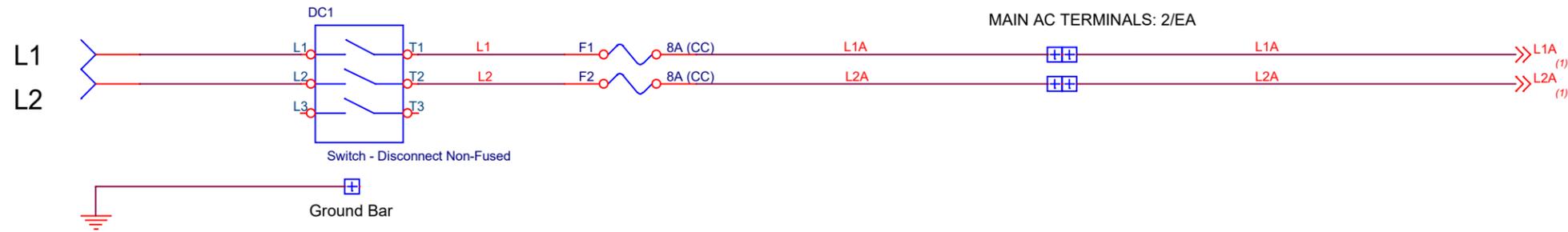
WIRE SIZE/COLOR TABLE (UNLESS OTHERWISE NOTED)

120,240VAC:14AWG BLACK
 24VDC/SIGNAL: 18AWG BLUE
 0VDC: 18AWG WHITE/BLUE
 EARTH GROUND WIRES: 14 AWG GREEN/YELLOW
 AC MOTOR WIRES: 4-16AWG

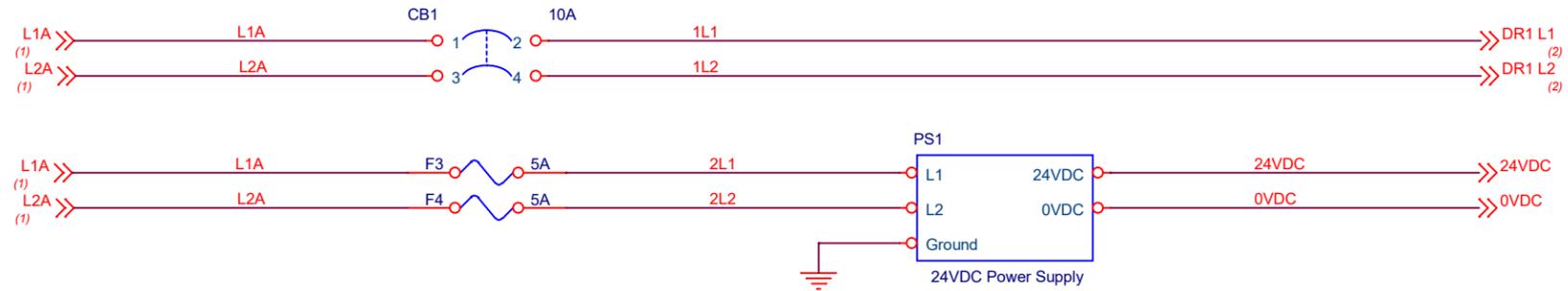
-  : Terminal Block
-  : 2 Jumpered Terminal Blocks
-  : 3 Jumpered Terminal Blocks, etc

QUADREL				
LABELING SYSTEMS				
7670 JENTHER DR.				
MENTOR, OH				
44060				
Drawn By: CMT	REV	DESCRIPTION	CMT BY	10MAR2026 DATE
Title				
Q125				
Schematic #				Rev
SB84210-000				-
Date: Tuesday, March 10, 2026			Sheet 00 of	4

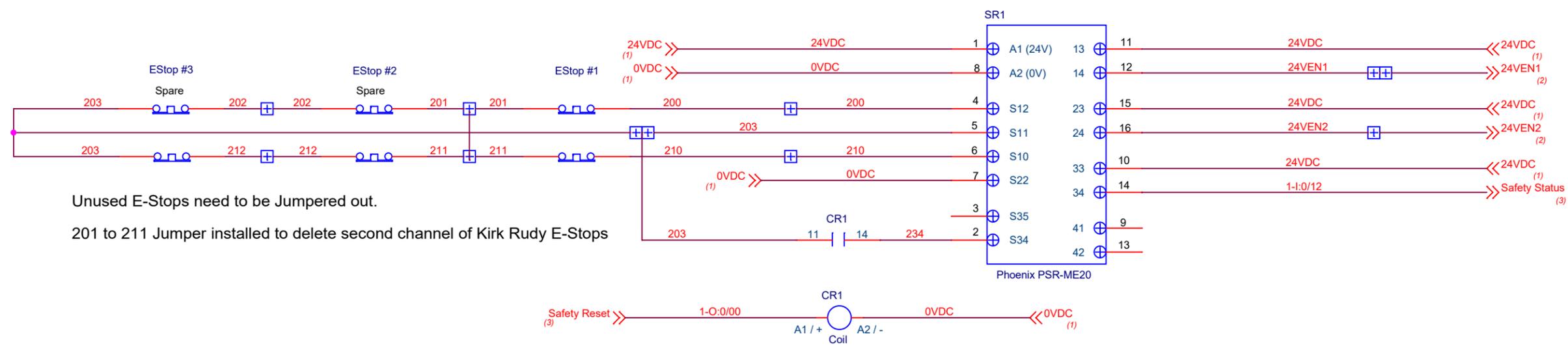
208/220VAC 1PH. 8AMP



WIRES RUN INDIVIDUALLY TO BREAKERS / FUSES FROM
TERMINAL BLOCKS

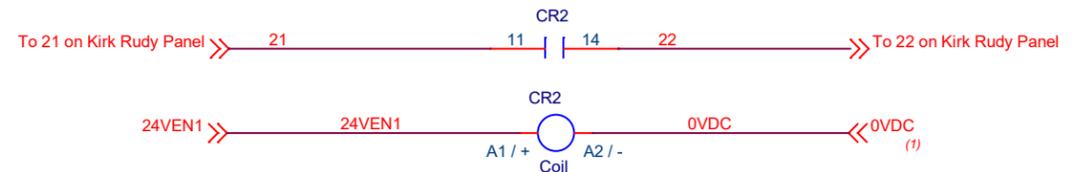


Labeler



Unused E-Stops need to be Jumpered out.
201 to 211 Jumper installed to delete second channel of Kirk Rudy E-Stops

Interlock Relay: Interface from Quadrel Enclosure to Kirk Rudy Conveyor Panel



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

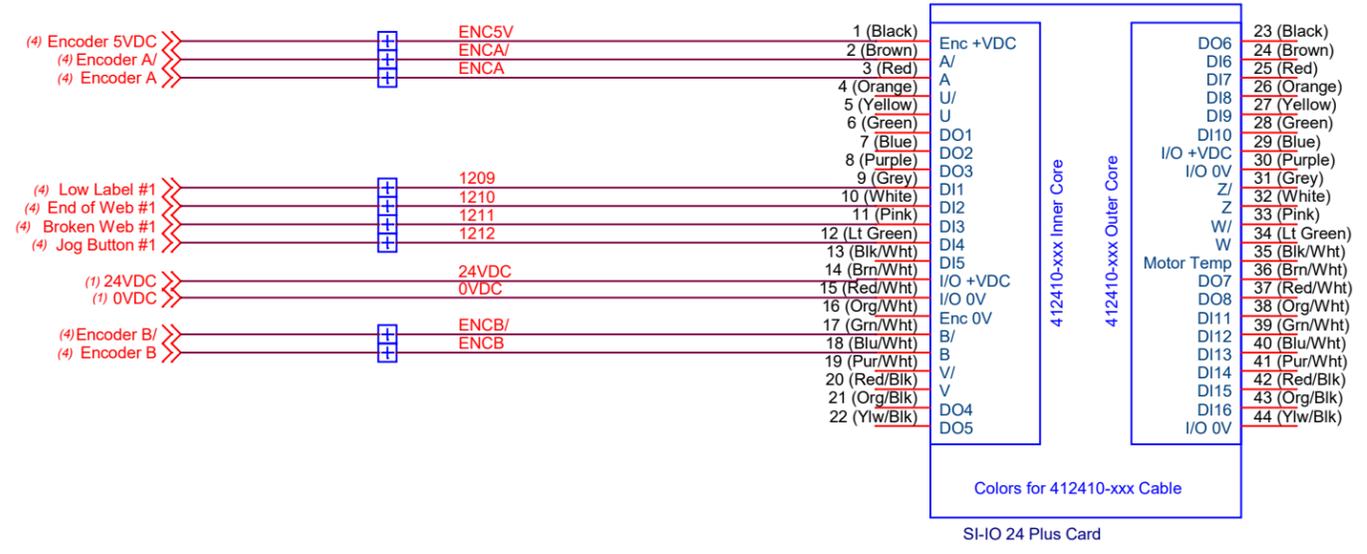
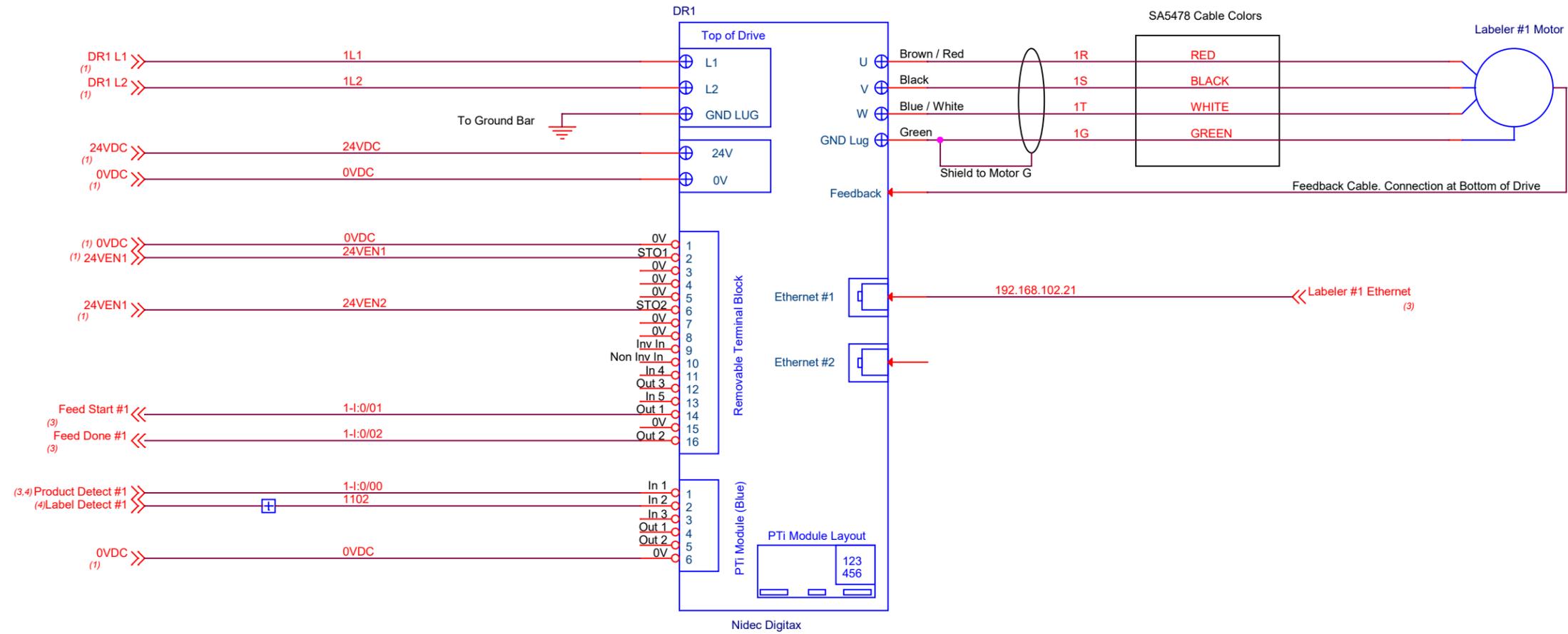
QUADREL LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH 44060

Drawn By: CMT	Release	CMT	10MAR2026
REV	DESCRIPTION	BY	DATE

Title
MAIN AC, SAFETY RELAY

Schematic #
SB84210-000

Date: Wednesday, March 11, 2026 | Sheet 01 of 4



COLOR	TECHNICIAN	DATE

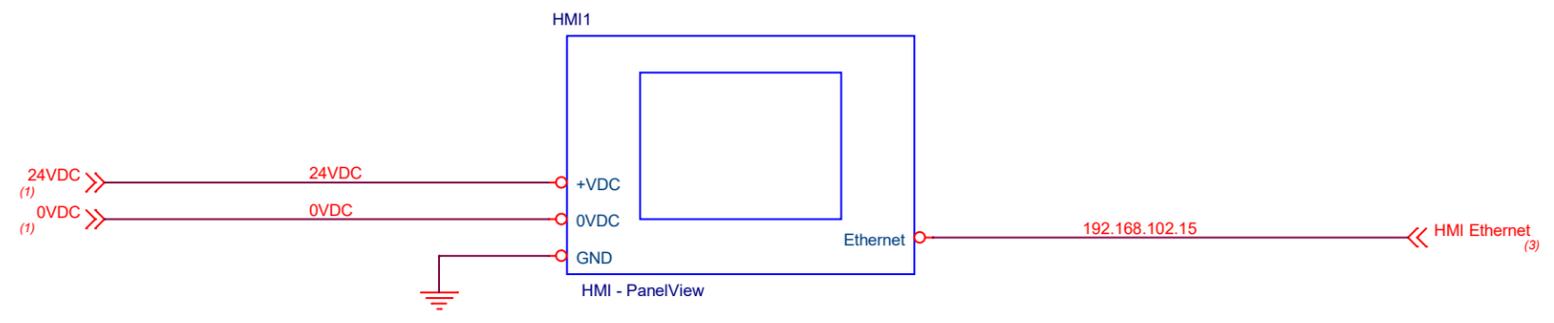
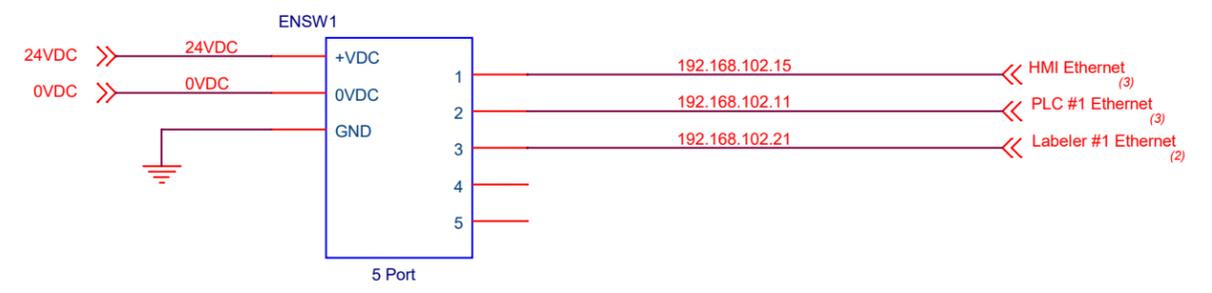
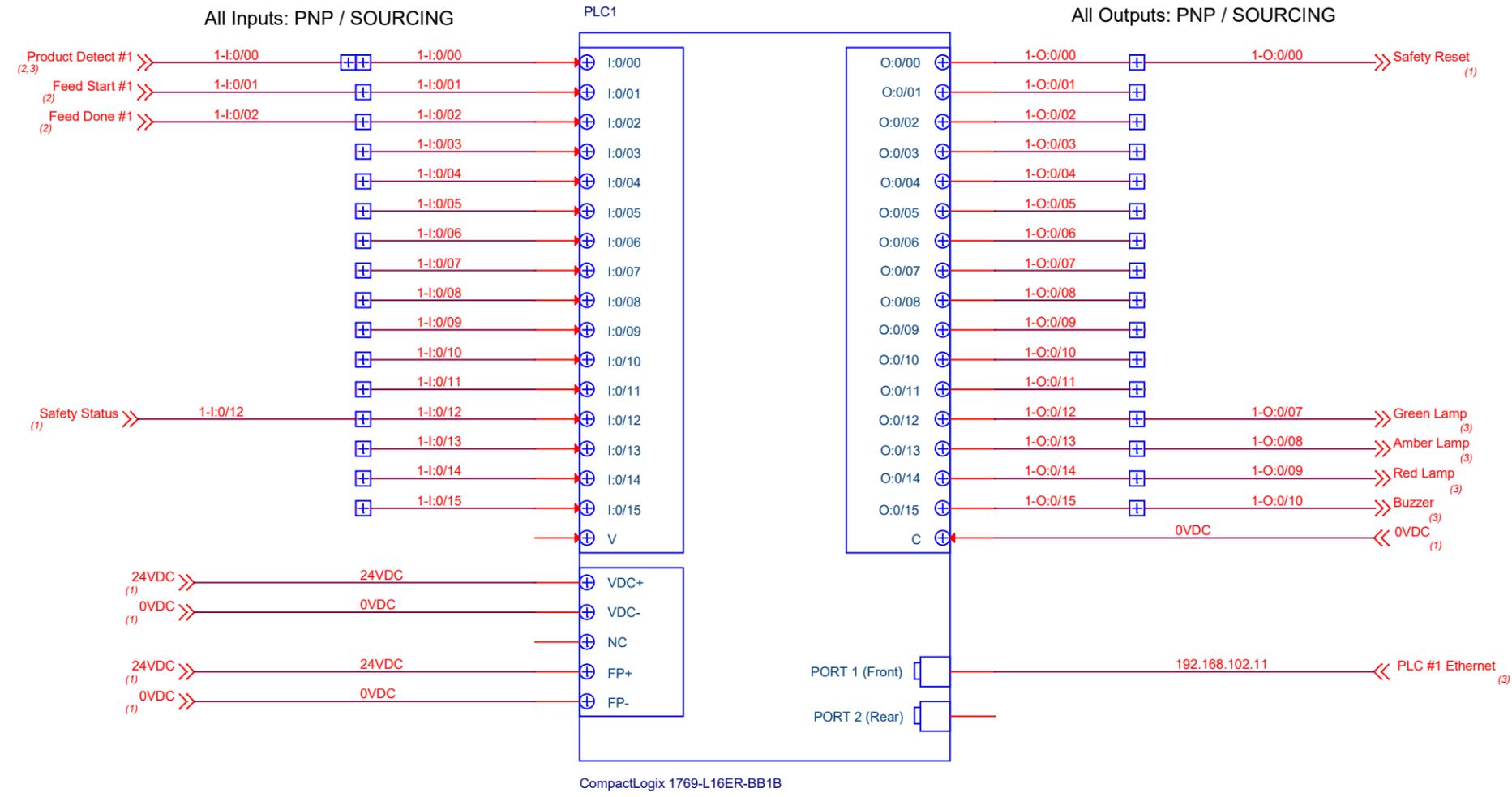
For Quadrel Assembly Use

QUADREL LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH 44060

Drawn By: CMT
Title: LABELER DRIVE
Schematic #: SB84210-000

REV	DESCRIPTION	CMT	DATE
-	Release		10MAR2026

Date: Tuesday, March 10, 2026 | Sheet 02 of 4



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use

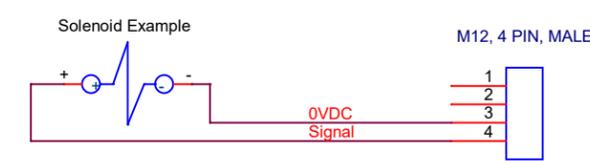
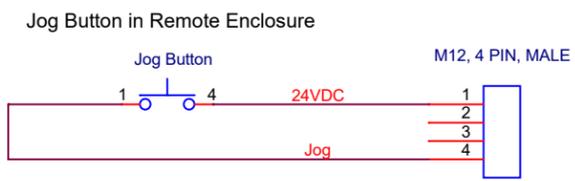
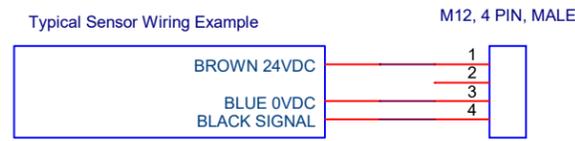
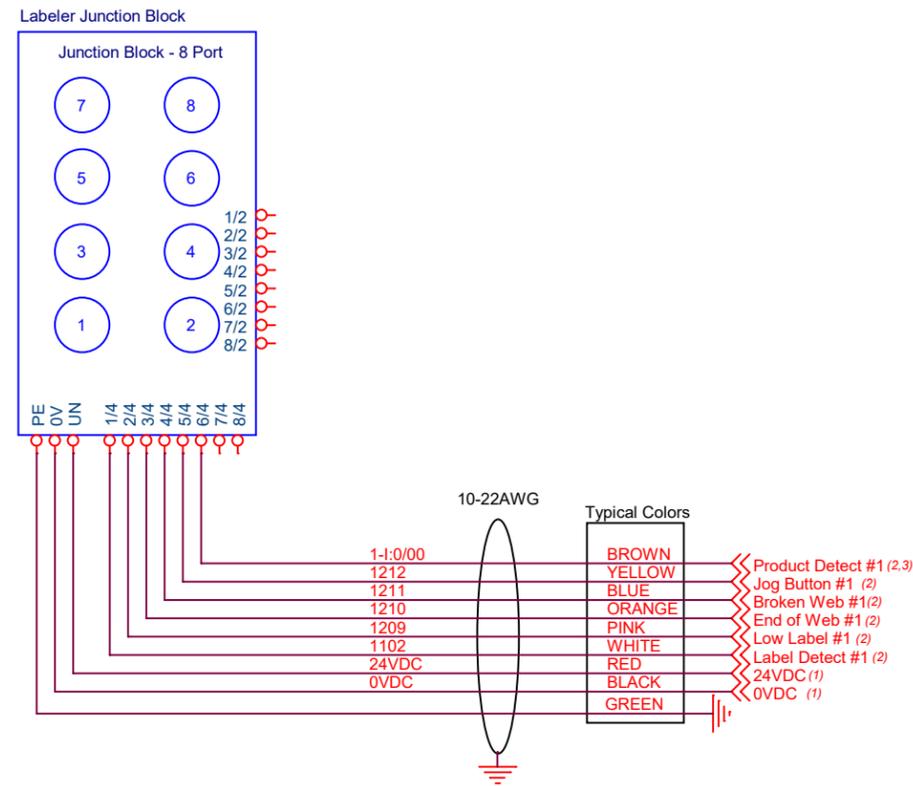
QUADREL LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH 44060

Drawn By: CMT	Release	CMT	10MAR2026
REV	DESCRIPTION	BY	DATE

Title: **PLC, HMI**

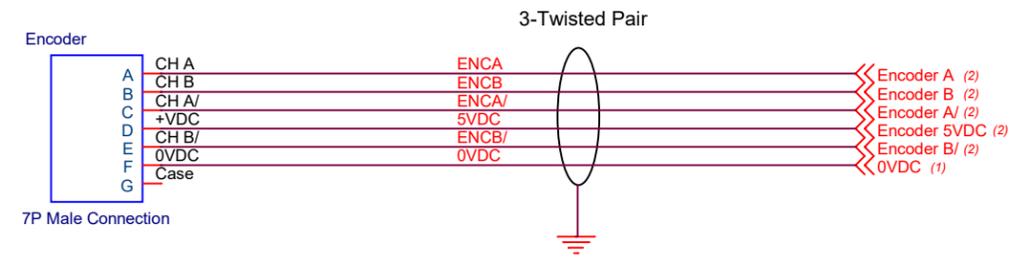
Schematic # **SB84210-000** Rev **-**

Date: Tuesday, March 10, 2026 | Sheet 03 of 4



COLOR	TECHNICIAN	DATE

For Quadrel Assembly Use



QUADREL LABELING SYSTEMS
7670 JENTHER DR.
MENTOR, OH 44060

Drawn By: CMT

Title: **SENSORS**

Schematic #: **SB84210-000**

Date: Tuesday, March 10, 2026

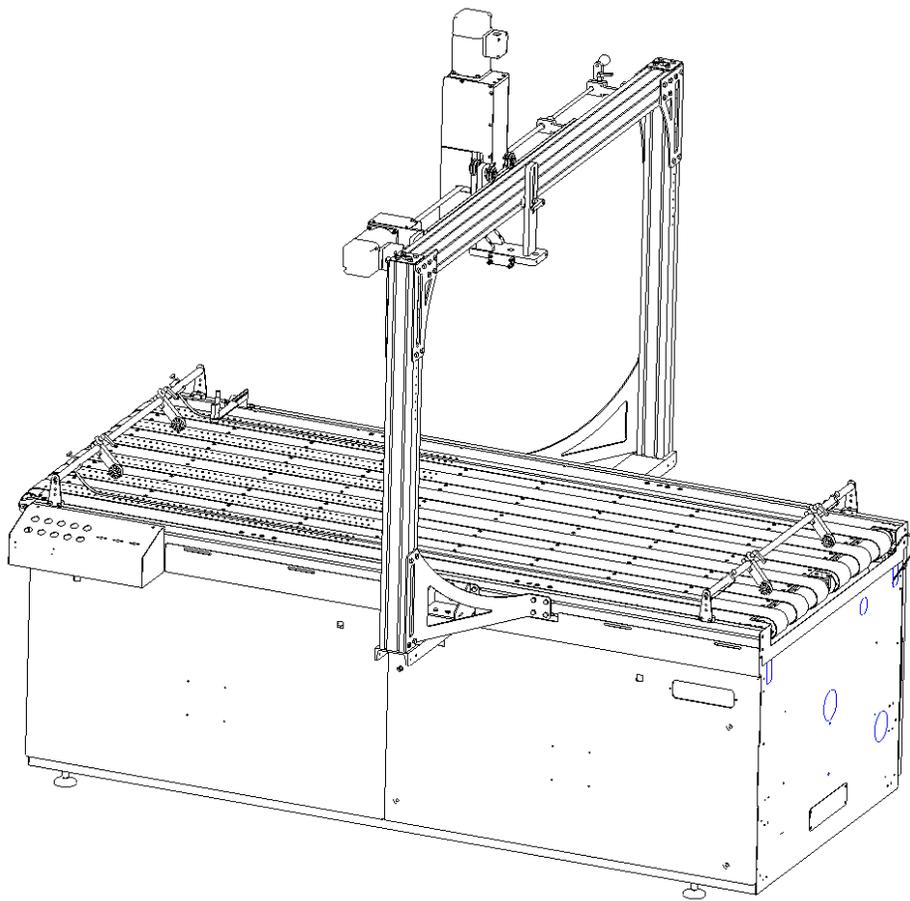
REV	DESCRIPTION	CMT BY	DATE
-	Release	CMT	10MAR2026

Sheet 04 of 4



Kirk-Rudy, Inc.

**KR619G88 Gantry Base
Instruction and Parts Manual**



Manufactured by Kirk-Rudy, Inc.

Before using this machine, all operators must study this manual to understand and follow the safety warnings and instructions. Keep these instructions with the machine for future reference. If you have any questions, contact your local Kirk-Rudy, Inc. Distributor.

10000-KR619G88

Rev. 1.0

10/1/2024

Manual

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NOTE: FIGURES AND DIAGRAMS ARE NOT INCLUDED IN PAGE NUMBERS.

1.0 Important Safety Instructions

Intended Use Statement: The KR619G88 gantry base has been designed to transport product from an upstream machine for the purpose of applying a label with a label head. The vacuum conveyor belt section will convey the product for labeling under the label head mounted on a gantry. An optional outfeed divert is available to use to remove product from the product flow. An electrical interface to be used with an upstream feeder on downstream conveyor is provided. Usage for other purposes may lead to an unsafe condition.

Machine Safety Labels



ISO Warning Label
KR Part # 190740



ANSI Warning Label
KR Part # 190788

ISO bases will have the ISO label shown above and is located on the front of the control box. ANSI bases will have the ANSI label shown above and is located on the front of the control box. This label is warning that high voltage exist inside the control box.

	<p><u>WARNING</u></p> <p>Always disconnect power supply before any maintenance or service work.</p> <p>Machine can automatically start up with command from master machine. Stay clear of all moving parts unless power supply is disconnected.</p>
---	--



ISO Warning Label
KR Part # 190742



ANSI Warning Label
KR Part # 190779

ISO bases will have the ISO label shown above and is located on the front of the control box, infeed tabletop and outfeed tabletop. ANSI bases will have the ANSI label shown above and is located on the front of the control box, infeed tabletop and outfeed tabletop. This label is warning to keep fingers clear of all moving parts.



ISO Warning Label
KR Part # 190741



ANSI Warning Label
KR Part # 190782

ISO bases will have the ISO label shown above and is located on the machine guards. ANSI bases will have the ANSI label shown above and is located on the machine guards. This label is warning to call attention to a machine hazard.

Instruction and Parts Manual Warnings

SAVE THESE INSTRUCTIONS. Read all instructions before using this product.



WARNING

- * NEVER OPERATE THE MACHINE WITHOUT ALL GUARDS OR SAFETY DEVICES IN PLACE.
- * ALWAYS DISCONNECT THE POWER SUPPLY BEFORE ANY MAINTENANCE OR SERVICE WORK.
- * ALWAYS DISCONNECT AIR SUPPLIES (IF EQUIPED) BEFORE ANY MAINTENANCE OR SERVICE WORK.
- * NEVER OPERATE MACHINE WITHOUT AN OPERATOR PRESENT.
- * 110 OR 220 VAC WILL BE PRESENT INSIDE THE CONTROL BOX WITH THE SELECTOR SWITCH IN THE "OFF" POSITION.
- * KEEP FINGERS CLEAR OF ALL MOVING PARTS.
- * NEVER REMOVE PRODUCT WHILE MACHINE IS RUNNING.
- * IT IS NOT RECOMMENDED THAT LOOSE CLOTHING, JEWELRY AND LONG HAIR BE WORN WHILE OPERATING THIS MACHINE.
- * ALWAYS USE AN EXPERIENCED ELECTRICIAN WHEN TROUBLE-SHOOTING ELECTRICAL PROBLEMS.
- * CHANGES OR MODIFICATIONS TO THIS UNIT NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.
- * CONVEYOR BELTS ARE EXPOSED ON SOME AREAS OF THE MACHINE. DO NOT TOUCH BELTS WHILE MACHINE IS RUNNING. TURN MACHINE OFF BEFORE ADJUSTING BELT POSITION.
- * CONVEYOR BELTS AND PINCH ROLLER CAN CAUSE A PINCH POINT. DO NOT TOUCH INFEEED PINCH ROLLERS. TURN MACHINE OFF BEFORE ADJUSTING PINCH ROLLER POSITION.
- * IF DIVERT EQUIPED PRODUCT IS DIVERTED DOWN INTO THE BIN AT A HIGH RATE OF SPEED. THIS COULD CAUSE AN INJURY. DO NOT REMOVE PRODUCT FROM DIVERT BIN WHILE MACHINE IS RUNNING. TURN MACHINE OFF BEFORE PULLING BIN OUT TO EMPTY.
- * MACHINE CAN AUTOMATICALLY START UP WITH COMMAND FROM MASTER MACHINE IF EQUIPED. STAY CLEAR OF ALL MOVING PARTS UNLESS POWER SUPPLY IS DISCONNECTED.
- * DRIVE MOTOR WILL HEAT UP DURING CONTINUOUS OPERATION. DO NOT TOUCH.

2.0 SPECIFICATIONS

PRODUCT SIZE RANGE

	<u>English</u>	<u>Metric</u>
Minimum Size:	1.5" W x 3" L	38 mm W x 76 mm L
Maximum Size:	36" W x 17" L	558mm W x 432mm L
Minimum Thickness:	Card Stock (.01")	Card Stock (.25mm)
Maximum Thickness:	1.00"	25.4 mm

SPEED

Standard: Up to 600 feet (182 m) per minute maximum

Optional: Up to 1000 feet (305 m) per minute maximum

MACHINE DATA

Length:	90.00"	229 cm
Width:	72.00"	183 cm
Height:	76.50"	194 cm
Tabletop Height:	33.25"- 34.50"	84.5 cm - 87.6 cm
(w/Hydralift Option):	33.25"- 37.25"	84.5 cm – 94.6 cm

ELECTRICAL RATING OF PRODUCT

Main Power Input: 110 Volt, Single Phase, 50/60 Cycle, AC, 20A.

Belt Drive Motor: 1 HP

EXTERNAL INTERFACE CONNECTORS

Main Power:

Stop in: 2-pin female Turck

Stop out: 2-pin male Turck

E-stop interface with line: 6-Pin Phoenix connector

Product Tracking Beam switch: M12 connector (optional)

PHYSICAL ENVIRONMENT, OPERATING & STORAGE CONDITIONS

Ambient Operating Conditions:

Temperature: +10 C (50F) to +40 C (105 F) Degrees

Humidity: 50% @ +70 F and higher humidity levels at lower temperatures.

Altitude: Up to 1000m.

Transportation & Storage Conditions:

Temperature: -18 C (0 F) to + 60 C (140 F), 65 C (150 F) for short periods (less than 24 hours)

3.0 SAFETY



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

The KR619G88 base is designed for safe operation provided all safety precautions are followed in this manual. No personal protective equipment is required for operating and maintaining this equipment. **Warning: Most items in this manual can be performed by the end user, unless otherwise specified with a bold text note.**

3.1 ELECTRICAL SAFETY

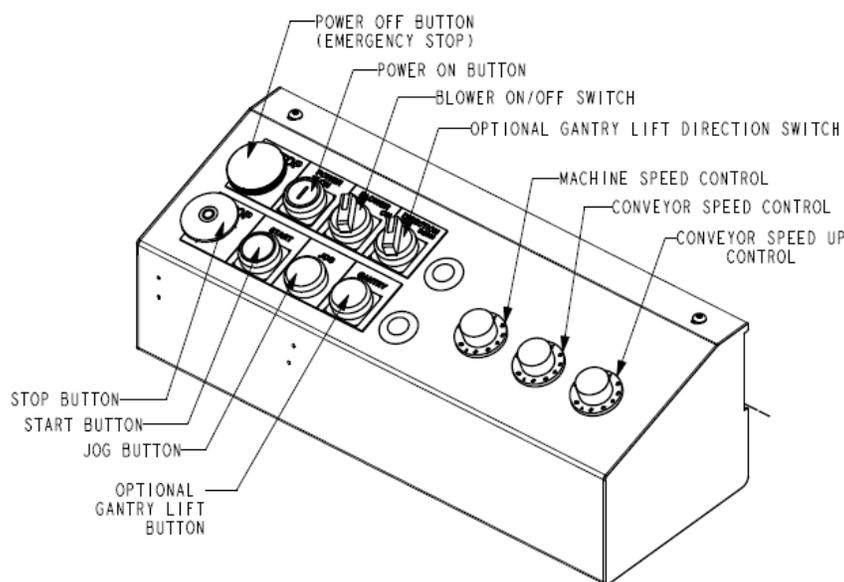
Electrical safety hazards have been identified throughout this manual. Read entire manual before operating or servicing machine.

3.2 MECHANICAL SAFETY

Mechanical safety hazards have been identified throughout this manual. Read entire manual before operating or servicing machine.

3.3 EMERGENCY SITUATION PROCEDURE

Emergency Stop Button: This large push button switch (see illustration below) should be used in case of an emergency. This includes entanglement or electrocution. This button is connected to a safety relay that is interfaced with the entire line. Pushing the button will stop the entire line. Rotate and pull up to reset button.



The following steps should be taken if an emergency situation occurs.

Entanglement:

1. Push E-stop button (red mushroom shaped push button) as soon as possible. This will stop all drive motors for the entire line.
2. Carefully take care of emergency situation as required.
3. Take pre-cautions to prevent future emergency situation.

Electrocution:

1. Push E-stop button (red mushroom shaped push button) as soon as possible.
2. Disconnect main power cord as soon as possible.
3. Provide medical care to personal.
4. Take pre-cautions to prevent future emergency situation.

4.0 FEATURES

KR619 EXCLUSIVE FEATURES		
No.	Features	Benefits
1	T-Slotted Extrusion Frames	Allows infinite mounting and adjustment of accessories on the top and sides of the base. The extrusion also allows for extensions to be added easily in the field. Such as, a friction feeder mount, infeed registration, infeed and outfeed belted tabletop extensions without having to add supports in most cases. Optional T nuts allows mounting of components without having to remove other T nuts. Other KR619 and similar bases will be joined using the extrusion to keep the bases on center and level.
2	Center drive for dual belted bases	A center drive eliminates the need for complicated drive trains and allows the two belt systems to be mounted as close as possible to run shorter product. Different base configurations can use the same center drive regardless of the infeed and outfeed belt lengths. Less parts in the drive train also reduces vibration and improves inkjet quality. The center drive pulls the inkjet belts instead of pushing the belts which increases inkjet quality as well.
3	Common belt design	The tabletop belts are KR standard length belts to decrease required stocked spare parts. The drive train only requires two different length micro v belts.
4	Special wide belt roller drive	Wide belts are sensitive to roller misalignment. A special integrated ground roller and belt drive assembly can be fine-tuned to remove any roller misalignment. Wide belts that run true increase inkjet quality and provides more accurate encoder tracking. Multiple inkjet belt drive systems can easily be changed over in the field to a wide belt configuration.
5	Flat belt encoder drive for inkjets	Flat belt encoder drives have been proven to provide the best method of tracking belt speed for inkjets. The flat belt is driven directly off of the ground inkjet tube drive roller. This design is self-adjusting in relation to the speed of the belts and removes the issue of roller tolerances and increases encoder accuracy. The flat belt helps reduce possible vibration issues that can be caused by direct shaft coupling or roller-on-belt encoder drive configurations.

6	Floor mounted motor	By mounting the motor in the floor of the base vibration is reduced from reaching the inkjet. Extra wide Micro V belts transmit 4 times the required horse power and reduces vibration caused by toothed drive components.
7	Torque limiting motor mounted drive pulley	Expensive inkjet heads are protected in case of a product jam with the use of a shear screw torque limiting drive pulley.
8	Improved four-bar infeed jam detect	The extra-long jam detect "ski plate" is easily adjusted above the product on the infeed of the base. Jams from the infeed roller to the inkjet head can be detected and protects the inkjet heads from damage by quickly stopping the belts.
9	Base symmetry	The base is designed to be a right-hand or left-hand base and can be changed in the field. Regardless of product flow the base is designed to always pull the inkjet belts instead of pushing the belts. Other bases on the market pushes or pulls the belts based on product flow direction.
10	No tools for setup required	Every component required for setting up the base can be adjusted without tools.
11	Improved tabletop assembly design	The center tabletops are wider for larger product. The infeed and outfeed rollers are mounted to the tabletop making belt changes easy.
12	Infeed and outfeed belts are adjustable from the top side of the base	The belts are easily adjusted from the table top to eliminate the need for going inside the base to make adjustments. The belts can then easily be moved into place by running the belts at a slow speed and sliding the belts guides into place.
13	Front mounted hydalift pump	The hydalift pump is relocated to the top front of the base making relocating the base much easier. The new mount allows the pump to be pulled forward and locks in place until the base has been adjusted. The pump is then slightly lifted and pushed back out of the way.
14	Improved friction feeder mount	Some products run better when fed parallel with the tabletop belts. The friction feeder mount is adjustable from angled to flat product delivery. Other feeders can be mounted but the pivot point has been optimized for KR friction feeders to deliver product to the infeed belts with minimal adjustment.
15	KR837V divert integration	The KR837V divert has been designed to quickly mount in field with less screws.
16	Improved KR835 design	The KR835 registration unit has been redesigned to quickly mount in the field and attaches to the extrusion frames. The new skid bar design has been improved to be adjusted to the angle of the belts as one unit. The drive of the infeed is much easier to install. The belts are easier to change requiring only 4 screws to be removed.
17	Improved KR835 camera mount	The new camera mount attaches to the extrusion and can be used for either top side or bottom side mounting locations.
18	Improved KR835 double detect mount	The new double detect mount can be used with a camera mounted above or below the KR835. The controls of the double detect have been moved to the front of the base for easier access.

5.0 INSTALLATION



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

5.1 UNPACKING

Remove machine and all packaging from crate. Inspect for damage. The box should be opened and checked against the following list:

Allen wrench kit (5/64", 7/64", 1/8", 5/32", 3/16", 5/16")
Kirk Rudy, Inc. part # 208023 Fuse, 12ABC (2-pcs)
Kirk Rudy, Inc. part # 208022 Fuse, 8 AGC/GGC (2-pcs.)
Kirk Rudy, Inc. part # 208056-5 Fuse, LP-CC-5 (2-pcs)
Kirk Rudy, Inc. part # 2080056-4 Fuse, .6A LP-CC (1-pc)
Kirk Rudy, Inc. part # 2080056-11 Fuse, 20A LP-CC (1-pc)
Kirk Rudy, Inc. part # 208045 Fuse, 2 MDL/GDL (2-pc)
Kirk Rudy, Inc. part # 208029 Fuse, 3.2 MDL/GDL (1-pc)
10000-KR619G88 MANUAL
Schematic: 200125-03-84

5.2 MACHINE SITE INSTALL PROCEDURE

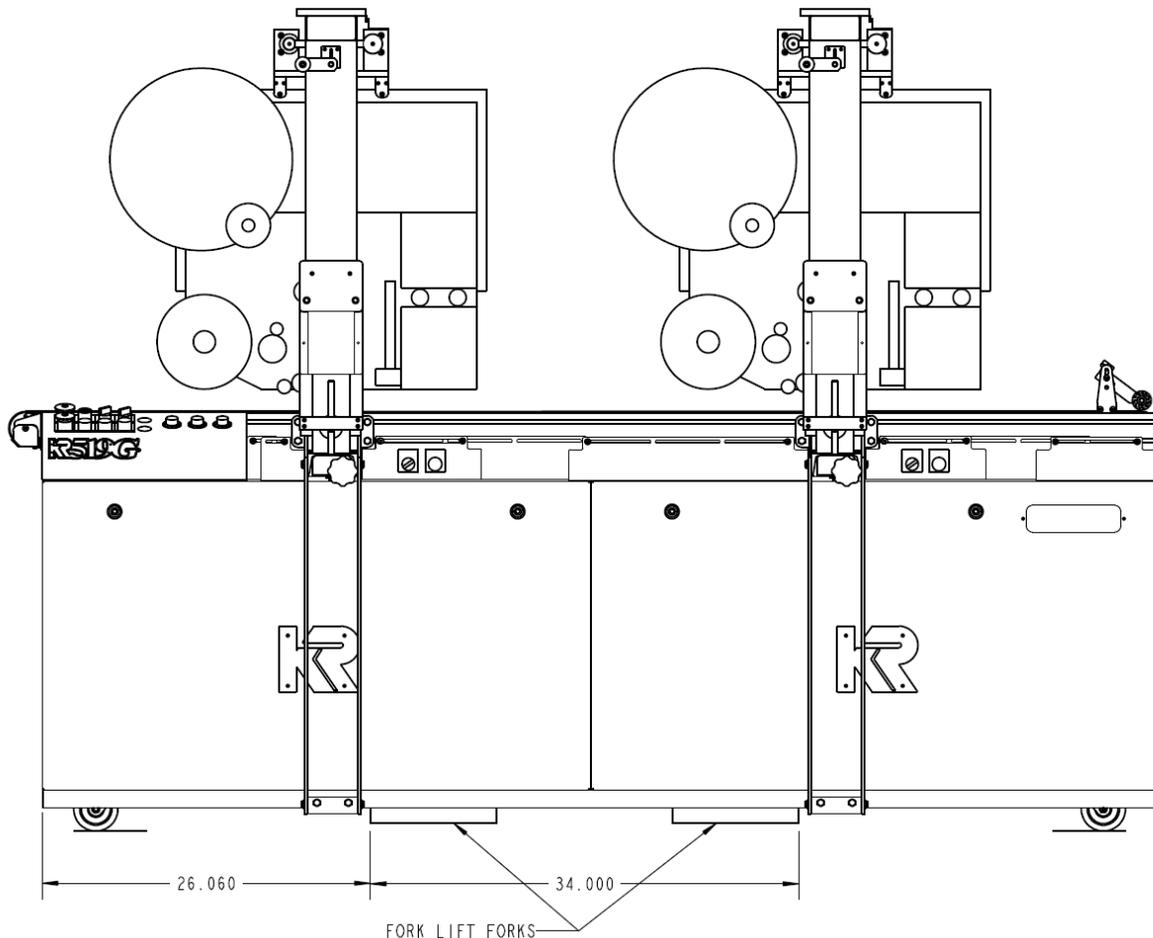
Reference Section 2.0 Specifications for floor space requirements:



WARNING

This task should be performed by KR/KR dealer trained technician.

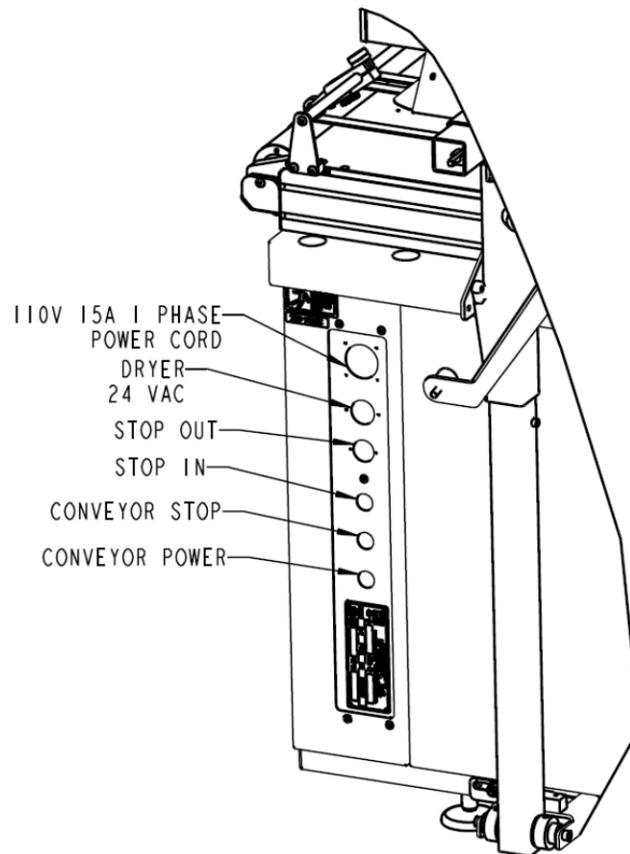
1. Lift KR619G88 from shipping skid with forklift and place machine on its casters. **Warning: The KR619G88 should be lifted from the skid with a forklift. See figure below for lifting positions with forklift.**



2. The KR619G88 cabinet has casters; therefore, it can be rolled to the desired position.
3. Place leveling pad under each leveling screw. Raise the KR619G88 using the four leveling screws so the machine's casters are off the floor. Use a machine level to ensure the machine is sitting level. Use nut to lock leveling leg position.
4. Locate KR619G88 main power cord. Plug female end of cord set into e-box located on backside of outfeed end.

Electrical Connections:

1. Connect the downstream base or conveyor “stop-out “connector (2-Pin Turck) to KR619G88 “stop-in” receptacle. KR619G88 “stop-in” receptacle is located on the backside out feed end of the machine cabinet.
2. Connect KR619G88 “stop-out “connector (2-Pin Turck) to upstream feeder or base “stop-in” receptacle. KR619G88 “stop-out” receptacle is located on the backside out feed end of the machine cabinet.
3. Connect the dryer cable to the control box mounted on the dryer control box.
4. Connect the conveyor power cord to the downstream conveyor.
5. Connect the conveyor stop cord to the downstream conveyor.
6. Connect main power plug.



6.0 OPERATING INSTRUCTIONS



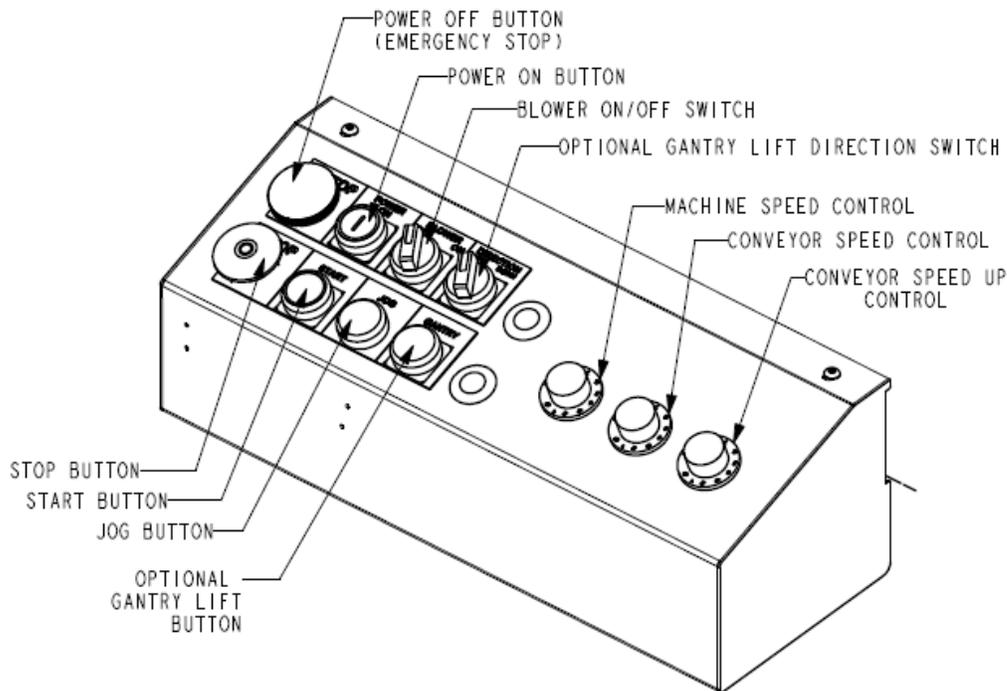
WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

6.1 ELECTRICAL COMPONENT DESCRIPTION

The following controls are located on the electrical box.

1. E-Stop Button: This large push button switch (see photo below) should be used in case of an emergency. This includes entanglement or electrocution. Pushing the button will stop the base. Rotate and pull up to reset button.



2. Power On Button: This push button switch supplies voltage to the electrical panel when it is pressed. The switch will light up green when power is on.
3. Blower On/Off Switch: This turns the blower on for the table top vacuum belts.
4. Optional Gantry Lift Direction Switch: This sets the direction the motorized gantry lift travels in (up or down).

5. Optional Gantry Lift Button: This button starts the gantry lift motor in the direction the direction switch is set to. The motor will stop when the button is released.
6. Stop Button: This red push-button switch will stop the machine.
7. Jog Button: depressing and releasing this switch can jog the machine. The machine will continue to cycle if this button is held depressed.
8. Start Button: Push and release button for continuous machine operation.
9. Machine Speed Control: Sets the base speed of the transport belts. The knob is turned clockwise to increase speed, counter-clockwise to decrease motor speed.
10. Conveyor Speed Control: Sets the speed of the outfeed conveyor belts. The knob is turned clockwise to increase speed, counter-clockwise to decrease motor speed.
11. Conveyor Speed Up Control: Sets the speed of the conveyor belts speed up to create the gaps between batched run jobs.

6.2 MECHANICAL COMPONENT DESCRIPTION

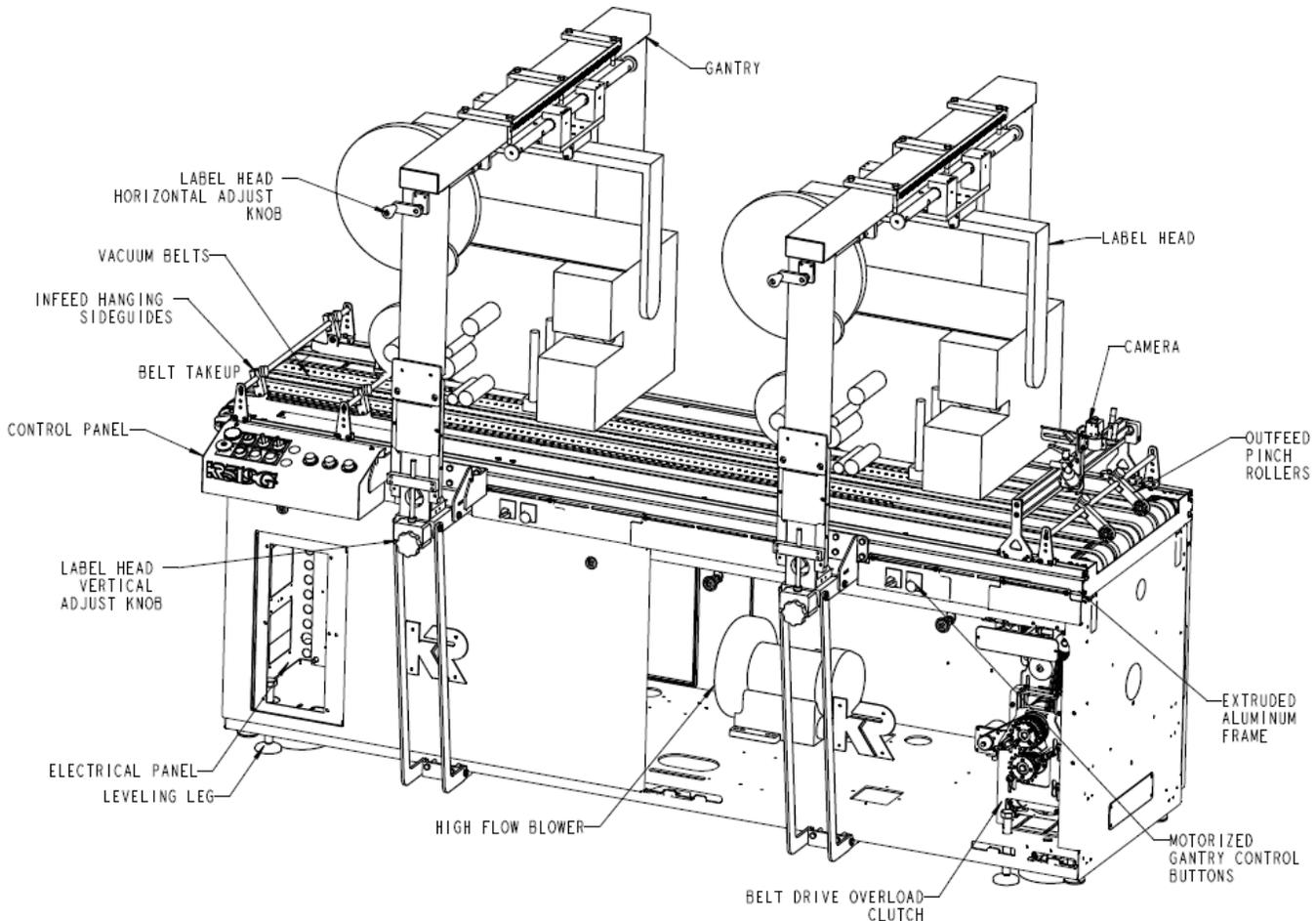


WARNING

Conveyor belts are exposed on some areas of the machine. Do not touch belts while machine is running. Turn machine off before adjusting belt position.

1. Vacuum Belts: Used to transport product along base for the purpose of applying labels.
2. Control Panel: Used to control all electrical functions on base.
3. Top Side Belt Adjust Slots: (Not Shown) The slots in the tabletops are used to adjust the non-vacuum belts laterally.
4. Gantry: The gantry mounts the label head and is designed to be able to adjust the location of the gantry along the length of the base if needed.
5. Label Head Horizontal Adjust Knob: This knob adjusts the head laterally across the width of the base.

6. Belt Drive Overload Clutch: This variable speed DC motor drives the belt speed, therefore controlling the product spacing. Use the belt speed control knob to vary the speed. The overload clutch uses a shear screw to protect to base from jams.



7. Label Head Vertical Adjust Knob: This knob adjusts the head vertically to set the height of the head above the product.
8. Infeed Hanging Side Guides: These guides allow registration of product before the product goes under the label head.
9. Label Head: The third party label head mounts to the gantry to apply labels.
10. High Flow Blower: The high flow blower provides vacuum for the label head belt section of the base. The exhaust is routed through the bottom of the base.
11. Leveling Legs: The leveling legs adjust the height of the base after the base has been moved into position. An optional hydalift kit can be installed if frequent base relocations are necessary.

12. Hydralift Pump: (Not Shown) An optional hydralift kit can be installed to quickly move the base to different locations. The crank handle on the pump will cause the base to lift up to 5.5".
13. Extruded Aluminum Frame: The T-slot frame is a design feature that allows infinite adjustment and many mounting opportunities down the front and back of the base.
14. Belt Take Up: The belt take-up is mounted on the infeed and outfeed of the base. The belts tension is adjusted by means of two set screws at the end of the mount blocks. Refer to the maintenance section for tightening instructions.
15. Outfeed Pinch Rollers: The outfeed pinch rollers help drive the product off the end of the base. The roller nip point should be adjusted to be directly over the outfeed roller. The rollers can be adjusted down the length of the base by loosening the cross shaft mount screws and sliding the rollers into position.

6.3 MACHINE SET UP INSTRUCTIONS



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

1. Push stop button to stop all motion on machine.
2. Adjust the infeed side guides to the width of the product plus a 1/16".
3. Set the infeed and outfeed roller height.
4. Set the label head height. The head should be just above product.
5. Set the left/right position of the label heads.
6. Run the base and adjust the speed of the tabletop belts.
7. Adjust the speed of the feeder to control product spacing.
8. Adjust the speed of the conveyor belts if used.
9. Run machine to determine if any further adjustments are need to get the desired results.

7.0 TROUBLE SHOOTING



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

PROBLEM

SOLUTION

Base does not run

Check Emergency stop button on the control panel.

Check for power on light on the power button. Push the power button.

Check motor control board fuses.

Check the speed control knob to make sure the speed is set above 0.

Check the downstream bases stop buttons and conditions.

Check shear screw on motor drive pulley.

Skewed Label Placement

Infeed side guides are not set properly. Make adjustments to correct.

Make sure the vacuum on the base is turned on and functioning.

Make sure the belts are running true. Make adjustments if necessary.

Inconsistent Label Placement

Make sure the belts are running true. Make adjustments if necessary.

Make sure belts are tensioned properly. Make adjustments if necessary.

Make sure the encoder drive belt is tensioned properly.

Make sure the vacuum is turned on.

Label Head Does Not Apply Label

Make sure the label head power is turned on.

8.0 MAINTENANCE



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

8.1 SERVICE OR INSPECTION INTERVALS

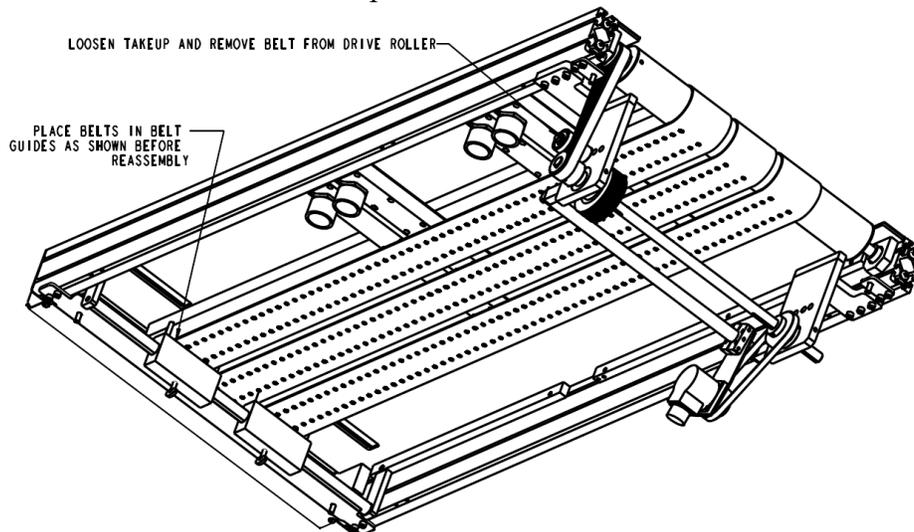
See table below for service and inspection interval schedule.

SERVICE OR INSPECTION REQUIRED	INTERVAL
Clean flat belts with denatured alcohol.	Weekly or as needed.
Check all belt tensions (Micro V and Flat Belts).	Check one per month.
Replace fuse	Perform as needed. See section 8.2.

8.2 BELT REPLACEMENT INSTRUCTIONS

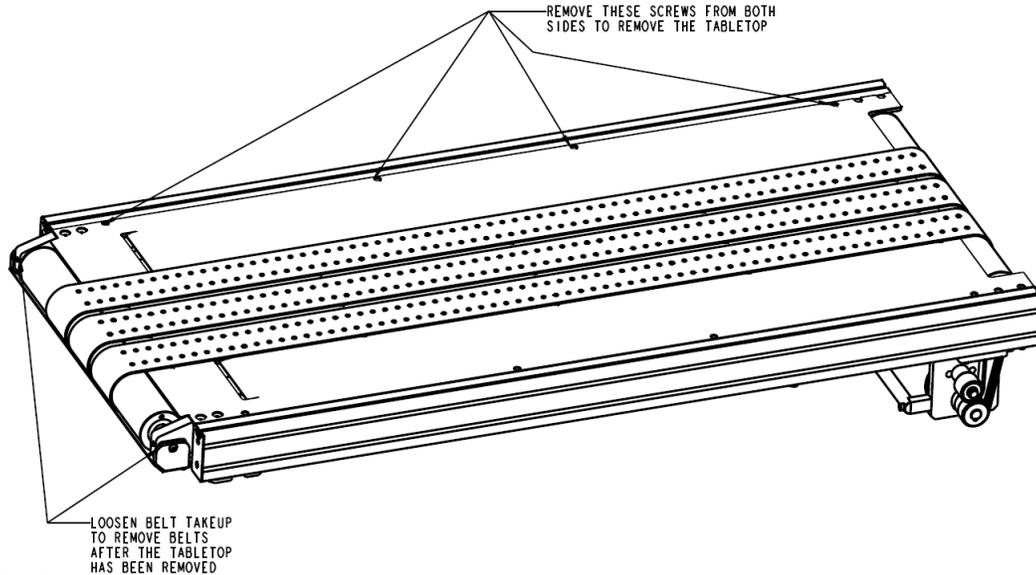
8.2.1 KR619 Vacuum Belt Replacement

1. Disconnect main power from power source.
2. Remove front and rear door panels.



3. Loosen eccentric take up on the belt that drives the tabletop belt section that requires the belt replacement.
4. Remove the Micro-V belt from the drive pulley located on the jack shaft.
5. Remove any cross shaft assemblies or any other mounts from the top side that would prevent the removal of the tabletop. Make sure the T-nut set screws are tight before removing items to retain position.

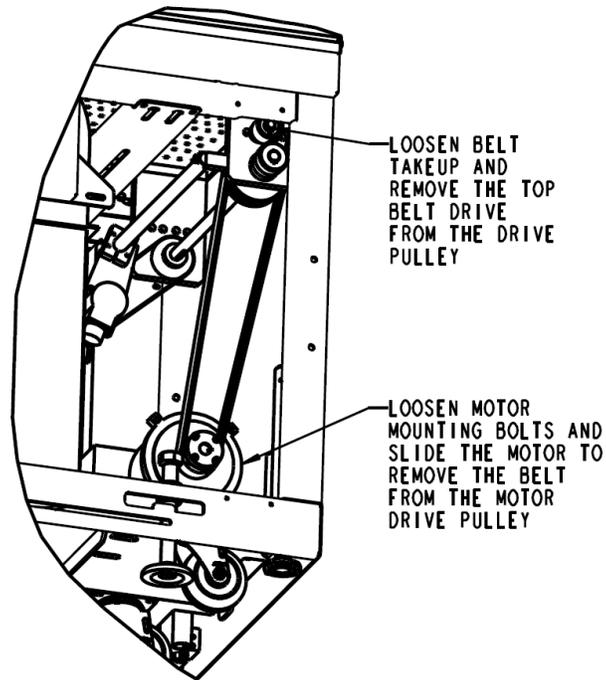
6. Remove the eight flat head screws that mount the tabletop as shown below. **Note: These screws are the stainless steel flat head screws securing the tabletop.**



7. Remove the center tabletop assembly.
8. Loosen the belt take ups as shown above.
9. Replace the tabletop belts making sure that each belt is guided by the belt guide pins as shown in the illustration above upon reassembly.
10. Reassemble by reversing the procedure above.
11. Connect power and test belt tracking with the speed set to a slow speed. Make adjustments with the belt take up to true belts if required.

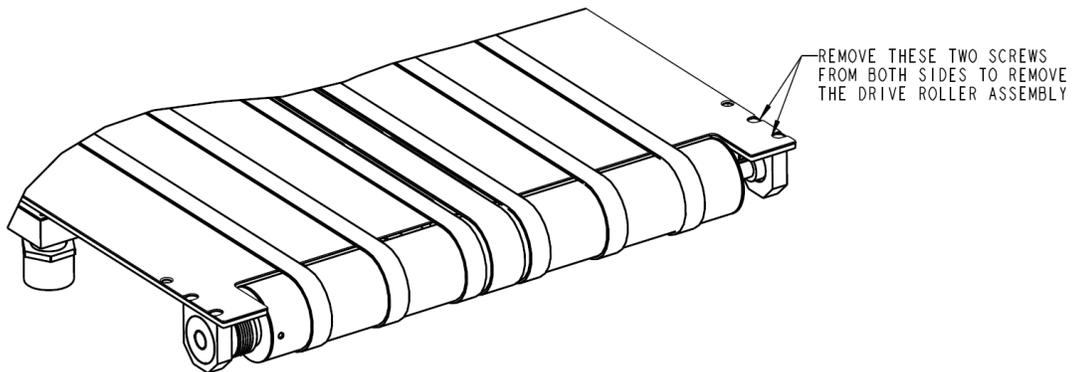
8.2.2 KR619 Main Drive Micro-V Belt Replacement

1. Disconnect main power from power source.
2. Remove front and rear door panels.
3. Loosen the motor mounting bolts and slide the motor to relieve the belt tension as shown below.
4. Remove the Micro-V belt from the drive pulley on the motor.
5. Loosen the tabletop Micro-V belt drive take up pulleys as shown below.
6. Remove the Micro-V belts from the drive pulleys located on the jack shaft.
7. Loosen the set screws in the driven pulley and collar bearings as shown below.
8. Slide the jack shaft back and replace the main drive Micro-V belt.
9. Reassemble by reversing the procedure above.
10. Apply tension to the main Micro-V belt making sure the pulleys are in line with a straight edge.
11. Connect power and test belt tracking with the speed set to a slow speed.



8.2.3 KR619 Tabletop Drive Belt Replacement

1. Disconnect main power from power source.
2. Remove front and rear door panels.
3. Follow the instructions above **8.2.1 KR619 Vacuum Belt Replacement**
4. Remove the four flat head screws securing the tube drive roller assembly as shown below.
5. Replace the tabletop drive Micro-V belt.
6. Reassemble by reversing the procedure above.
7. Connect power and test belt tracking with the speed set to a slow speed making sure that the belts are between the belt guide pins.



8.3 FUSE REPLACEMENT



WARNING

Always disconnect power supply before any maintenance or service work.

Fuse Specifications KR619G88

Note: The list maybe incomplete if a non-standard base is ordered. Refer to the electrical schematic drawing.

FUSE LABEL	TYPE OF FUSE	PART NUMBER	QTY
F1	20A LP-CC	208056-11	1
F2	2A MDL/GDL	208045	1
F3	5A LP-CC	208056-5	1
F4	4A LP-CC	208056-4	1
F5	5A LP-CC	208056-5	1
219 Drive Board Input 1/2HP	12 ABC	208023	1
219 Drive Board Output 1/2HP	8 AGC	208022	1

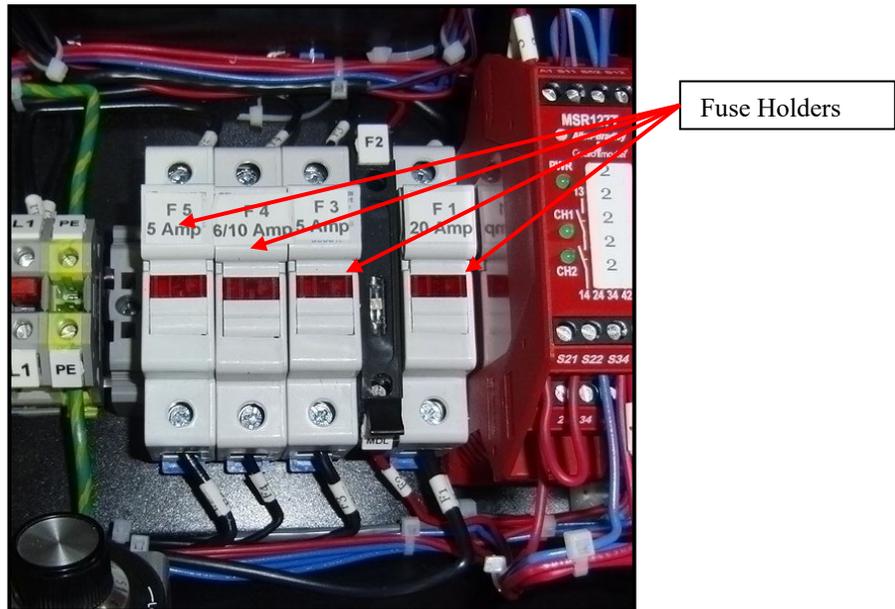
Fuse Replacement Procedure (Fuse Holder Only) See photo below.



WARNING

Always disconnect power supply before any maintenance or service work.

1. Disconnect power.
2. Lower control box cover.
3. See photo below for fuse holder locations.
4. Remove blown fuse. Remove by unscrewing or flipping up.
5. Replace (screw or flip down) fuse with correct type and amperage.
6. Close control box.
7. Connect power and test unit.

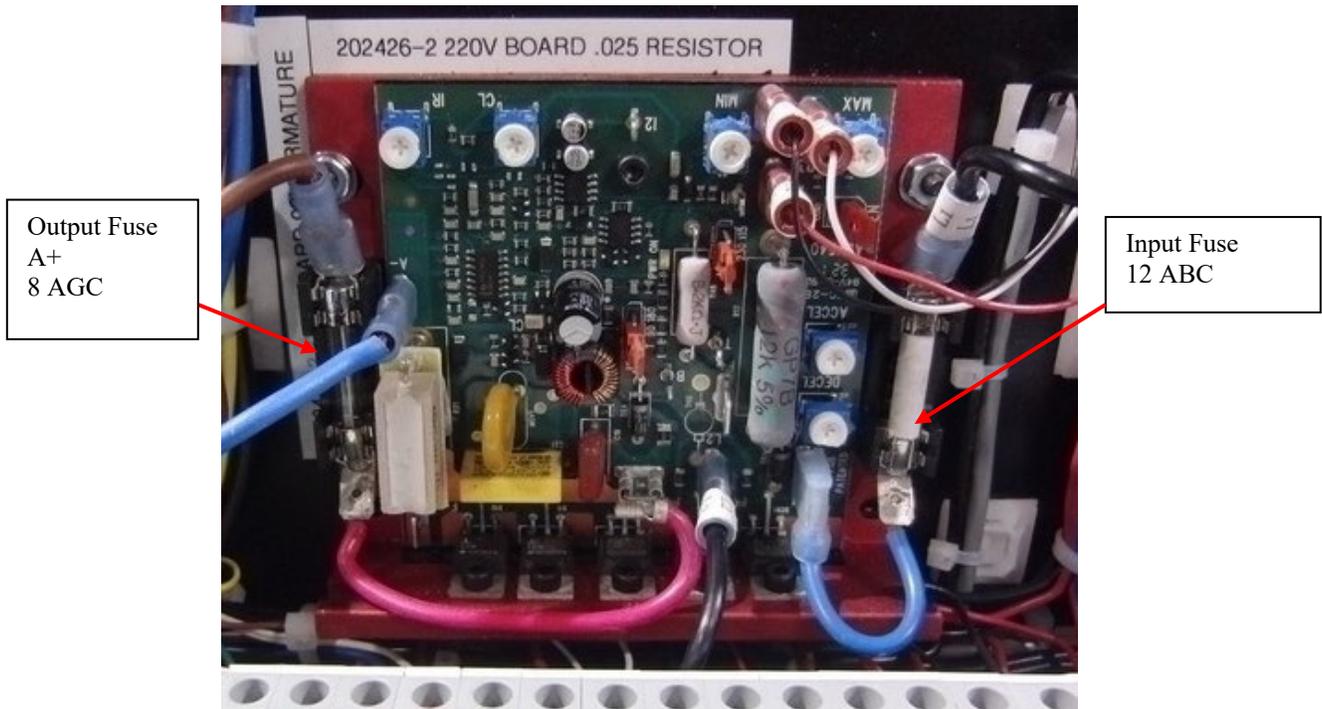


Fuse Replacement Procedure (Motor Board) See photo below.

WARNING

Always disconnect power supply before any maintenance or service work.

1. Disconnect power.
2. Remove control box cover.
3. Remove blown fuse. See picture for location on motor control board.
4. Replace fuse with correct type and amperage.
5. Close control box.
6. Connect power and test unit.



8.4 RECOMMENDED SPARE PARTS

KR619G88 RECOMMENDED SPARE PARTS			
NO.	PART #	DESCRIPTION	QTY
1	103108	BEARING, FLAT .500	4
2	103804	BEARING, HUB .625	4
3	112082	BELT, FLAT 3" X 184.75 w/HOLES	3
4	112023	BELT, FLAT ENCODER P400-18X.375	1
5	112481	BELT, MICRO V 390J-10 (1000'/min bases)	1
6	112484	BELT, MULTI V 410J-10 (600'/min bases)	1
7	109169	BELT, TIMING 525-5M-15	1
8	109170	BELT, TIMING 640-8M-20how to create a configurator	1
9	208023	FUSE, 12ABC	1
10	208024	FUSE, 1 AGC	1
11	208045	FUSE, 2 AMP MDL/GDL	1
12	202261-5	BEAMSWITCH, RETROREFLECTIVE (Inkjet)	2
13	202263-2	BANNER SWITCH, SENSOR (Dryer Sensor)	2
14	208056-11	FUSE, LP-CC-20 BUSSMAN	1
15	208056-4	FUSE, LP-CC-4 BUSSMAN	1
16	208056-5	FUSE, LP-CC-5 BUSSMAN	1
17	554695-01	ROLLER, NO CRUSH 4-00153 (Blue Roller)	4

9.0 PARTS LIST AND DIAGRAMS

9.1 ASSEMBLY DRAWING INDEX

No.	DRAWING #	DESCRIPTION
1	KR619G88	ASSY, 88" GANTRY BASE
2	557930-11	ASSY, FRAME AND TOP
3	557913-27	ASSY, FRAME
4	543038-05	ASSY, ENCODER MOUNT/DRIVE
5	543040-08	KIT, JACKSHAFT BREAK AWAY
6	547436-06	ASSY, WAVEJET ENCODER MOUNT
7	547436-05	ASSY, NETJET ENCODER MOUNT
8	544512-03	ASSY, BELT TENSIONER
9	539406-28	ASSY, IMPIKA ENCODER MNT
10	560391-01	ASSY, PROX MOUNT
11	560392-01	ASSY, 7 LUG PROX RING 5/8B
12	537866-01	ASSY, ACCU-CODER ENCODER MOUNT
13	557920-46	ASSY, 88" INFEED TABLETOP
14	557938-02	ASSY, TUBE ROLLER
15	500819-26A	ASSY, BEARING BLOCK
16	530676-46	ASSY, GROUND ROLLER DRIVE
17	530619-27	ASSY, GROUND IDLER ROLLER
18	557939-02	ASSY, GROUND TUBE ROLLER
19	557927-14	ASSY, VACUUM CHANNEL
20	530656-56	ASSY, VACUUM MANIFOLD DBL
21	530656-65	ASSY, VACUUM MANIFOLD DBL
22	530656-66	ASSY, VACUUM MANIFOLD DBL
23	532712-02	ASSY, OUTFD SAFETY COVER
24	557927-13	ASSY, VACUUM CHANNEL
25	530656-57	ASSY, VACUUM MANIFOLD DBL
26	530656-68	ASSY, VACUUM MANIFOLD DBL
27	530656-67	ASSY, VACUUM MANIFOLD DBL
28	543556-23	ASSY, 125" BELT GUIDE
29	541992-01	ASSY, 3/4 BELT GUIDE
30	543556-27	ASSY, 3" BELT GUIDE
31	560325-01	ASSY, BELT DIVERT ROLLER
32	553027-24	ASSY, LABEL-AIRE 3115NV GANTRY
33	552404-01	ASSY, GANTRY SLIDE
34	552381-01	ASSY, SLIDE RAILS
35	552382-01	ASSY, SLIDE
36	537280-04	ASSY, BUSHING BLOCK

37	531566-09	ASSY, R/H WORM GEARBOX
38	531566-10	ASSY, L/H WORM GEARBOX
39	560477-02	ASSY, 1/2 SHAFT SPLIT CLAMP
40	558398-02	ASSY, MOTORIZED GANTRY LIFT
41	554770-19	ASSY, ELECTRICAL PANEL
42	560602-01	ASSY, FRONT SIDE
43	560602-02	ASSY, FRONT SIDE
44	560602-05	ASSY, FRONT SIDE
45	560602-06	ASSY, FRONT SIDE
46	560606-01	ASSY, DUPLEX BOX
47	560608-01	ASSY, DUPLEX BOX
48	560282-05	ASSY, KR619G LOGO
49	557935-01	ASSY, PINCH ROLLER
50	538403-15	ASSY, PINCH ROLLER
51	554699-01	ASSY, NO CRUSH ROLLER
52	554761-57	ASSY, 88" CABINET
53	557947-01	ASSY, 1/2 HP DC MOTOR
54	542566-05	ASSY, 2000" MICRO-V10 TOR LIMITER

9.2 BILLOF MATERIALS

No.	PART #	DESCRIPTION	QTY
1	100302	BUSHING, FL.375ID.500OD.500LG	2
2	100306	BUSHING, FL.375ID.500OD.500LG	4
3	100309	BUSHING, FL.250ID.375OD.250LG	16
4	100313	BUSHING, FL.500ID.625OD.500LG	2
5	100330	BUSHING, FL.375ID.500OD.250LG	2
6	100401	WASHER, THRUST TB410	40
7	100402	WASHER, THRUST TB612	2
8	100619	WASHER, FLAT 10-32	25
9	102112	KNOB, 2.38" HANDLE .375BORE	2
10	102115	ADAPTOR, KNOB TO SHAFT	4
11	102200	COLLAR .375	4
12	102306	SHIM, .375X.625X.031	4
13	102906	BEARING, LINEAR SLEEVE OPEN	8
14	103106	BEARING, FLAT .375	4
15	103108	BEARING, FLAT .500	6
16	103110	BEARING, FLAT .625	2
17	103804	BEARING, HUB .625	6
18	104100	SNAPRING, .375	4
19	104104	SNAPRING, .625	2
20	104106	SNAPRING, .500	4
21	105400	DOWEL, PIN .188X1.250	8
22	105416	DOWEL, PIN.188X2.000	14
23	105419	DOWEL, PIN .188X1.000	2
24	105531	PULLEY, MICRO-V10 2.000 OD IDLER	1
25	105701	KNOB, BD-50	2
26	106800	SCREW, BUTTON HEAD 1/4X.750	4
27	106809	SCREW, BUTTON HEAD #10-32X.750	1
28	106810	SCREW, BUTTON HEAD #10-32X.500	25
29	106813	SCREW, BUTTON HEAD #10-32X.375	8
30	106815	SCREW, BUTTON HEAD 1/4X.625	34
31	106818	SCREW, BUTTON HEAD 1/4X.500	6
32	107000	BOLT, SHOULDER 1/4X1/2	2
33	107307	BOLT, HEX HEAD 3/8-16X1.25	6
34	107327	BOLT, 1/4-20 X .500	42
35	107347	BOLT, HEX HEAD 5/16-18X.50	24
36	107348	BOLT, HEX HEAD 5/16-18X1.75	8
37	107401	SCREW, SHCS 1/4-20X.750	8
38	107402	SCREW, SHCS 1/4-20X1.250	4

39	107403	SCREW, SHCS 1/4-20X.375	4
40	107407	SCREW, SHCS 1/4-20X1.000	8
41	107408	SCREW, SHCS 10-32X1.000	4
42	107410	SCREW, SHCS 1/4-20X.500	12
43	107411	SCREW, SHCS 1/4-20X.875	14
44	107417	SCREW, SHCS 10-32X.375	6
45	107428	SCREW, SHCS 1/4-20X.625	8
46	107447	SCREW, SHCS 1/4-20X2.000	2
47	107463	SCREW, SHCS 10-32X.750 NYLON	4
48	107501	SCREW, FLATHEAD 10-32X.750	1
49	107635	SCREW, SET 1/4-20X.375	2
50	108719	PULLEY, 20XL037 .625B .188K	1
51	108757	PULLEY, 32XL037 .375B NK	1
52	108785	PULLEY, 16XL037 .375B NK	1
53	108791	PULLEY, 18XL037 .625B NK	1
54	109766	PULLEY, TIMING 275M15 .625B .188K	2
55	109836	ACME NUT, 1/2 - 2	2
56	109847	PULLEY, 28XL037 .625B NK	1
57	109848	PULLEY, 26XL037 .375B NK	1
58	110165	SPRKT, 25B18 .625B .188K	2
59	110192	SPRKT, 25B18 .500B .125K	2
60	111522	WASHER, FLAT .191ID .75OD .105TH	4
61	112082	BELT, 3" X 184.75" HSW-5EB (SEE DRAWING)	3
62	112343	BELT, 3" X 184.75" HSW-5EB	2
63	190715	PVC COUPLING	8
64	191001	LATCH	4
65	192567	WASHER, THRUST	4
66	200138	BLOWER, GAST	2
67	200258	BOX, ELECTRICAL 2 PLUG	2
68	201169	PLATE, CUSTOM LABEL	12
69	202492	ENCODER, ACCU-CODER 1000PPR	1
70	202528	ENCODER, EMERSON 12000 P/R	1
71	202530	ENCODER, ACCU-CODER 2000 PPR	1
72	209016	KNOB, POT	3
73	500716	BRACKET - BELT TAKE-UP	2
74	500836	HUB	1
75	100900-1	WORM - 16-4 0.250	4
76	100900-2	GEAR, WORM 1620 0.375	4
77	102131-2	KNOB	2
78	109001-35	BELT, TIMING 130XL037	1
79	109004-31	BELT, TIMING 110XL037	1

80	109006-35	BELT, TIMING 150XL037	1
81	109169-1	BELT, HTD 525-5M-15	1
82	109732-5	PULLEY, TIMING 305M15 .625B .188K	1
83	112023-15	BELT, FLAT ENCODER P400-18X.375	1
84	112023-19	BELT, FLAT ENCDOER P400-18X.375	1
85	112367-3	BELT, MULTI V 300J-10	1
86	112481-2	BELT, MICRO V 390J-10	1
87	112484-3	BELT, MULTI V 410J-10	1
88	190771-3	SCALE, CENTER ZERO	2
89	190862-7	EDGING, RUBBER 16 GA	1
90	200152-2	MOTOR, LEESON DC 1/2HP	1
91	200160-1A	MOTOR, 1/15HP 220VAC	2
92	200315-2	GROMMET, 1/2 DIA HOLE	8
93	200321-1	STRAIN RELIEF, 1/2"	14
94	200373-6	PLUG, .875	2
95	201124-2	BUTTON, START	1
96	201124-4	BUTTON, POWER ON	1
97	201125-5	BUTTON, POWER OFF	2
98	201126-1	BUTTON, JOG	4
99	201145-1	SELECTOR, 2 POSITIONS	4
100	202536-1	ENCODER, 3600PPR	1
101	500331-1	HUB, ROLLER	2
102	500711-6	BRACKET - HEAD ADJ. R/H	4
103	500713-6L	BRACKET, HEAD SUPPORT L/H	2
104	500713-6R	BRACKET, HEAD SUPPORT R/H	2
105	500719-4L	HOUSING, WORM GEAR	2
106	500719-4R	HOUSING, WORM GEAR	2
107	500742-60	ROLLER, TUBE BELT DRIVE	1
108	500774-8	SHAFT, WORM GEAR DRIVE	4
109	500776-3	BRACKET, HEAD ADJUSTMENT	4
110	500779-3	SHAFT, WORM GEAR DRIVE	4
111	500787-58	SHAFT, SIDE GUIDE ADJ.	1
112	500791-48	POST, SIDEGUIDE	2
113	500819-26	BLOCK, BEARING	2
114	500823-34	SHAFT, IDLER ROLLER	1
115	500835-45	ROLLER, BELT IDLER	1
116	500836-12	HUB	1
117	500983-21	STUD, IDLER SPROCKET	2
118	516045-14	ROLLER, BELT TAKEUP	2
119	530441-26	BOX, ELECTRICAL INLET 20A	1
120	530816-01	BRKT, RH OUTFD RLLR GRD	1

121	530817-01	BRKT, LH OUTFD ROLLR GRD	1
122	530818-04	GUARD, OUTFEED ROLLER	1
123	531118-19	TUBING, HORIZONTAL GANTRY	2
124	531119-31	VERTICAL TUBE	4
125	531121-14	CHANNEL	2
126	531124-10	BAR, SUPPORT FRONT	4
127	531124-11	BAR, SUPPORT FRONT	4
128	531518-02	CRANK, GANTRY Z-MOTION	2
129	531553-03	BOX, COVER GANTRY UP/DOWN	2
130	531553-09	BOX, COVER GANTRY UP/DOWN	6
131	531567-07	SHAFT-WORM GEAR ADJ. 33" LG	2
132	537279-08	BLOCK, SLIDE	8
133	537281-03	PLATE, NUT MOUNT	2
134	537282-12	ROD, ACME THREADED SLIDE ADJ	2
135	537365-16	PNL, TOP & BOTTOM	1
136	537366-15	PNL, BOTTOM	1
137	537368-22	PNL, BACK & SIDES	1
138	537368-24	PANEL, ELECTRICAL	1
139	538401-09	BLOCK, SIDEGUIDE SUPPORT	2
140	538402-01	BLOCK, SIDEGUIDE CLAMP	2
141	539407-03	BLOCK, BEARING PROX	1
142	539408-11	SHAFT, PROX MOUNT	1
143	541023-01	PLATE, ENCODER MOUNT	6
144	541024-01	BRACKET, ENCODER MOUNT	1
145	541024-05	BRACKET, ENCODER MOUNT	1
146	541024-39	BRACKET, ENCODER MOUNT	1
147	541024-41	BRACKET, ENCODER MOUNT	1
148	541730-14	BRACKET, ENCODER MOUNT	1
149	541989-01	GUIDE, BELT 3/4	4
150	542568-01	HUB, V-PULLEY DRIVE	1
151	542777-07	COUPLING, HEAD SHAFT	2
152	542777-08	CLAMP-DRIVE HEAD	2
153	543039-02	PLATE, ENCODER MOUNT/DRIVE	2
154	543040-05	SHAFT, ENCODER DRIVE	1
155	543040-06	SHAFT, ENCODER DRIVE	1
156	543040-07	SHAFT, ENCODER DRIVE	1
157	543134-02	SHAFT, ENCODER MOUNT	1
158	543135-01	PLATE, SHAFT SPACER	2
159	543557-10	POST, BELT DIVERT/GUIDE	4
160	543559-06	SHAFT, BELT DIVERT ROLLER	1
161	543559-07	SHAFT, BELT DIVERT ROLLER	1

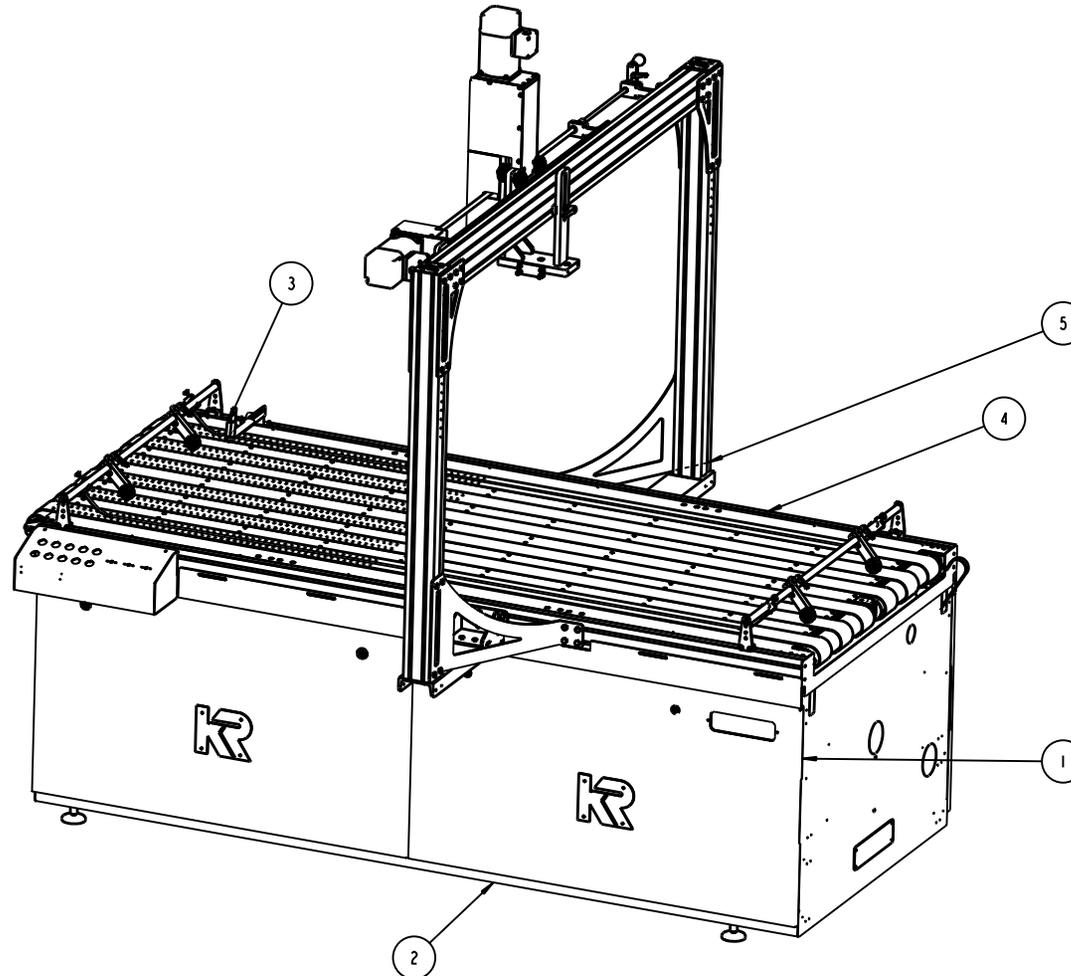
162	545131-02	BLOCK, ADJUSTMENT KNOB BRAKE	2
163	546706-08	BOX, COVER GANTRY SPROCKET	2
164	547184-23	LOGO, 619G	1
165	547185-36	BACKER, KR619V LOGO	1
166	547203-02	HOLDER, MANUAL	1
167	547800-02	COLLAR, PROX RING MNT 5/8	1
168	547850-14	RING, SHEET METAL PROX 7 LUGS	2
169	548907-02	BRACKET, COVER GANTRY SPROCKET	2
170	550224-05	BRACKET, PROX MOUNT	1
171	551108-01	PULLEY, FLAT BELT ENCODER 1.730	1
172	551109-09	PULLEY, FLAT BELT ENCODER 1.4298"	1
173	551109-14	PULLEY, FLAT BELT ENCODER 1.273"	1
174	551109-35	PULLEY, ENCODER 2.091" IMPIKA DR	1
175	551109-36	PULLEY, ENCODER 2.323 IMPIKA	1
176	552372-01	PLATE, GANTRY SHAFT SUPPORT	2
177	552373-01	SHAFT, GANTRY SLIDE	4
178	552374-01	PLATE, GANTRY SLIDE MOUNT	10
179	552375-01	PLATE, LABELER MOUNT	2
180	552376-01	PLATE, BUSHING BLOCK	2
181	552377-01	ADAPTOR, HANDWHEEL	2
182	552378-01	STOP, SLIDE TRAVEL	4
183	552379-01	BLOCK, LABELER SUPPORT	4
184	552380-01	BLOCK, LABELER FINE ADJUSTMENT	4
185	552402-02	BRACKET, SCALE MOUNT	2
186	552403-04	POINTER, SCALE	2
187	552483-11	SHAFT, GANTRY SLIDE ADJUST	2
188	553040-01	END CAP, GANTRY	4
189	554695-01	ROLLER, NO CRUSH 4-00153	2
190	554698-01	HUB, NO CRUSH ROLLER	2
191	554763-39	BASE, CABINET	1
192	554764-21	PANEL, INFEED END	1
193	554765-29	PANEL, OUTFEED END	1
194	554767-40	CHANNEL, CROSS	2
195	554768-232	DOOR, CABINET R/H	1
196	554768-237	DOOR, CABINET R/H	1
197	554768-267	DOOR, CABINET R/H	1
198	554768-268	DOOR, CABINET R/H	1
199	554771-47	BOX, CONTROL	1
200	554771-48	CAP, CONTROL PANEL END	2
201	554775-17	HINGE, CONTROL PANEL	1
202	554816-03	CLIP, DOOR REENFORCEMENT	8

203	554831-12	BRACKET, CONTROL PANEL MOUNT	1
204	555811-06	PULLEY, FRNT DRV 3.17 OD 10 RIB	1
205	555811-07	PULLEY, MICRO V 2.00 OD 10 RIB	1
206	557914-25	FRAME, EXTRUSION	2
207	557915-01	PLATE, END CAP	2
208	557915-02	PLATE, END CAP	1
209	557916-22	BAR, TABLETOP MOUNT	2
210	557917-04	BAR, T SLOT NUT	2
211	557917-43	NUT, DROP IN T	4
212	557917-99	BAR, T SLOT NUT	2
213	557917-100	BAR, T SLOT NUT	2
214	557917-118	BAR, T SLOT NUT	2
215	557917-119	BAR, T SLOT NUT	8
216	557923-01	SHAFT, INFEED ROLLER	1
217	557924-03	BAR, JACK SHAFT MOUNT	1
218	557924-04	BAR, JACK SHAFT MOUNT	1
219	557928-11	CHANNEL, VACUUM	3
220	557929-01	PLATE, CHANNEL END	6
221	557932-02	BAR, SKID BAR MOUNT	2
222	557950-02	BRACE, MOTOR MOUNT	1
223	557951-02	BRACKET, SPACER BASE MOUNT	2
224	557951-05	BRACKET, SPACER BASE MOUNT	1
225	557954-01	CAP, E BOX	1
226	557964-45	TABLETOP, 88" INFEED	1
227	557965-35	TABLETOP, BACKER 88"	1
228	557969-01	COVER, E-BOX	1
229	557974-01	COVER, PUMP HANDLE	1
230	557993-01	PLATE, VACUUM BLOCK OFF	4
231	558395-01	COUPLING, 1/2" SHAFT WITH KEY	2
232	560296-01	COUPLER, SOLID CAPLESS SHAFT	2
233	560300-01	LOGO, 619V	2
234	560307-01	BRACKET, EMIKA ENCODER MNT	1
235	560326-01	ROLLER, TRANSFER	2
236	560327-01	SHAFT, ROLLER IDLER	2
237	560328-01	BRACKET, ROLLER MOUNT	4
238	560462-01	BAR, JACK SHAFT SPACER	1
239	560597-01	BRACKET, FLAT MOUNT	4
240	560599-01	BRACKET, VERTICAL MOUNT	4
241	560600-01	BRACKET, GUSSET MOUNT	8
242	560601-01	BRACKET, SUPPORT MOUNT	4
243	560603-01	COVER, FRONT SIDE	7

244	560603-02	COVER, FRONT SIDE	2
245	560603-03	COVER, FRONT SIDE	1
246	560603-04	COVER, FRONT SIDE	2
247	560603-05	COVER, FRONT SIDE	2
248	560603-06	COVER, FRONT SIDE	2
249	560604-01	NUT, T-SLOT TWIST-IN	25
250	560607-01	COVER, GFCI OUTLET	2
251	560610-01	BOX, 2 BUTTON CONTROL	2
252	560611-01	COVER, BUTTON BOX	2
253	SP46019	PLATE, GANTRY HEAD CASTING MOUNT	4
254	SP28217-33	BLOCK, LOWER VACUUM	2
255	SP28217-56	BLOCK, LOWER VACUUM	2
256	SP28217-66	BLOCK, LOWER VACUUM	1
257	SP28217-67	BLOCK, LOWER VACUUM	1
258	SP28217-68	BLOCK, LOWER VACUUM	1
259	SP28217-69	BLOCK, LOWER VACUUM	1
260	SP28218-55	CAP, UPPER VACUUM	4
261	SP28218-56	CAP, UPPER VACUUM	4
262	SP46011-6	PLATE, MOTOR GANTRY	2
263	SP46012-1	ANGLE. GANTRY MOTOR PLATE	2
264	SP6383-1	SPACER, GEAR COVER	2

ITEM	QTY	PART #	DESCRIPTION
1	1	112367-10	BELT, MULTI V 300J-10
2	1	554761-124	ASSY, 88" CABINET
3	1	554811-13	ASSY, ADJUSTABLE BEAMSWITCH MNT
4	1	557930-32	ASSY, FRAME AND TOP
5	1	560400-08	ASSY, GANTRY

REV NO	DATE	DESCRIPTION	ECN NO	BY

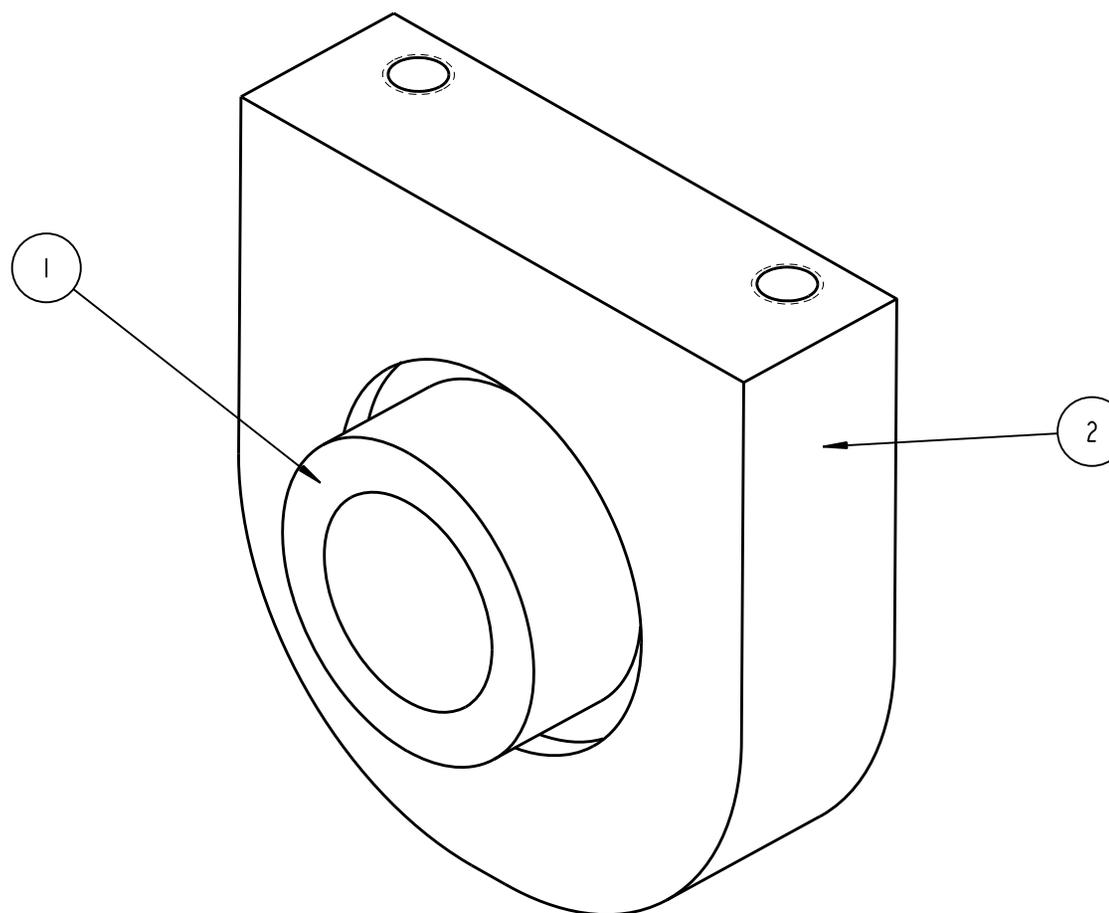


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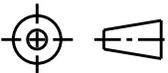
DRAWN BY: JCC CHECKED BY: TRACED BY: MASTER	SCALE: 0.080 DATE: Nov-08-24	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XX2 ANG. .XX .XX5 .5 REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	MATERIAL: N/A HEAT TREAT: N/A FINISH: N/A	THIRD ANGLE PROJECTION MODEL: 619G88 SHEET NO: 1 OF 6	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA TITLE: ASSY, 88" GANTRY BASE #@.%-()HB?*%-4,,#	KIRK - RUDY, INC. WOODSTOCK, GEORGIA DRAWING # SAI945-KR619G88
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ITEM	QTY	PART #	DESCRIPTION
1	1	103804	BEARING, HUB .625
2	1	500819-26	BLOCK, BEARING

REV NO	DATE	DESCRIPTION	ECN NO	BY

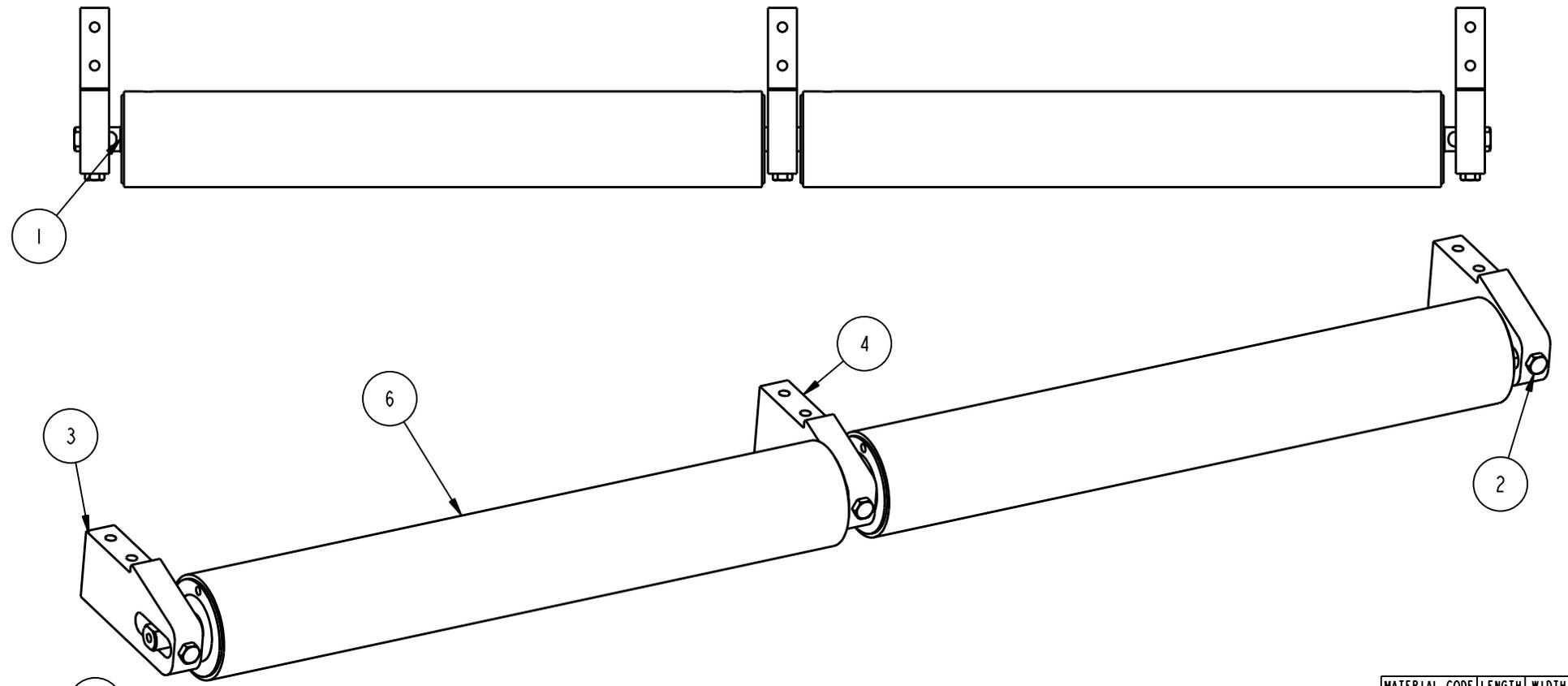


REQ'D WHERE USED

DRAWN BY: RHM	SCALE 2.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: NOTED	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA					
CHECKED BY:	DATE 12-Apr-00		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005	.5
.XX	.XXX	ANG.									
.01	.005	.5									
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO.: 1 OF 1	DRAWING # 500819-26A						

ITEM	QTY	PART #	DESCRIPTION
1	2	104104	SNAPRING, .625
2	3	107325	HEX HEAD BOLT
3	2	500716	BRACKET - BELT TAKE-UP
4	1	500716-22	BRACKET - BELT TAKE-UP
5	1	500823-46	SHAFT, IDLER ROLLER
6	2	557939-16	ASSY, GROUND TUBE ROLLER

REV NO	DATE	DESCRIPTION	ECN NO	BY



MATERIAL CODE	LENGTH	WIDTH
N/A	N/A	N/A

DRAWN BY: A KEY	SCALE 0.450
CHECKED BY:	DATE Jun-05-24
TRACED BY:	MASTER

DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED

XX	XXX	ANG
.01	.005	.5

REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED

ALL DIMENSIONS ARE FINISHED DIMENSIONS

DO NOT SCALE - WORK TO DIMENSIONS ONLY

MATERIAL: N/A	THIRD ANGLE PROJECTION
HEAT TREAT: N/A	MODEL: 619
FINISH: N/A	SHEET NO: 1 OF 1

PROPRIETARY AND CONFIDENTIAL
NO PORTION OF THIS DRAWING
MAY BE QUOTED OR REPRODUCED
IN ANY FORM WITHOUT THE
EXPRESS WRITTEN PERMISSION
OF KIRK-RUDY, INC.
WOODSTOCK, GA 30188 USA

KIRK - RUDY, INC.
WOODSTOCK, GEORGIA

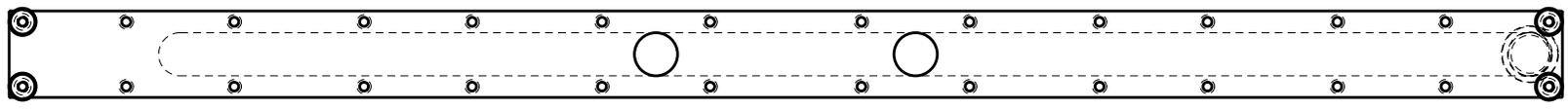
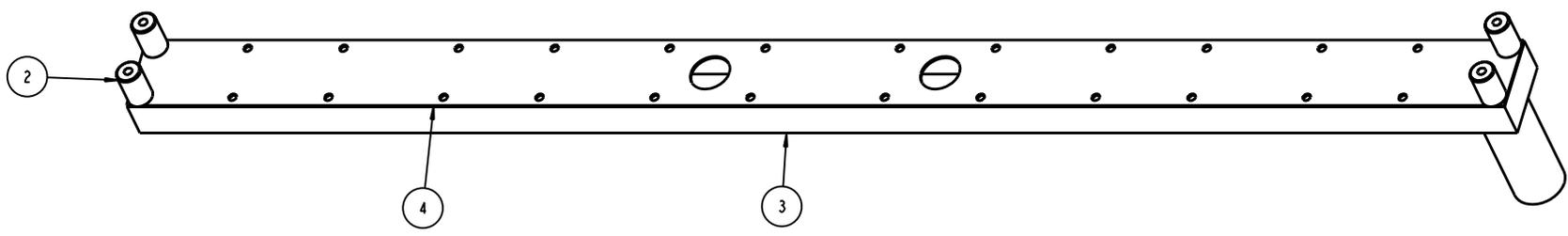
TITLE:
ASSY, GROUND 619 TAKEUP ROLLERS



DRAWING #
530619-52

ITEM	QTY	PART #	DESCRIPTION
1	1	556381-01	TUBING, VACUUM MANIFOLD 1" PVC THREADED
2	4	560916-01	SPACER, TABLETOP SUPPORT
3	1	SP28217-12	BLOCK, LOWER VACUUM
4	1	SP28218-91	CAP, UPPER VACUUM, INNER 2 CHANNELS

REV NO	DATE	DESCRIPTION	ECH NO	BY



DRAWN BY: MJH	SCALE 0.375
CHECKED BY:	DATE Apr-03-24
TRACED BY:	MASTER

DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED		
XX	XXX	ANG.
.01	.005	.5
REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED		
ALL DIMENSIONS ARE FINISHED DIMENSIONS		
DO NOT SCALE - WORK TO DIMENSIONS ONLY		

MATERIAL: NONE
HEAT TREAT: NONE
FINISH: NONE

THIRD ANGLE PROJECTION
MODEL: 619
SHEET NO. 1 OF 1

PROPRIETARY AND CONFIDENTIAL
NO PORTION OF THIS DRAWING
MAY BE QUOTED OR REPRODUCED
IN ANY FORM WITHOUT THE
EXPRESS WRITTEN PERMISSION
OF KIRK-RUDY, INC.
WOODSTOCK, GA 30188 USA

KIRK - RUDY, INC.
WOODSTOCK, GEORGIA

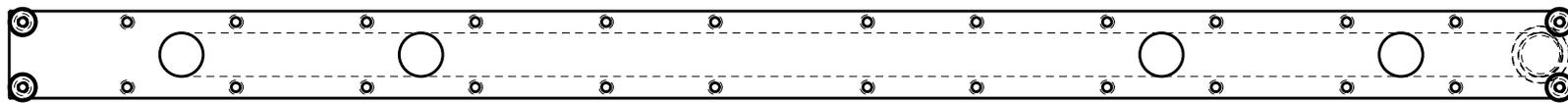
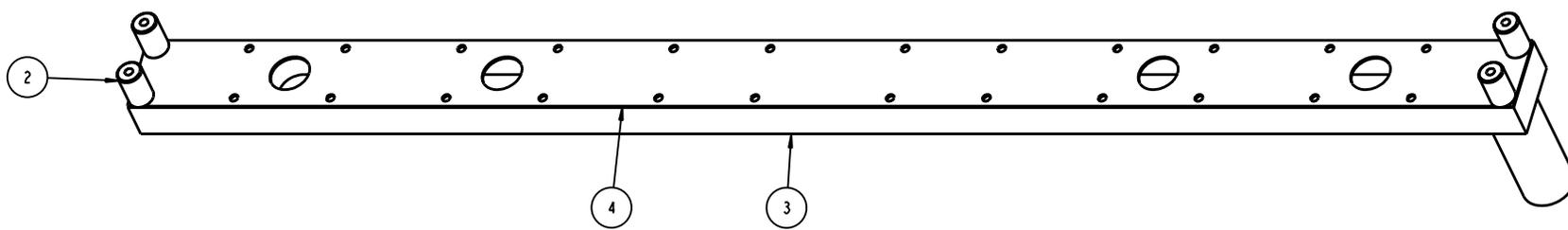
TITLE: ASSY, VACUUM MANIFOLD, INNER 2 CHANNELS

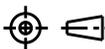


DRAWING #
530656-102

ITEM	QTY	PART #	DESCRIPTION
1	1	556381-01	TUBING, VACUUM MANIFOLD 1" PVC THREADED
2	4	560916-01	SPACER, TABLETOP SUPPORT
3	1	SP28217-12	BLOCK, LOWER VACUUM
4	1	SP28218-92	CAP, UPPER VACUUM, OUTER 4 CHANNELS

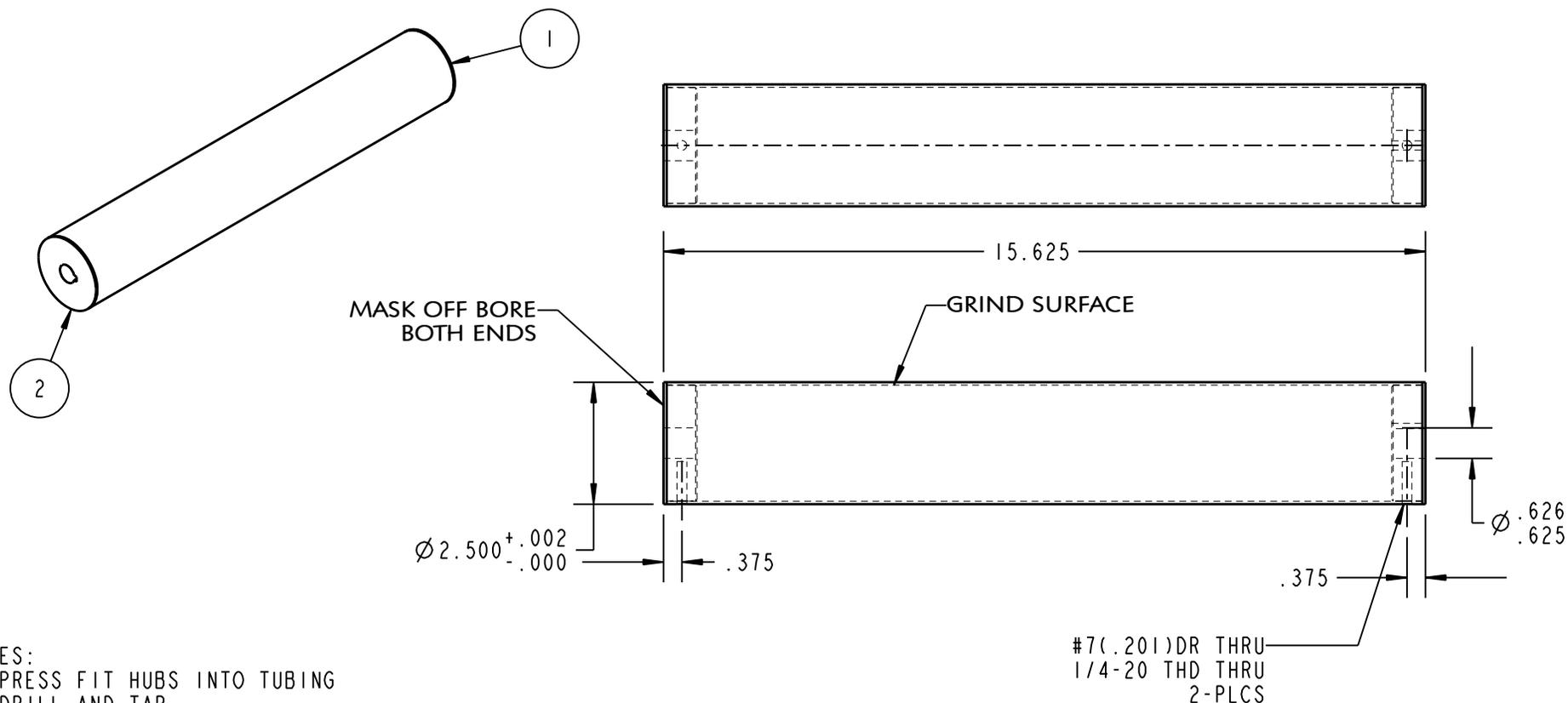
REV NO	DATE	DESCRIPTION	ECN NO	BY



DRAWN BY: MJH	SCALE: 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XX .XX .X .XX .5 .X .XX .5	MATERIAL: NOTED	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE: Apr-03-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: NONE	MODEL: 619	TITLE: ASSY, VACUUM MANIFOLD, OUTER 4 CHANNELS	SHEET NO. 1 OF 1
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: NONE		DRAWING # 530656-103	

ITEM	QTY	PART #	DESCRIPTION
1	1	500331	HUB, ROLLER
2	1	500331-1	HUB, ROLLER
3	1	500742-75	ROLLER, TUBE BELT DRIVE

REV NO	DATE	DESCRIPTION	ECN NO	BY



NOTES:

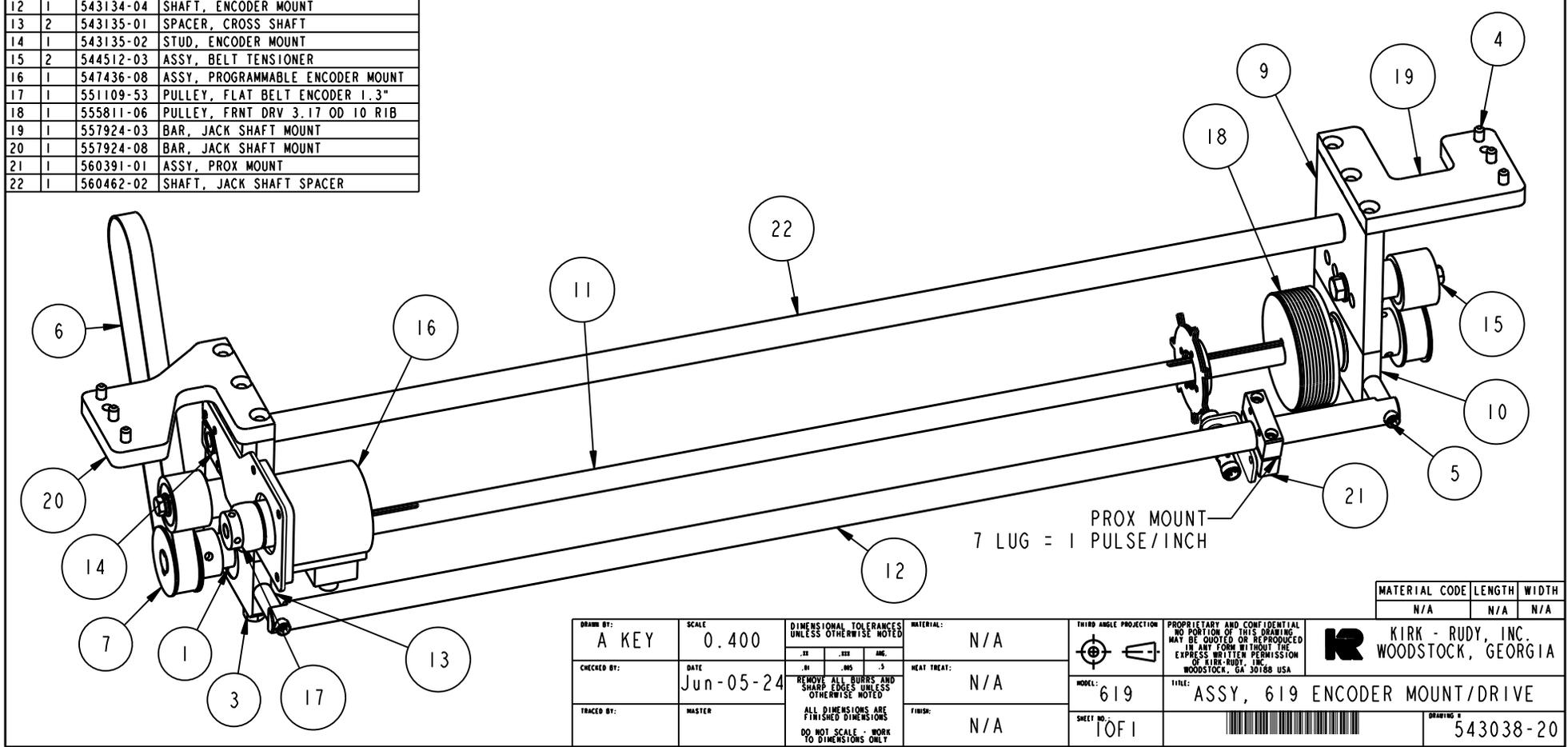
- PRESS FIT HUBS INTO TUBING
DRILL AND TAP
- IF PART # ORDERED IS -57 FINISH: BLACK OXIDE.
- IF PART # ORDERED IS -57P FINISH: COATING ELECTROLES NICKEL .0001"-.0002". THICK
MACHINE SHOP WILL MANUFACTURE ROLLER WITH NO FINISH IF POSSIBLE.
- MACHINE SHOP WILL STAMP "G" IN HUB IF PART TO BE NICKEL COATED IS A GROUND ROLLER

MATERIAL CODE	LENGTH	WIDTH
N/A	N/A	N/A

DRAWN BY: A KEY	SCALE 0.200	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: NOTED	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA					
CHECKED BY:	DATE May-22-24	<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX	.XXX	ANG.		.01	.005	.5	HEAT TREAT: N/A	MODEL: 619
.XX	.XXX	ANG.									
.01	.005	.5									
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: SEE NOTES	SHEET NO.: 1 OF 1		DRAWING # 530676-58					

ITEM	QTY	PART #	DESCRIPTION
1	2	103804	BEARING, HUB .625
2	2	104104	SNAPRING, .625
3	4	107350	BOLT, HEX HEAD 5/16-18X2.50
4	8	107411	SCREW, SHCS 1/4-20X.875
5	2	107447	SCREW, SHCS 1/4-20X2.000
6	1	109170	BELT, HTD 565-5M-15
7	2	109766	PULLEY, TIMING 275M15 .625B .188K
8	1	112023-8	BELT, FLAT ENCODER P400-18X.375
9	2	543039-04	PLATE, ENCODER MOUNT/DRIVE
10	2	543039-05	PLATE, ENCODER MOUNT/DRIVE
11	1	543040-09	SHAFT, ENCODER DRIVE
12	1	543134-04	SHAFT, ENCODER MOUNT
13	2	543135-01	SPACER, CROSS SHAFT
14	1	543135-02	STUD, ENCODER MOUNT
15	2	544512-03	ASSY, BELT TENSIONER
16	1	547436-08	ASSY, PROGRAMMABLE ENCODER MOUNT
17	1	551109-53	PULLEY, FLAT BELT ENCODER 1.3"
18	1	555811-06	PULLEY, FRNT DRV 3.17 OD 10 RIB
19	1	557924-03	BAR, JACK SHAFT MOUNT
20	1	557924-08	BAR, JACK SHAFT MOUNT
21	1	560391-01	ASSY, PROX MOUNT
22	1	560462-02	SHAFT, JACK SHAFT SPACER

REV NO	DATE	DESCRIPTION	EN NO	BY



MATERIAL CODE	LENGTH	WIDTH
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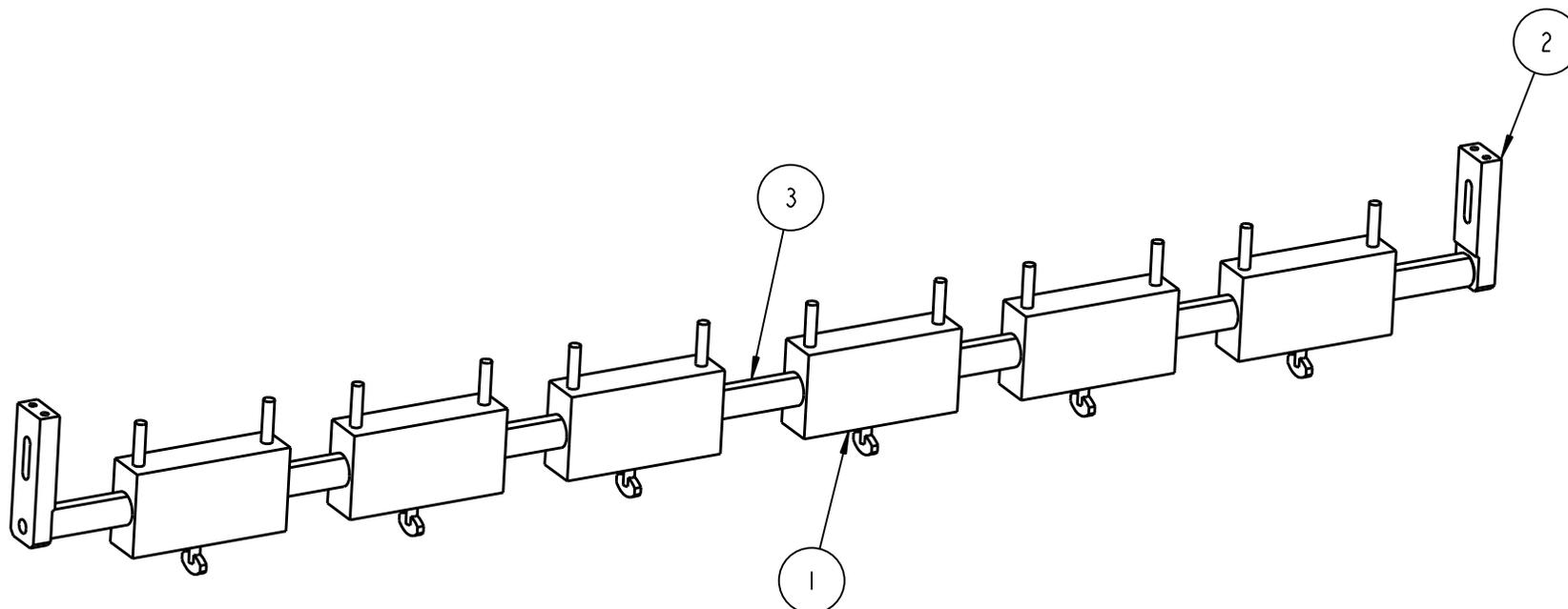
DRAWN BY: A KEY	SCALE 0.400	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XX ANG. .01 .00 .5
CHECKED BY:	DATE Jun-05-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY
TRACED BY:	MASTER	MATERIAL: N/A HEAT TREAT: N/A FINISH: N/A

THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA
MODEL: 619	TITLE: ASSY, 619 ENCODER MOUNT/DRIVE
SHEET NO: 1 OF 1	DRAWING # 543038-20

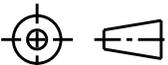
KIRK - RUDY, INC. WOODSTOCK, GEORGIA

ITEM	QTY	PART #	DESCRIPTION
1	6	500725-29A	ASSY, BELT GUIDE 3"
2	2	543557-17	POST, BELT DIVERT/GUIDE
3	1	543559-15	SHAFT, BELT DIVERT ROLLER

REV NO	DATE	DESCRIPTION	ECN NO	BY

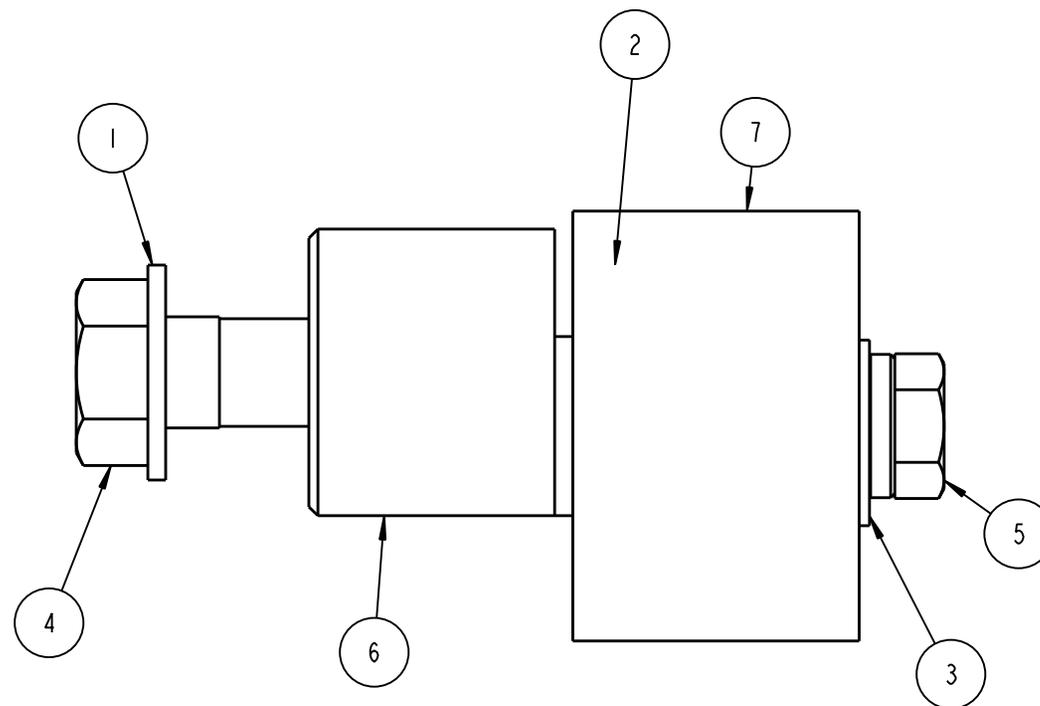
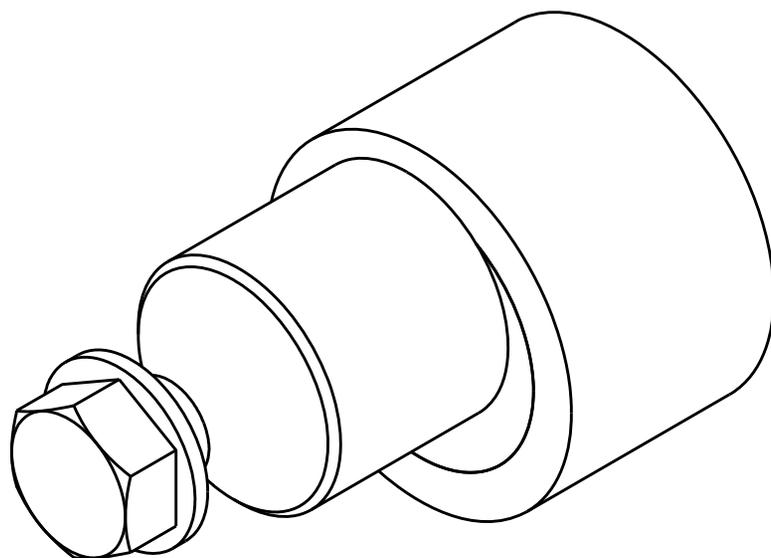


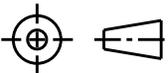
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		.XX	.XXX	ANG.				
CHECKED BY:	DATE Nov-05-24	.01	.005	.5	HEAT TREAT: N/A	MODEL: 619	TITLE: ASSY, 3" BELT GUIDE	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 543556-44

ITEM	QTY	PART #	DESCRIPTION
1	1	100402	WASHER, THRUST TB612
2	2	103108	BEARING, FLAT .500
3	1	104106	SNAPRING, .500
4	1	107307	BOLT, HEX HEAD 3/8-16X1.25
5	1	107327	BOLT, 1/4-20 X .500
6	1	500983-21	STUD, IDLER SPROCKET
7	1	516045-14	ROLLER, BELT TAKEUP

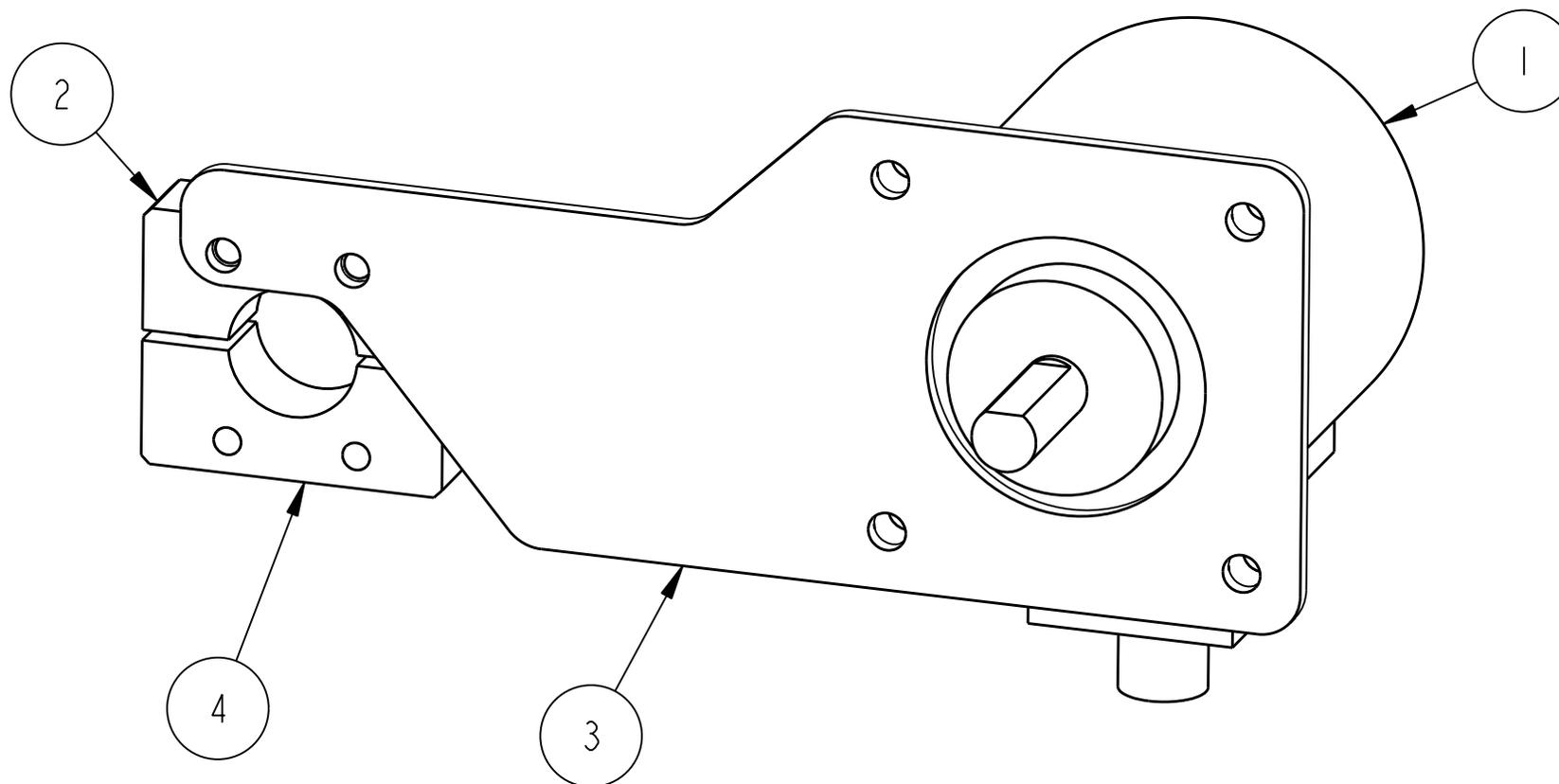
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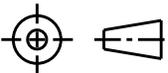
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		.xx	.xxx	ANG.				
CHECKED BY:	DATE Apr-09-14	.01	.005	.5	HEAT TREAT: N/A	MODEL: SA1155	TITLE: ASSY, BELT TENSIONER	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 544512-03
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY						

ITEM	QTY	PART #	DESCRIPTION
1	1	202604	ENCODER, PROGRAMMABLE 1000 PPR
2	1	541023-01	PLATE, ENCODER MOUNT
3	1	541024-68	BRACKET, ENCODER MOUNT
4	1	SP45241-51	PLATE, ENCODER MOUNT

REV NO	DATE	DESCRIPTION	ECN NO	BY

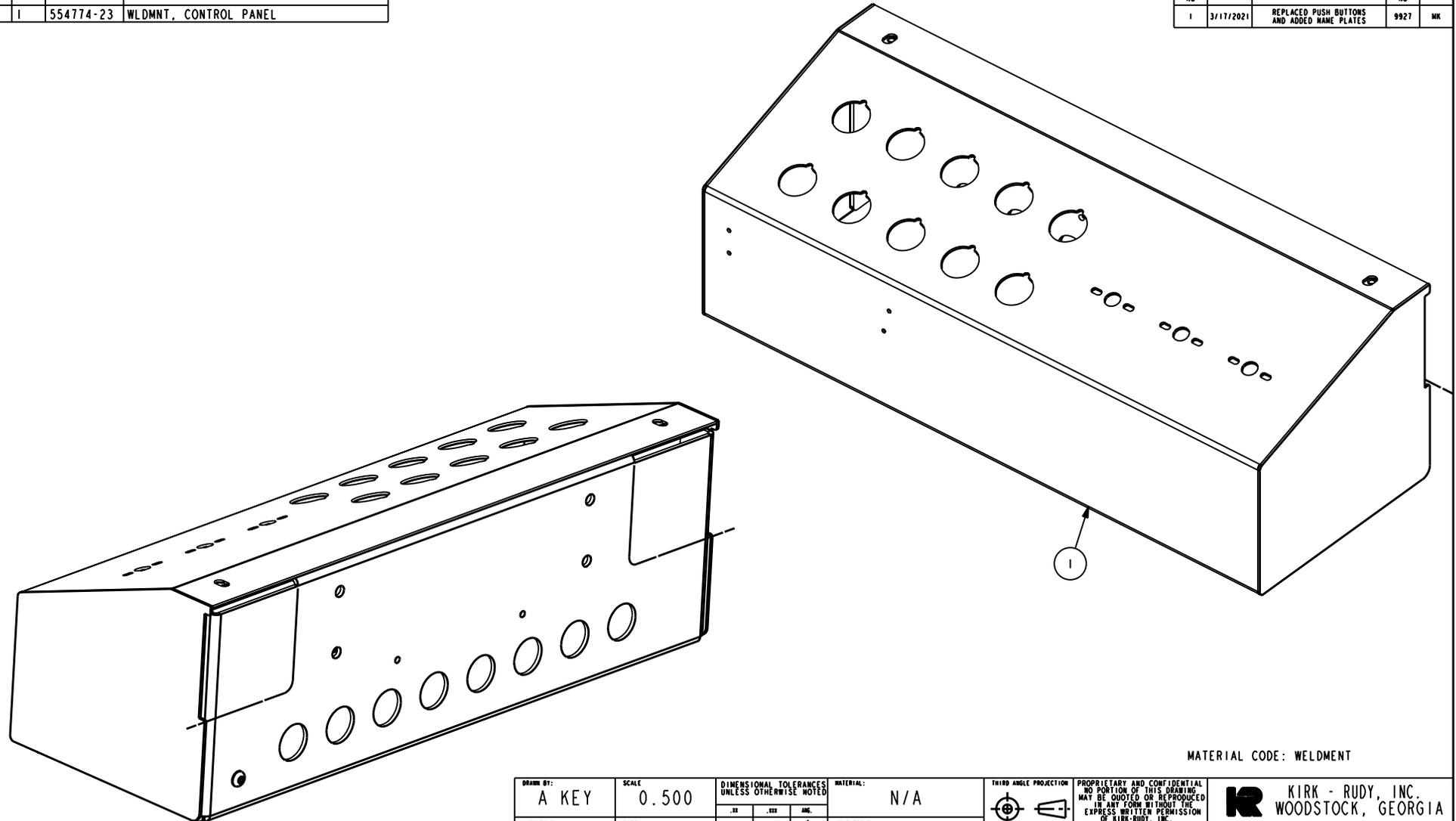


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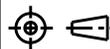
DRAWN BY: A KEY	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Jun-05-24		HEAT TREAT: N/A	MODEL: 519	TITLE: ASSY, PROGRAMMABLE ENCODER MOUNT	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO.: 1 OF 2		DRAWING # 547436-08

ITEM	QTY	PART #	DESCRIPTION
1	1	554774-23	WLDMNT, CONTROL PANEL

REV NO	DATE	DESCRIPTION	ECH NO	BY
1	3/17/2021	REPLACED PUSH BUTTONS AND ADDED NAME PLATES	9927	MR



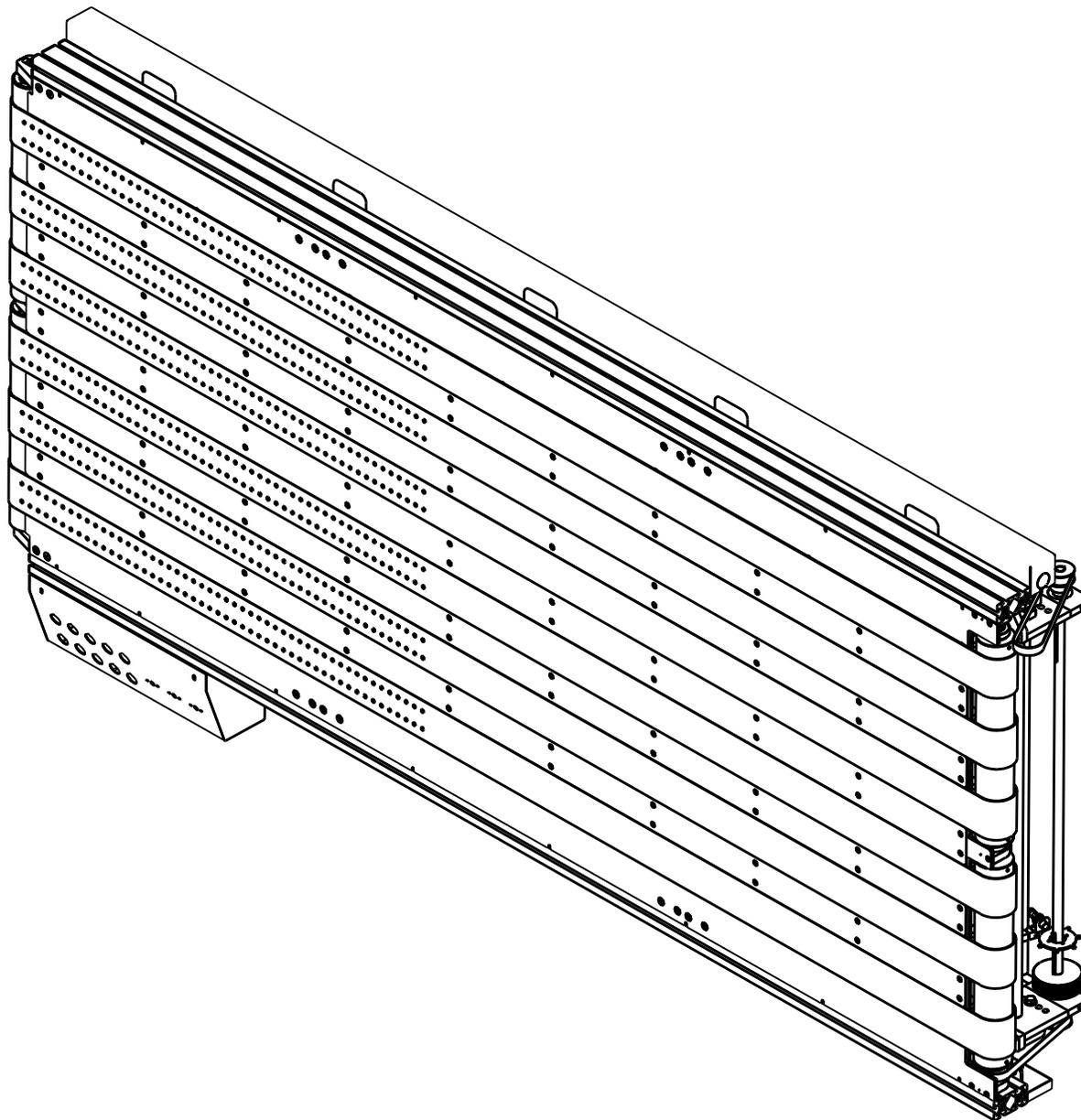
MATERIAL CODE: WELDMENT

DRAWN BY: A KEY	SCALE 0.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XX .XX .XX .01 .02 .05	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Jul-25-16	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: SA1155	TITLE: ASSY, ELECTRICAL PANEL	
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO: 1 OF 2		
						DRAWING # 554770-19

NOTES:
USE 554774-23 FOR WELDMENT

ITEM	QTY	PART #	DESCRIPTION
1	12	105411	DOWEL, PIN .250X1.750
2	2	107407	SCREW, SHCS 1/4-20X1.000
3	1	109169	BELT, HTD 525-5M-15
4	1	543038-20	ASSY, 619 ENCODER MOUNT/DRIVE
5	1	554770-19	ASSY, ELECTRICAL PANEL
6	2	557914-25	FRAME, EXTRUSION
7	2	557915-01	PLATE, END CAP
8	2	557916-46	BAR, TABLETOP MOUNT
9	2	557917-100	BAR, T SLOT NUT
10	2	557917-318	BAR, T SLOT NUT, KR619 RFID
11	1	557920-137	ASSY, 66" TABLETOP, KR619
12	1	557940-11	ASSY, BOTTOM COVER
13	1	557941-21	COVER, BOTTOM
14	2	557952-02	WLDMNT, SPACER BASE MOUNT
15	1	557952-08	WLDMNT, 619 SPACER BASE MOUNT
16	1	560282-05	ASSY, KR519G LOGO
17	4	560325-05	ASSY, BELT DIVERT ROLLER
18	3	561436-04	SUPPORT, TABLETOP, KR619 RFID
19	1	561445-02	BAR, BELT GUIDE

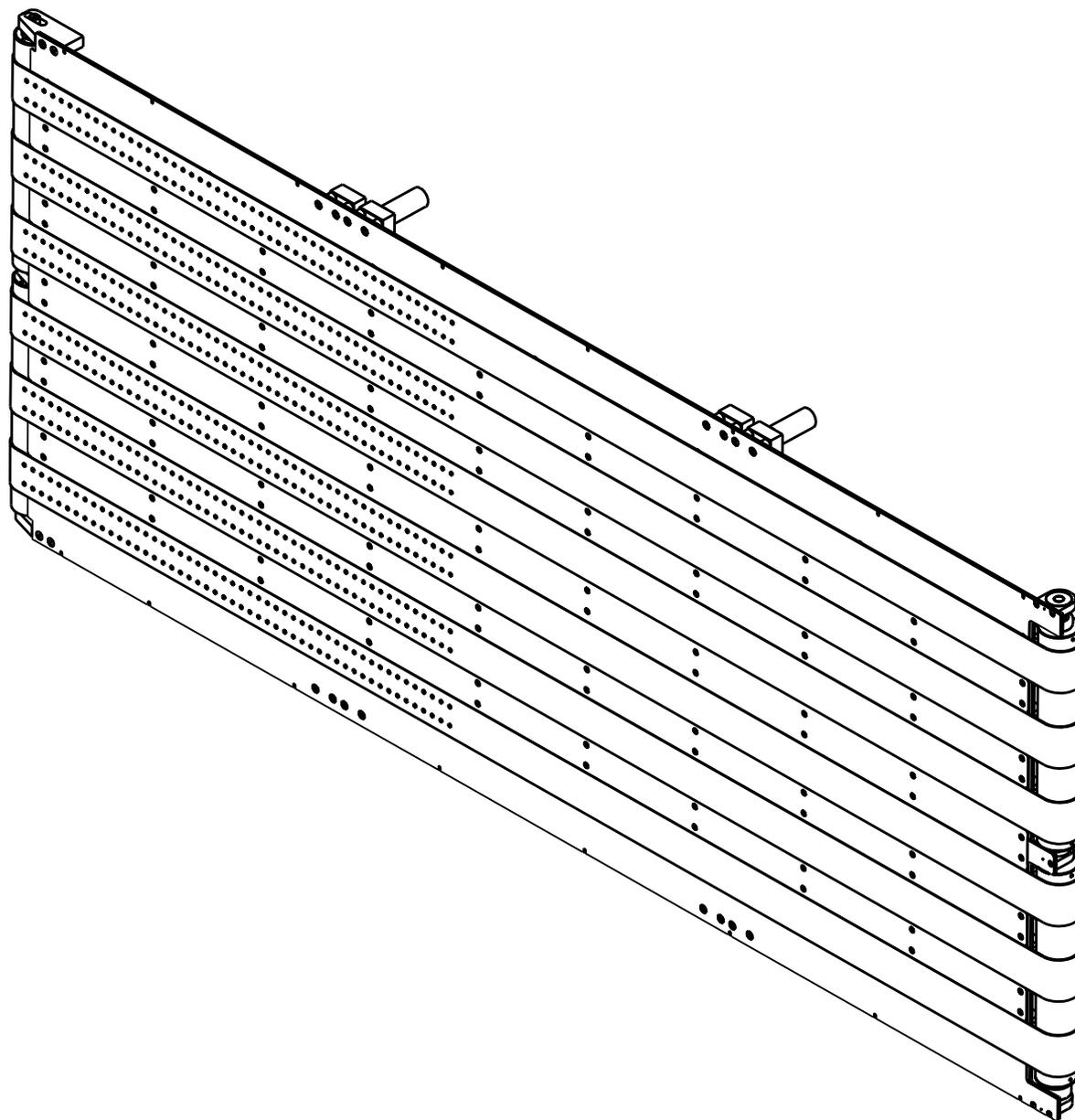
REV NO	DATE	DESCRIPTION	ECR NO	BY



FORM BY: JCC	SCALE 0.188	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED -.00 .000 .005 .010 .015 .020 .030 .040 .050 .060 .070 .080 .090 .100 .125 .150 .175 .200 .250 .300 .375 .450 .500 .625 .750 .875 .937 .987 1.000 1.125 1.250 1.500 1.750 2.000 2.500 3.000 3.750 4.500 5.000 6.000 7.500 9.000 10.000 12.500 15.000 18.750 20.000 25.000 30.000 37.500 45.000 50.000 60.000 75.000 90.000 100.000 125.000 150.000 175.000 200.000 250.000 300.000 375.000 450.000 500.000 600.000 750.000 900.000 1000.000	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF KIRK - RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Jun-05-24	REWORK ALL DIMS AND SAFETY CHECK DIMS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: 619G88	TITLE: ASSY, FRAME KR619	
DRAWN BY:	WATER	ALL DIMENSIONS ARE FRACTIONS UNLESS NOTED OTHERWISE DO NOT SCALE - REFER TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO: 10F2	REV NO: 1	557136-10

ITEM	QTY	PART #	DESCRIPTION
1	6	112082	BELT, 3" X 184.75" HSW-SEB (SEE DRAWING)
2	1	190723	VACUUM T-CONNECTOR
3	2	190751	90 DEGREE ELBOW
4	1	190868-11	PIPE, 1 INCH PVC X 2.5"
5	2	190868-18	PIPE, 1 INCH PVC X 14.5"
6	1	530619-52	ASSY, GROUND 619 TAKEUP ROLLERS
7	1	557927-74	ASSY, VACUUM CHANNEL, 66", KR619
8	1	557938-12	ASSY, 619 TUBE ROLLER MICROV
9	1	557964-141	TABLETOP, 88" SS, KR619
10	1	557965-138	TABLETOP, 88" BACKER, KR619
11	4	565955-10	GUIDE, TABLETOP BELT
12	1	565955-11	GUIDE, TABLETOP BELT

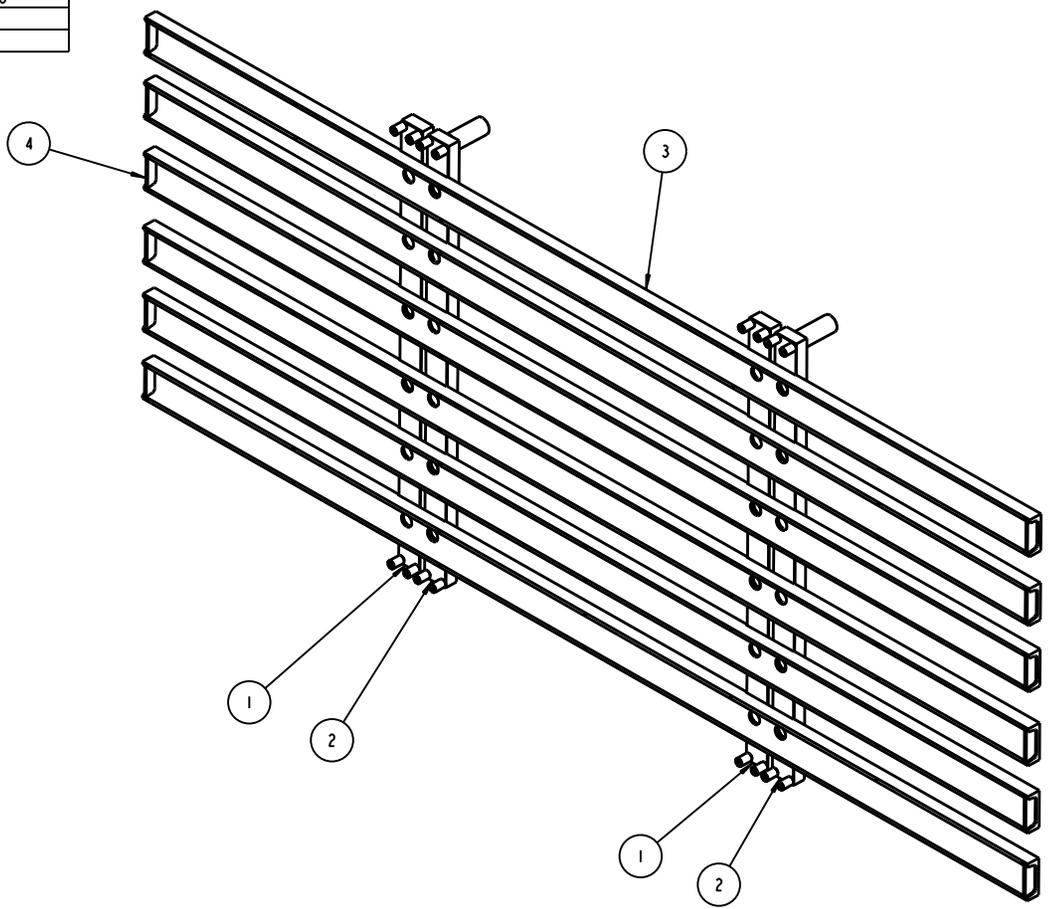
REV NO	DATE	DESCRIPTION	ECR NO	BY



FORM BY: A KEY	SCALE 0.200	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE COPIED OR REPRODUCED WITHOUT THE WRITTEN PERMISSION OF KIRK - RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Jun-05-24	HEAT TREAT: N/A	MODEL: 619	TITLE: ASSY, 66" TABLETOP, KR619		
DRAWN BY:	REVISIONS	REWORK ALL DIMS AND LABEL CASE UNLESS OTHERWISE NOTED	FINISH: N/A	SHEET NO. 1 OF 2	 557920-137	

ITEM	QTY	PART #	DESCRIPTION
1	2	530656-102	ASSY, VACUUM MANIFOLD, INNER 2 CHANNELS
2	2	530656-103	ASSY, VACUUM MANIFOLD, OUTER 4 CHANNELS
3	6	557928-52	CHANNEL, 88" VACUUM
4	12	557929-01	PLATE, CHANNEL END

REV NO	DATE	DESCRIPTION	ECN NO	BY



MATERIAL CODE	LENGTH	WIDTH
XXX	XXX	XXX

DRAWN BY: JCC	SCALE: 0.125
CHECKED BY:	DATE: Sep-16-24
TRACED BY:	MASTER

DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED

.XX	.XX	ANG.
.01	.00	.5

REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED

ALL DIMENSIONS ARE FINISHED DIMENSIONS

DO NOT SCALE - WORK TO DIMENSIONS ONLY

MATERIAL: N/A
HEAT TREAT: N/A
FINISH: N/A

THIRD ANGLE PROJECTION
MODEL: 619
SHEET NO. 1 OF 1

PROPRIETARY AND CONFIDENTIAL
NO PORTION OF THIS DRAWING
MAY BE QUOTED OR REPRODUCED
IN ANY FORM WITHOUT THE
EXPRESS WRITTEN PERMISSION
OF KIRK-RUDY, INC.
WOODSTOCK, GA 30188 USA

KIRK - RUDY, INC.
WOODSTOCK, GEORGIA

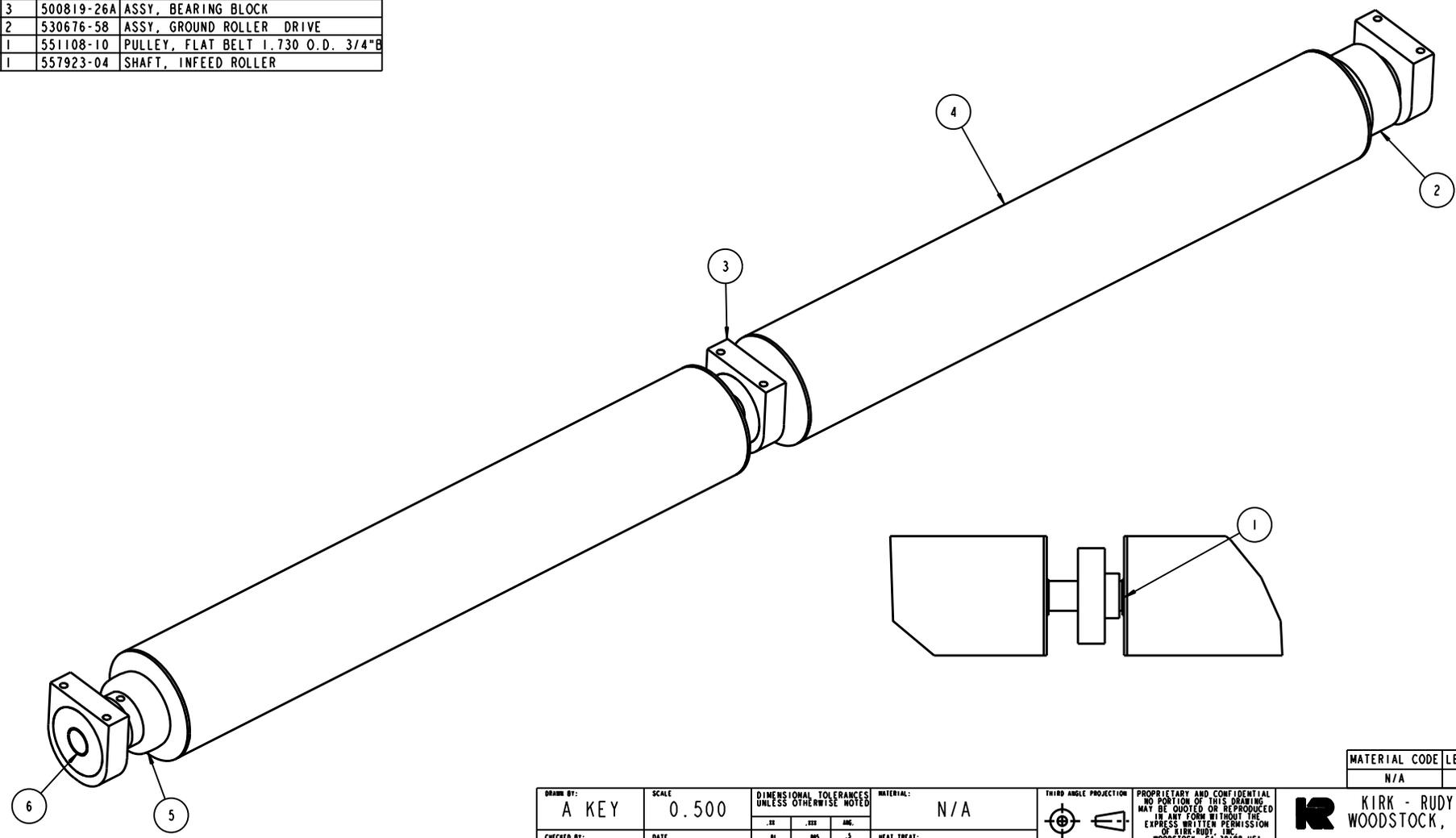
TITLE:
ASSY, VACUUM CHANNEL, 66", KR619



DRAWING #
557927-74

ITEM	QTY	PART #	DESCRIPTION
1	2	104104	SNAPRING, .625
2	1	109732-5	PULLEY, TIMING 305M15 .625B .188K
3	3	500819-26A	ASSY, BEARING BLOCK
4	2	530676-58	ASSY, GROUND ROLLER DRIVE
5	1	551108-10	PULLEY, FLAT BELT 1.730 O.D. 3/4" B
6	1	557923-04	SHAFT, INFEED ROLLER

REV NO	DATE	DESCRIPTION	ECN NO	BY

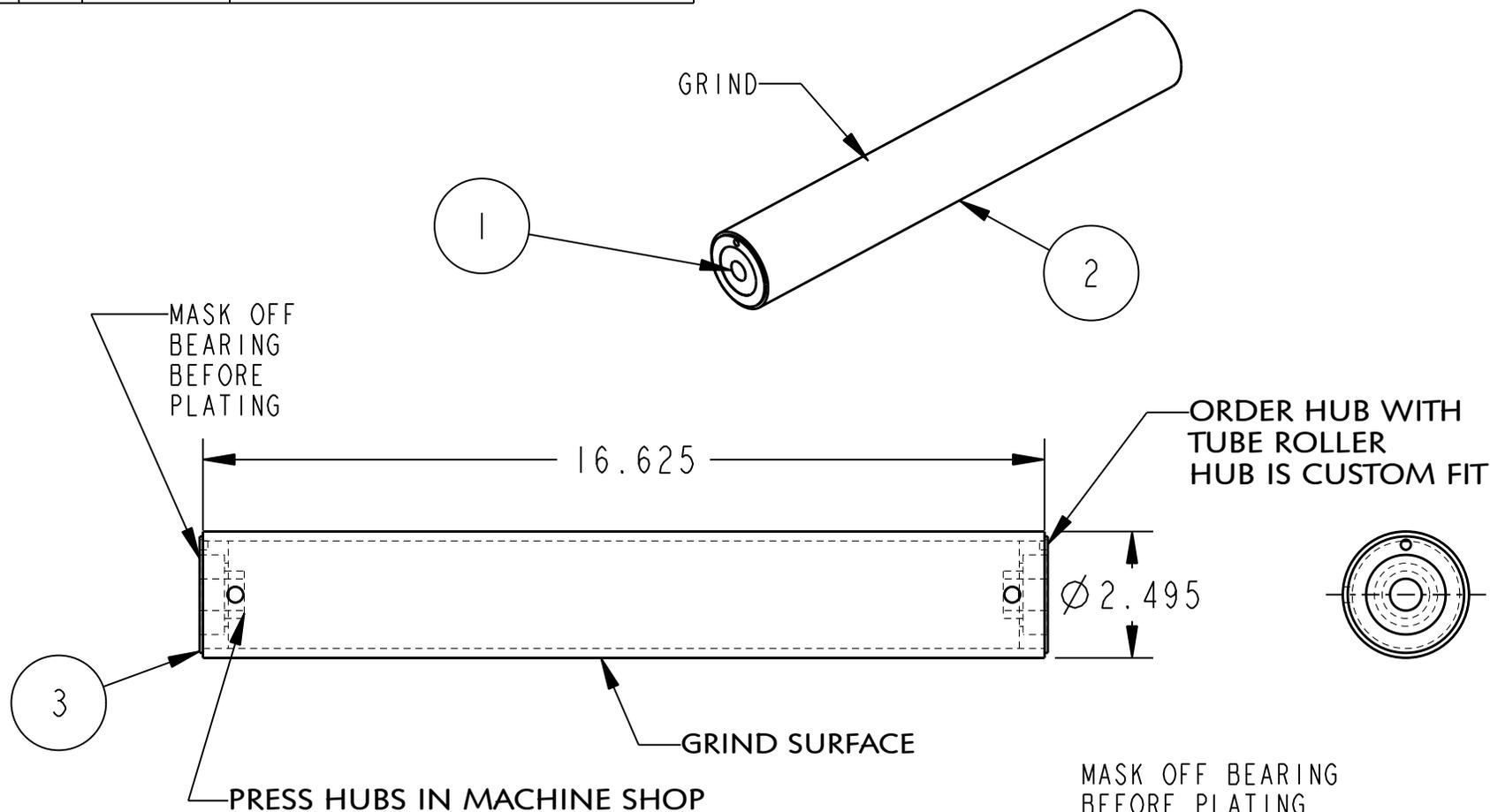


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±.01	±.02	ANG.									
±.01	±.02	.5									
CHECKED BY:	DATE: Jun-05-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: 619	TITLE: ASSY, 619 TUBE ROLLER MICROV						
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO: 1 OF 1							
					DRAWING # 557938-12						

ITEM	QTY	PART #	DESCRIPTION
1	2	103804	BEARING, HUB .625
2	1	500835-72	ROLLER, BELT IDLER
3	2	500836-29	HUB

REV NO	DATE	DESCRIPTION	ECN NO	BY



NOTES:

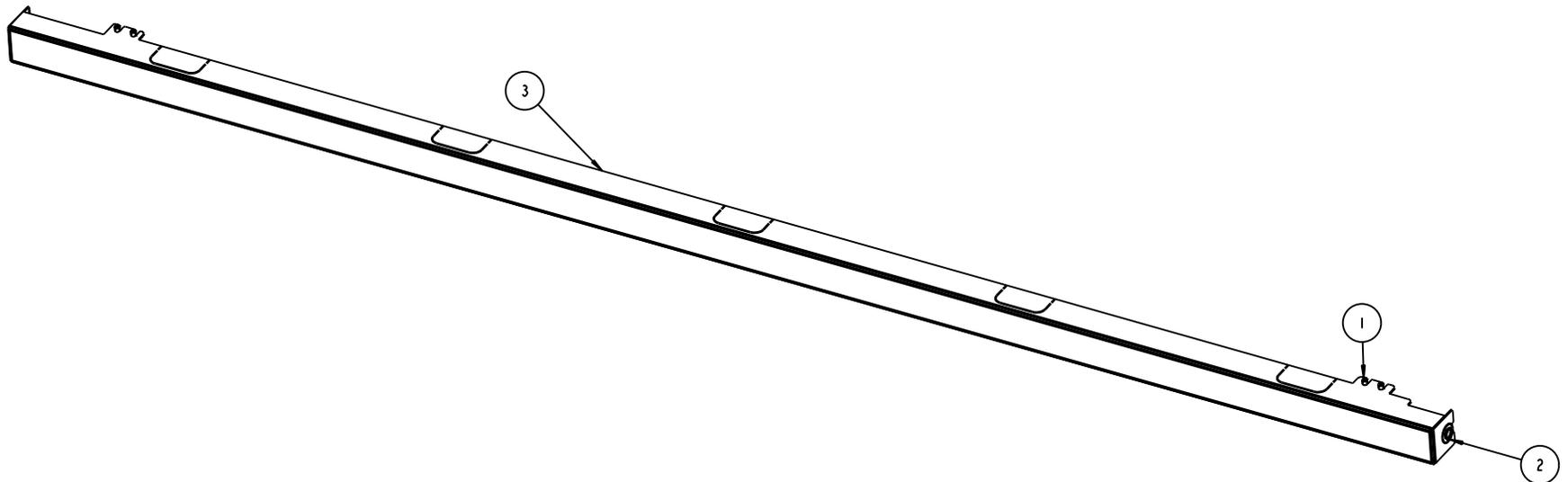
- IF PART # ORDERED IS -15 FINISH: BLACK OXIDE.
- IF PART # ORDERED IS -15P FINISH: COATING ELECTROLESS NICKEL .001-.002 THICK

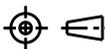
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DRAWN BY: A KEY	SCALE 0.300	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA				
CHECKED BY:	DATE May-22-24		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
.XX	.XXX	ANG.								
.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: 619	TITLE: ASSY, GROUND TUBE ROLLER					
			SHEET NO.: 1 OF 1			DRAWING # 557939-16				

ITEM	QTY	PART #	DESCRIPTION
1	4	107403	SCREW, SHCS 1/4-20X.375
2	2	200373-6	PLUG, .875
3	1	557941-19	COVER, BOTTOM

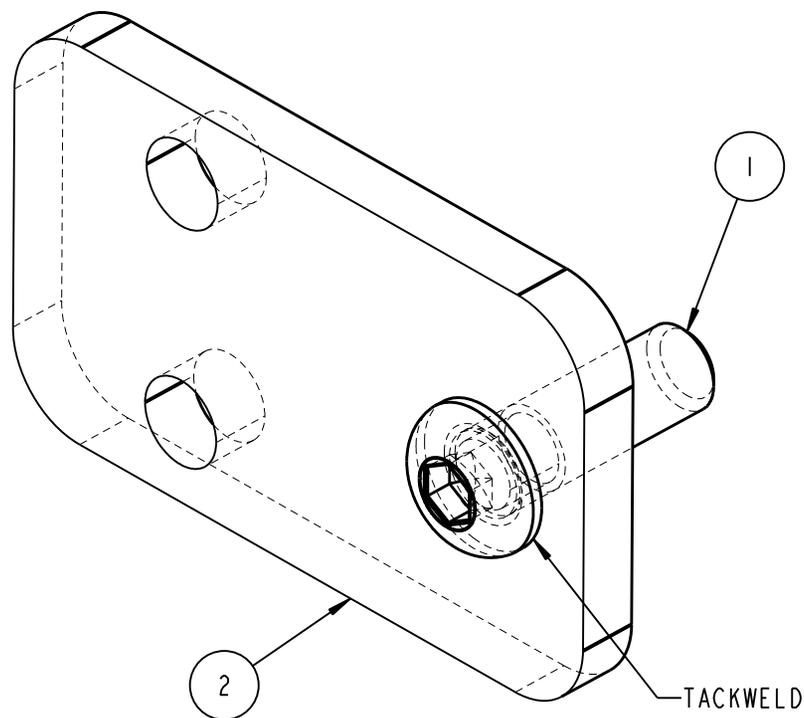
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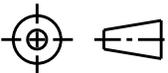
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XX	XX	ANG.										
.X1	.XX	.5										
CHECKED BY: DATE Jan-23-18	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: 519	TITLE: ASSY, BOTTOM COVER								
TRACED BY: MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 557940-11							

ITEM	QTY	PART #	DESCRIPTION
1	1	106800	SCREW, BUTTON HEAD 1/4X.750
2	1	557951-02	BRACKET, SPACER BASE MOUNT

REV NO	DATE	DESCRIPTION	ECN NO	BY

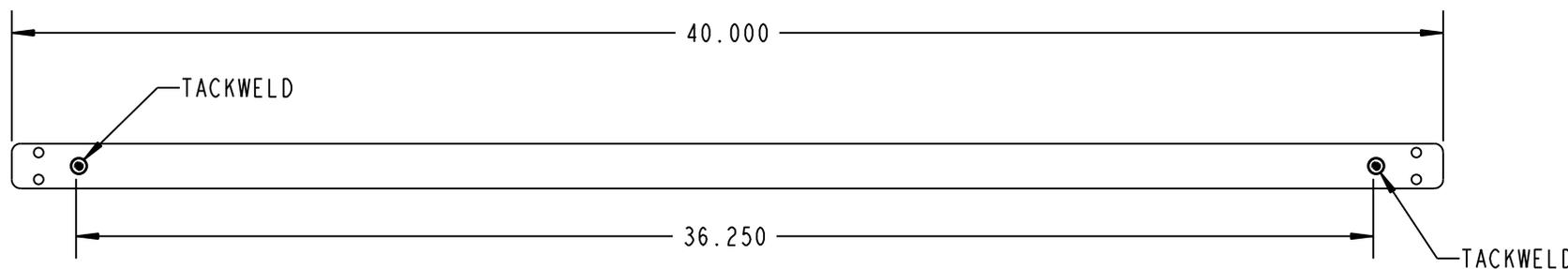
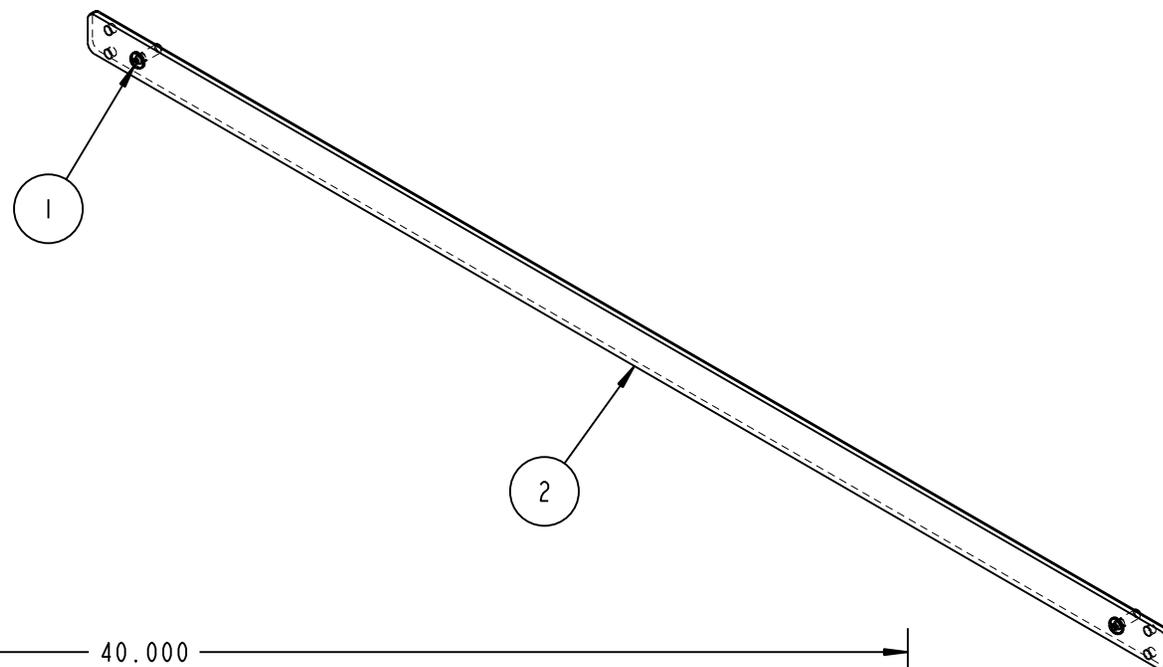


MATERIAL CODE: ASSY.

DRAWN BY: A KEY	SCALE 2.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.XX	.XXX	ANG.				
CHECKED BY:	DATE Apr-07-14	.01	.005	.5	HEAT TREAT: N/A	MODEL: SA1155	TITLE: WLDMNT, SPACER BASE MOUNT	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 557952-02

ITEM	QTY	PART #	DESCRIPTION
1	2	106800	SCREW, BUTTON HEAD 1/4X.750
2	1	557951-08	BRACKET, SPACER BASE MOUNT

REV NO	DATE	DESCRIPTION	ECN NO	BY

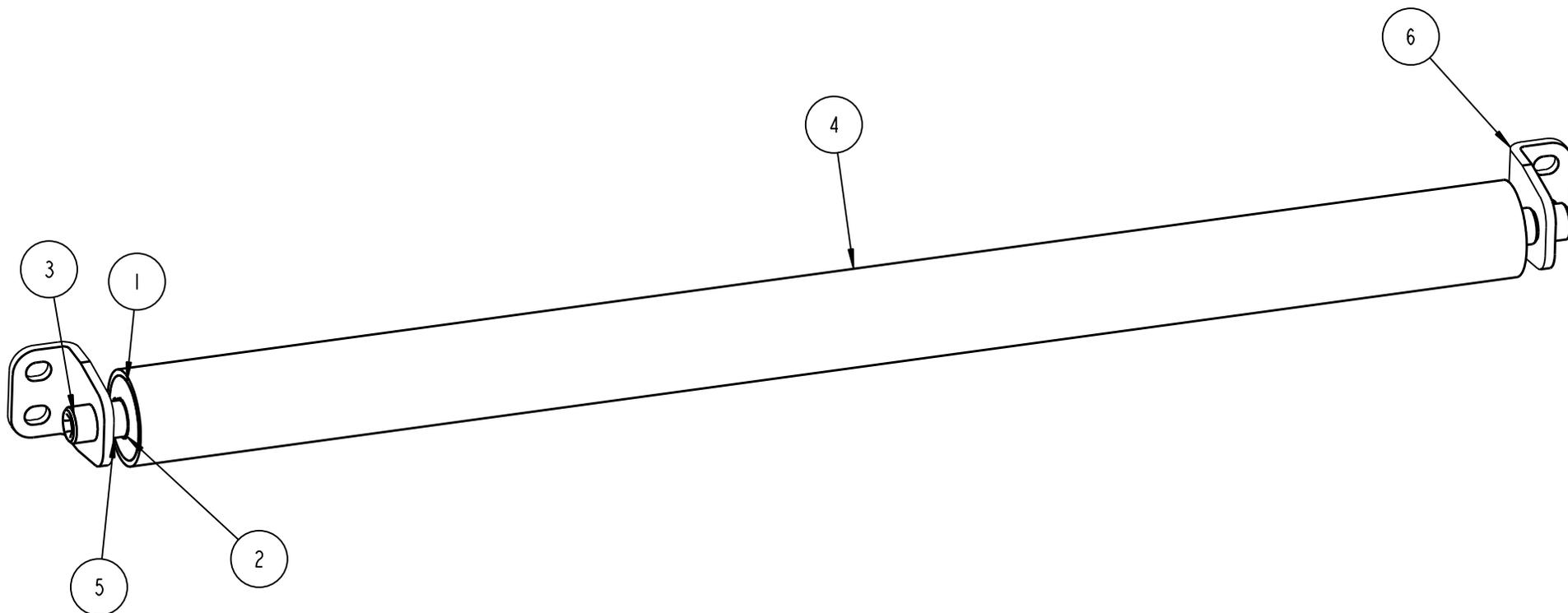


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		.XX	.XXX	ANG.				
CHECKED BY:	DATE May-22-24	.01	.005	.5	HEAT TREAT: N/A	MODEL: 619	TITLE: WLDMNT, 619 SPACER BASE MOUNT	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 557952-08

ITEM	QTY	PART #	DESCRIPTION
1	2	103106	BEARING, FLAT .375
2	2	104100	SNAPRING, .375
3	2	107403	SCREW, SHCS 1/4-20X.375
4	1	560326-02	ROLLER, TRANSFER
5	1	560327-03	SHAFT, ROLLER IDLER
6	2	560328-05	BRACKET, ROLLER MOUNT

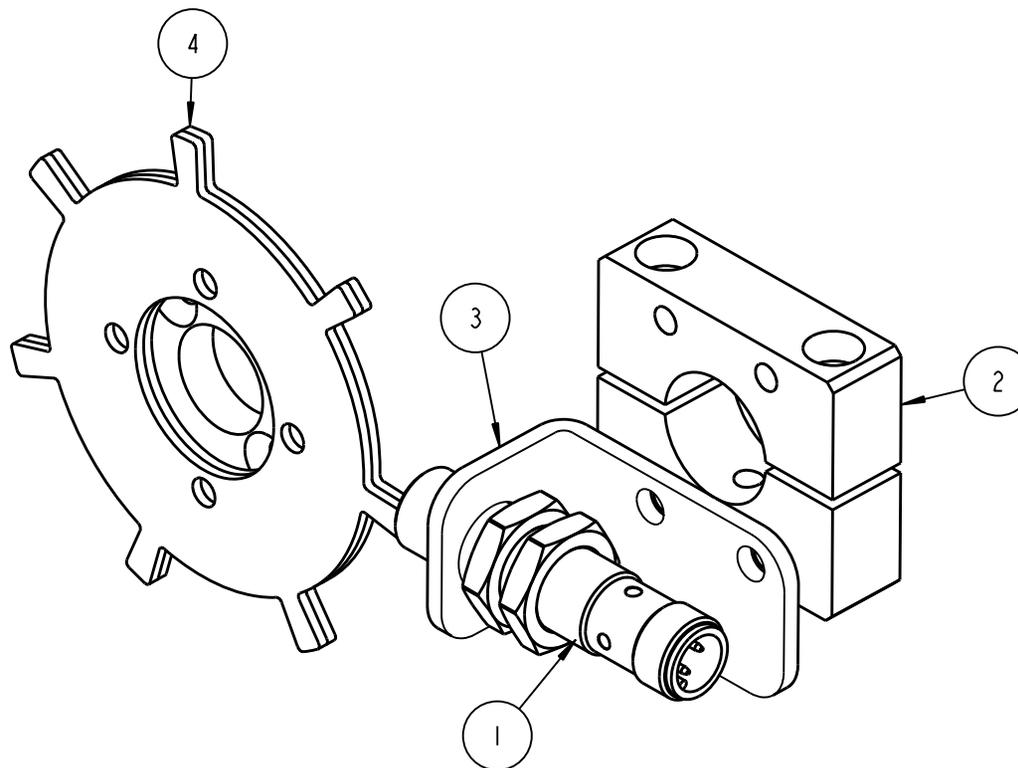
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DRAWN BY: A KEY	SCALE 0.625	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA						
CHECKED BY:	DATE Apr-19-23		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005	.5	HEAT TREAT: N/A
.XX	.XXX	ANG.										
.01	.005	.5										
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 560325-05						

ITEM	QTY	PART #	DESCRIPTION
1	1	202718-9	SWITCH, PROX PNP SOURCING
2	1	541023-01	PLATE, ENCODER MOUNT
3	1	550224-05	BRACKET, PROX MOUNT
4	1	560392-01	ASSY, 7 LUG PROX RING 5/8B

REV NO	DATE	DESCRIPTION	ECN NO	BY

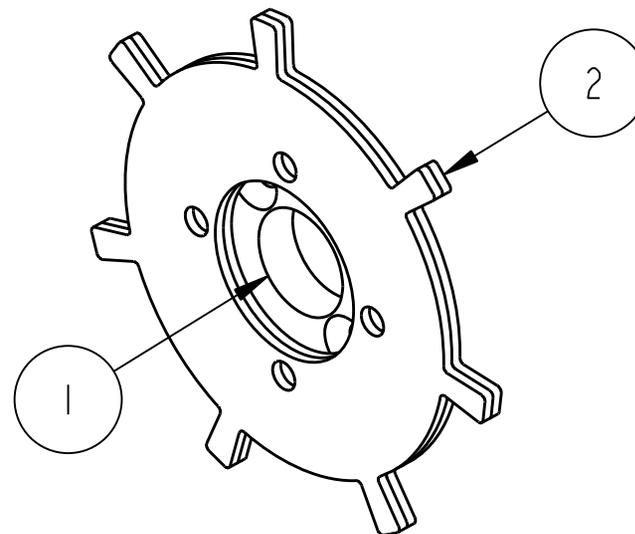


MATERIAL CODE	LENGTH	WIDTH
N/A	N/A	N/A

DRAWN BY: A KEY	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Jun-05-24		HEAT TREAT: N/A	MODEL: 519	TITLE: ASSY, PROX MOUNT	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 560391-01

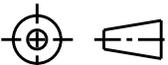
ITEM	QTY	PART #	DESCRIPTION
1	1	547800-02	COLLAR, PROX RING MNT 5/8
2	2	547850-14	RING, SHEET METAL PROX 7 LUGS

REV NO	DATE	DESCRIPTION	ECN NO	BY



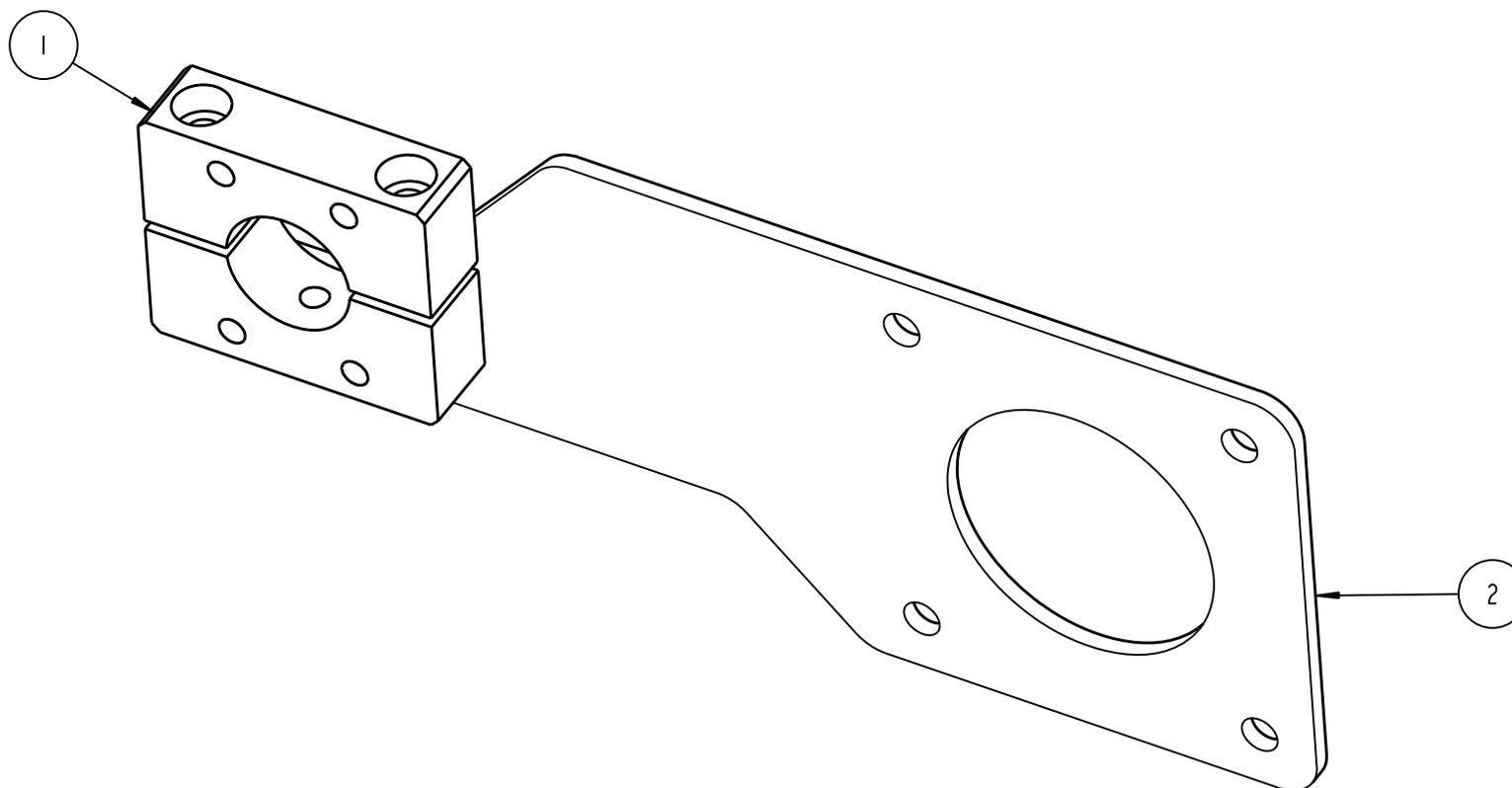
NOTES:

- 1- PROVIDES ONE PULSE FOR EVERY 1.001 INCHES OF BELT TRAVEL
 1 REV = 7.0685" OF BELT TRAVEL 2.25 DIA ROLLER

DRAWN BY: A KEY	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.XX	.XXX	ANG.				
CHECKED BY:	DATE Sep-02-15	.01	.005	.5	HEAT TREAT: N/A	MODEL: 519	TITLE: ASSY, 7 LUG PROX RING 5/8B	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 560392-01

ITEM	QTY	PART #	DESCRIPTION
1	1	541023-01	PLATE, ENCODER MOUNT
2	1	541024-68	BRACKET, ENCODER MOUNT

REV NO	DATE	DESCRIPTION	ECN NO	BY



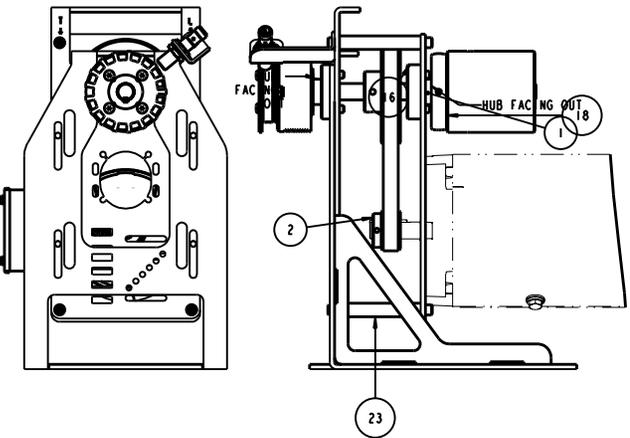
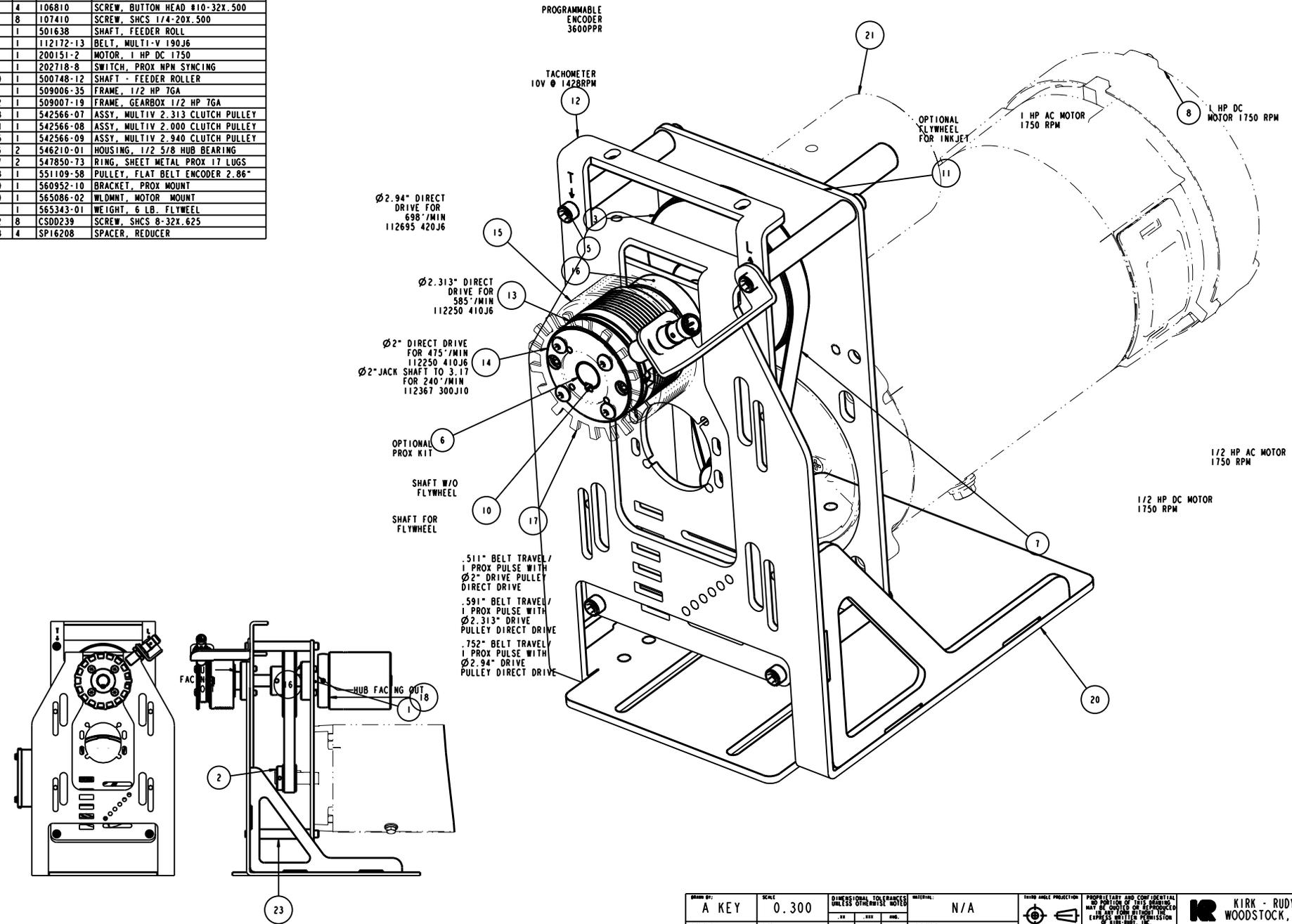
NOTES:

- 1- MOUNTS DYNAPAR 625 FLANGE ENCODERS
 2- MOUNTS HEIDENHAIN FLANGE ENCODERS

DRAWN BY: A KEY	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA				
CHECKED BY:	DATE Jan-10-18		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
.XX	.XXX	ANG.								
.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: 519	TITLE: PLATE, ENCODER MOUNT					
				SHEET NO.: 1 OF 1		DRAWING # SP45241-51				

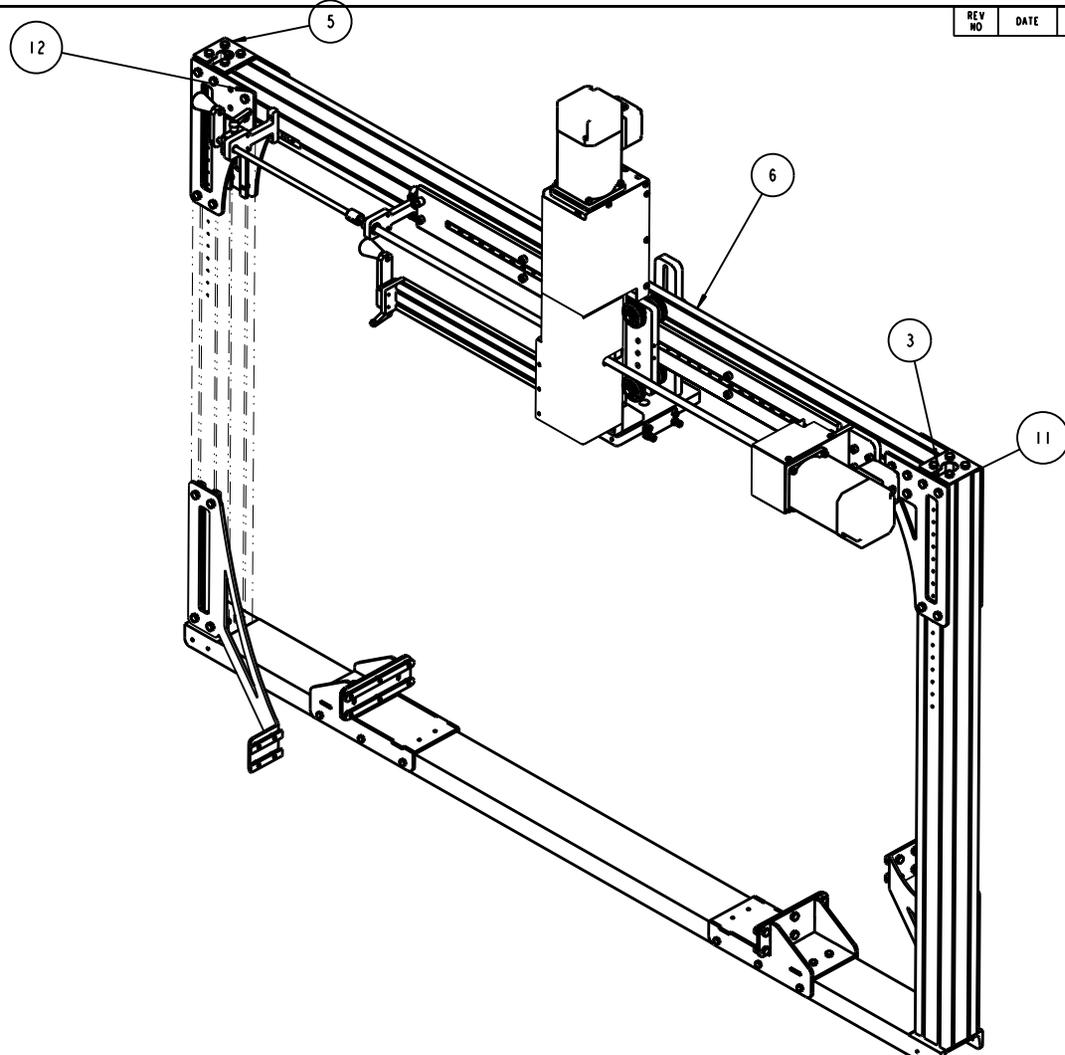
ITEM	QTY	PART #	DESCRIPTION
1	2	103804	BEARING, HUB .625
2	1	105500	PULLEY, MICRO-V 1.4320D .625B.188K
3	1	105507	PULLEY, MICRO-V6 3.820D .625B.188K
4	4	106810	SCREW, BUTTON HEAD #10-32X.500
5	8	107410	SCREW, SHCS 1/4-20X.500
6	1	501638	SHAFT, FEEDER ROLL
7	1	112172-13	BELT, MULTI-V 190J6
8	1	200151-2	MOTOR, 1 HP DC 1750
9	1	202718-8	SWITCH, PROX NPN SYNCING
10	1	500748-12	SHAFT - FEEDER ROLLER
11	1	509006-35	FRAME, 1/2 HP 7GA
12	1	509007-19	FRAME, GEARBOX 1/2 HP 7GA
13	1	542566-07	ASSY, MULTIV 2.313 CLUTCH PULLEY
14	1	542566-08	ASSY, MULTIV 2.000 CLUTCH PULLEY
15	1	542566-09	ASSY, MULTIV 2.940 CLUTCH PULLEY
16	2	546210-01	HOUSING, 1/2 5/8 HUB BEARING
17	2	547850-73	RING, SHEET METAL PROX 17 LUGS
18	1	551109-58	PULLEY, FLAT BELT ENCODER 2.86"
19	1	560952-10	BRACKET, PROX MOUNT
20	1	565086-02	WLD MNT, MOTOR MOUNT
21	1	565343-01	WEIGHT, 6 LB. FLYWHEEL
22	8	CSD0239	SCREW, SHCS 8-32X.625
23	4	SP16208	SPACER, REDUCER

REV NO	DATE	DESCRIPTION	ECN NO	BY



DRWN BY: A KEY	SCALE: 0.300	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED: .01 .005 .002 .001	MATERIAL: N/A	FINISH: NONE	HEAT TREAT: NONE	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION SYSTEMS WITHOUT PERMISSION OF KIRK - RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE: Jan-22-21	REMOVE ALL DIMS AND DIMENSIONS FROM THIS DRAWING UNLESS OTHERWISE NOTED	FINISH: N/A	MODEL: 519	SHEET: TOF1	ASSY, SR 1/2 HP 7GA VERT MICRO-V	
TRACED BY:	MASTER:	ALL DIMENSIONS ARE UNLESS OTHERWISE NOTED DO NOT SCALE - REFER TO DIMENSIONS ONLY				#) \$-\$\$\$1, \$#	509000-80

ITEM	QTY	PART #	DESCRIPTION
1	16	107327	BOLT, 1/4-20 X .500
2	8	107336	BOLT, HEX HEAD 5/16-18X.75
3	69	107347	BOLT, HEX HEAD 5/16-18X.50
4	1	531121-18	CHANNEL
5	2	551498-19	EXTRUSION, 3 X 3
6	1	551498-26	EXTRUSION, 3 X 3
7	12	557917-103	BAR, T SLOT NUT
8	12	557917-104	BAR, T SLOT NUT
9	4	557917-119	BAR, T SLOT NUT
10	1	560398-08	ASSY, GANTRY XZ AXIS
11	2	560422-02	CAP, 80/20 3 X 3
12	4	560423-01	GUSSET, GANTRY
13	2	560598-01	WLDMNT, GANTRY CHANNEL MNT
14	2	566081-01	BRACKET, GANTRY GUSSET

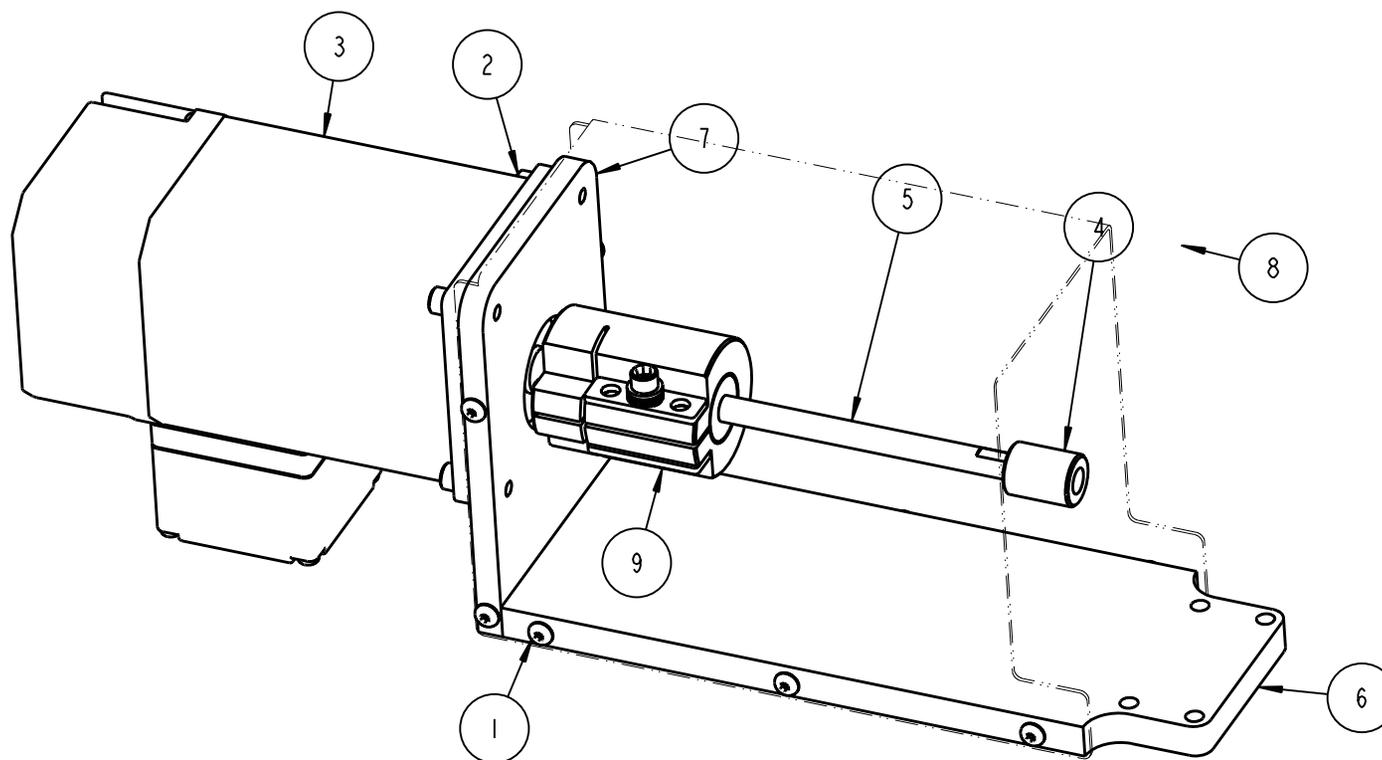


REV NO	DATE	DESCRIPTION	ECN NO	BY

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.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY: 	DATE Aug-23-23	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: SA1876	TITLE: ASSY, GANTRY							
TRACED BY: 	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 6		DRAWING # 560400-08						

ITEM	QTY	PART #	DESCRIPTION
1	10	106813	SCREW, BUTTON HEAD #10-32X.375
2	4	107428	SCREW, SHCS 1/4-20X.625
3	1	200160-1A	MOTOR, 1/15HP 220VAC
4	1	552377-01	ADAPTOR, HANDWHEEL
5	1	552483-09	SHAFT, GANTRY SLIDE ADJUST
6	1	560415-01	PLATE, VERTICAL MOTOR MOUNT
7	1	560416-01	PLATE, MOTOR MOUNT
8	1	560417-01	COVER, MOTOR SHAFT
9	1	560426-01	ASSY, SLIP COUPLING

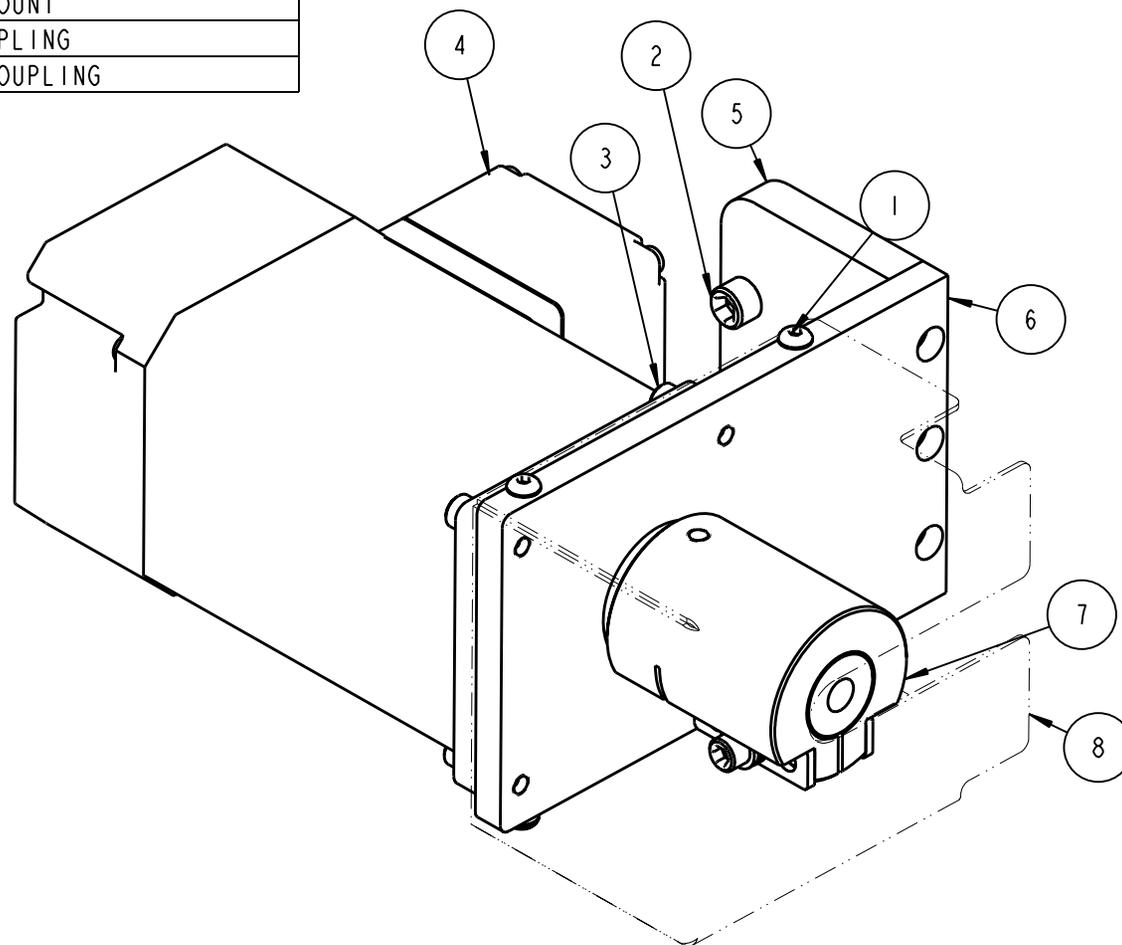
REV NO	DATE	DESCRIPTION	ECN NO	BY



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CHECKED BY:	DATE Oct-28-15		HEAT TREAT: N/A	MODEL: 519	TITLE: ASSY, VERTICAL MOTOR	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 560420-01

ITEM	QTY	PART #	DESCRIPTION
1	4	106813	SCREW, BUTTON HEAD #10-32X.375
2	4	107421	SCREW, SHCS 5/16-18X.875
3	4	107428	SCREW, SHCS 1/4-20X.625
4	1	200160-1A	MOTOR, 1/15HP 220VAC
5	1	560415-02	PLATE, VERTICAL MOTOR MOUNT
6	1	560416-02	PLATE, MOTOR MOUNT
7	1	560426-01	ASSY, SLIP COUPLING
8	1	560433-01	COVER, HORZ. COUPLING

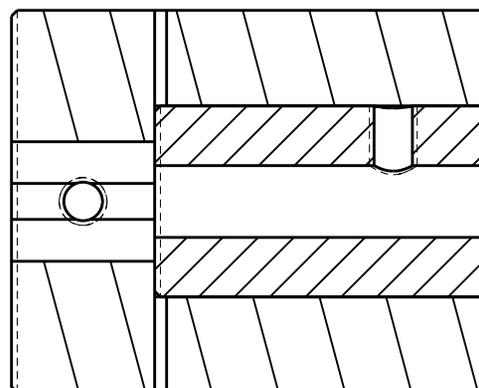
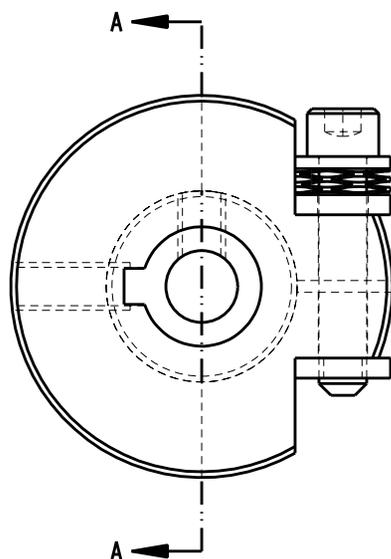
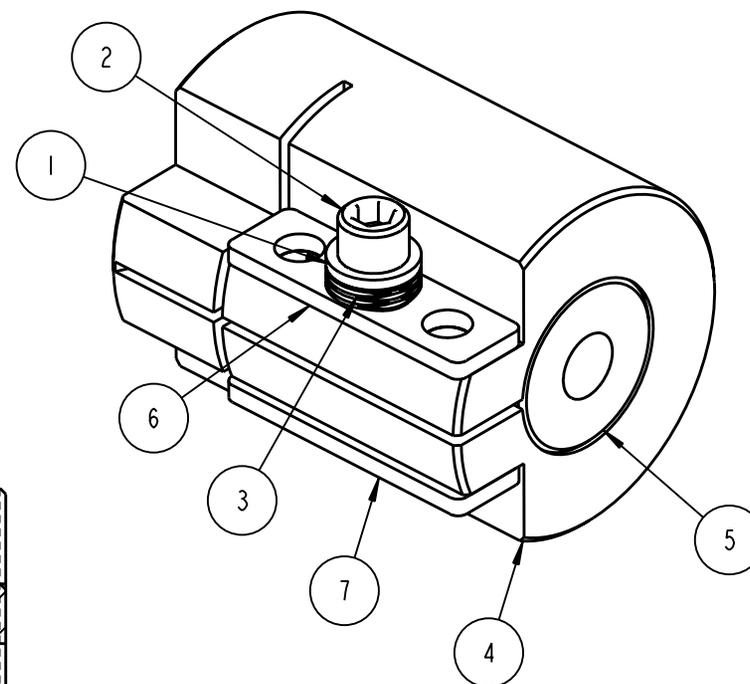
REV NO	DATE	DESCRIPTION	ECN NO	BY



DRAWN BY: A KEY	SCALE 0.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA				
CHECKED BY:	DATE Oct-29-15		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
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.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: SA1299	TITLE: ASSY, HORIZONTAL MOTOR					
				SHEET NO. 1 OF 1		DRAWING # 560421-01				

ITEM	QTY	PART #	DESCRIPTION
1	1	100603	WASHER, FLAT 1/4ID
2	1	107402	SCREW, SHCS 1/4-20X1.250
3	1	192951	SPRING, WAVE C050-H3
4	1	560428-01	HUB, SLIP COUPLING
5	1	560429-01	COLLAR, SLIP COUPLING
6	1	560430-01	PLATE, CLAMP SLIP COUPLING
7	1	560431-01	PLATE, CLAMP SLIP COUPLING

REV NO	DATE	DESCRIPTION	ECN NO	BY

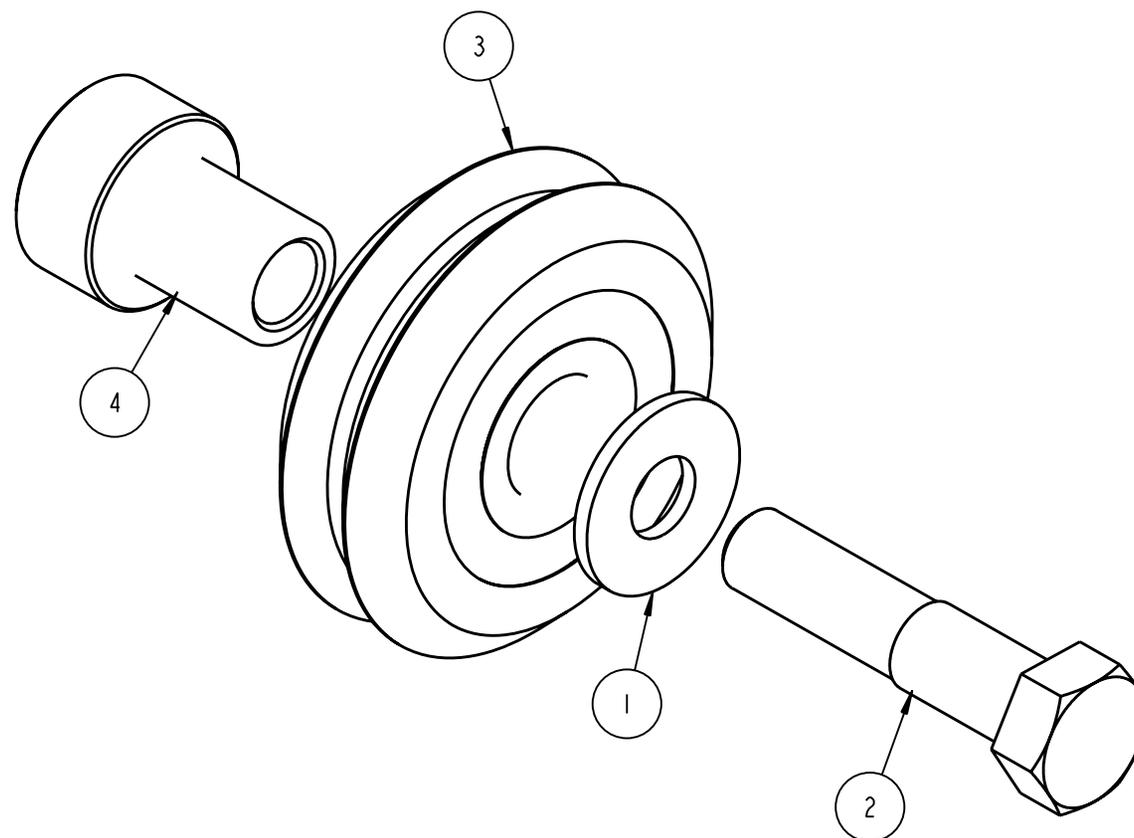


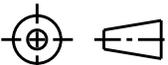
SECTION A-A

DRAWN BY: A KEY	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA					
CHECKED BY:	DATE Oct-29-15		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005	.5
.XX	.XXX	ANG.									
.01	.005	.5									
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: SA1299 SHEET NO.: 1 OF 1		DRAWING # 560426-01					

ITEM	QTY	PART #	DESCRIPTION
1	1	100602	WASHER, FLAT 5/16ID
2	1	107330	BOLT, HEX HEAD 5/16-18X1.50
3	1	192953	WHEEL, DUALVEE W3X
4	1	192954	STUD, CONCENTRIC WHEEL 3X

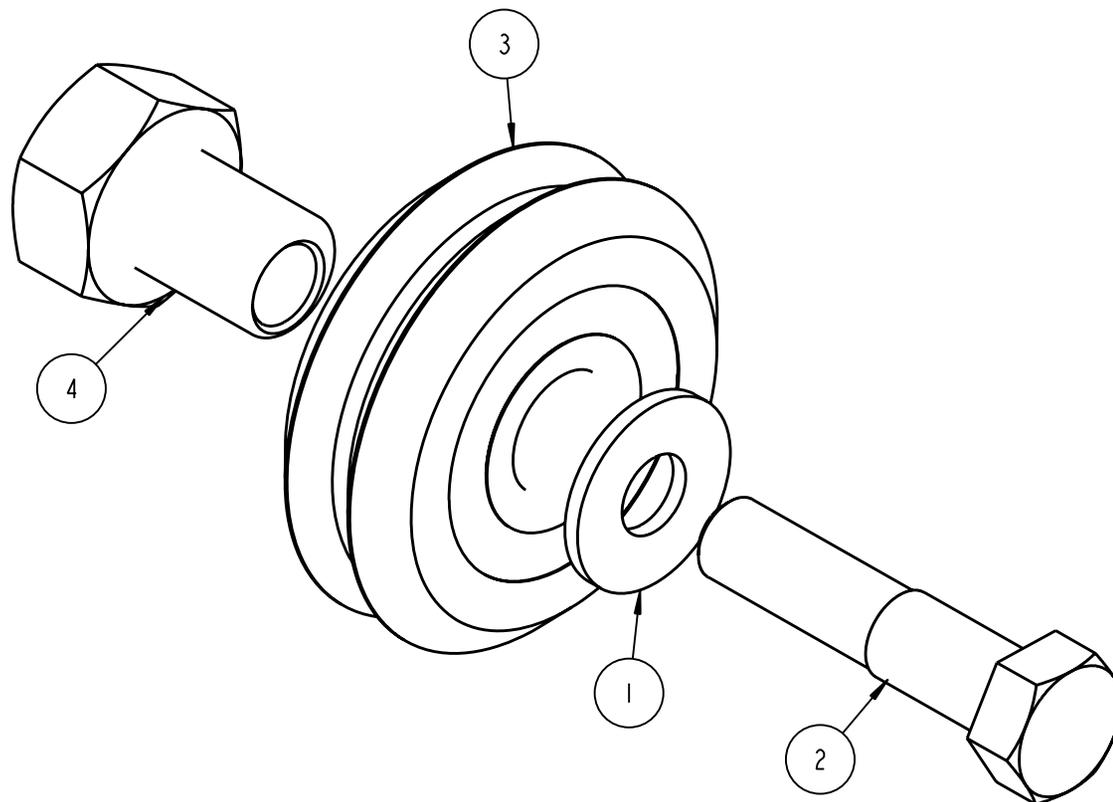
REV NO	DATE	DESCRIPTION	ECN NO	BY



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		.XX	.XXX	ANG.				
CHECKED BY:	DATE Nov-05-15	.01	.005	.5	HEAT TREAT: N/A	MODEL: SA1299	TITLE: ASSY, CONCENTRIC WHEEL 3X	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 560438-01

ITEM	QTY	PART #	DESCRIPTION
1	1	100602	WASHER, FLAT 5/16ID
2	1	107330	BOLT, HEX HEAD 5/16-18X1.50
3	1	192953	WHEEL, DUALVEE W3X
4	1	192955	STUD, ECCENTRIC 3X

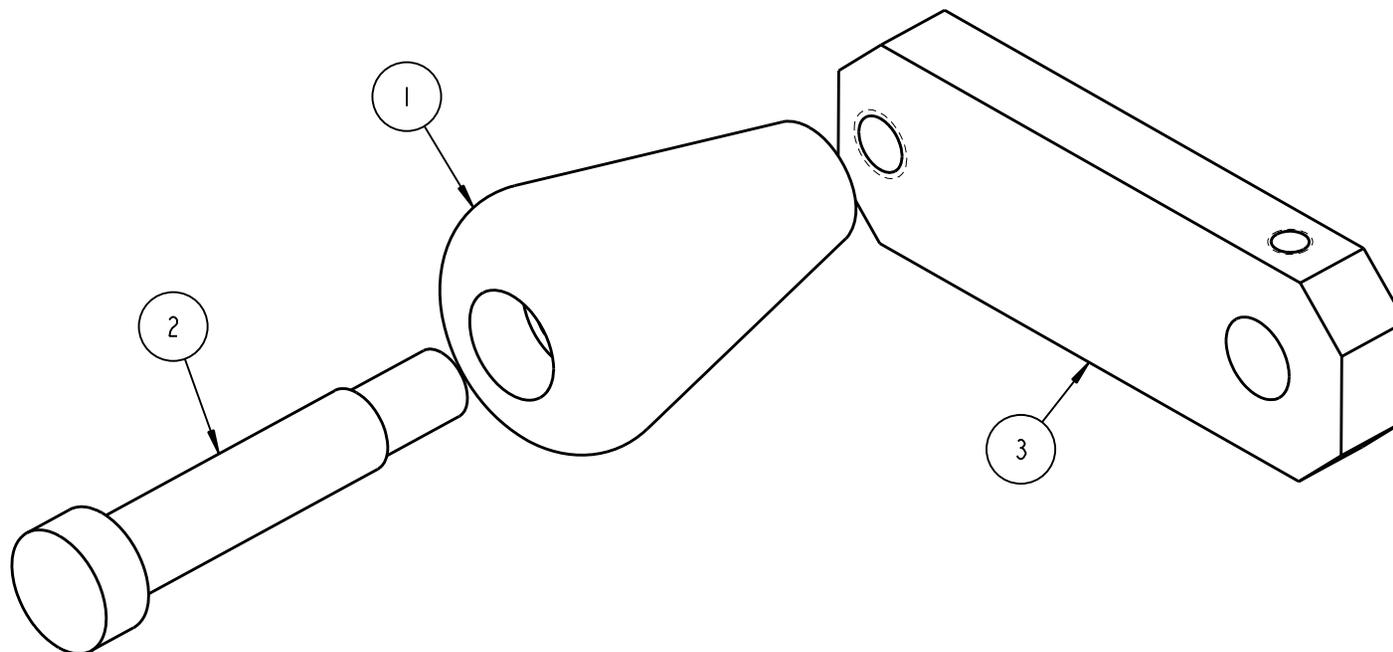
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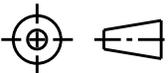


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CHECKED BY:	DATE Nov-05-15		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
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.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: SA1299	TITLE: ASSY, ECCENTRIC WHEEL 3X					
				SHEET NO. 1 OF 1		DRAWING # 560439-01				

ITEM	QTY	PART #	DESCRIPTION
1	1	105701	KNOB, BD-50
2	1	107201	BOLT, SHOULDER 3/8X1-1/2
3	1	531518-02	CRANK, GANTRY Z-MOTION

REV NO	DATE	DESCRIPTION	ECN NO	BY



DRAWN BY: A KEY	SCALE 1.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.XX	.XXX	ANG.				
CHECKED BY:	DATE Nov-10-15	.01	.005	.5	HEAT TREAT: N/A	MODEL: SA1299	TITLE: ASSY, HANDLE ADJUST	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 560443-01

10.0 ELECTRICAL SCHEMATIC

10.1 Schematic List

KR619G88 electrical schematic drawing number (Main Document #) is stamped into the name plate located near the power cord. The electrical schematic drawing will be located inside the front cabinet door.

10.2 Electrical Parts List

Note: The list maybe incomplete if a non-standard base is ordered. Refer to the electrical schematic drawing.

NO.	PART #	DESCRIPTION	QTY
1	201515	CONNECTOR, 3 PIN MIDGET TWIST LOC	1
2	208523	DIODE 1N4006 G 800V	1
3	209186	TERMINL, SLIP ON RED	3
4	209187	TERMINAL, SLIP ON BLUE	5
5	209512	16 STR BLACK	-
6	209512	16 STR BLACK	2
7	209513	16 STR WHITE	-
8	209530	22-2 MULTISHIELD	2
9	209533	22-3 MULTISHIELD	1
10	209541	14-3 HOVV-F	8
11	209541	14-3 HOVV-F	8
12	209544	WIRE, 18-3 CORD SJ	2
13	200321-1	CONNECTOR. 276,472 1/2"HUB	2
14	200321-1	CONNECTOR. 276,472 1/2"HUB	2
15	200323-1	CONNECTOR, 276,472 1/2"HUB	1
16	200323-1	CONNECTOR, 276,472 1/2"HUB	1
17	200513-4	BUSHING, SNAP .688 I.D.	1
18	200590	SCREW TERM 3-PIN MALE W/GROUND	1
19	200591	SCREW TERM 3-PIN FEMALE W/GROUND	1
20	200592	GREY HOOD	1
21	200593	GREY HOOD	1
22	201124-4A	OPERATOR, GREN PB BULB W LIGHT ASSY	1
23	201125-11	E-STOP NC/NC	1
24	208015	FUSE, MDL 1 AMP	2
25	209234-2	BLOCK TERMINAL	2
26	209237-2	GROUND BLOCK	1
27	209511-6	16 STR GREN/YELLOW	-

10.3 Motor Control Board Settings.



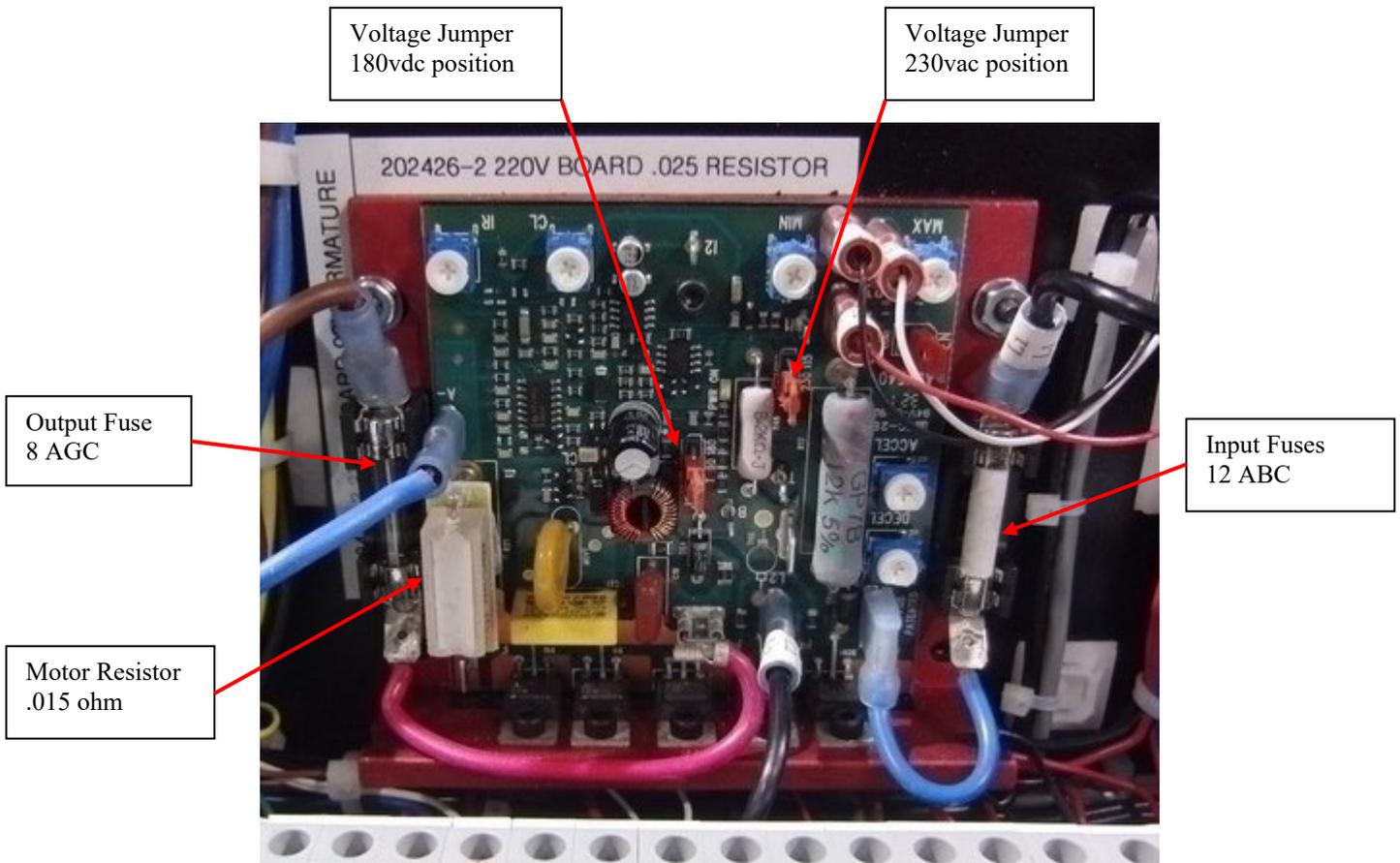
WARNING

This task should be performed by KR/KR dealer trained technician.

The motor control board settings are the following:

Output Fuse	8 AGC
Input Fuses	12 ABC
Motor Resistor	.015 ohm
Voltage Jumper Position	230vac
Voltage Jumper Position	180vdc

See picture below for motor control board setting locations. **Note: Trim pot settings for max, min, IR, CL, decel and accel are preset at factory. Factory technician should only change them.**



10.4 Remote Access Option (if available)



WARNING

This task should be performed by KR/KR Dealer trained technician.

This option (when grouped with other KR equipment) will allow a factory-trained technician to troubleshoot the controlling software over the Internet. Certain functions (shuttle clutch) of the machine can be remotely started; therefore, the operator should not be near the machine during this troubleshooting.

11.0 MACHINE END OF LIFE INSTRUCTIONS

This equipment does not require any special procedures for de-commissioning, dismantling, or disposal at the end of life; therefore, it does not need to be returned to the factory for any reason at the end of life.

Procedure for disposal at end at end of life:

1. Remove electronic equipment (CPU, PLC, relays, etc.) and dispose as you would any electronic equipment. **Note: This procedure will vary depending on your country's laws and regulations.**
2. Disassemble machine and recycle metals (aluminum, copper & steel).
3. Dispose any remaining items as needed.

12.0 APPENDIX

The following manufacturer's specification sheets are shipped with each machine:

LESSON INFORMATION

KB MOTOR BOARD INFORMATION

14.0 WARRANTY AND SERVICE

Warranty: Kirk-Rudy, Inc., warrants to the original retail purchaser that this product is free from defects in the material and workmanship, and agrees to repair or replace, at Kirk-Rudy's option, any defective product within (90) days from the date of purchase. This warranty is not transferable. It covers damage resulting from defects in material or workmanship, and it does not cover conditions or malfunctions resulting from the normal wear, neglect, abuse or accident.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESSED WARRANTIES. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.

Limitation of Remedies: If product is proven to be defective within the warranty period stated above, THE EXCLUSIVE REMEDY, AT KIRK-RUDY'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE PRODUCT, provided that the defective product is, at Kirk-Rudy's choice, returned immediately to Kirk-Rudy or authorized service representative designated by Kirk-Rudy, or made available at user's premises in a location suitable for servicing.

Limitation of Liability: Kirk-Rudy shall not otherwise be liable for any losses or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal or equitable theory asserted, including contract, negligence, warranty, or strict liability.

To obtain replacement parts and service, contact an Authorized Kirk-Rudy Dealer. Use Kirk-Rudy part numbers when ordering.

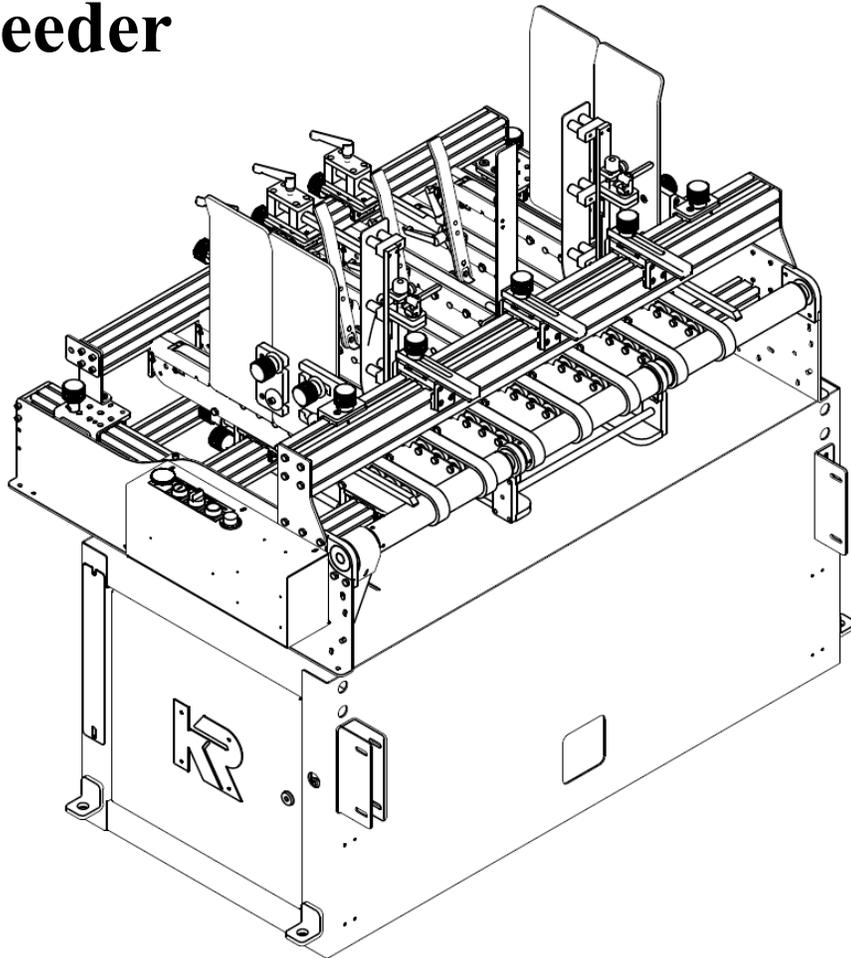
USE ONLY GENUINE KIRK-RUDY REPLACEMENT PARTS

KIRK-RUDY, INC.
125 LORRAINE PARKWAY
WOODSTOCK, GA 30188 USA
770-427-4203
FAX 770-427-4036



Kirk-Rudy, Inc.

**Instruction
and Parts Manual
KR500EW 38" Product Friction
Feeder**



Manufactured by Kirk-Rudy, Inc.

Before using this machine, all operators must study this manual to understand and follow the safety warnings and instructions. Keep these instructions with the machine for future reference. If you have any questions, contact your local Kirk-Rudy, Inc. Distributor.

10000-KR500EW REV. 2 7/17/2017

Manual

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1.0 Important Safety Instructions

Intended Use Statement: This product has been designed to feed products from a stack for the many purposes including; vision inspection, labeling and inkjet printing. Product is loaded into a hopper with the bottom piece resting on high friction feed belts. When the drive motor is started and the belts move forward, friction between the product and belts pulls the bottom piece forward. A steel gate holds back the pieces above, so the product feeds out one at a time with some overlap. The downstream machine must be set at a higher speed to product a gap between products. Usage for other purposes may lead to an unsafe condition.

Machine Safety Labels



EWL-42-D101-A

The above label is located on the front of the control box. This label is a warning that the power must be disconnected before any service work is performed.



The above label is located on the front of the control box. This label is warning that high voltage exist inside the control box.



The above label is located on the front of the control box. This label is warning to keep fingers clear of all moving parts.

Instruction and Parts Manual Warnings

SAVE THESE INSTRUCTIONS. Read all instructions before using this product.



WARNING

- * NEVER OPERATE THE MACHINE WITHOUT ALL GUARDS OR SAFETY DEVICES IN PLACE.
- * ALWAYS DISCONNECT THE POWER SUPPLY BEFORE ANY MAINTENANCE OR SERVICE WORK.
- * NEVER OPERATE MACHINE WITHOUT AN OPERATOR PRESENT.
- * 220VAC WILL BE PRESENT INSIDE THE CONTROL BOX WITH THE SELECTOR SWITCH IN THE "OFF" POSITION.
- * KEEP FINGERS CLEAR OF ALL MOVING PARTS.
- * NEVER REMOVE PRODUCT WHILE MACHINE IS RUNNING.
- * IT IS NOT RECOMMENDED THAT LOOSE CLOTHING, JEWELRY AND LONG HAIR BE WORN WHILE OPERATING THIS MACHINE.
- * ALWAYS USE AN EXPERIENCED ELECTRICIAN WHEN TROUBLE-SHOOTING ELECTRICAL PROBLEMS.
- * CHANGES OR MODIFICATIONS TO THIS UNIT NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

2.0 SPECIFICATIONS

MACHINE DATA

<u>PRODUCT SIZE RANGE</u>	<u>English</u>	<u>Metric</u>
Minimum Size:	3"W x 3"L	76 mm W x 76 mm L
Maximum Size: *	38"W x 24" L	965mm W x 610mm L
Minimum Thickness:	Card Stock (.01")	Card Stock (.25mm)
Maximum Thickness:	.09"	2.28 mm
Maximum Stack Height:	14"	355.6 cm

SPEED

Variable to 375 ft per minute maximum

MACHINE DATA (KR500 WITH CABINET)

Length:	45.2"	114.8cm
Width:	60"	152.4cm
Height: (with cabinet)	49.2"	125cm
Power Cord Length:	8'	244cm
Weight: Net	lbs	kgs
Shipping	lbs	kgs

ELECTRICAL RATING OF PRODUCT

Main Power Input: 220 Volt, Single Phase, 60/50 Cycle, AC, 10A.

Drive Motor 1 /2 HP

EXTERNAL INTERFACE CONNECTORS

Main Power:	L630P Plug
Stop In:	2-pin female Turck
Speed Control:	3-pin male Molex

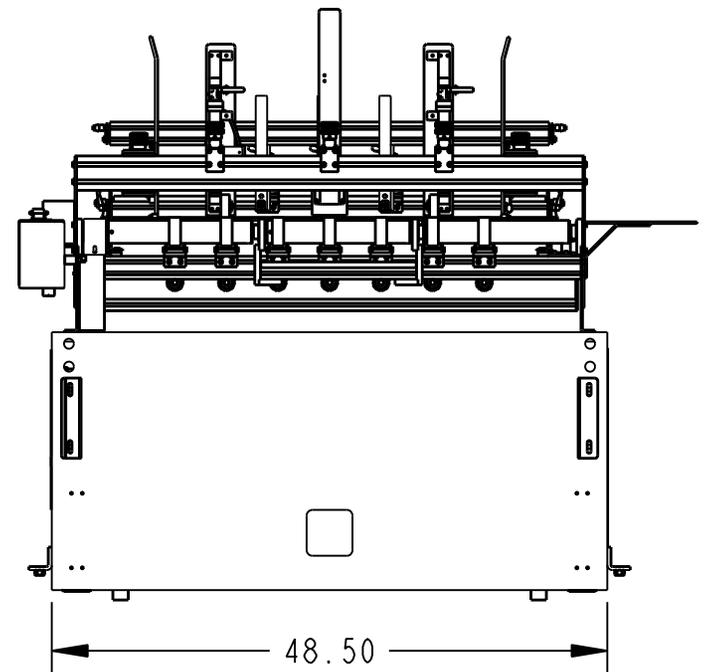
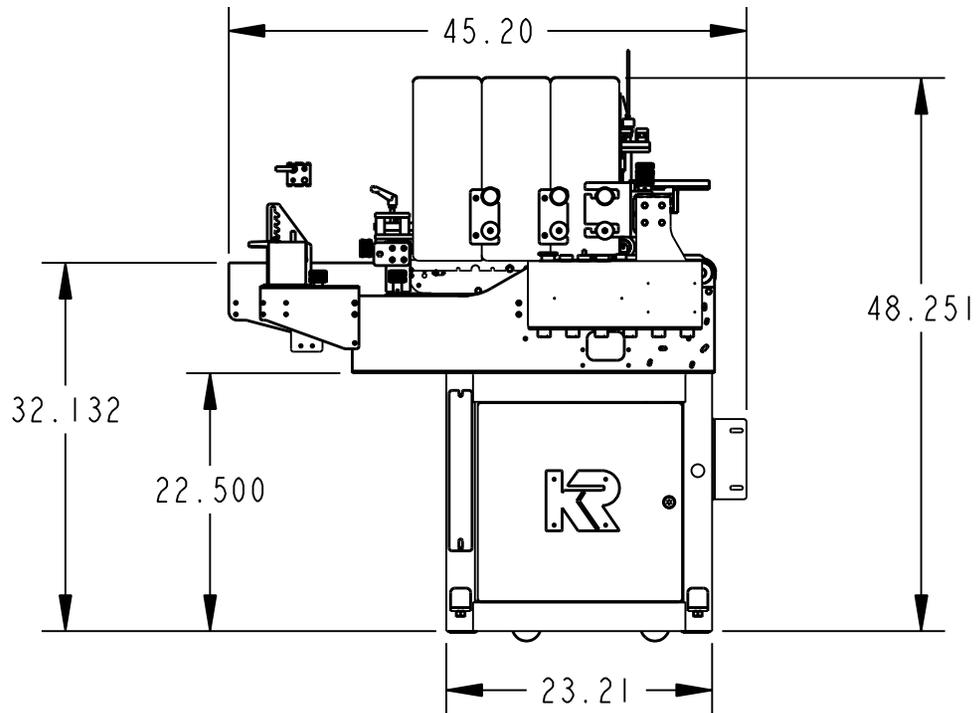
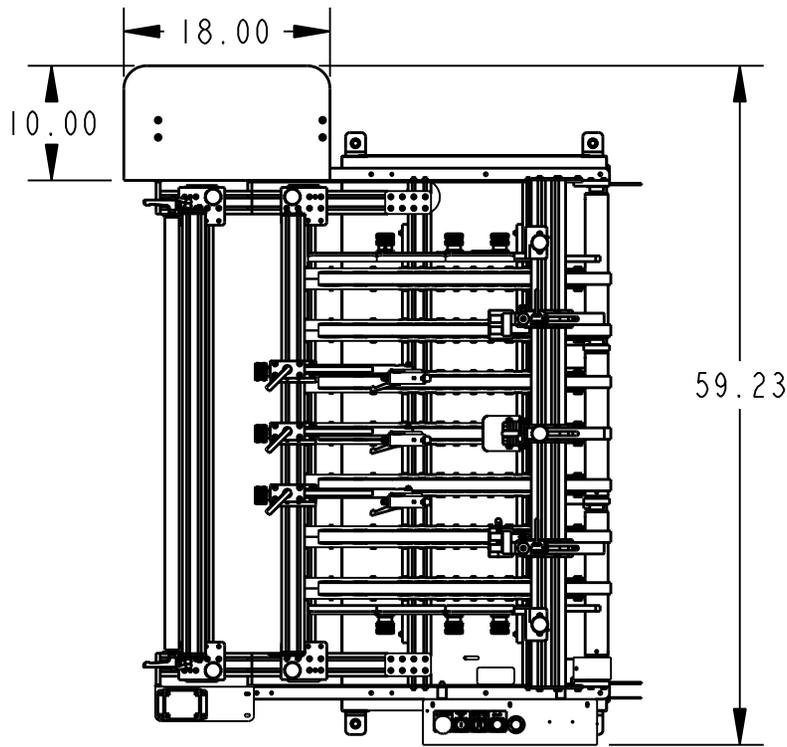
PHYSICAL ENVIRONMENT & OPERATING CONDITIONS

Ambient Operating Conditions:

Temperature:	+5 to +40 Degrees Celsius
Humidity:	50% @ +40C and higher humidity levels at lower temperatures.
Altitude:	Up to 1000m.

Transportation & Storage Conditions:

Temperature:	-25 to +55 Degrees Celsius, +70 Celsius for short periods (less than 24 hours).
--------------	---



KR500W & CABINET

3.0 SAFETY



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

The KR500 is designed for safe operation provided all safety precautions are followed in this manual. No personal protective equipment is required for operating and maintaining this equipment. **Warning: Most items in this manual can be performed by the end user, unless otherwise specified with a bold text note.**

3.1 ELECTRICAL SAFETY



WARNING

Always disconnect power supply before any maintenance or service work.

220VAC will be present inside the control box with the selector switch in the “OFF” position.

3.2 MECHANICAL SAFETY



WARNING

Always disconnect power supply before any maintenance or service work.

Machine can automatically start up with command from master machine. Stay clear of all moving parts unless power supply is disconnected.

4.0 KR500 FEATURES

4.1 MOVEABLE FRICTION BELTS

The KR500 friction belts have infinite adjustment left/right to support the product as needed near the sideguides. The friction belt position can be adjusted with a single knob that is connected to a rack and pinion gear.

4.2 EXTRUDED ALUMINUM CONSTRUCTION

The KR500 features extruded aluminum spacer frames for an extremely rigid mounting point for all sideguides, gates and friction belt support.

4.3 VIBRATING REAR PRODUCT GUIDES

The KR500 uses an electromagnet vibration unit to vibrate the rear product support guides. This will aid in the feeding of certain products. The rear guides are mounted with rubber bushings to isolate the vibration to the rear guides only.

4.4 SIDEGUIDES BELOW FRICTION BELTS

The KR500 sideguides hang below the friction belt surface to feed out product as straight as possible. The sideguide mounts allow the operator to quickly raise the sideguides to hop over the friction belt for various sized product.

4.5 SPEED FOLLOWING

The KR500 can speed follow a master machine. The master machine must provide an analog signal 0-10vdc based on its speed.

5.0 INSTALLATION



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

5.1 UNPACKING

Remove machine and all packaging from crate. Inspect for damage. The accessories and spare parts are boxed and located in the product hopper. The box should be opened and checked against the following list:

Allen wrench kit (5/64", 7/64", 1/8", 5/32", 3/16", 5/16")

Kirk Rudy, Inc. part # 208017 Fuse, .5MDL

Kirk Rudy, Inc. part # 208015 Fuse, 1 MDL

Kirk Rudy, Inc. part # 208023 Fuse, 12ABC

Kirk Rudy, Inc. part # 208022 Fuse, 8 AGC

Kirk Rudy, Inc. part # 208056-8 Fuse, 10 LPCC

Kirk Rudy, Inc. part #190634 Leveling pads (4-pcs.)

1000-KR500 Parts and instruction manual

Schematic # 210550 00 00

5.2 MOUNTING KR500 TO KR219

The KR500 has been designed to mount to a KR219, see following instructions for mechanical and electrical installation: **Note: Machine installation should be preformed by KR trained technician.**

Mechanical Installation:

1. The KR500 cabinet has casters; therefore it can be rolled to the infeed of the KR219. Position the KR500 so there is an approximate gap of 1/8" between the friction belts and KR219 conveyor belts.
2. Place level pad under each leveling screw. Raise the KR500 using the four leveling screws so the machine's friction belts are at the same height as the KR219 conveyor belts. Also, use a machine level to ensure the KR500 is sitting level. Use nut to lock leveling leg position.
3. The KR500 is mechanically connected to the KR219 with two L-brackets and four rubber isolation bushings. Using the nuts and washer provide to bolt the two machine together.

Electrical Connections: (see specs for interface connector descriptions)

1. Connect " stop-in " connector to KR "stop-out" connector.
2. Connect "speed control" connector to KR219 "speed control connector.

3. Connect main power plug.

6.0 OPERATING INSTRUCTIONS



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

6.1 ELECTRICAL COMPONENT DESCRIPTION (see figure #1)

The following controls are located on the electrical box mounted on the rear of the feeder:

Power Off Button: This push button switch disconnects voltage to the electrical panel when it is pressed. Rotate and pull up to reset.

Power On Button: This push button switch supplies voltage to the electrical panel when it is pressed. The switch will light up green when power is on.

Auto/Manual Selector Switch: This two-position selector switch is used to control how the drive motor reacts to adjustments. The manual mode allows full range belt speed control from zero to maximum speed. It is completely independent of the master KR219 machine. The auto mode allows the operator to adjust the belt speed up or down in small amounts in relationship to the KR219 belt speed. In this mode, the KR219 is the master machine and the KR500 is the slave machine.

Speed Control Knob: This knob can be used for two different functions depending the position of the auto/manual mode toggle switch. The knob is turned clockwise to increase speed, counter-clockwise to decrease motor speed. **Note: See auto/manual toggle switch instructions.**

2-Pin Turck Electrical Socket: Provides connection for stop-in signal from downstream base. A two-pin jumper must be used to run machine by it's self.

3-pin male Molex: This connector interfaces with downstream base and is used to control the friction belt speed. This connector is located inside the cabinet.

6.2 MECHANICAL COMPONENT DESCRIPTION (see figures #1 & #2)

Friction Belts: Rubber belts pull the bottom piece of a stack forward into the gate area. The friction belt frame assembly can be adjusted left/right as needed to support various sized products.

Side Guides: These guides keep the stack of product together and helps keep product feeding straight. These guides can be moved to one of three positions (in the feed direction) base on product shape.

Side Guide In/Out Locking Knob: Loosen this locking knob and lift the guide up and then forward/ backwards to the position needed.

Side Guide Left/Right Locking Knob: Loosen this knob to move the side guide left/right.

Side Guide Extension: These extension guides are used for longer product (greater that 6”).

Sideguide Extension Locking Knob: Loosen this knob to remove sideguide extension. Lift the guide up and toward the rear of the machine remove. Tighten knob after side guide is remove so knob does not fall into the machine.

Product Gate: Provides a front guide for the stack and a mounting surface for curved gate. The curved gate is used to shingle the stack, as it gets closer to the friction belts.

Gate Height Adjustment Knob: This knob turns a fine pitch screw for adjusting the height of the gate to allow only one product to feed out at a time.

Gate Height Locking Knob: Secures the gate bar in place. Loosen this knob to vertically adjust the gate bar.

Gate Left/Right In/Out Locking Knob: Loosen this knob to make left/right in/out adjustment to the gate.

Pinch Bearings: These rollers press the product down to the friction belts to drive them out of the feeder.

Quick Release Pinch Bearings: Raises the pinch roller bearings as an assembly to clear jams.

Pinch Bearing Left/Right Locking Knob: Loosen this knob to move pinch bearing roller left/right.

Rear Support Guides: The rear guide assembly is used to lift the backside of the product off the feed belts. This reduces surface contact between the feed belts and also keeps front edge of product against the product gate. The rear guides can be independently adjusted left/right and in/out to match odd shaped flat boxes.

Rear Guide In/Out Locking Lever: Loosen this lever to adjust the in/out position of the rear guide.

Rear Guide Assembly In/Out Locking Knob: Loosen two of these knobs to move the entire rear assembly in/out.

Rear Guide Left/Right Locking Knob: Loosen this knob to adjust the left/right position of the rear guide.

Vibration Unit: This electromechanical unit is used to vibrate the rear guides to help slide the product down the rear guides.

DC Motor: This is the friction belt drive motor.

Belt Tension Quick Release: Flip this lever up to release belt tension. This will be used for belt changes and adjusting belt position with the motor off. **Note: Do not release belt tension lever with motor running.**

Belt Tension Idler: This idler is connected to the quick release mechanism for releasing belt tension.

Belt Support Bearing Idler: This assembly gives the friction belt backup support.

Belt Position Locking Knob: Loosen this knob before adjusting left/right belt position.

Belt Position Adjustment Knob: Rotate this knob clockwise to move the friction belt frame assembly to the left and counter clockwise to move it to the right.

Pinion Gear: This gear meshes with a rack gear to adjust the friction belt frame assembly position.

Frame Side plate: Provide support for bearings and friction belt.

6.3 FEEDER SETUP



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

1. Turn power switch off.
2. Determine the number of friction belts needed. Generally, the wider the product the more belts required. Position the belts to give even support also position the two outside belts as close as possible to the left and right side guides.
3. Determine the position of the side guides. The side guides may have to be raised to hopper over friction belts to reach the product edges.
4. Determine if side guide extension are necessary (product over 6" long). Install them if needed.
5. Determine position of product gates. If product has different leading edges (such as flat boxes) pick two edges and adjust the gates in/out and left/right to match the product. Try to use two gates if product is wide enough.
6. Slip one piece of product under one of the gates and turn the adjustment knob clockwise lowering the gate onto the product until the gate just contacts the product. Raise the gate until the piece is just free to move and slides easily under the gate. Use the same procedure to adjust the other gate.
7. Position the rear guides to lift the backside of the stack off the feed belts. The angle and position of each rear guide can be adjusted help the product shingle in front of the product gate. This will help with consistent feeding.
8. Fan and shingle a small stack of product so the lead edge will conform to the curved plates on the product gate. Place stack in hopper and slide the feed belts forward until the product is forced into the product gate. Finish loading hopper.
9. Turn speed control to zero and turn power on.
10. Slowly turn the speed control knob to increase motor speed.
11. Check feeding and make small adjustments to the gate and rear guides until product feeds reliable.

7.0 TROUBLE SHOOTING



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

PROBLEM

SOLUTION

Feeder does not run

Check jumper plug on electrical box. If the feeder is not electrically connected to the transport base, a jumper plug must be inserted into the socket to complete the circuit.

Check motor control board fuses. See schematic at end of manual.

Inconsistent feed

Clean belts

Adjust rear product guide position and angle.

Turn vibrating unit on.

Raise product gate.

Pick another location on product to gate.

Re-orient product in hopper (rotate 90° or offset product to one side)

Double feeds

Lower the product gate to decrease the gap between gate and friction feed belts.

Bend and/or fan the product out prior to loading in the hopper. This will help separate the product if it is stuck together.

Adjust rear product guide position and angle.

Too much weight in hopper—reduce the amount of product in the hopper.

Spread rear guides apart to bow product in hopper. This will tend to stiffen the lead edge.

Product skews as it feeds

Adjust each product gate to stop skewing.

If the product is thicker on one side, independently adjust the product gate to compensate for thickness variations.

Move one rear guide assembly to reduce traction on one side.

8.0 MAINTENANCE



WARNING

Read and follow all Safety Instructions in Section 1, Page 3 before proceeding.

8.1 LUBRICATION

No parts on the KR500 require lubrication.

8.2 CLEANING

The KR500 friction belts should be cleaned daily with a soft damp rag. **Note: Do not use solvents on belt. Belt damage may occur.**

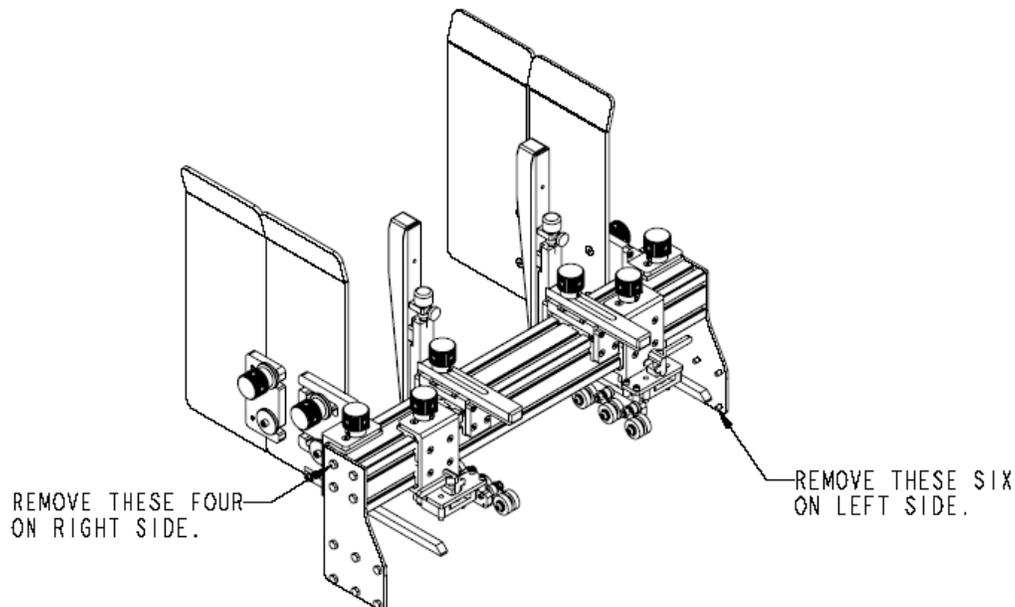
8.3 FRICTION BELT TENSION

The friction belt tension is pre-determined by the quick release mechanism. No adjustment is required.

8.4 FRICTION BELT REPLACEMENT PROCEDURE

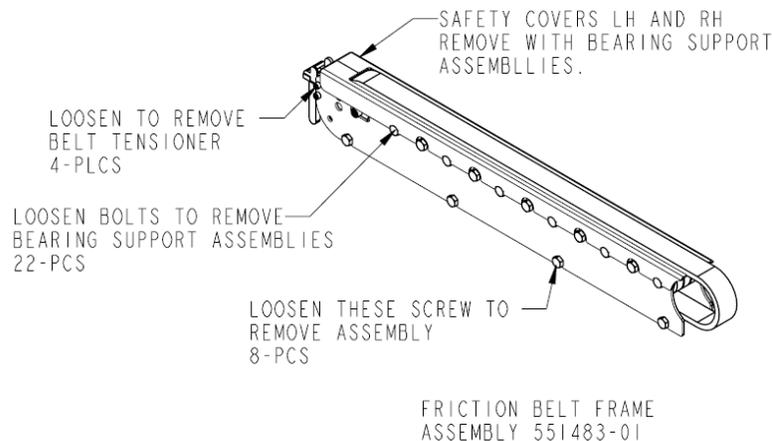
Molded natural rubber feed belts are seamless and can run in either direction. **Note: Left and right side of machine as mentioned below is looking behind the machine in the direction of product flow (downstream).**

1. Disconnect main power cord.
2. Release belt tension on all belts using quick release lever.
3. Remove bridge assembly 551497-03. To remove bridge, remove six bolts on left side bracket (bottom) and the four bolts on right side bracket (top).



BRIDGE ASSEMBLY 551497-01

4. Loosen setscrews on lefts hub bearing.
5. Remove left side bearing housing by remove last two screws.
6. Loosen 8 screws for each friction belt assembly. Rotate entire assembly up so it can be removed from the machine.



7. Loosen all bearing support assemblies. Remove safety covers and support assemblies.
8. Loosen belt tensioner screws (4). Remove tensioner assembly by pulling back and rotating up so the tensioner comes out of slot in side frame.
9. Replace belt.
10. Repeat as needed for all belts.
11. Reassemble in the opposite order. Make sure all guards are re-installed.

8.5 TIMING BELT TENSION ADJUSTMENT

The main drive timing belt tension is preset at the factory and should not require adjustment. However, if the belt becomes loose follow these instructions:

1. Disconnect main power.
2. Remove electrical control box and lay to the side.
3. Remove timing belt safety cover.
4. Loosen four screws on right side frame supporting the motor.
5. Rotate the motor downward and support with hand while tightening the four support screws.

8.6 TIMING BELT REPLACEMENT

1. Disconnect main power.
2. Remove electrical control box and lay to the side.
3. Remove timing belt safety cover.
4. Loosen four screws on right side frame supporting the motor.
5. Rotate the motor upward and support with hand while tightening the four support
6. Remove ten screws supporting right side bridge bracket.
7. Loosen left side hub bearing setscrews.

8. Remove left side bearing housing by remove last two screws.
9. Replace timing belt.
10. Loosen four screws on right side frame supporting the motor.
11. Rotate the motor downward and support with hand while tightening the four support screws.

8.7 FUSES

WARNING

Always disconnect power supply before any maintenance or service work.

Fuse Specifications

The control box for the KR500 has 9 replaceable fuses; see the following list for fuse specifications.

FUSE LABEL	TYPE OF FUSE/VOLTAGE/AMP RATING/# REQUIRED
F1	CURRENT LIMITING TIME DELAY LPCC/250V/10A/2 REQ.
F2	SLOW ACTING MDL / 250V/ .5A/ 2 REQ.
F3	SLOW ACTING MDL / 250V/ 1A/ 2 REQ
L1	FAST ACTING ABC / 250V/ 12A/ 2 REQ.
A+	FAST ACTING AGC/ 250V/ 8A/ 1 REQ.

Fuse Replacement Procedure (Fuse Holder)

WARNING

Always disconnect power supply before any maintenance or service work.

1. Disconnect power.
2. Remove control box cover.
3. Remove blown fuse. Remove by unscrewing or flipping up.
4. Replace (screw or flip down) fuse with correct type and amperage.
5. Close control box.
6. Connect power and test unit.

Fuse Replacement Producedure (Motor Board)

WARNING

Always disconnect power supply before any maintenance or service work.

1. Disconnect power.
2. Remove control box cover.
3. Remove blown fuse. See picture for location on motor control board.
4. Replace fuse with correct type and amperage.
5. Close control box.
6. Connect power and test unit.



8.8 RECOMMENDED SPARE PARTS

PART#	DESCRIPTION	QTY.
202291	Relay, 24VAC	1
208017	Fuse, .5MDL	2
208015	Fuse, 1 MDL	2
208023	Fuse, 12ABC	2
208022	Fuse, 8 AGC	1
208056-8	Fuse, 10 LPCC	2
108939	Belt, Timing 300L075	1
112350	Belt, Friction 1" X 44"	6

8.9 SERVICE OR INSPECTION INTERVALS

See table below for service and inspection interval schedule.

SERVICE OR INSPECTION REQUIRED	INTERVAL
Clean belt with soft damp cloth.	Daily
Timing belt tension	Check one per month. See section 8.5.
Replace fuse	Perform as needed. See section 8.7.

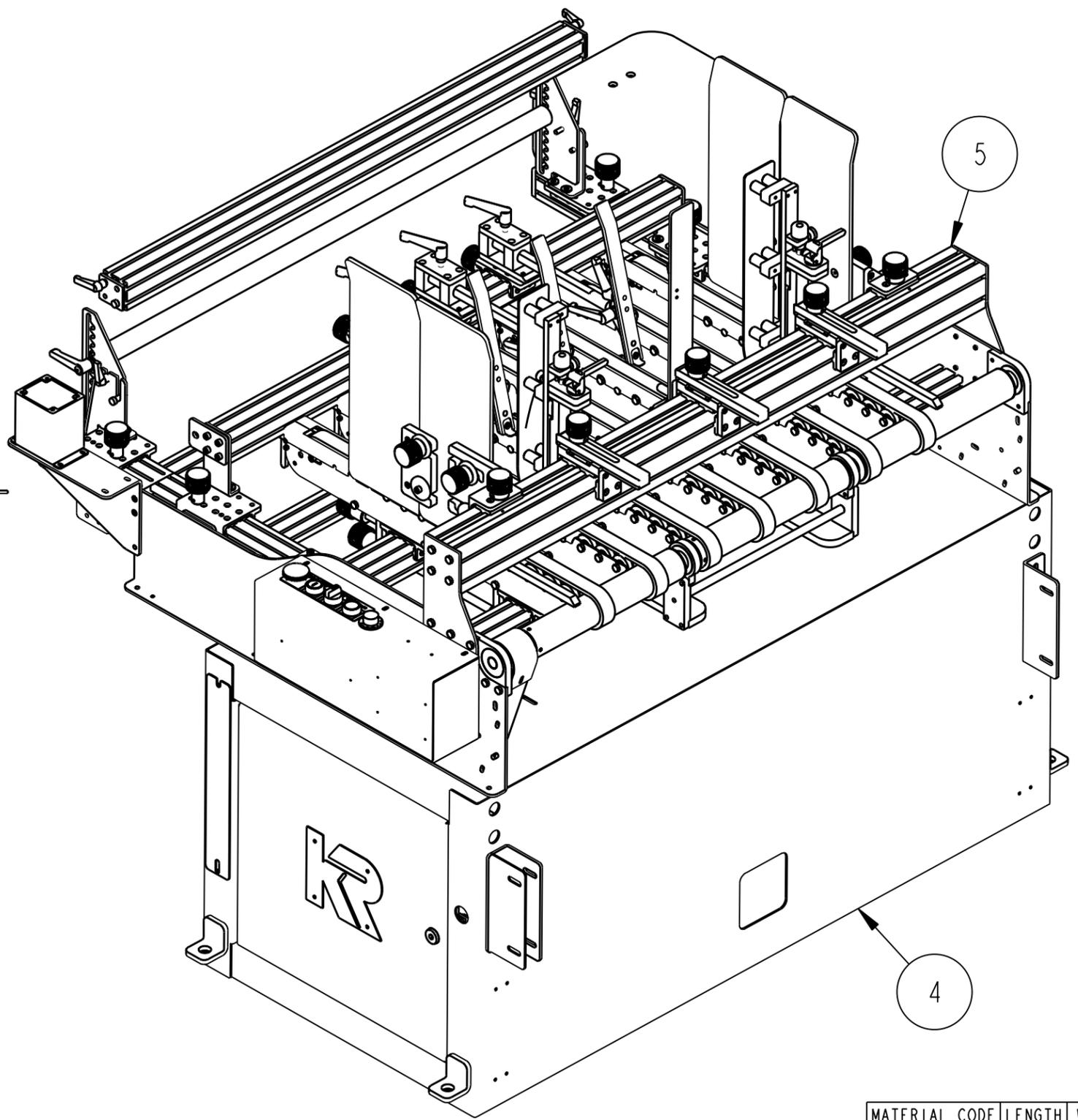
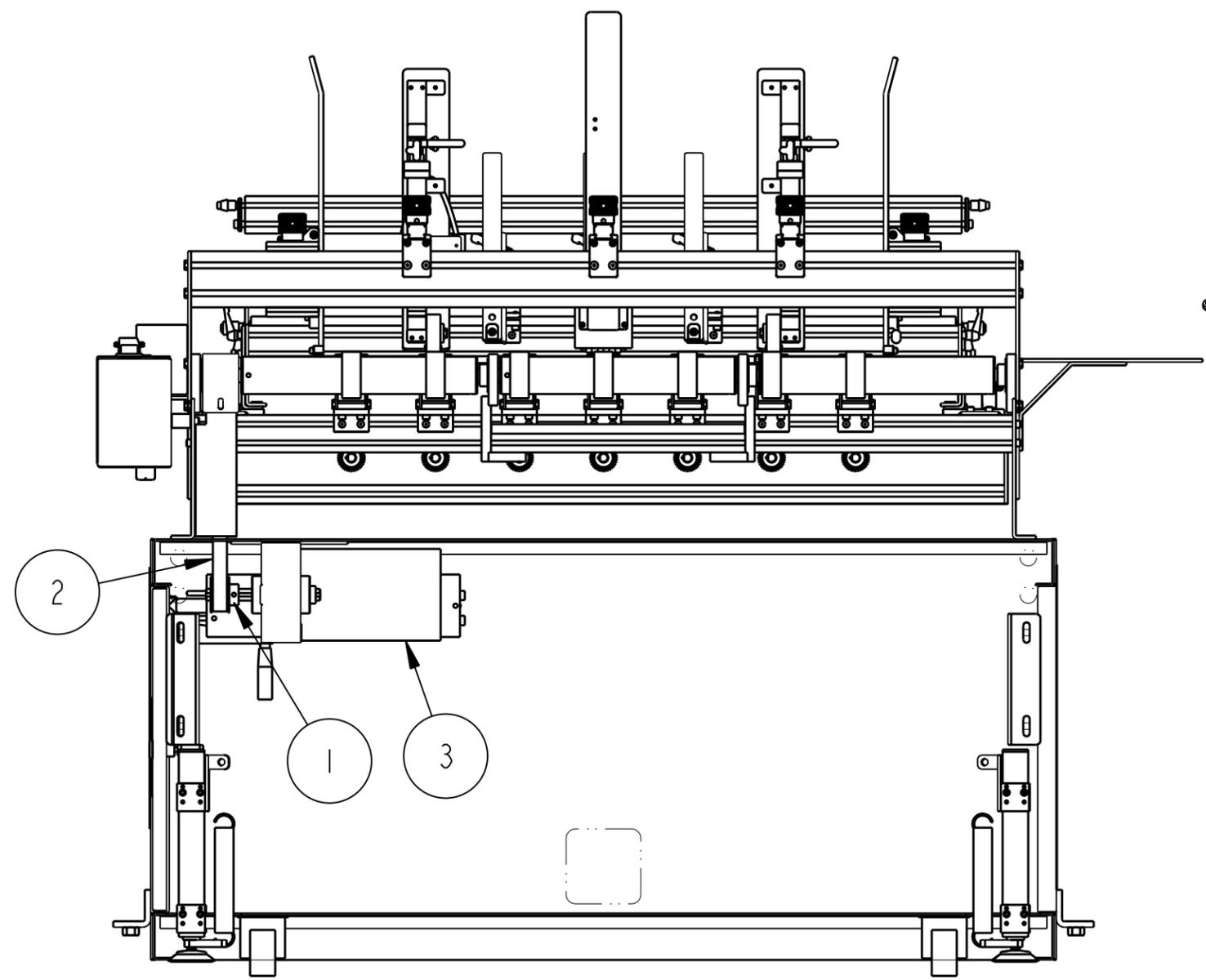
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PARTS LIST AND DIAGRAMS

DRAWING #	DESCRIPTION
551589-04	ASSY, KR500W & CABINET
509000-38A	ASSY, 1/2HP SR GEARBOX
551580-04	ASSY, KR500W CABINET & COVERS
539425-01	ASSY, LH HYDRALIFT LEG
539424-01	ASSY, RH HYDRALIFT LEG
SA900-1	ASSY, KR500W FRICTION FEEDER
551483-01	ASSY, FRICTION BELT FRAME
551485-01	ASSY, FRICTION BELT IDLER
551546-01	ASSY, IDLER TAKE UP
551723-01	ASSY, ROLLER BELT IDLER
551486-01	ASSY, FRICTION BELT SLIDE
551497-04	ASSY, BRIDGE KR500W
551500-01	ASSY, SIDEGUIDE RH
551500-02	ASSY, SIDEGUIDE LH
551505-02	ASSY, PRODUCT GATE RH
551505-05	ASSY, PRODUCT GATE LH
551648-01	ASSY, SIDEGUIDE EXTENSION RH
551648-02	ASSY, SIDEGUIDE EXTENSION LH
551524-03	KR500W FRAMES
538434-13	ASSY, ROLLER FRICTION DRIVE
548886-03	ASSY, KR500 CONTROL BOX
551696-01	ASSY, KR500 CONTROL BOX
551529-04	ASSY, REAR GUIDE MOUNT
551536-01	ASSY, REAR GUIDE MOUNT
551718-04	KIT, KR500 INFEED EXTENSION

ITEM	QTY	PART #	DESCRIPTION
1	1	108856	PULLEY, TIMING 14L075 .625B .188K
2	1	108939-16	BELT, TIMING 300L075
3	1	509000-38A	ASSY, 1/2HP SR GEARBOX/MOTOR
4	1	551580-04	ASSY, KR500W CABINET & COVERS
5	1	SA900-1	ASSY, KR500W FRICTION FEEDER

REV NO	DATE	DESCRIPTION	ECN NO	BY



MATERIAL CODE	LENGTH	WIDTH
N/A	N/A	N/A

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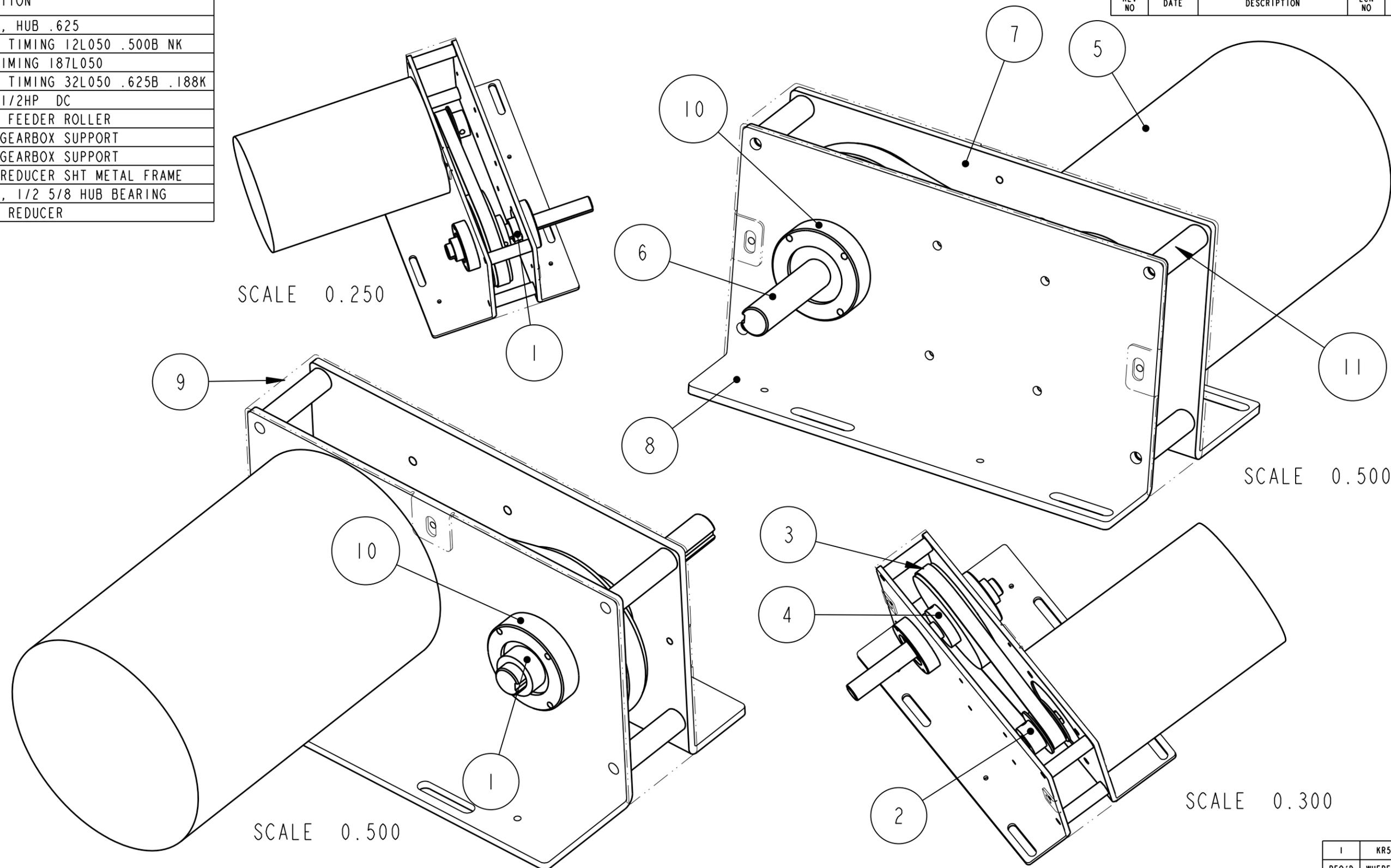
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SHEET NO. 1 OF 3	

KIRK - RUDY, INC.
WOODSTOCK, GEORGIA

DRAWING 1
551589-04

ITEM	QTY	PART #	DESCRIPTION
1	2	103804	BEARING, HUB .625
2	1	108821	PULLEY, TIMING 12L050 .500B NK
3	1	108912-16	BELT, TIMING 187L050
4	1	109319-1	PULLEY, TIMING 32L050 .625B .188K
5	1	200152-4	MOTOR, 1/2HP DC
6	1	500748-4	SHAFT - FEEDER ROLLER
7	1	509006-11	FRAME, GEARBOX SUPPORT
8	1	509007-8	FRAME, GEARBOX SUPPORT
9	1	509037-11	COVER, REDUCER SHT METAL FRAME
10	2	546210-01	HOUSING, 1/2 5/8 HUB BEARING
11	4	SP16208-1	SPACER, REDUCER

REV NO	DATE	DESCRIPTION	ECN NO	BY

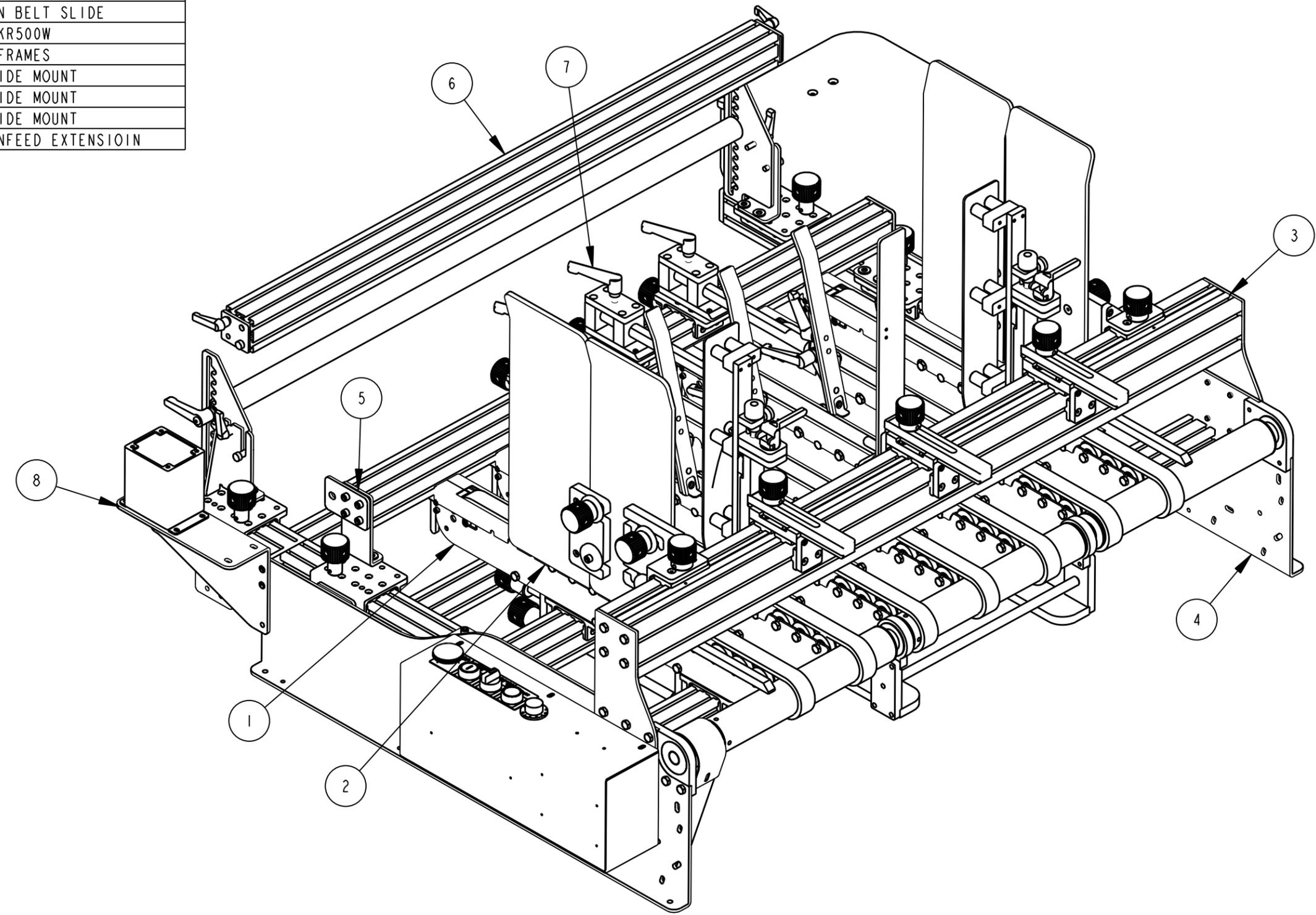


I	KR500W
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 16-Apr-09	.XX .XXX ANG. .01 .005 .5	HEAT TREAT: N/A	MODEL: SA700	TITLE: ASSY, 1/2HP SR GEARBOX/MOTOR	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 509000-38A	
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY				

ITEM	QTY	PART #	DESCRIPTION
1	7	551483-01	ASSY, FRICTION BELT FRAME
2	7	551486-01	ASSY, FRICTION BELT SLIDE
3	1	551497-04	ASSY, BRIDGE KR500W
4	1	551524-03	ASSY, KR500W FRAMES
5	1	551529-04	ASSY, REAR GUIDE MOUNT
6	1	551529-08	ASSY, REAR GUIDE MOUNT
7	3	551536-01	ASSY, REAR GUIDE MOUNT
8	1	551718-04	ASSY, KR500 INFEED EXTENSION

REV NO	DATE	DESCRIPTION	ECN NO	BY



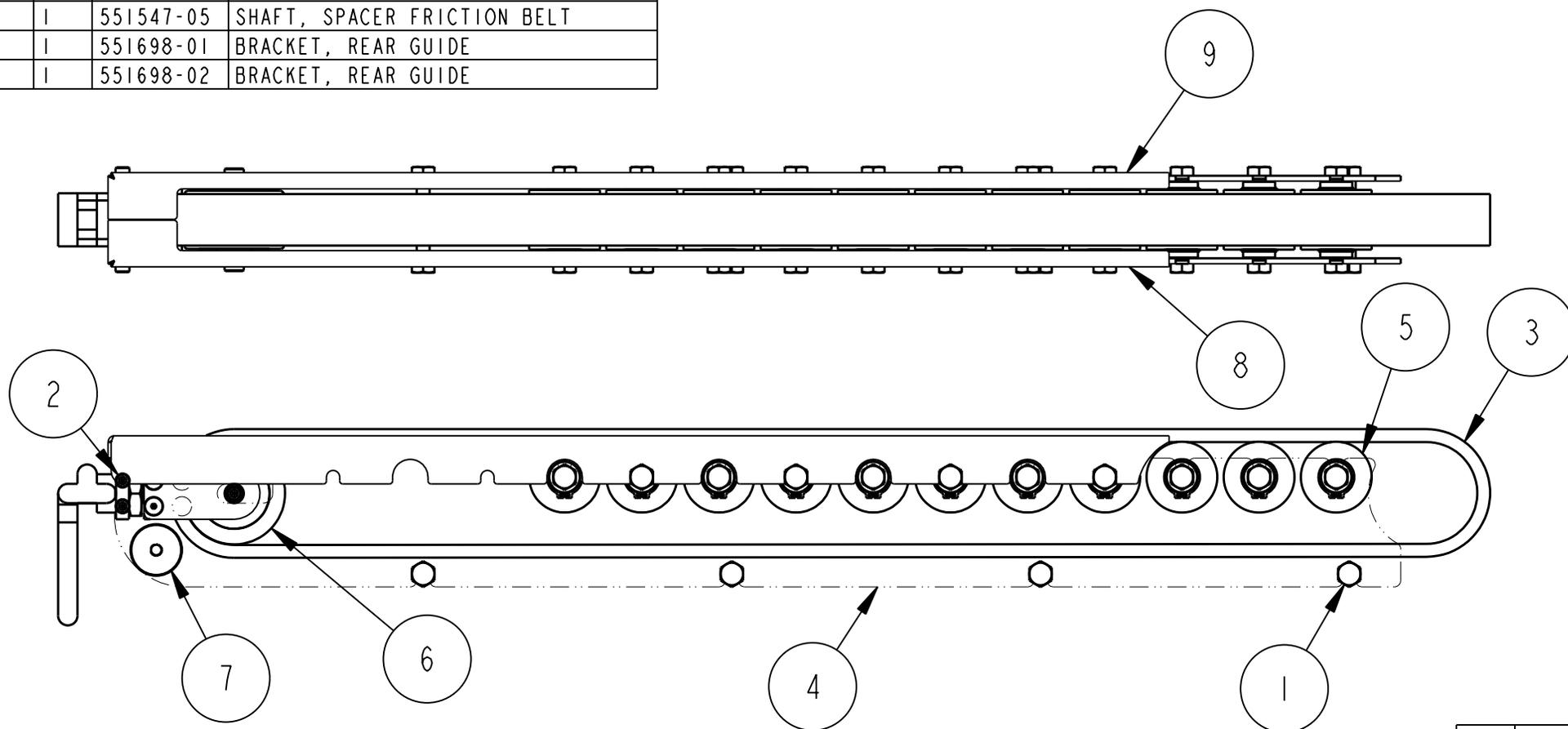
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NOTES:
 1. 551718-03 INFEED EXTENSION OPTIONAL.
 2. 551829-08 REAR GUIDE MOUNT OPTIONAL.

DRAWN BY: TJG	SCALE 0.170	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5 REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	MATERIAL: N/A HEAT TREAT: N/A FINISH: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA		
CHECKED BY:	DATE Aug-05-24	TRACED BY:	MASTER	MODEL: SA900-1	TITLE: ASSY, KR500W FRICTION FEEDER	SHEET NO. 1 OF 4		DRAWING # SA900-1

ITEM	QTY	PART #	DESCRIPTION
1	30	107327	BOLT, 1/4-20 X .500
2	4	107433	SCREW, SHCS 8-32X.375
3	1	112350	BELT, FRICTION 1" X 44"
4	2	551484-01	FRAME, FRICTION BELT
5	11	551485-01	ASSY, FRICTION BELT IDLER
6	1	551546-01	ASSY, IDLER TAKE UP
7	1	551547-05	SHAFT, SPACER FRICTION BELT
8	1	551698-01	BRACKET, REAR GUIDE
9	1	551698-02	BRACKET, REAR GUIDE

REV NO	DATE	DESCRIPTION	ECN NO	BY
1	7/11/2017	ITEM 3 WAS PART # 112076	9287	DWE

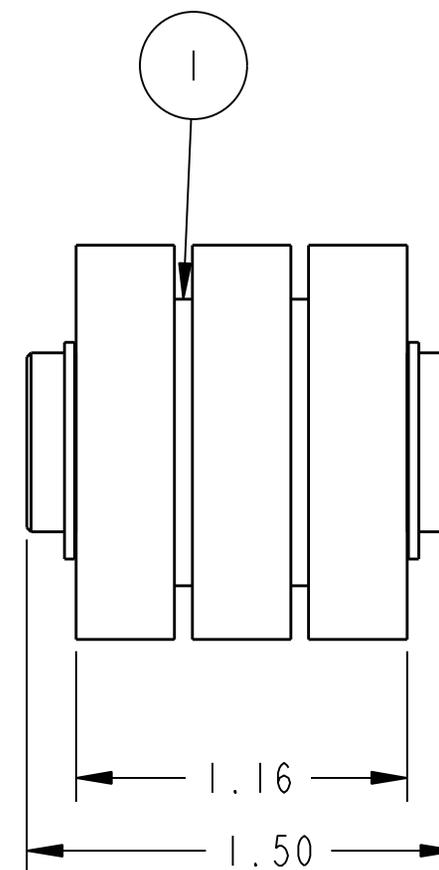
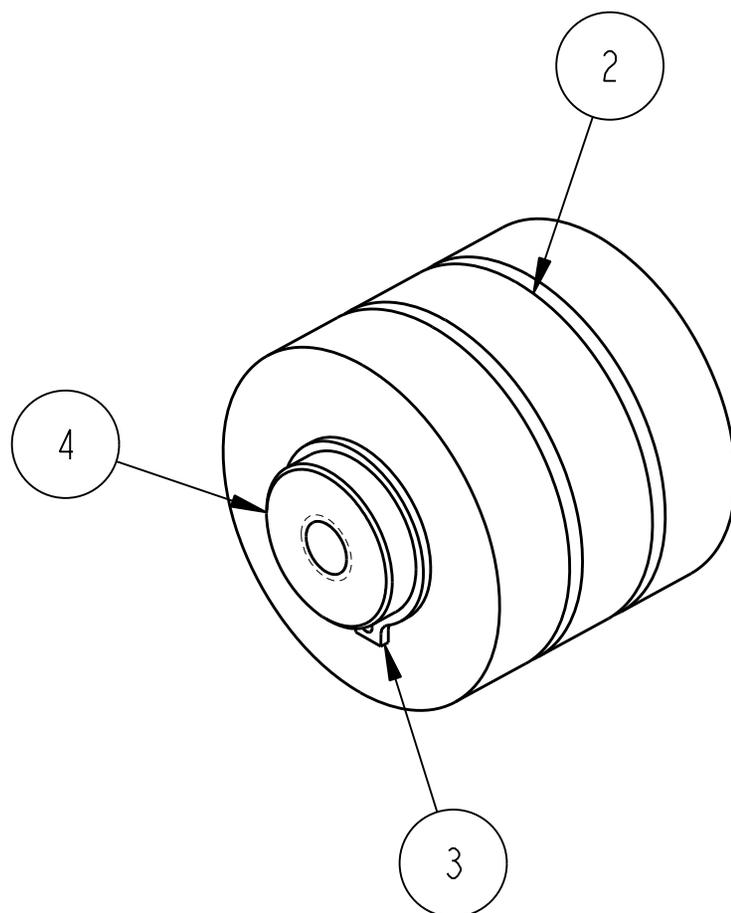


6	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.330	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5	MATERIAL: NONE	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 18-Mar-08		HEAT TREAT: NONE	MODEL: SA590-1		
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: NONE	SHEET NO.: 1 OF 2	DRAWING # 551483-01	

ITEM	QTY	PART #	DESCRIPTION
1	2	102320	SHIM, .625X1.000X.062
2	3	103110	BEARING, FLAT .625
3	2	104104	SNAPRING, .625
4	1	551547-04	SHAFT, FRICTION BELT IDLER

REV NO	DATE	DESCRIPTION	ECN NO	BY

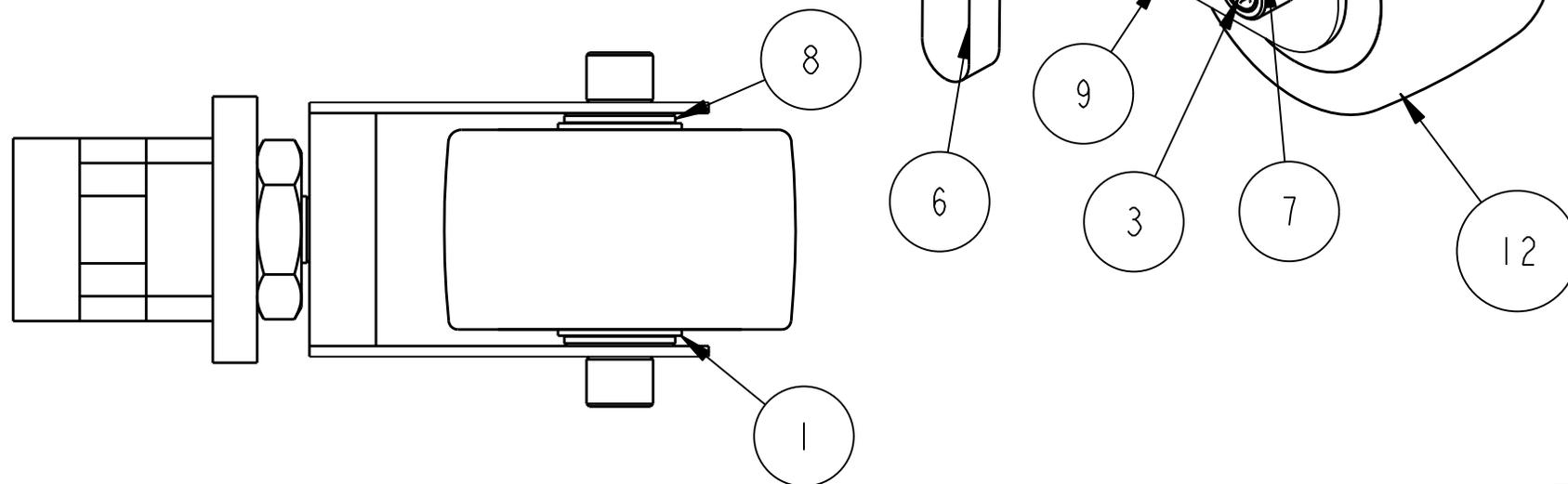


60	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 1.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA						
CHECKED BY:	DATE 08-Feb-08		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005	.5	HEAT TREAT: N/A
.XX	.XXX	ANG.										
.01	.005	.5										
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551485-01						

ITEM	QTY	PART #	DESCRIPTION
1	2	104104	SNAPRING, .625
2	1	107410	SCREW, SHCS 1/4-20X.500
3	2	107413	SCREW, SHCS 8-32X.500
4	4	107516	SCREW, FLATHEAD 8-32X.375
5	1	108080	NUT, JAM 5/8-18
6	1	190733	CLAMP, QUICK RELEASE
7	2	548763-01	SHAFT, SPACER CLAMP
8	1	551547-01	SHAFT, REAR IDLER
9	2	551548-01	PLATE, BELT TAKE UP
10	1	551558-01	BLOCK, IDLER TAKEUP
11	1	551559-01	BLOCK, IDLER TAKEUP
12	1	551723-01	ASSY, ROLLER BELT IDLER

REV NO	DATE	DESCRIPTION	ECN NO	BY

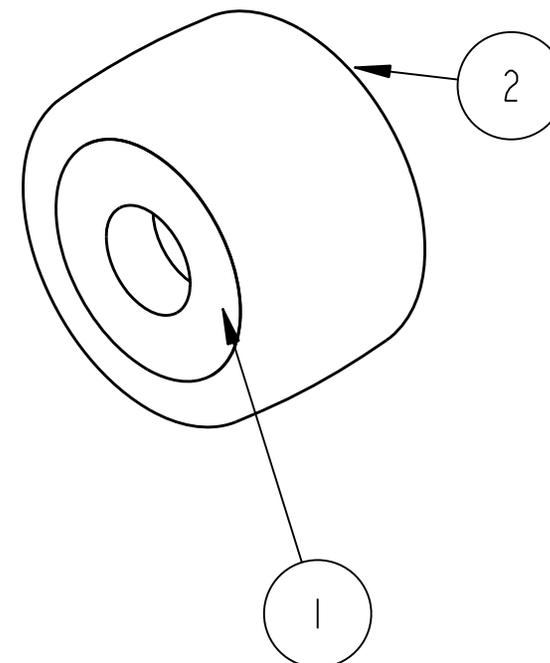
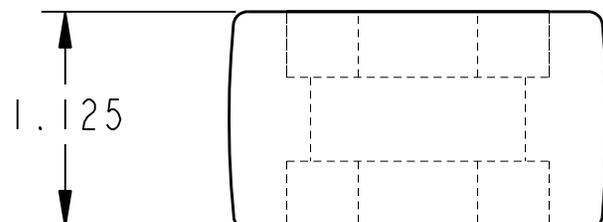


6	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 07-Jan-09		HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, IDLER TAKE UP	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 551546-01	

ITEM	QTY	PART #	DESCRIPTION
1	2	103110	BEARING, FLAT .625
2	1	551545-01	ROLLER, IDLER FRICTION BELT

REV NO	DATE	DESCRIPTION	ECN NO	BY

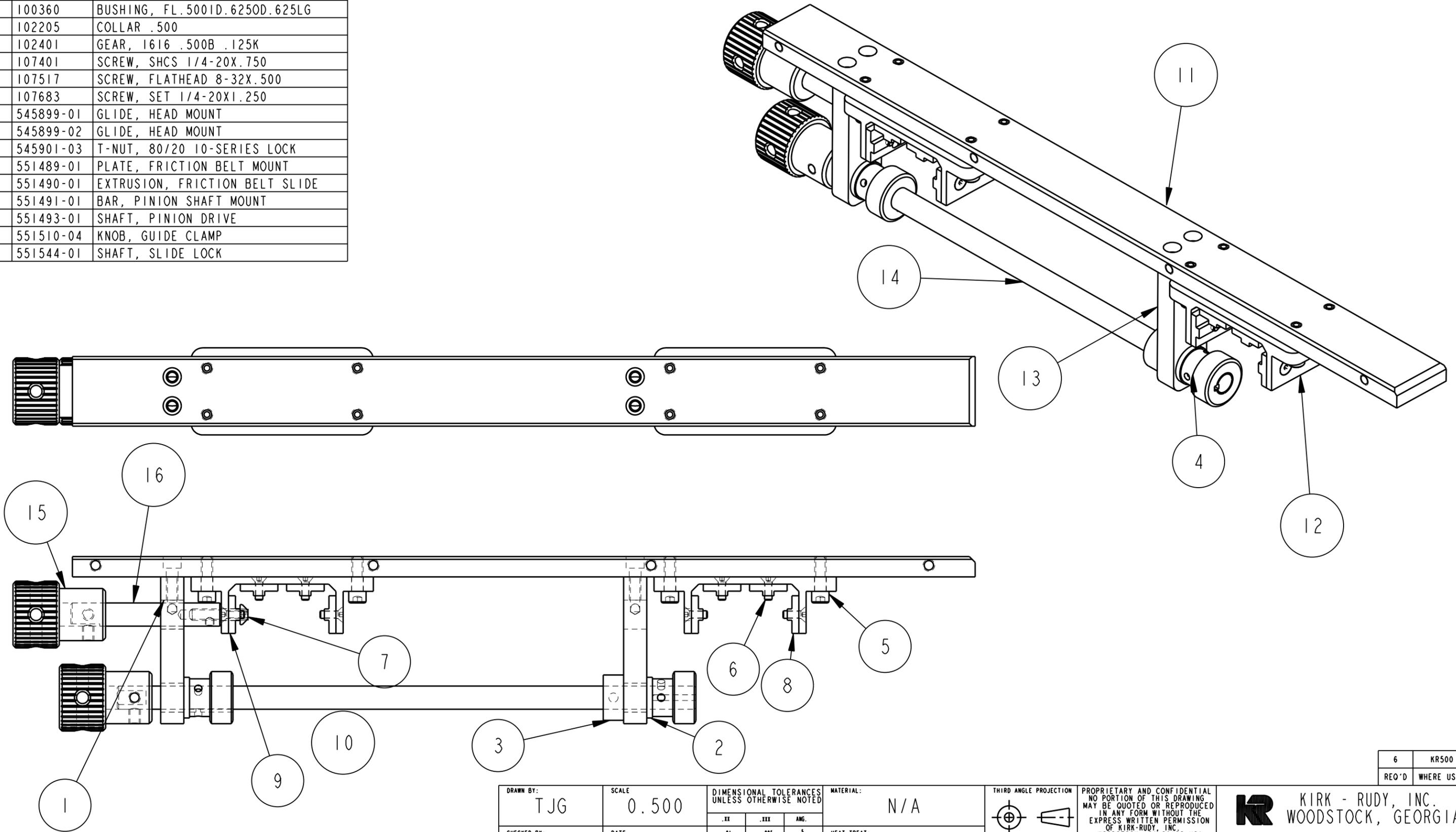


6	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 07-Jan-09	.XX .XXX ANG. .01 .005 .5	HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, ROLLER BELT IDLER	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 551723-01	

ITEM	QTY	PART #	DESCRIPTION
1	1	100135	BUSHING, SL.500ID.625OD.500LG
2	2	100360	BUSHING, FL.500ID.625OD.625LG
3	1	102205	COLLAR .500
4	2	102401	GEAR, 1616 .500B .125K
5	8	107401	SCREW, SHCS 1/4-20X.750
6	16	107517	SCREW, FLATHEAD 8-32X.500
7	1	107683	SCREW, SET 1/4-20XI.250
8	7	545899-01	GLIDE, HEAD MOUNT
9	1	545899-02	GLIDE, HEAD MOUNT
10	1	545901-03	T-NUT, 80/20 10-SERIES LOCK
11	1	551489-01	PLATE, FRICTION BELT MOUNT
12	2	551490-01	EXTRUSION, FRICTION BELT SLIDE
13	2	551491-01	BAR, PINION SHAFT MOUNT
14	1	551493-01	SHAFT, PINION DRIVE
15	2	551510-04	KNOB, GUIDE CLAMP
16	1	551544-01	SHAFT, SLIDE LOCK

REV NO	DATE	DESCRIPTION	ECN NO	BY
6			KR500	

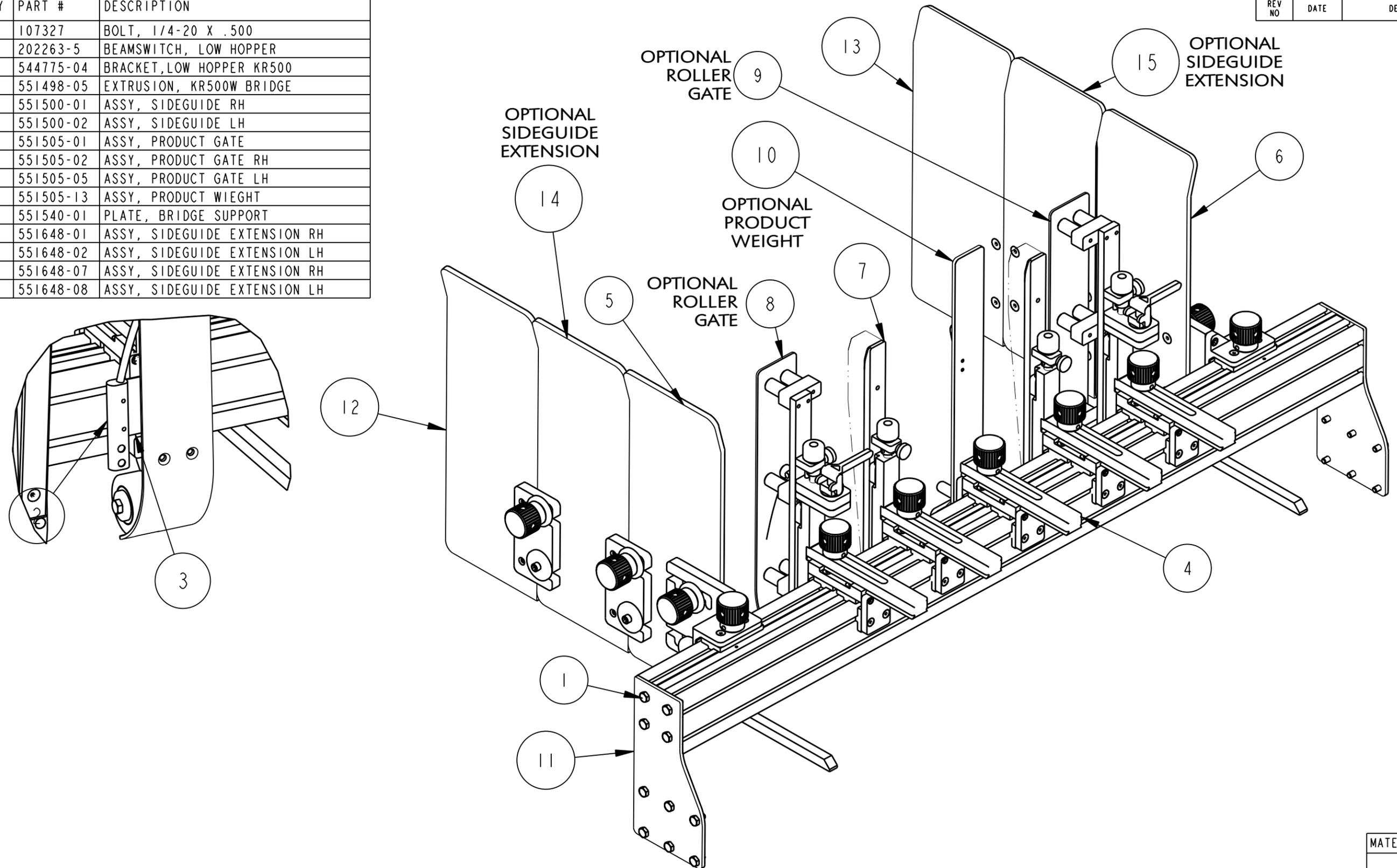


6	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE: 0.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED <table border="1"> <tr> <td>.XX</td> <td>.XXX</td> <td>ANG.</td> </tr> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </table>	.XX	.XXX	ANG.	.01	.005	.5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE: 28-Feb-08	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, FRICTION BELT SLIDE							
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 551486-01							

ITEM	QTY	PART #	DESCRIPTION
1	20	107327	BOLT, 1/4-20 X .500
2	1	202263-5	BEAMSWITCH, LOW HOPPER
3	1	544775-04	BRACKET, LOW HOPPER KR500
4	1	551498-05	EXTRUSION, KR500W BRIDGE
5	1	551500-01	ASSY, SIDEGUIDE RH
6	1	551500-02	ASSY, SIDEGUIDE LH
7	2	551505-01	ASSY, PRODUCT GATE
8	1	551505-02	ASSY, PRODUCT GATE RH
9	1	551505-05	ASSY, PRODUCT GATE LH
10	1	551505-13	ASSY, PRODUCT WIEGHT
11	2	551540-01	PLATE, BRIDGE SUPPORT
12	1	551648-01	ASSY, SIDEGUIDE EXTENSION RH
13	1	551648-02	ASSY, SIDEGUIDE EXTENSION LH
14	1	551648-07	ASSY, SIDEGUIDE EXTENSION RH
15	1	551648-08	ASSY, SIDEGUIDE EXTENSION LH

REV NO	DATE	DESCRIPTION	ECN NO	BY



MATERIAL CODE	LENGTH	WIDTH
N/A	N/A	N/A

DRAWN BY: TJG	SCALE 0.220	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED
CHECKED BY:	DATE Aug-05-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY

MATERIAL: N/A	THIRD ANGLE PROJECTION
HEAT TREAT: N/A	MODEL: SA900-1
FINISH: N/A	SHEET NO. 1 OF 1

PROPRIETARY AND CONFIDENTIAL
NO PORTION OF THIS DRAWING
MAY BE QUOTED OR REPRODUCED
IN ANY FORM WITHOUT THE
EXPRESS WRITTEN PERMISSION
OF KIRK-RUDY, INC.
WOODSTOCK, GA 30188 USA

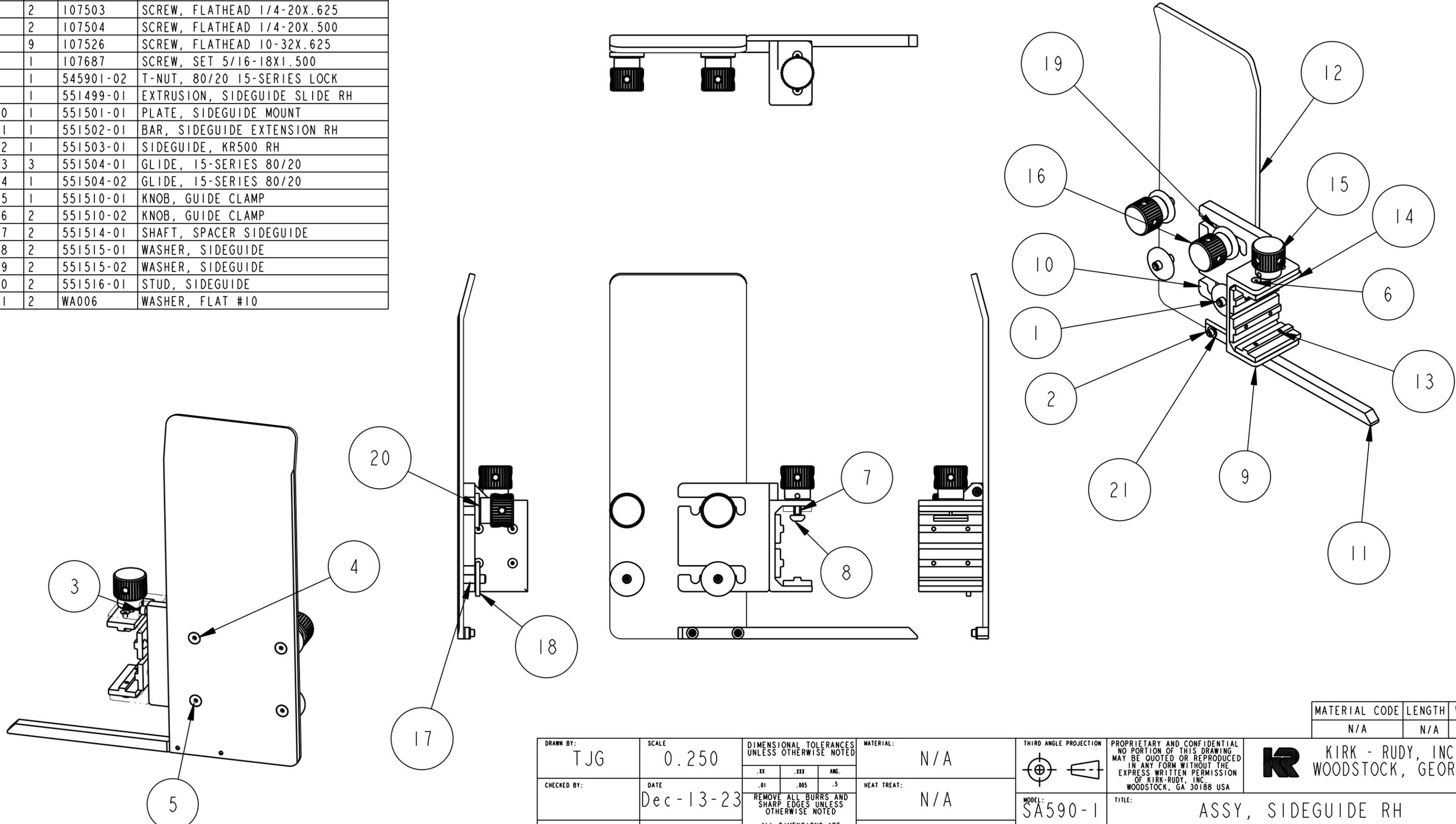
TITLE:
ASSY, BRIDGE KR500W



DRAWING #
551497-04

ITEM	QTY	PART #	DESCRIPTION
1	2	107403	SCREW, SHCS 1/4-20X.375
2	2	107409	SCREW, SHCS 10-32X.500
3	1	107410	SCREW, SHCS 1/4-20X.500
4	2	107503	SCREW, FLATHEAD 1/4-20X.625
5	2	107504	SCREW, FLATHEAD 1/4-20X.500
6	9	107526	SCREW, FLATHEAD 10-32X.625
7	1	107687	SCREW, SET 5/16-18X1.500
8	1	545901-02	T-NUT, 80/20 15-SERIES LOCK
9	1	551499-01	EXTRUSION, SIDEGUIDE SLIDE RH
10	1	551501-01	PLATE, SIDEGUIDE MOUNT
11	1	551502-01	BAR, SIDEGUIDE EXTENSION RH
12	1	551503-01	SIDEGUIDE, KR500 RH
13	3	551504-01	GLIDE, 15-SERIES 80/20
14	1	551504-02	GLIDE, 15-SERIES 80/20
15	1	551510-01	KNOB, GUIDE CLAMP
16	2	551510-02	KNOB, GUIDE CLAMP
17	2	551514-01	SHAFT, SPACER SIDEGUIDE
18	2	551515-01	WASHER, SIDEGUIDE
19	2	551515-02	WASHER, SIDEGUIDE
20	2	551516-01	STUD, SIDEGUIDE
21	2	WA006	WASHER, FLAT #10

REV NO	DATE	DESCRIPTION	ECN NO	BY

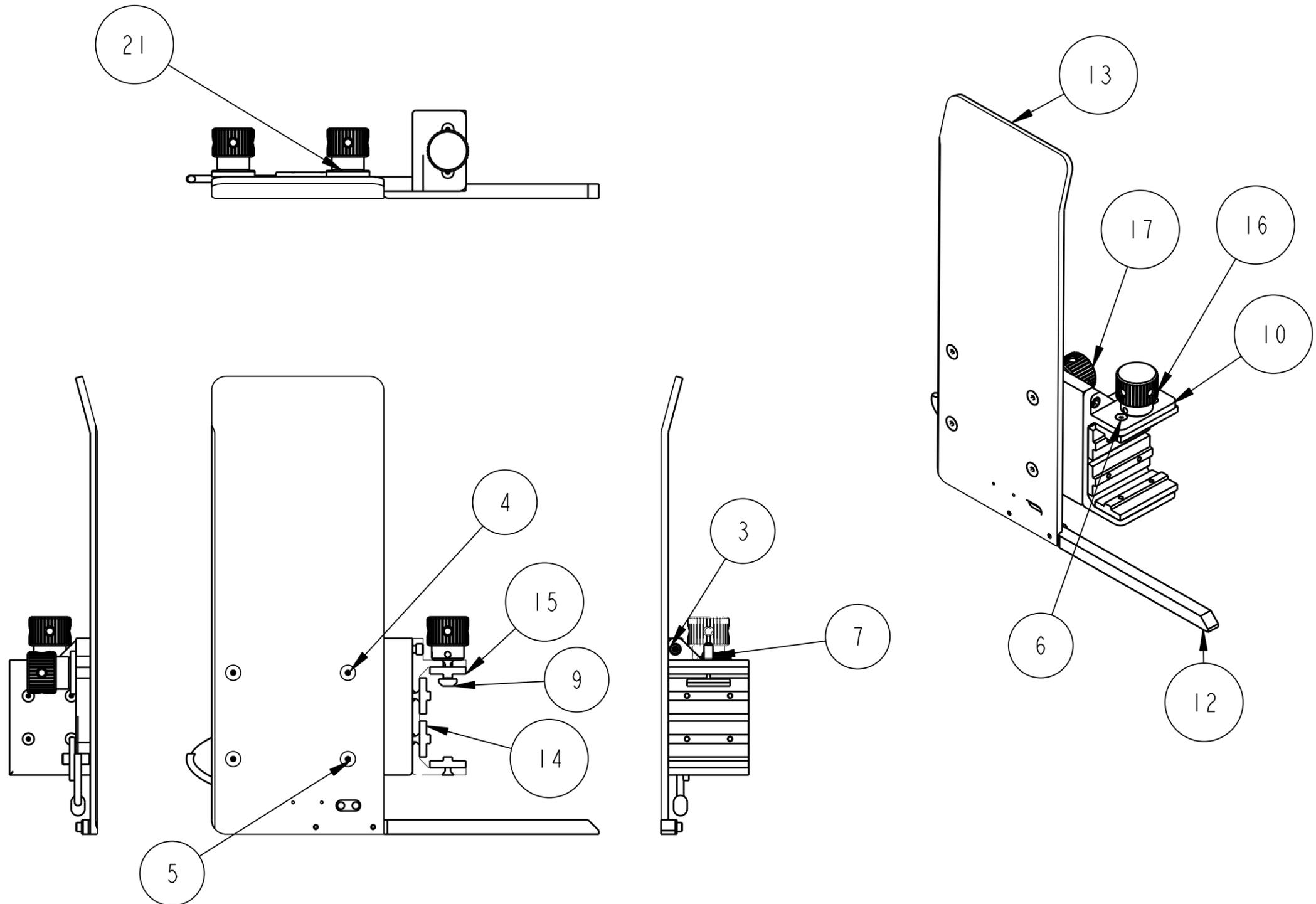
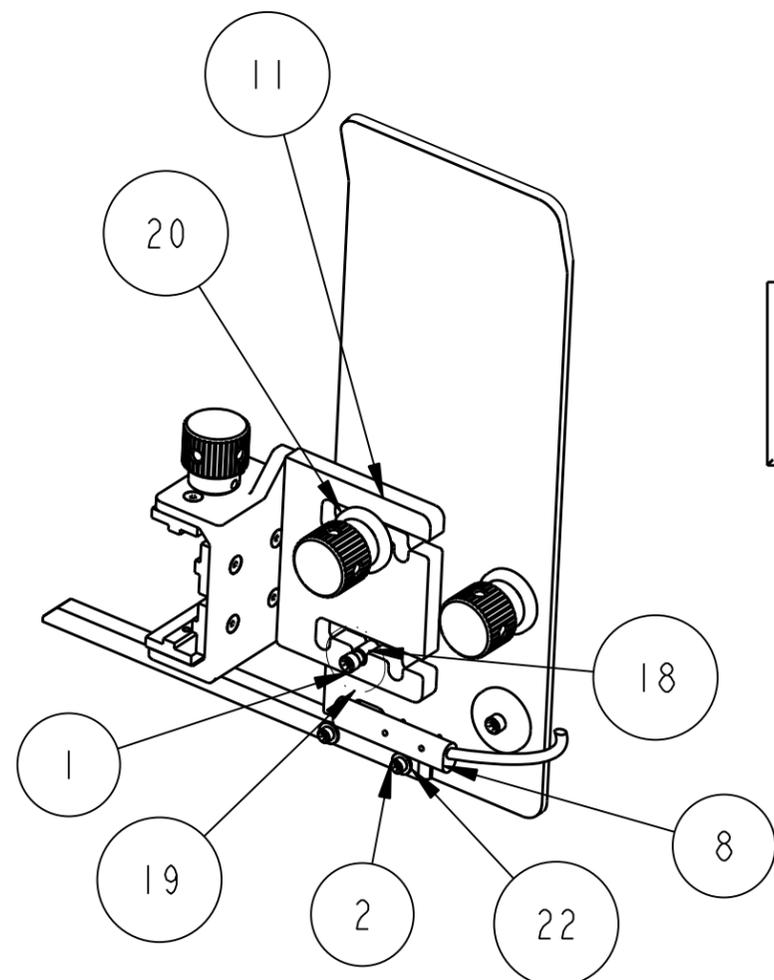


MATERIAL CODE	LENGTH	WIDTH
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DRAWN BY: TJG	SCALE 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED <table border="1"> <tr> <td>.XX</td> <td>.XXX</td> <td>ANG.</td> </tr> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </table>	.XX	.XXX	ANG.	.01	.005	.5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE Dec-13-23	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, SIDEGUIDE RH	SHEET NO. 1 OF 1						
TRACED BY:	MASTER	FINISH: N/A		DRAWING # 551500-01								

ITEM	QTY	PART #	DESCRIPTION
1	2	107403	SCREW, SHCS 1/4-20X.375
2	2	107409	SCREW, SHCS 10-32X.500
3	1	107410	SCREW, SHCS 1/4-20X.500
4	2	107503	SCREW, FLATHEAD 1/4-20X.625
5	2	107504	SCREW, FLATHEAD 1/4-20X.500
6	10	107526	SCREW, FLATHEAD 10-32X.625
7	1	107687	SCREW, SET 5/16-18X1.500
8	1	202263-5	BEAMSWITCH, LOW HOPPER
9	1	545901-02	T-NUT, 80/20 15-SERIES LOCK
10	1	551499-02	EXTRUSION, SIDEGUIDE SLIDE LH
11	1	551501-01	PLATE, SIDEGUIDE MOUNT
12	1	551502-02	BAR, SIDEGUIDE EXTENSION LH
13	1	551503-02	SIDEGUIDE, KR500 LH
14	3	551504-01	GLIDE, 15-SERIES 80/20
15	1	551504-02	GLIDE, 15-SERIES 80/20
16	1	551510-01	KNOB, GUIDE CLAMP
17	2	551510-02	KNOB, GUIDE CLAMP
18	2	551514-01	SHAFT, SPACER SIDEGUIDE
19	2	551515-01	WASHER, SIDEGUIDE
20	2	551515-02	WASHER, SIDEGUIDE
21	2	551516-01	STUD, SIDEGUIDE
22	2	WA006	WASHER, FLAT #10

REV NO	DATE	DESCRIPTION	ECN NO	BY

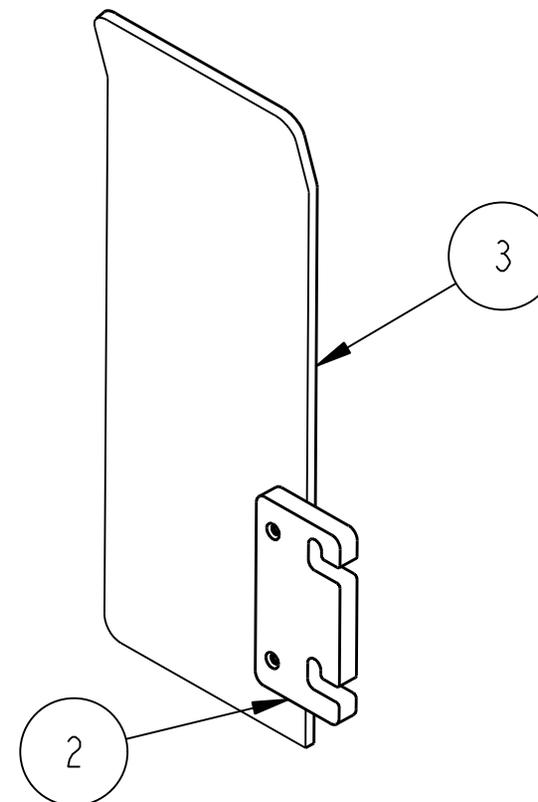
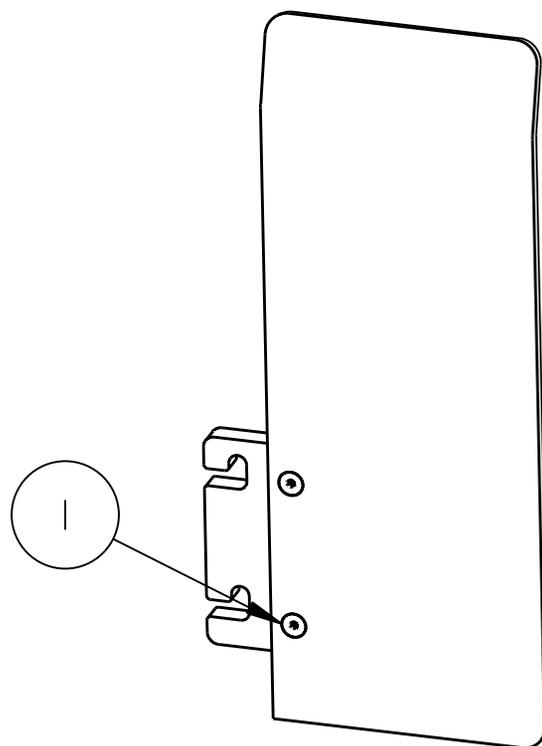


I	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 20-Feb-08	.XX .XXX ANG. .01 .005 .5	HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, SIDEGUIDE LH	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551500-02
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY				

ITEM	QTY	PART #	DESCRIPTION
1	2	107503	SCREW, FLATHEAD 1/4-20X.625
2	1	551501-03	PLATE, SIDEGUIDE EXTENSION MOUNT
3	1	551503-03	SIDEGUIDE, EXTENSION KR500 RH

REV NO	DATE	DESCRIPTION	ECN NO	BY

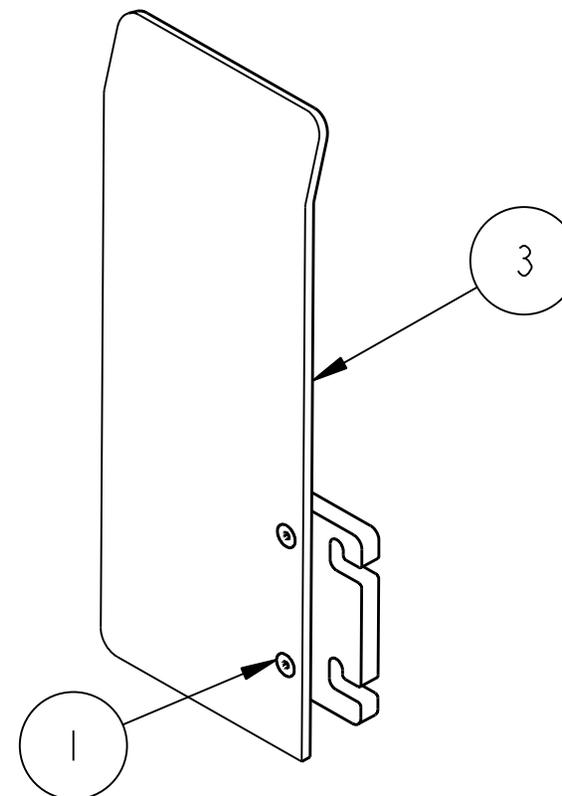
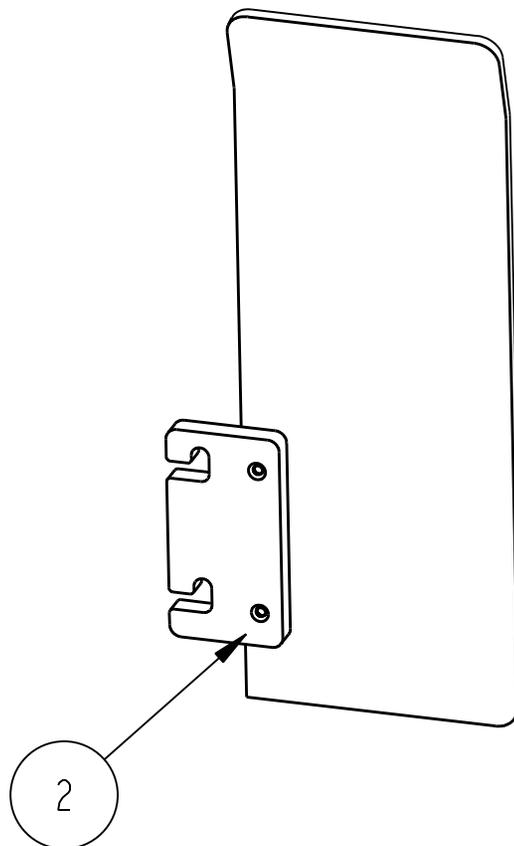


1	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA				
CHECKED BY:	DATE 20-Jun-08		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
.XX	.XXX	ANG.								
.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: SA590-1	TITLE: ASSY, SIDEGUIDE EXTENSION RH					
				SHEET NO. 1 OF 1		DRAWING # 551648-01				

ITEM	QTY	PART #	DESCRIPTION
1	2	107503	SCREW, FLATHEAD 1/4-20X.625
2	1	551501-03	PLATE, SIDEGUIDE EXTENSION MOUNT
3	1	551503-04	SIDEGUIDE, EXTENSION KR500 LH

REV NO	DATE	DESCRIPTION	ECN NO	BY

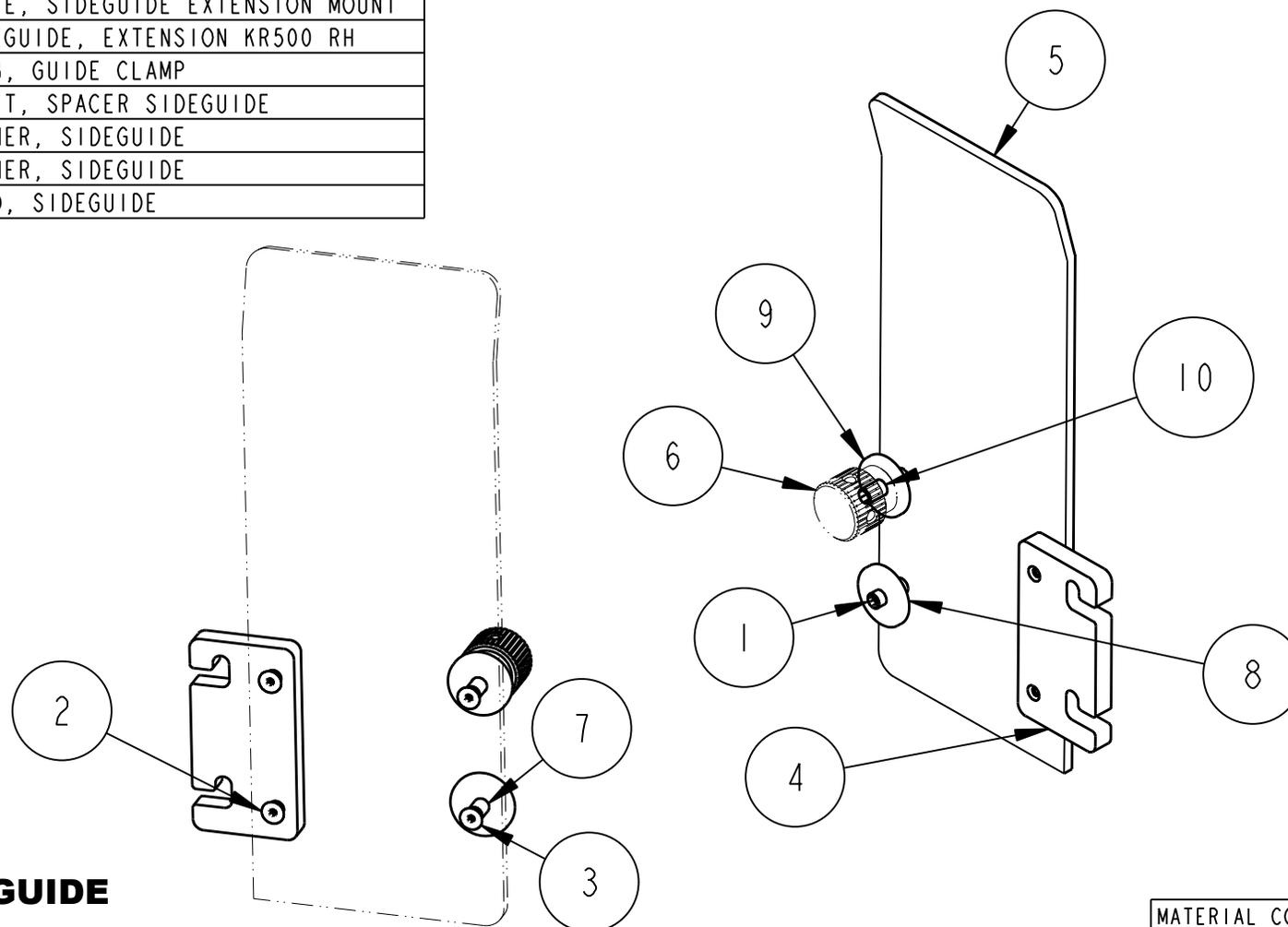


I	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA				
CHECKED BY:	DATE 20-Jun-08		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
.XX	.XXX	ANG.								
.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: SA590-1	TITLE: ASSY, SIDEGUIDE EXTENSION LH					
				SHEET NO. 1 OF 1	DRAWING # 551648-02					

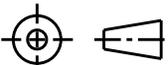
ITEM	QTY	PART #	DESCRIPTION
1	1	107403	SCREW, SHCS 1/4-20X.375
2	3	107503	SCREW, FLATHEAD 1/4-20X.625
3	1	107504	SCREW, FLATHEAD 1/4-20X.500
4	1	551501-03	PLATE, SIDEGUIDE EXTENSION MOUNT
5	1	551503-17	SIDEGUIDE, EXTENSION KR500 RH
6	1	551510-02	KNOB, GUIDE CLAMP
7	1	551514-01	SHAFT, SPACER SIDEGUIDE
8	1	551515-01	WASHER, SIDEGUIDE
9	1	551515-02	WASHER, SIDEGUIDE
10	1	551516-01	STUD, SIDEGUIDE

REV NO	DATE	DESCRIPTION	ECN NO	BY



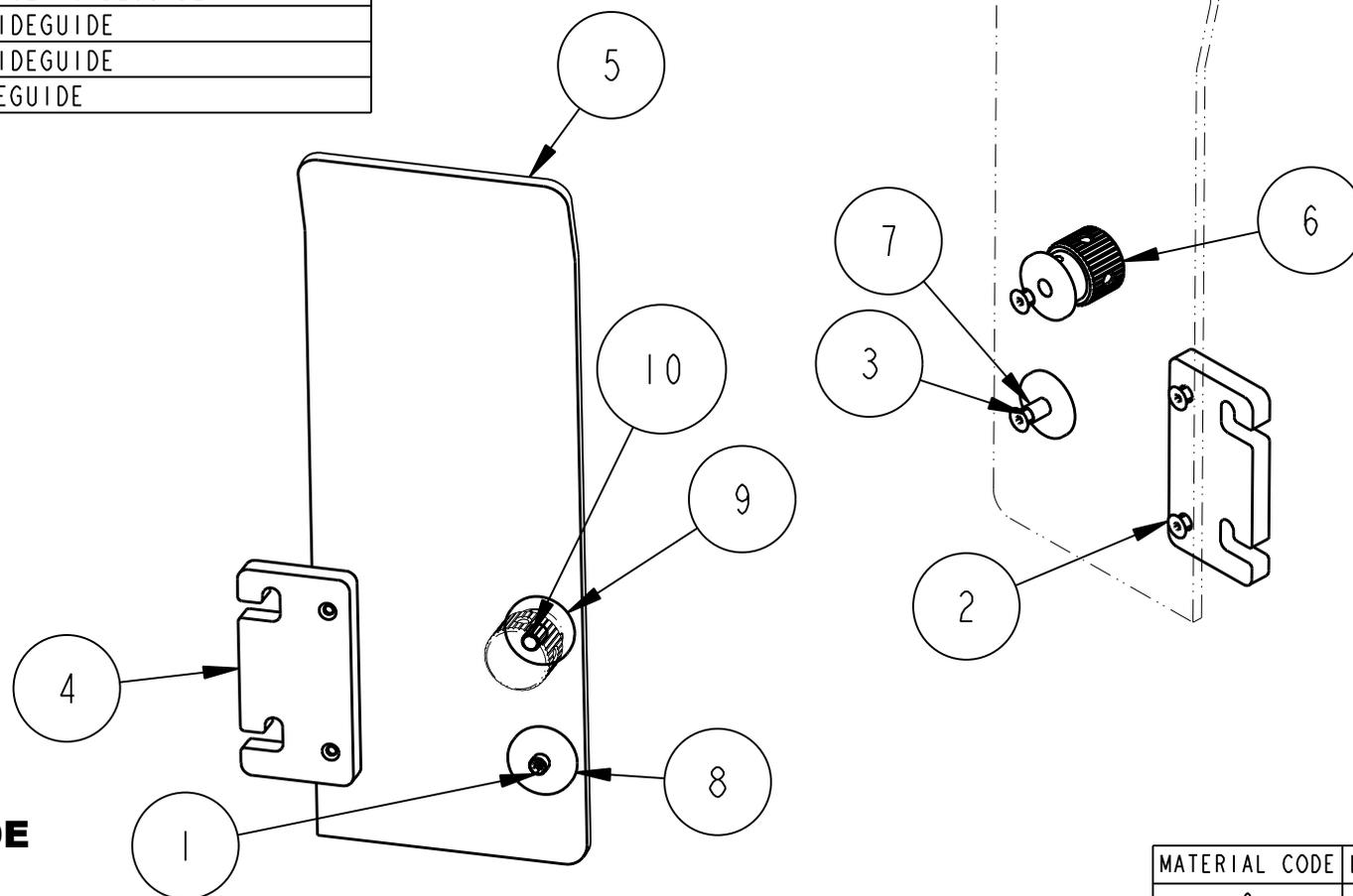
OPTIONAL SIDE GUIDE EXTENSION

MATERIAL CODE	LENGTH	WIDTH
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DRAWN BY: JCC	SCALE 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED <table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX	.XXX	ANG.	.01	.005	.5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
.XX	.XXX		ANG.									
.01	.005	.5										
CHECKED BY:	DATE Jul-09-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: SA1874	TITLE: ASSY, SIDEGUIDE EXTENSION RH							
TRACED BY:	MASTER		FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551648-07						

ITEM	QTY	PART #	DESCRIPTION
1	1	107403	SCREW, SHCS 1/4-20X.375
2	3	107503	SCREW, FLATHEAD 1/4-20X.625
3	1	107504	SCREW, FLATHEAD 1/4-20X.500
4	1	551501-03	PLATE, SIDEGUIDE EXTENSION MOUNT
5	1	551503-18	SIDEGUIDE, EXTENSION KR500 LH
6	1	551510-01	KNOB, GUIDE CLAMP
7	1	551514-01	SHAFT, SPACER SIDEGUIDE
8	1	551515-01	WASHER, SIDEGUIDE
9	1	551515-02	WASHER, SIDEGUIDE
10	1	551516-01	STUD, SIDEGUIDE

REV NO	DATE	DESCRIPTION	ECN NO	BY



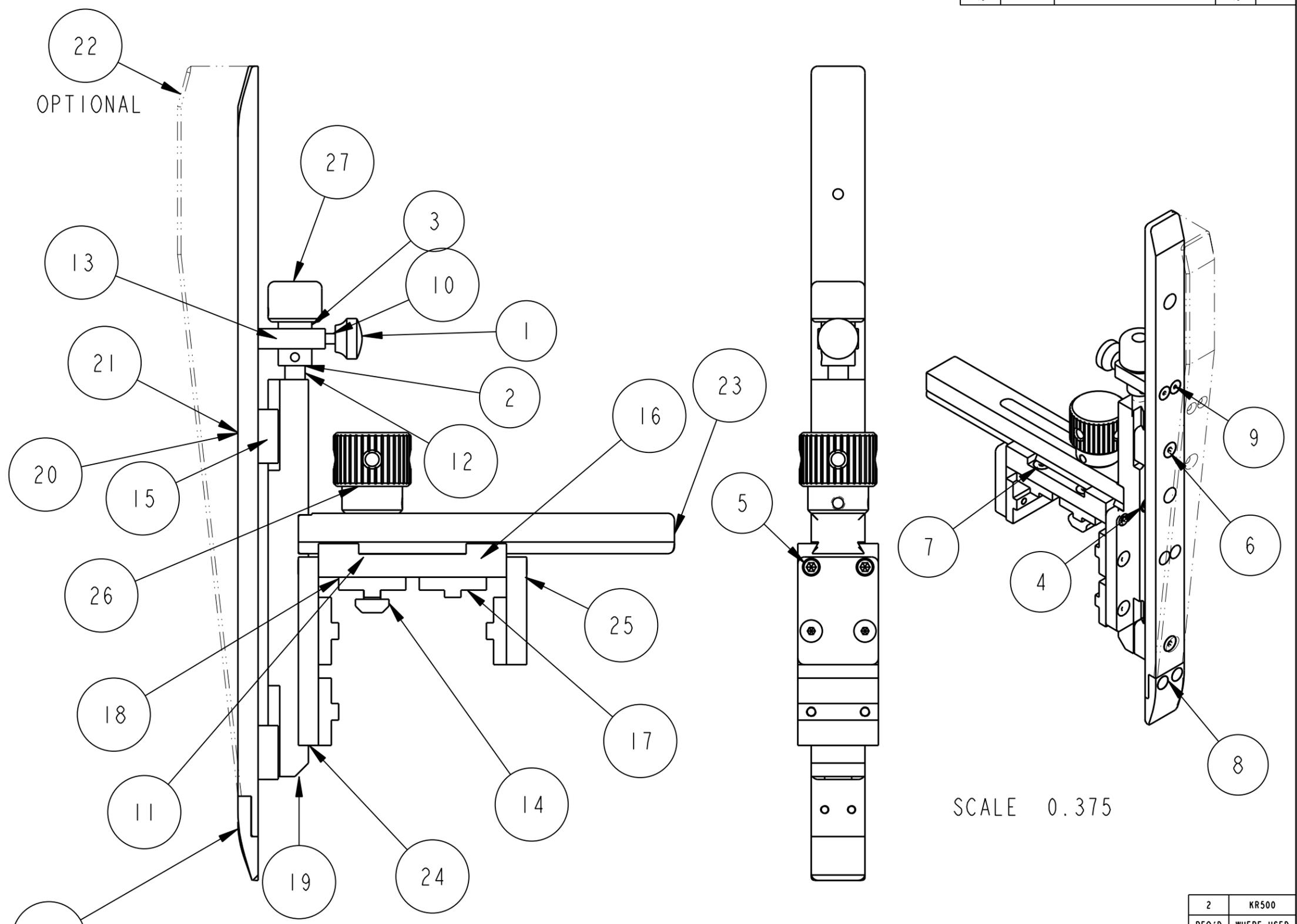
OPTIONAL SIDE GUIDE EXTENSION

MATERIAL CODE	LENGTH	WIDTH
0	0	0

DRAWN BY: JCC	SCALE 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA				
CHECKED BY:	DATE Jul-09-24		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
.XX	.XXX	ANG.								
.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: SA1874	TITLE: ASSY, SIDEGUIDE EXTENSION LH					
				SHEET NO. 1 OF 1		DRAWING # 551648-08				

ITEM	QTY	PART #	DESCRIPTION
1	1	102114	KNOB
2	1	102211	COLLAR .375
3	1	102345	SHIM, .375X.625X.125
4	2	107401	SCREW, SHCS 1/4-20X.750
5	4	107409	SCREW, SHCS 10-32X.500
6	2	107500	SCREW, FLATHEAD 10-32X.500
7	10	107501	SCREW, FLATHEAD 10-32X.750
8	2	107516	SCREW, FLATHEAD 8-32X.375
9	2	107528	SCREW, FLATHEAD 8-32X.625
10	1	107629	SCREW, SET 10-32X.750
11	1	108111	SCREW, SET 5/16-18X2.500
12	1	108112	SCREW, SHCS 3/8-24X1.750
13	1	502232-3	BLOCK, GATE BLADE
14	1	545901-02	T-NUT, 80/20 15-SERIES LOCK
15	2	551319-01	BAR, DOVETAIL GATE ADJUSTMENT
16	1	551319-02	BAR, DOVETAIL GATE ADJUSTMENT
17	4	551504-03	GLIDE, 15-SERIES 80/20
18	1	551504-04	GLIDE, 15-SERIES W/LOCK HOLE
19	1	551506-01	BAR, DOVETAIL GATE ADJUSTMENT
20	1	551507-01	GATE, FRICTION FEEDER
21	1	551507-02	GATE, FRICTION FEEDER
22	1	551507-03	GATE, FRICTION FEEDER
23	1	551508-01	BAR, PRODUCT GATE MOUNT
24	1	551509-01	BAR, 3030 GUIDE
25	1	551509-02	BAR, 3030 GUIDE
26	1	551510-01	KNOB, GUIDE CLAMP
27	1	551510-05	KNOB, GATE HEIGHT ADJ.
28	1	551653-01	GATE, FRICTION FEEDER

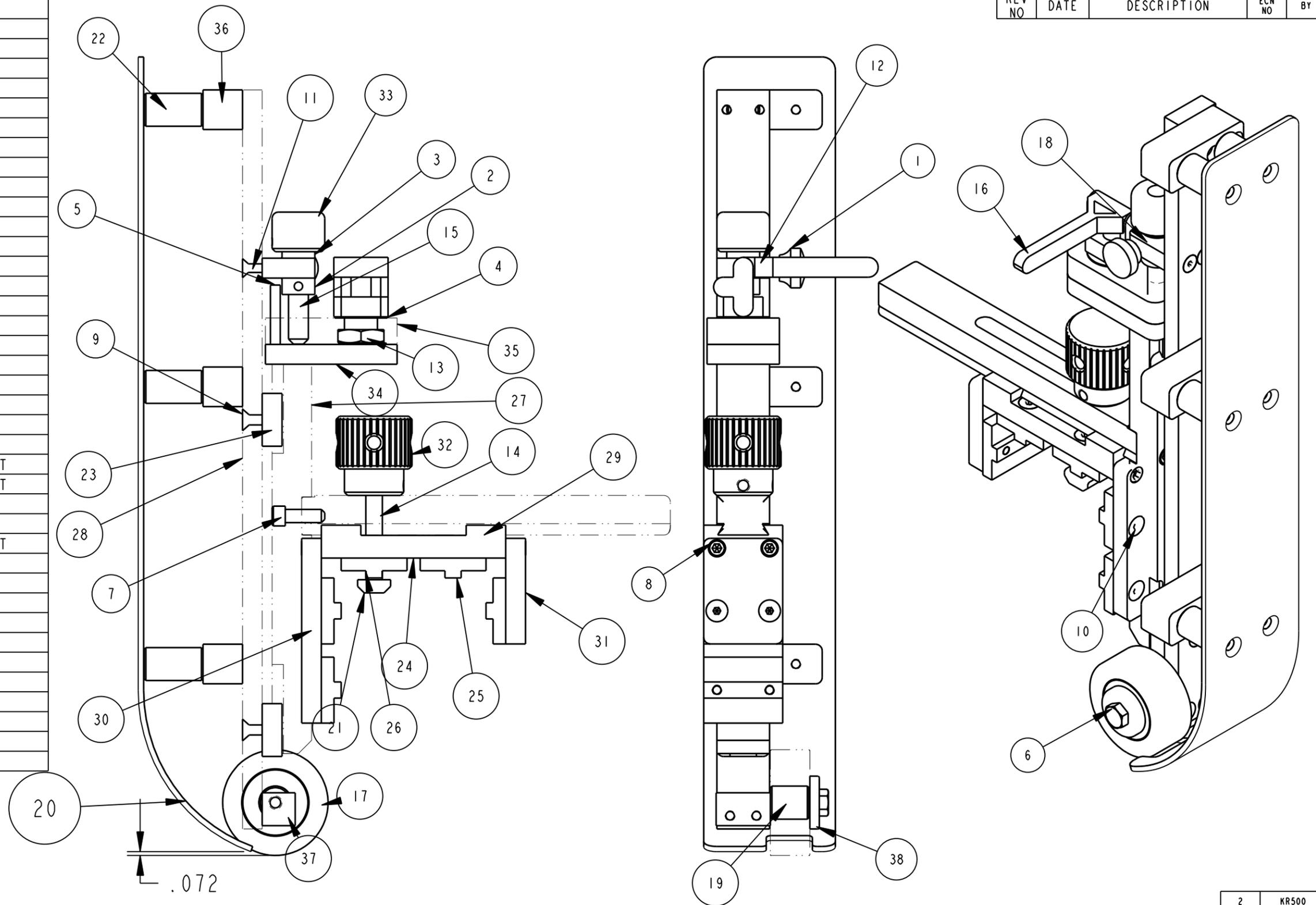
REV NO	DATE	DESCRIPTION	ECN NO	BY



2	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE: 0.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED <table border="1"> <tr> <td>.XX</td> <td>.XXX</td> <td>ANG.</td> </tr> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </table>	.XX	.XXX	ANG.	.01	.005	.5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA KIRK - RUDY, INC. WOODSTOCK, GEORGIA
.XX	.XXX	ANG.									
.01	.005	.5									
CHECKED BY:	DATE: 20-Feb-08	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, PRODUCT GATE						
TRACED BY:	MASTER		FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 551505-01						

ITEM	QTY	PART #	DESCRIPTION
1	1	102114	KNOB
2	1	102211	COLLAR .375
3	1	102345	SHIM, .375X.625X.125
4	1	102560	SHIM, .625X1.000X.025
5	1	105418	DOWEL, PIN .188X1.500
6	1	107325	HEX HEAD BOLT
7	2	107401	SCREW, SHCS 1/4-20X.750
8	4	107409	SCREW, SHCS 10-32X.500
9	2	107500	SCREW, FLATHEAD 10-32X.500
10	10	107501	SCREW, FLATHEAD 10-32X.750
11	2	107528	SCREW, FLATHEAD 8-32X.625
12	1	107629	SCREW, SET 10-32X.750
13	1	108080	NUT, JAM 5/8-18
14	1	108111	SCREW, SET 5/16-18X2.500
15	1	108112	SCREW, SHCS 3/8-24X1.750
16	1	190733	CLAMP, QUICK RELEASE
17	1	500745	ROLLER, UPPER
18	1	502232-4	BLOCK, GATE BLADE
19	1	530754-01	STUD, RETARD ROLLER MOUNT
20	1	544159-06	GUIDE, FRONT KR500 RH
21	1	545901-02	T-NUT, 80/20 15-SERIES LOCK
22	6	547183-02	SPACER, TURN TABLE GUIDE
23	2	551319-01	BAR, DOVETAIL GATE ADJUSTMENT
24	1	551319-02	BAR, DOVETAIL GATE ADJUSTMENT
25	4	551504-03	GLIDE, 15-SERIES 80/20
26	1	551504-04	GLIDE, 15-SERIES W/LOCK HOLE
27	1	551506-02	BAR, DOVETAIL GATE ADJUSTMENT
28	1	551507-04	BAR, RETART ROLLER MOUNT
29	1	551508-01	BAR, PRODUCT GATE MOUNT
30	1	551509-01	BAR, 3030 GUIDE
31	1	551509-02	BAR, 3030 GUIDE
32	1	551510-01	KNOB, GUIDE CLAMP
33	1	551510-05	KNOB, GATE HEIGHT ADJ.
34	1	551759-01	PLATE, GATE QUICKRELEASE
35	1	551760-01	PLATE, GATE QUICKRELEASE
36	3	551761-01	BLOCK, FRONT GUIDE SPACER
37	1	551762-01	BLOCK, RETARD ROLLER MOUNT
38	1	SP6383-1	SPACER, GEAR COVER

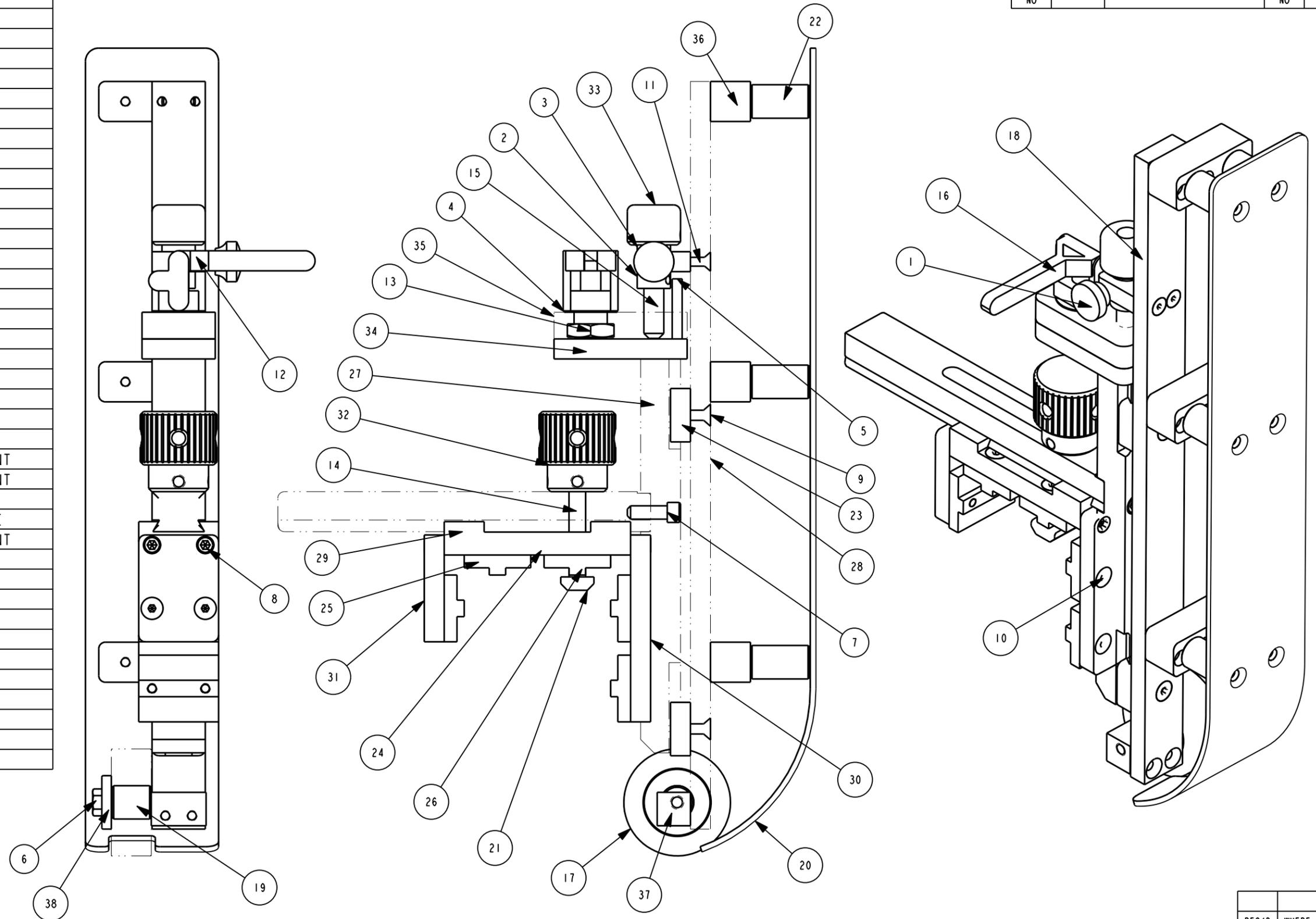


2	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA					
CHECKED BY:	DATE 28-Apr-09	<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX	.XXX	ANG.		.01	.005	.5	HEAT TREAT: N/A	MODEL: SA590-1
.XX	.XXX	ANG.									
.01	.005	.5									
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 20F2	DRAWING # 551505-02						

OPTIONAL ROLLER GATE

ITEM	QTY	PART #	DESCRIPTION
1	1	102114	KNOB
2	1	102211	COLLAR .375
3	1	102345	SHIM, .375X.625X.125
4	1	102560	SHIM, .625X1.000X.025
5	1	105418	DOWEL, PIN .188X1.500
6	1	107325	HEX HEAD BOLT
7	2	107401	SCREW, SHCS 1/4-20X.750
8	4	107409	SCREW, SHCS 10-32X.500
9	2	107500	SCREW, FLATHEAD 10-32X.500
10	10	107501	SCREW, FLATHEAD 10-32X.750
11	2	107528	SCREW, FLATHEAD 8-32X.625
12	1	107629	SCREW, SET 10-32X.750
13	1	108080	NUT, JAM 5/8-18
14	1	108111	SCREW, SET 5/16-18X2.500
15	1	108112	SCREW, SHCS 3/8-24X1.750
16	1	190733	CLAMP, QUICK RELEASE
17	1	500745	ROLLER, UPPER
18	1	502232-4	BLOCK, GATE BLADE
19	1	530754-01	STUD, RETARD ROLLER MOUNT
20	1	544159-08	GUIDE, FRONT KR500 LH
21	1	545901-02	T-NUT, 80/20 15-SERIES LOCK
22	6	547183-02	SPACER, TURN TABLE GUIDE
23	2	551319-01	BAR, DOVETAIL GATE ADJUSTMENT
24	1	551319-02	BAR, DOVETAIL GATE ADJUSTMENT
25	4	551504-03	GLIDE, 15-SERIES 80/20
26	1	551504-04	GLIDE, 15-SERIES W/LOCK HOLE
27	1	551506-02	BAR, DOVETAIL GATE ADJUSTMENT
28	1	551507-04	BAR, RETART ROLLER MOUNT
29	1	551508-01	BAR, PRODUCT GATE MOUNT
30	1	551509-01	BAR, 3030 GUIDE
31	1	551509-02	BAR, 3030 GUIDE
32	1	551510-01	KNOB, GUIDE CLAMP
33	1	551510-05	KNOB, GATE HEIGHT ADJ.
34	1	551759-01	PLATE, GATE QUICKRELEASE
35	1	551760-01	PLATE, GATE QUICKRELEASE
36	3	551761-01	BLOCK, FRONT GUIDE SPACER
37	1	551762-01	BLOCK, RETARD ROLLER MOUNT
38	1	SP6383-1	SPACER, GEAR COVER



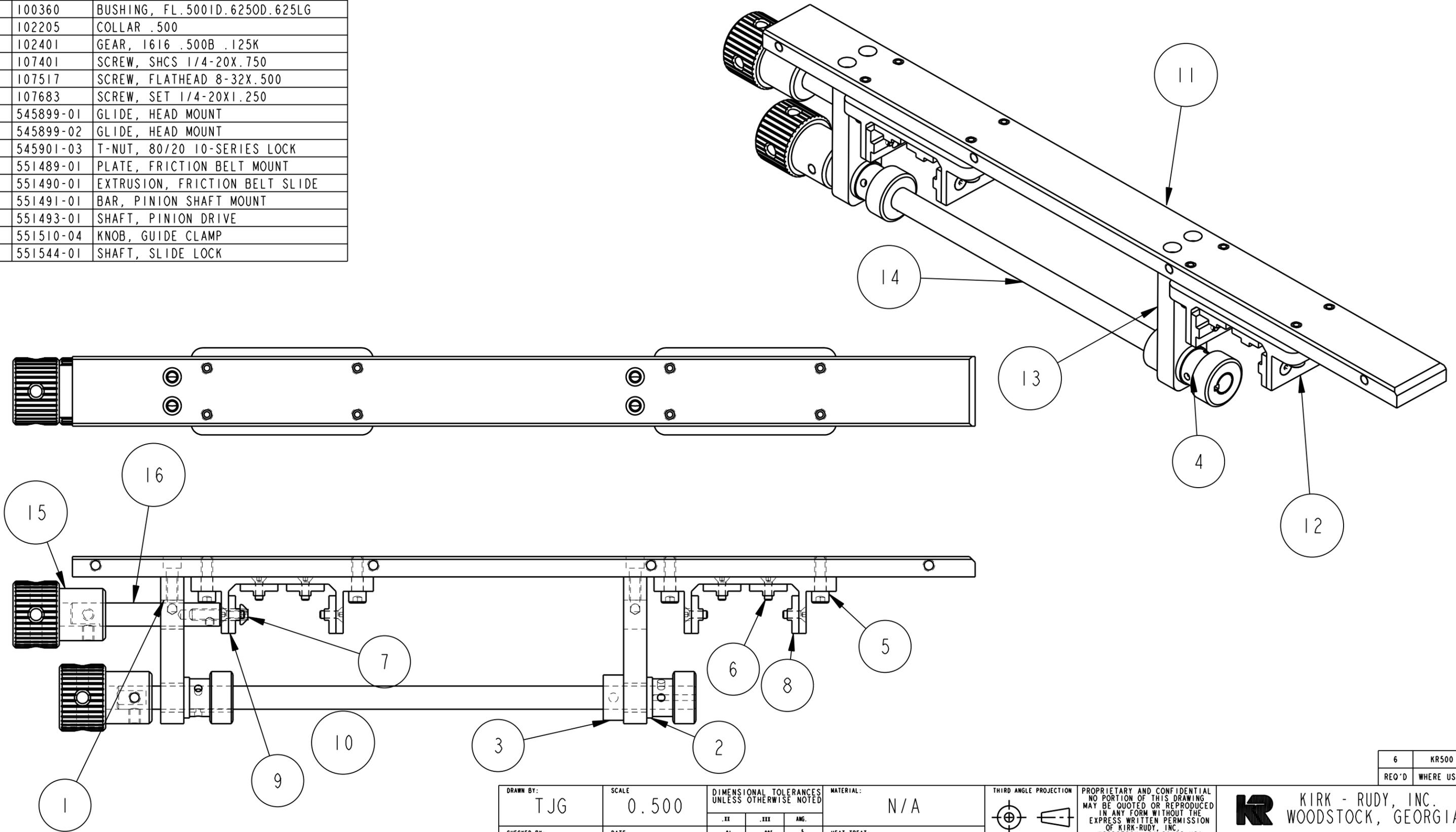
REQ'D WHERE USED

OPTIONAL ROLLER GATE

DRAWN BY: MVP	SCALE 0.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 05-Aug-09	.XX .XXX ANG. .01 .005 .5 REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, PRODUCT GATE LH	
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 551505-05	

ITEM	QTY	PART #	DESCRIPTION
1	1	100135	BUSHING, SL.500ID.625OD.500LG
2	2	100360	BUSHING, FL.500ID.625OD.625LG
3	1	102205	COLLAR .500
4	2	102401	GEAR, 1616 .500B .125K
5	8	107401	SCREW, SHCS 1/4-20X.750
6	16	107517	SCREW, FLATHEAD 8-32X.500
7	1	107683	SCREW, SET 1/4-20XI.250
8	7	545899-01	GLIDE, HEAD MOUNT
9	1	545899-02	GLIDE, HEAD MOUNT
10	1	545901-03	T-NUT, 80/20 10-SERIES LOCK
11	1	551489-01	PLATE, FRICTION BELT MOUNT
12	2	551490-01	EXTRUSION, FRICTION BELT SLIDE
13	2	551491-01	BAR, PINION SHAFT MOUNT
14	1	551493-01	SHAFT, PINION DRIVE
15	2	551510-04	KNOB, GUIDE CLAMP
16	1	551544-01	SHAFT, SLIDE LOCK

REV NO	DATE	DESCRIPTION	ECN NO	BY

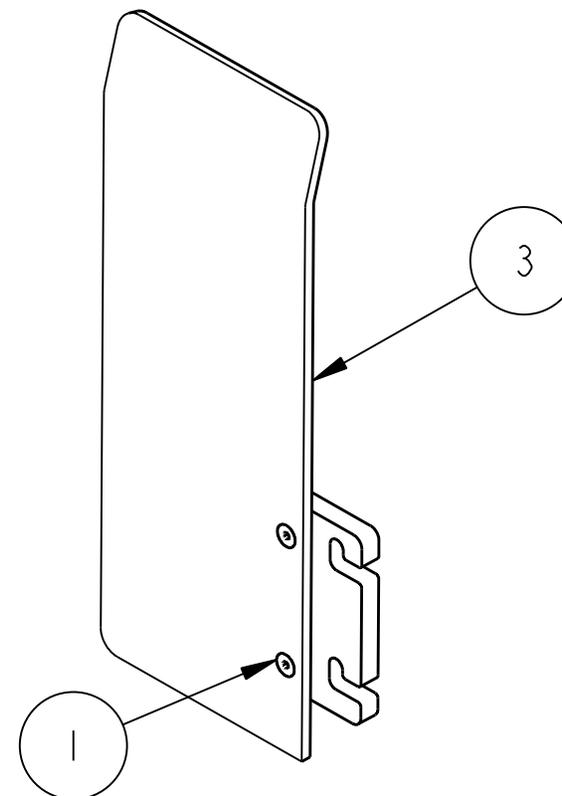
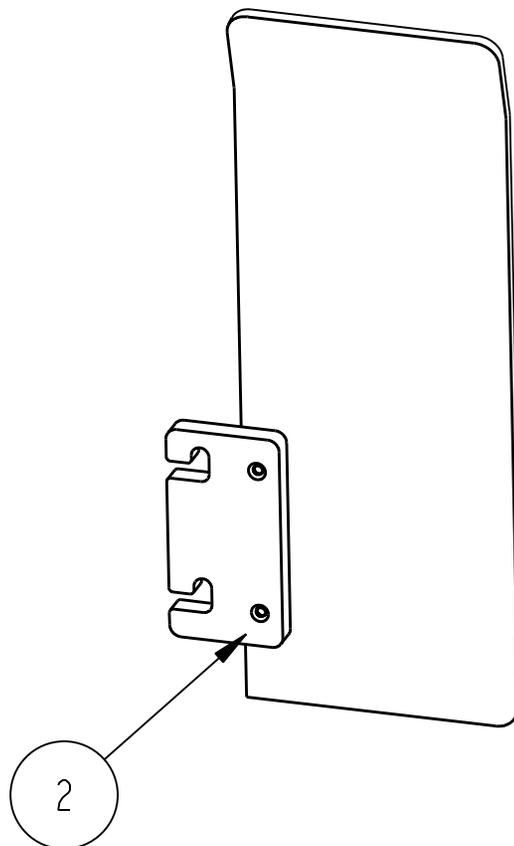


6	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE: 0.500	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED <table border="1"> <tr> <td>.XX</td> <td>.XXX</td> <td>ANG.</td> </tr> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </table>	.XX	.XXX	ANG.	.01	.005	.5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA KIRK - RUDY, INC. WOODSTOCK, GEORGIA
.XX	.XXX	ANG.									
.01	.005	.5									
CHECKED BY:	DATE: 28-Feb-08	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, FRICTION BELT SLIDE						
TRACED BY:	MASTER		FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 551486-01						

ITEM	QTY	PART #	DESCRIPTION
1	2	107503	SCREW, FLATHEAD 1/4-20X.625
2	1	551501-03	PLATE, SIDEGUIDE EXTENSION MOUNT
3	1	551503-04	SIDEGUIDE, EXTENSION KR500 LH

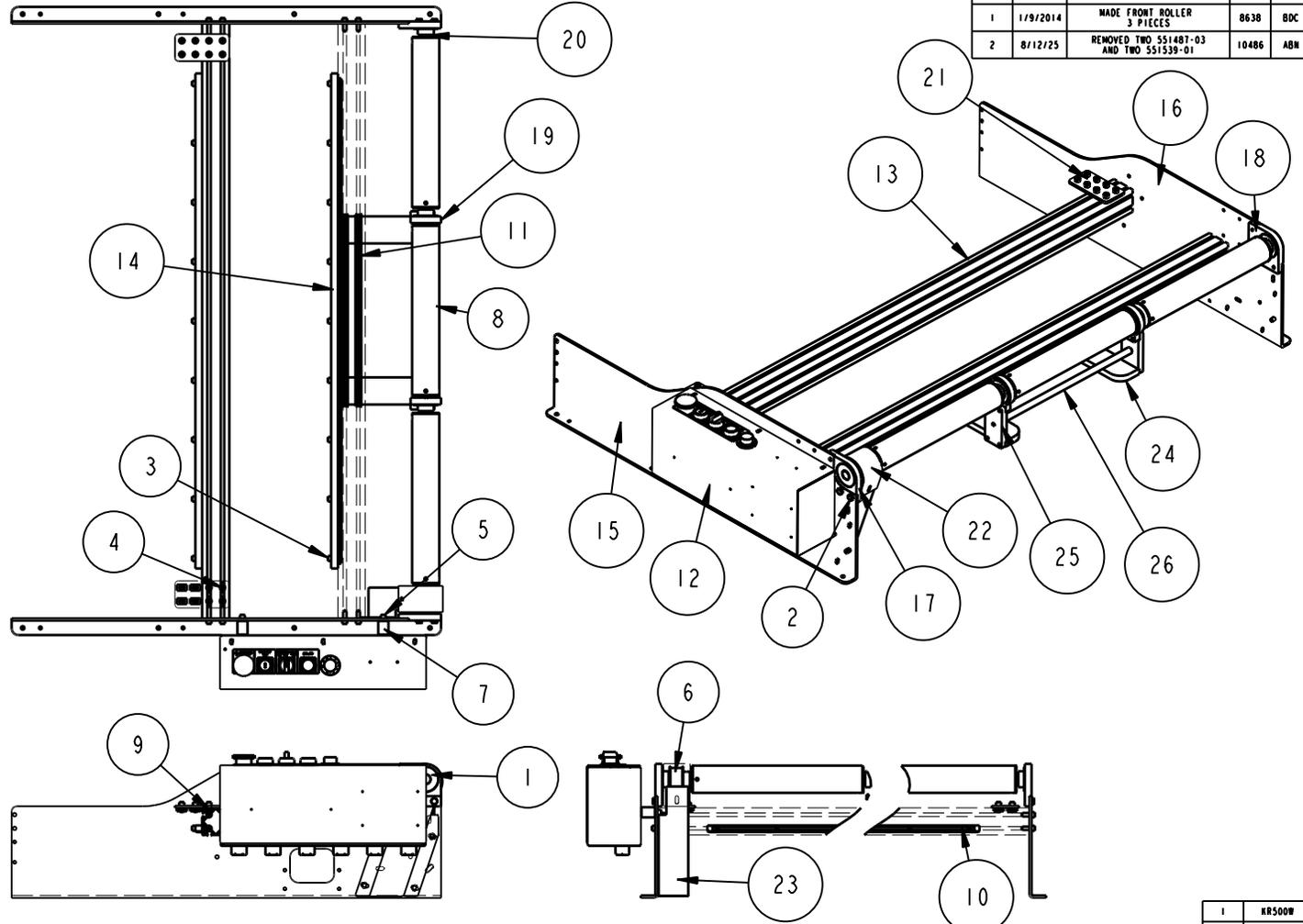
REV NO	DATE	DESCRIPTION	ECN NO	BY



I	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA				
CHECKED BY:	DATE 20-Jun-08		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
.XX	.XXX	ANG.								
.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	MODEL: SA590-1	TITLE: ASSY, SIDEGUIDE EXTENSION LH					
				SHEET NO. 1 OF 1		DRAWING # 551648-02				

ITEM	QTY	PART #	DESCRIPTION
1	4	103805	BEARING, HUB .750
2	4	107327	BOLT, 1/4-20 X .500
3	34	107401	SCREW, SHCS 1/4-20X.750
4	16	107410	SCREW, SHCS 1/4-20X.500
5	2	107428	SCREW, SHCS 1/4-20X.625
6	1	108871	PULLEY, TIMING 14L075 .750B .188K
7	2	102672-19	SHAFT, SPACER FEEDER PIVOT
8	3	538434-14	ASSY, ROLLER FRICTION DRIVE
9	16	545901-03	T-NUT, 80/20 10-SERIES LOCK
10	2	545901-07	T-NUT, RACK GEAR
11	2	545901-08	T-NUT, CENTER BEARING SUPPORT
12	1	548886-03	ASSY, KR500 CONTROL BOX
13	2	551487-09	EXTRUSION, FEEDER SPACER
14	2	551492-03	RACK, GEAR KR500W
15	1	551525-01	FRAME, KR500 FRICTION FEEDER
16	1	551525-02	BRACKET, FEEDER TILT LH
17	1	551527-01	PLATE, BEARING MOUNT RH
18	1	551527-02	PLATE, BEARING MOUNT LH
19	2	551527-03	PLATE, CENTER BEARING MOUNT
20	1	551528-03	SHAFT, FRICTION FEEDER DRIVE
21	2	551566-01	PLATE, 80/20 SPLICE
22	1	551574-02	COVER, TIMING BELT
23	1	551758-01	COVER, TIMING BELT
24	2	555923-01	PLATE, CENTER BEARING SUPPORT
25	2	555923-02	PLATE, CENTER BEARING SUPPORT
26	1	555924-01	SPACER, CENTER BEARING SUPPORT

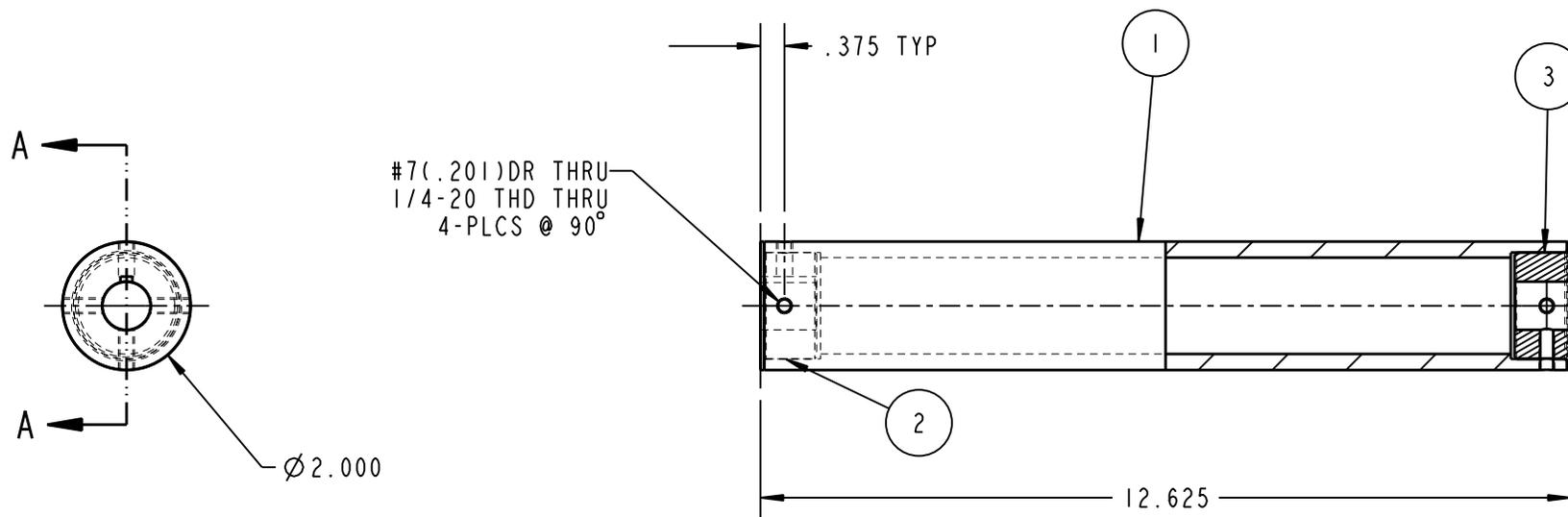


REV NO	DATE	DESCRIPTION	ECN NO	BY
1	11/9/2014	MADE FRONT ROLLER 3 PIECES	8638	BDC
2	8/12/25	REMOVED TWO 551487-03 AND TWO 551539-01	10486	ABN

1	KR500W
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE: 0.125	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .25 .125 .063 .01 .005 .003 REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	MATERIAL: N/A HEAT TREAT: N/A FINISH: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE: 14-Apr-09			PART NO: SA900-1	TITLE: ASSY, KR500W FRAMES	
TRACED BY:	MASTER			SHEET NO: 1 OF 1	*551524-03*	DRAWING # 551524-03

ITEM	QTY	PART #	DESCRIPTION	REV NO	DATE	DESCRIPTION	ECN NO	BY
1	1	500742-53	ROLLER, TUBE BELT DRIVE					
2	1	500838-4	HUB, 2.00" ROLLER 3/4" BORE .188K					
3	1	500838-5	HUB, 2.00" ROLLER 3/4"BORE NK					



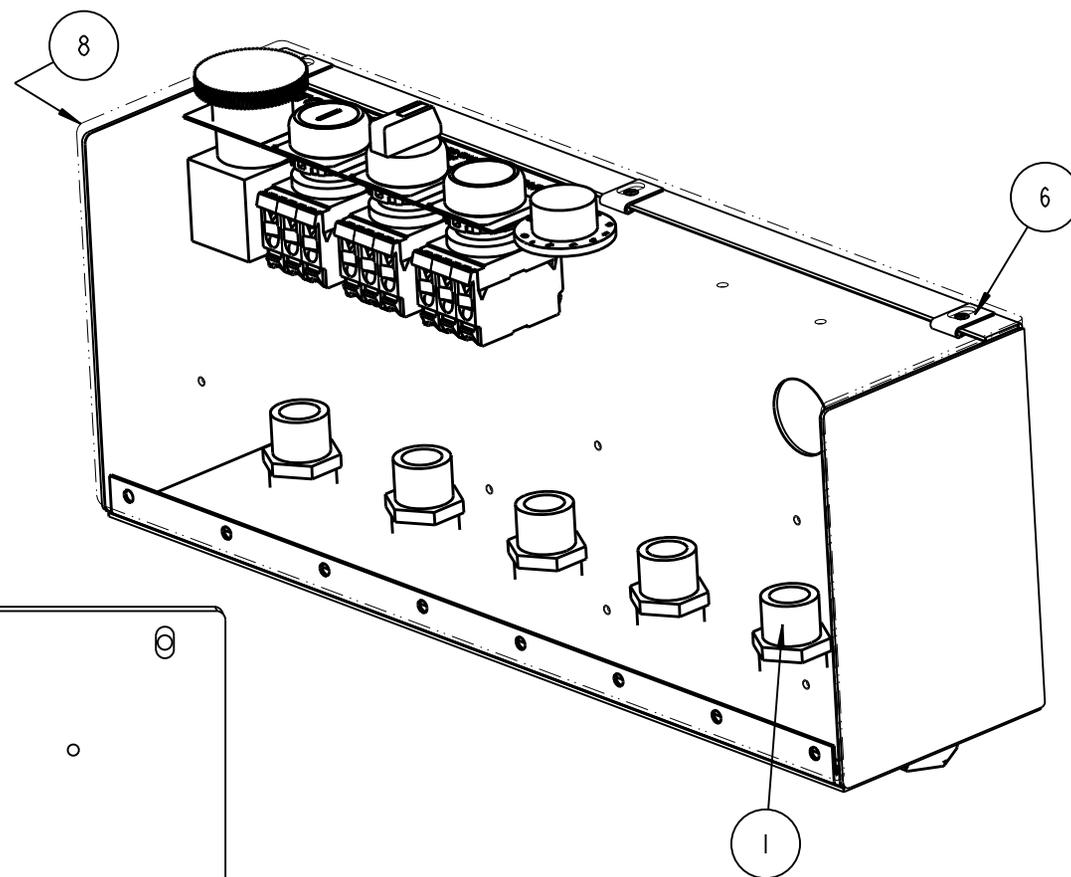
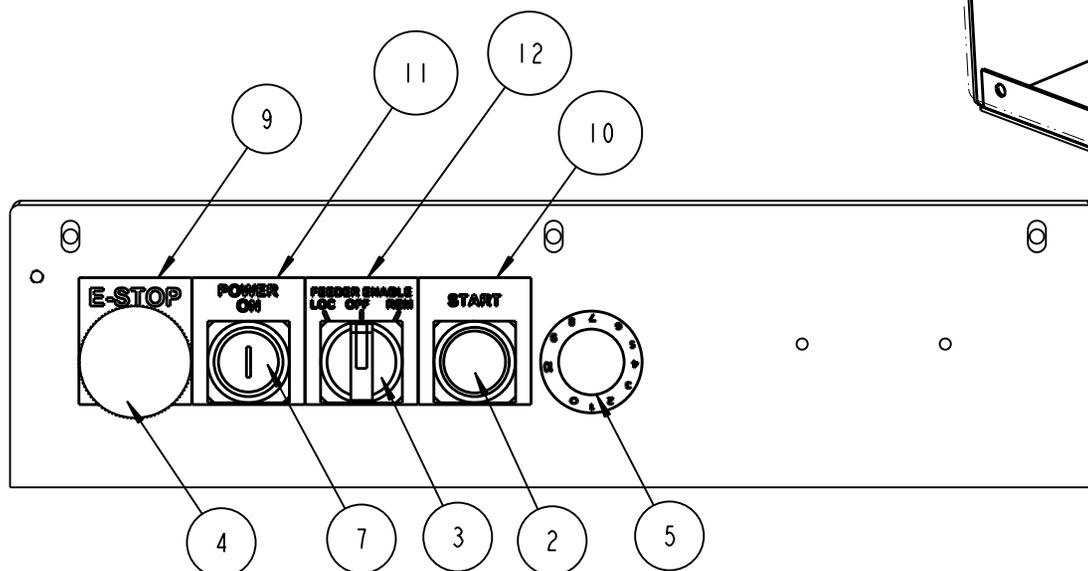
SECTION A-A

MATERIAL CODE: ?

DRAWN BY: BDC	SCALE 0.350	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA				
CHECKED BY:	DATE Jan-09-14		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005
.XX	.XXX	ANG.								
.01	.005	.5								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: BLACK OXIDE	MODEL: SA900-1	TITLE: ASSY, ROLLER FRICTION DRIVE					
				SHEET NO. 1 OF 1		DRAWING # 538434-14				

ITEM	QTY	PART #	DESCRIPTION
1	6	200323	STRAIN RELIEF
2	1	201188	PUSHBUTTON, GREEN
3	1	201192	SWITCH, 3-POSITION
4	1	201198	BUTTON, POWER OFF
5	1	209016	KNOB, POT
6	3	108202-1	CLIP, SPEED
7	1	201186-3	PUSHBUTTON, POWER ON
8	1	551696-01	ASSY, KR500 CONTROL BOX
9	1	562013-01	PLATE, ESTOP
10	1	562015-01	PLATE, START
11	1	562017-01	PLATE, POWER ON
12	1	562039-01	PLATE, FEEDER ENABLE LOC/OFF/REM

REV NO	DATE	DESCRIPTION	ECN NO	BY

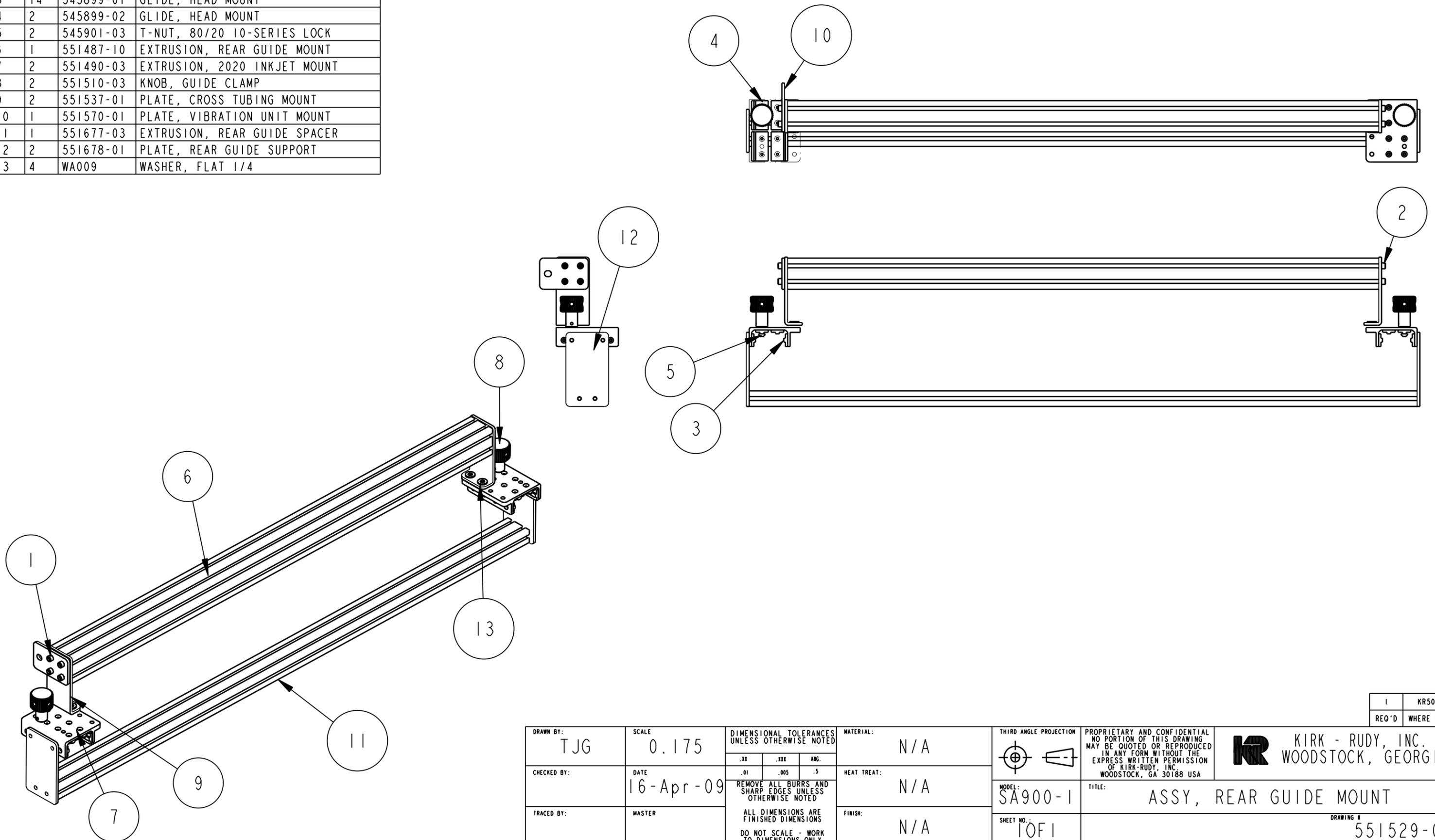


I	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5	MATERIAL: XXX	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 22-Oct-08		HEAT TREAT: XXX	MODEL: SA590-1	TITLE: ASSY, KR500 CONTROL BOX	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: XXX	SHEET NO. 1 OF 1	DRAWING # 548886-03	

ITEM	QTY	PART #	DESCRIPTION
1	4	107401	SCREW, SHCS 1/4-20X.750
2	4	107410	SCREW, SHCS 1/4-20X.500
3	14	545899-01	GLIDE, HEAD MOUNT
4	2	545899-02	GLIDE, HEAD MOUNT
5	2	545901-03	T-NUT, 80/20 10-SERIES LOCK
6	1	551487-10	EXTRUSION, REAR GUIDE MOUNT
7	2	551490-03	EXTRUSION, 2020 INKJET MOUNT
8	2	551510-03	KNOB, GUIDE CLAMP
9	2	551537-01	PLATE, CROSS TUBING MOUNT
10	1	551570-01	PLATE, VIBRATION UNIT MOUNT
11	1	551677-03	EXTRUSION, REAR GUIDE SPACER
12	2	551678-01	PLATE, REAR GUIDE SUPPORT
13	4	WA009	WASHER, FLAT 1/4

REV NO	DATE	DESCRIPTION	ECN NO	BY

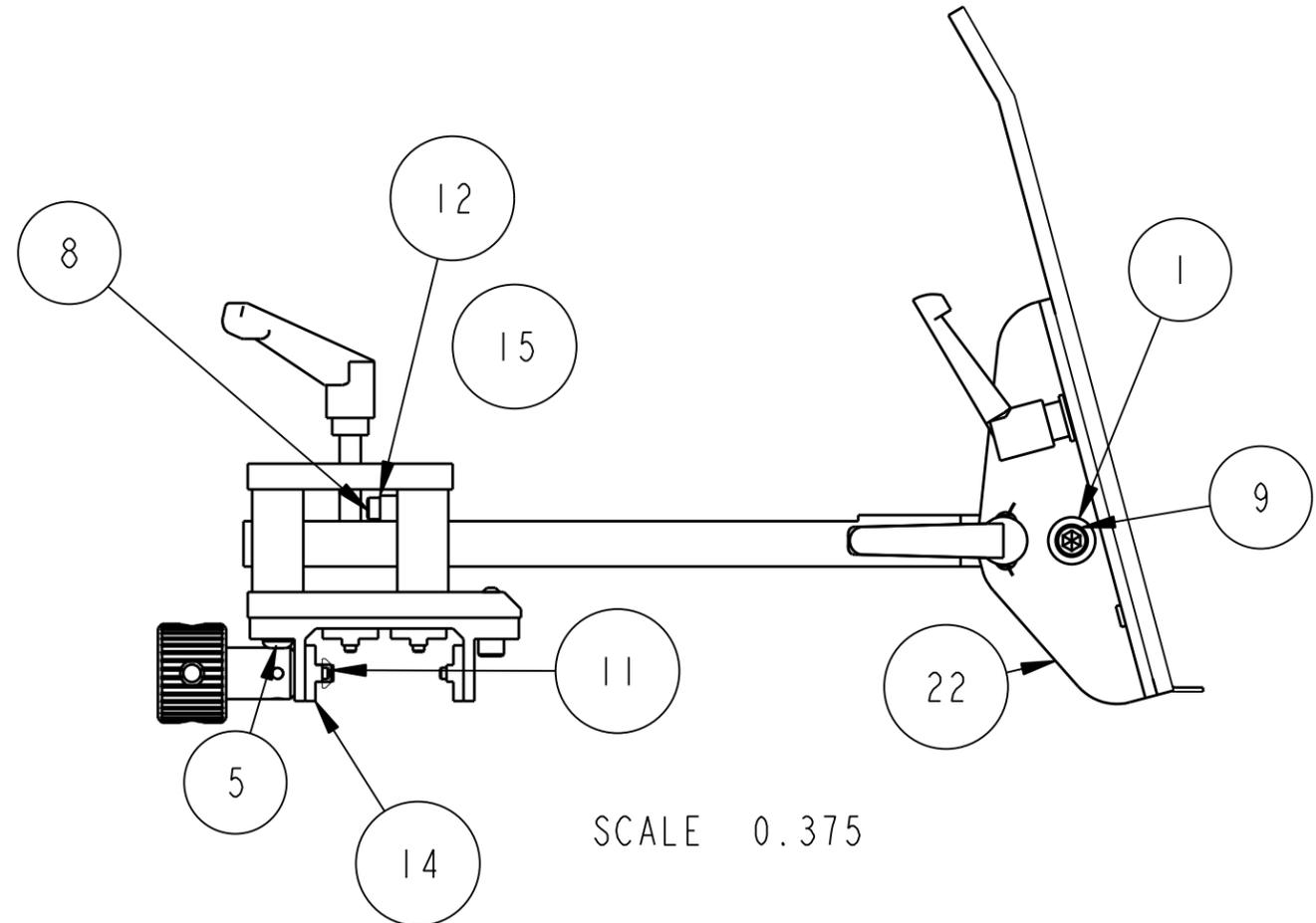
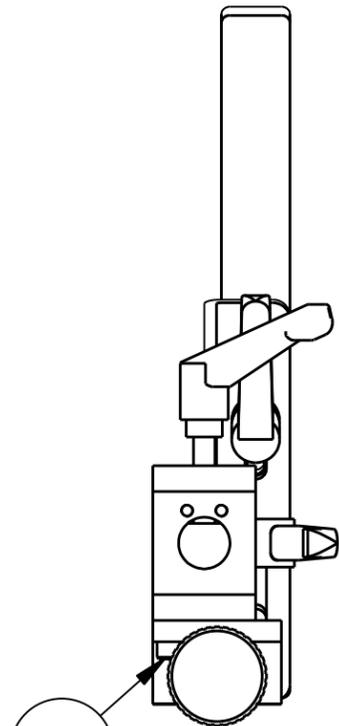
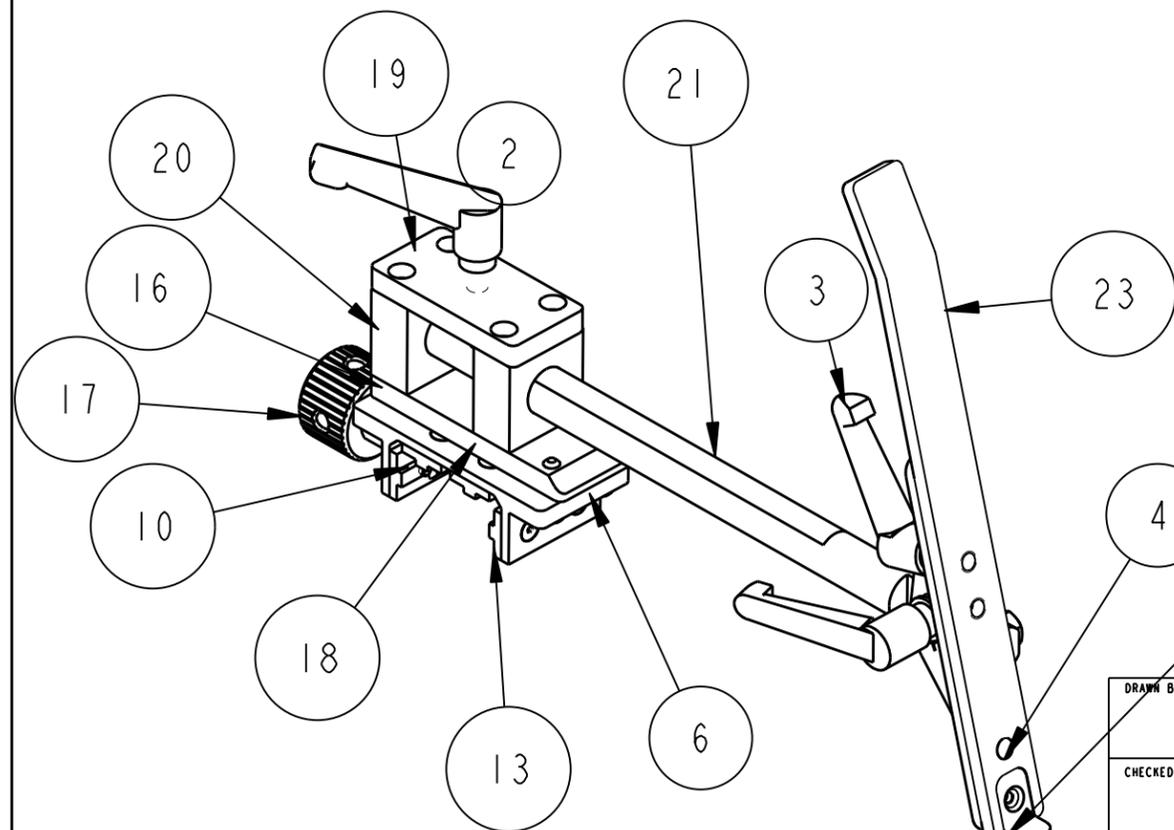


I	KR500W
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.175	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 16-Apr-09	.XX .XXX ANG. .01 .005 .5 REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: SA900-1	TITLE: ASSY, REAR GUIDE MOUNT	
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551529-04

ITEM	QTY	PART #	DESCRIPTION
1	3	100624	WASHER, FLAT 5/16
2	1	102149	HANDLE, RELEASE 5/16-18 X 1.26
3	2	102157	HANDLE, RELEASE 5/16-18 X .47
4	1	105440	DOWEL, PIN .3125X.500
5	1	106802	SCREW, BUTTON HEAD 1/4X1.00
6	2	107401	SCREW, SHCS 1/4-20X.750
7	1	107407	SCREW, SHCS 1/4-20X1.000
8	2	107409	SCREW, SHCS 10-32X.500
9	1	107421	SCREW, SHCS 5/16-18X.875
10	8	107517	SCREW, FLATHEAD 8-32X.500
11	1	107683	SCREW, SET 1/4-20X1.250
12	1	533799-02	BLOCK, SHAFT STOP KR500
13	3	545899-01	GLIDE, HEAD MOUNT
14	1	545899-02	GLIDE, HEAD MOUNT
15	1	545901-03	T-NUT, 80/20 10-SERIES LOCK
16	1	551490-02	EXTRUSION, FRICTION BELT SLIDE
17	1	551510-03	KNOB, GUIDE CLAMP
18	1	551530-01	PLATE, REAR GUIDE SUPPORT
19	1	551530-02	PLATE, REAR GUIDE SUPPORT
20	2	551531-01	BLOCK, REAR GUIDE SHAFT
21	1	551533-01	SHAFT, REAR GUIDE SUPPORT RH
22	1	551534-01	BRACKET, REAR GUIDE RH
23	1	551535-01	PLATE, REAR GUIDE SUPPORT
24	1	551737-01	GUIDE, REAR GUIDE
25	1	HJN011	NUT, JAM 5/16-18

REV NO	DATE	DESCRIPTION	ECN NO	BY
1	3/7/2012	ADD PART 533799-02 TO PREVENT ROTATION	8353	TJG



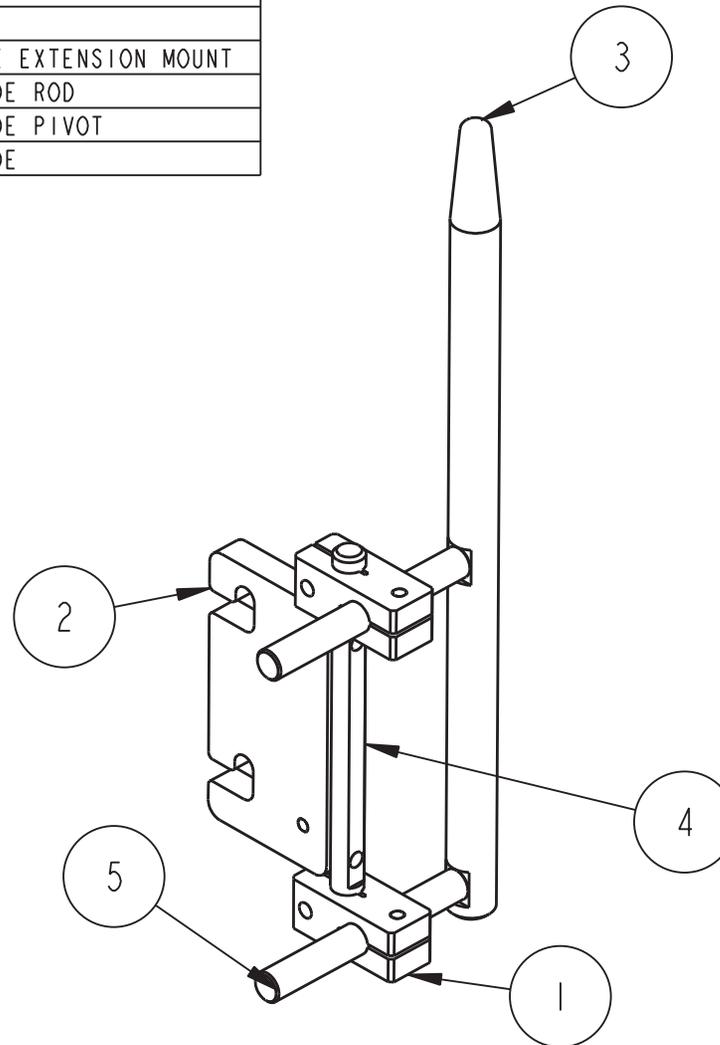
SCALE 0.375

3	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA					
CHECKED BY:	DATE 22-Feb-08	<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX	.XXX	ANG.		.01	.005	.5	HEAT TREAT: N/A	MODEL: SA590-1
.XX	.XXX	ANG.									
.01	.005	.5									
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 551536-01						

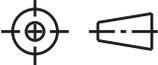
ITEM	QTY	PART #	DESCRIPTION
1	2	508593	CLAMP
2	1	551501-04	PLATE, SIDEGUIDE EXTENSION MOUNT
3	1	551985-01	SHAFT, REAR GUIDE ROD
4	1	551986-01	SHAFT, REAR GUIDE PIVOT
5	2	551987-01	SHAFT, REAR GUIDE

REV NO	DATE	DESCRIPTION	ECN NO	BY



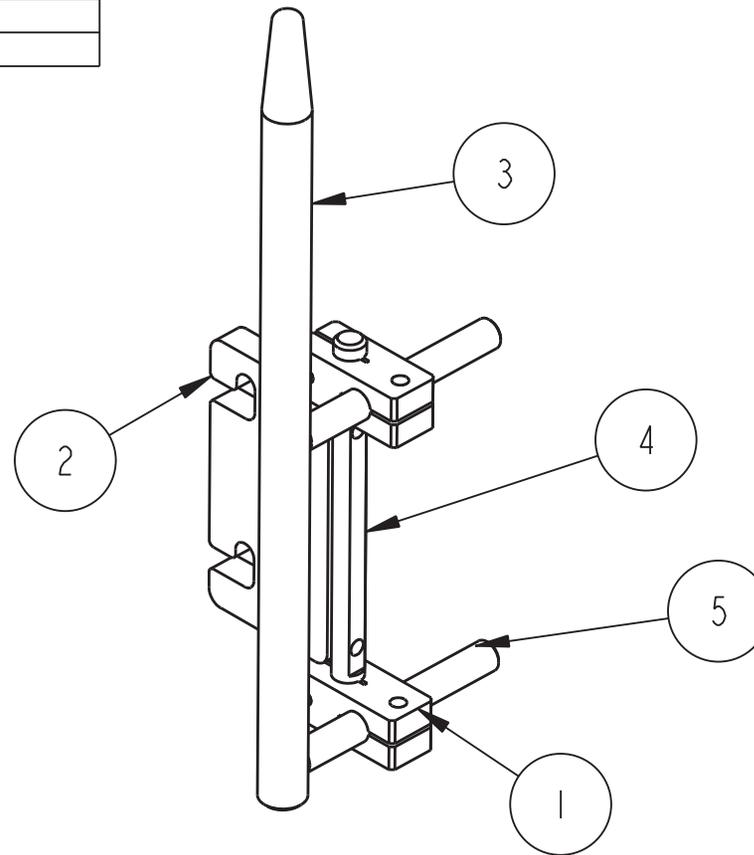
OPTIONAL LH REAR GUIDE

1	XXX
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.xx	.xxx	ANG.				
CHECKED BY:	DATE 01-Aug-11	.01	.005	.5	HEAT TREAT: N/A	MODEL: 500	TITLE: ASSY, KR500 REAR GUIDE LH	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED			FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551648-03
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY						

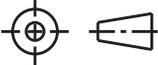
ITEM	QTY	PART #	DESCRIPTION
1	2	508593	CLAMP
2	1	551501-04	PLATE, SIDEGUIDE EXTENSION MOUNT
3	1	551985-01	SHAFT, REAR GUIDE ROD
4	1	551986-01	SHAFT, REAR GUIDE PIVOT
5	2	551987-01	SHAFT, REAR GUIDE

REV NO	DATE	DESCRIPTION	ECN NO	BY



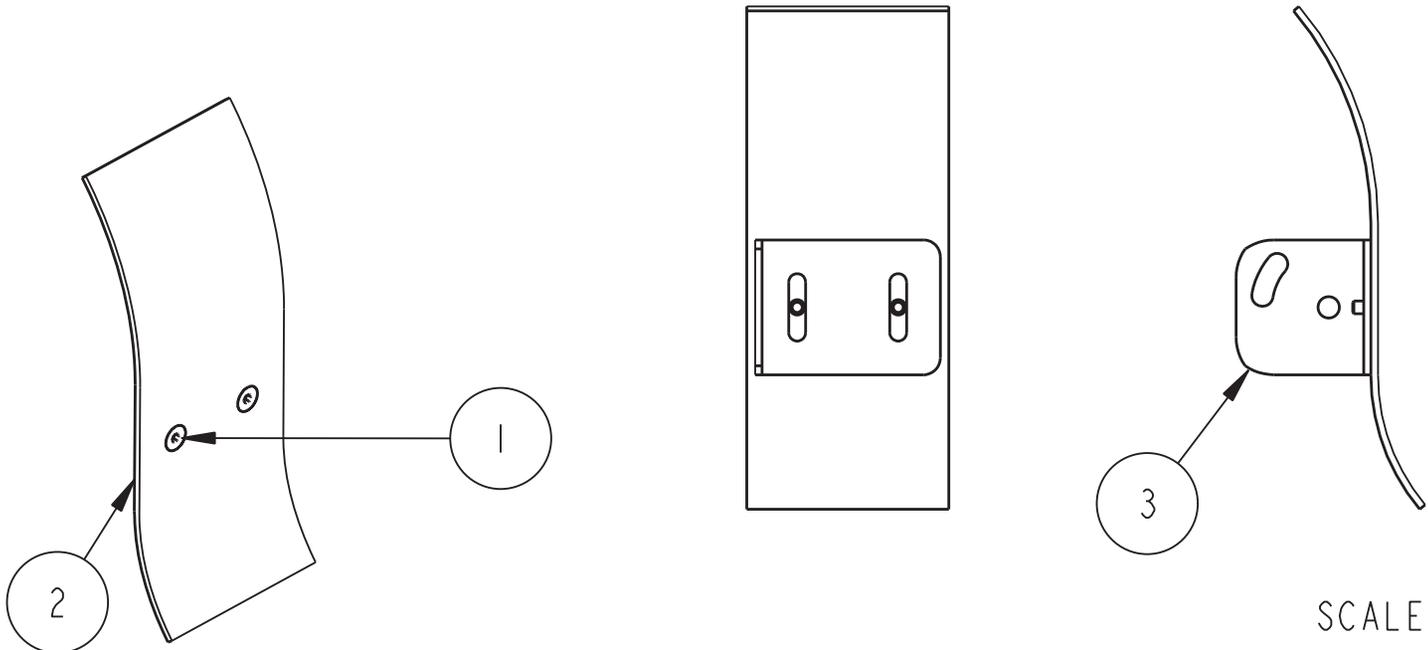
OPTIONAL RH REAR GUIDE

1	XXX
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.xx	.xxx	ANG.				
CHECKED BY:	DATE 01-Aug-11	.01	.005	.5	HEAT TREAT: N/A	MODEL: 500	TITLE: ASSY, KR500 REAR GUIDE RH	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED			FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551648-04
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY						

ITEM	QTY	PART #	DESCRIPTION
1	2	107502	SCREW, FLATHEAD 10-32X.375
2	1	544159-03	GUIDE, REAR KR500
3	1	551534-02	BRACKET, REAR GUIDE

REV NO	DATE	DESCRIPTION	ECN NO	BY



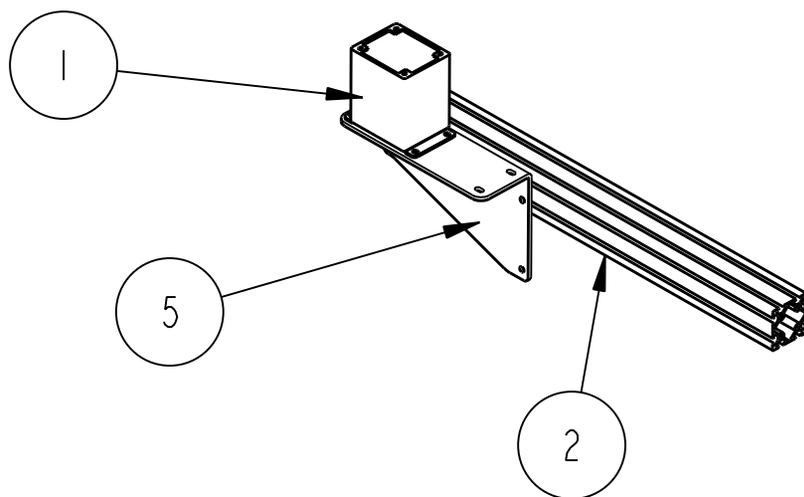
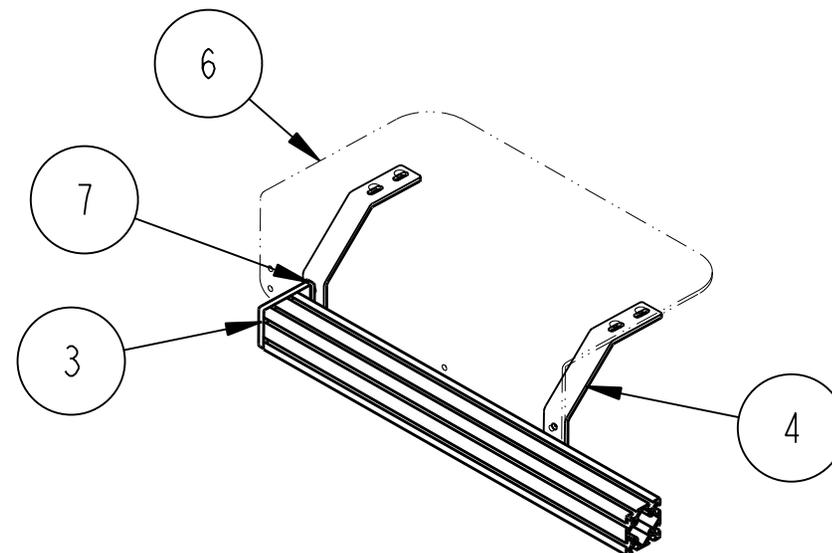
OPTIONAL REAR S-GUIDE

3	KR500
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.XX	.XXX	ANG.				
CHECKED BY:	DATE 24-Jun-08	.01	.005	.5	HEAT TREAT: N/A	MODEL: SA590-1	TITLE: ASSY, REAR S-GUIDE MOUNT	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED			FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551650-01
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY						

ITEM	QTY	PART #	DESCRIPTION
1	1	200265-1	ELECTRICAL SWITCH BOX, 1 HOLE
2	2	551487-07	EXTRUSION, REAR GUIDE MOUNT
3	2	551539-01	PLATE, CROSS TUBING MOUNT
4	2	551674-02	BRACKET, JOG TABLE SUPPORT
5	1	551719-03	BRACKET, SWITCH BOX
6	1	551719-04	TABLE, JOGGER KR500W
7	2	551720-01	SPACER, REAR BRACKET

REV NO	DATE	DESCRIPTION	ECN NO	BY



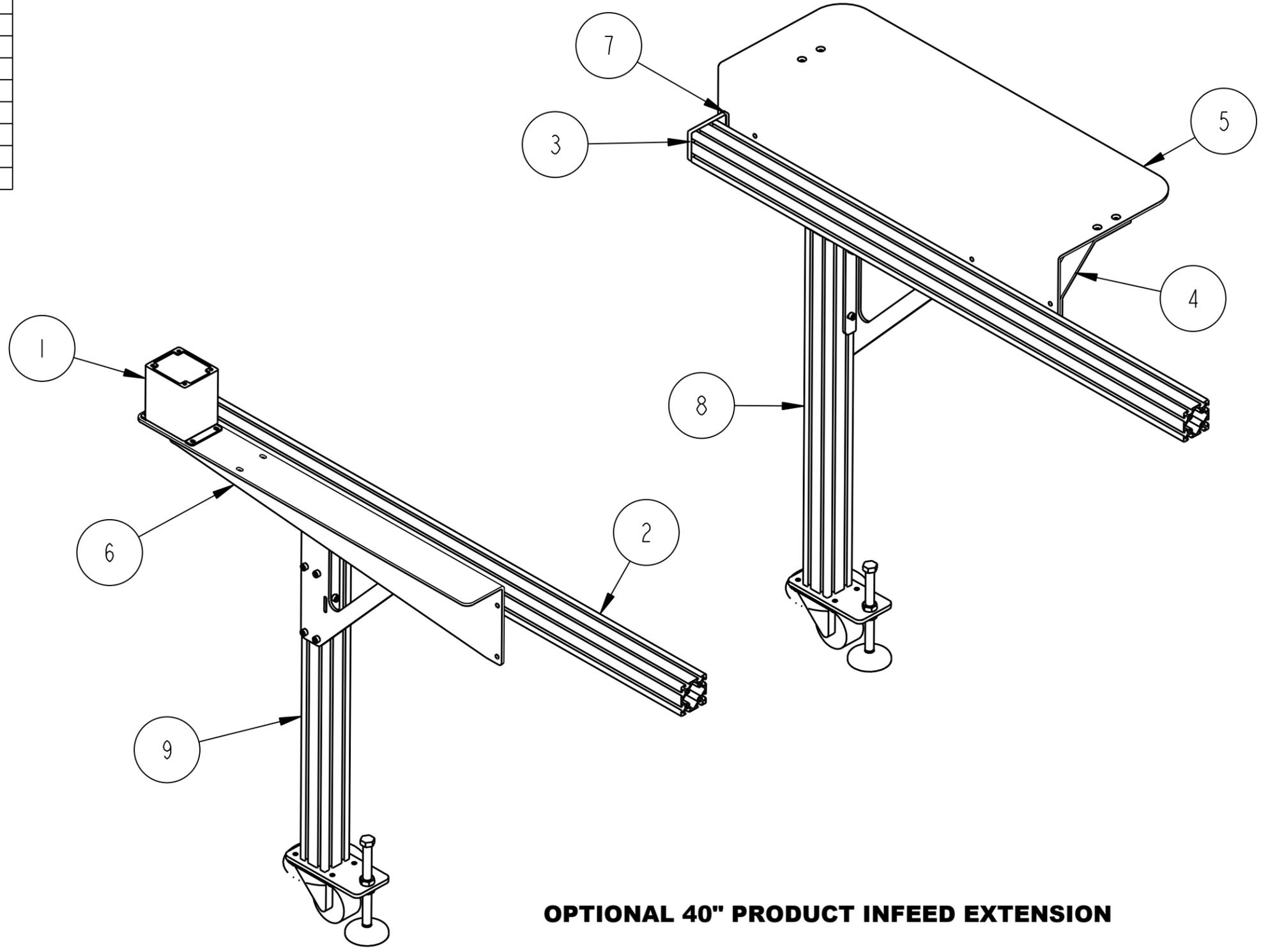
OPTIONAL 30" PRODUCT INFEEED EXTENSION

1	XXX
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.125	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA						
CHECKED BY:	DATE 16-Apr-09		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005	.5	HEAT TREAT: N/A
.XX	.XXX	ANG.										
.01	.005	.5										
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551718-04						

ITEM	QTY	PART #	DESCRIPTION
1	1	200265-1	ELECTRICAL SWITCH BOX, 1 HOLE
2	2	551487-23	EXTRUSION, REAR GUIDE MOUNT
3	2	551539-01	PLATE, CROSS TUBING MOUNT
4	2	551674-02	BRACKET, JOG TABLE SUPPORT
5	1	551719-15	TABLE, JOGGER KR500W
6	1	551719-16	BRACKET, SWITCH BOX
7	2	551720-01	SPACER, REAR BRACKET
8	1	566130-01	ASSY, KR500 LH EXTENSION LEG
9	1	566130-02	ASSY, KR500 RH EXTENSION LEG

REV NO	DATE	DESCRIPTION	ECN NO	BY

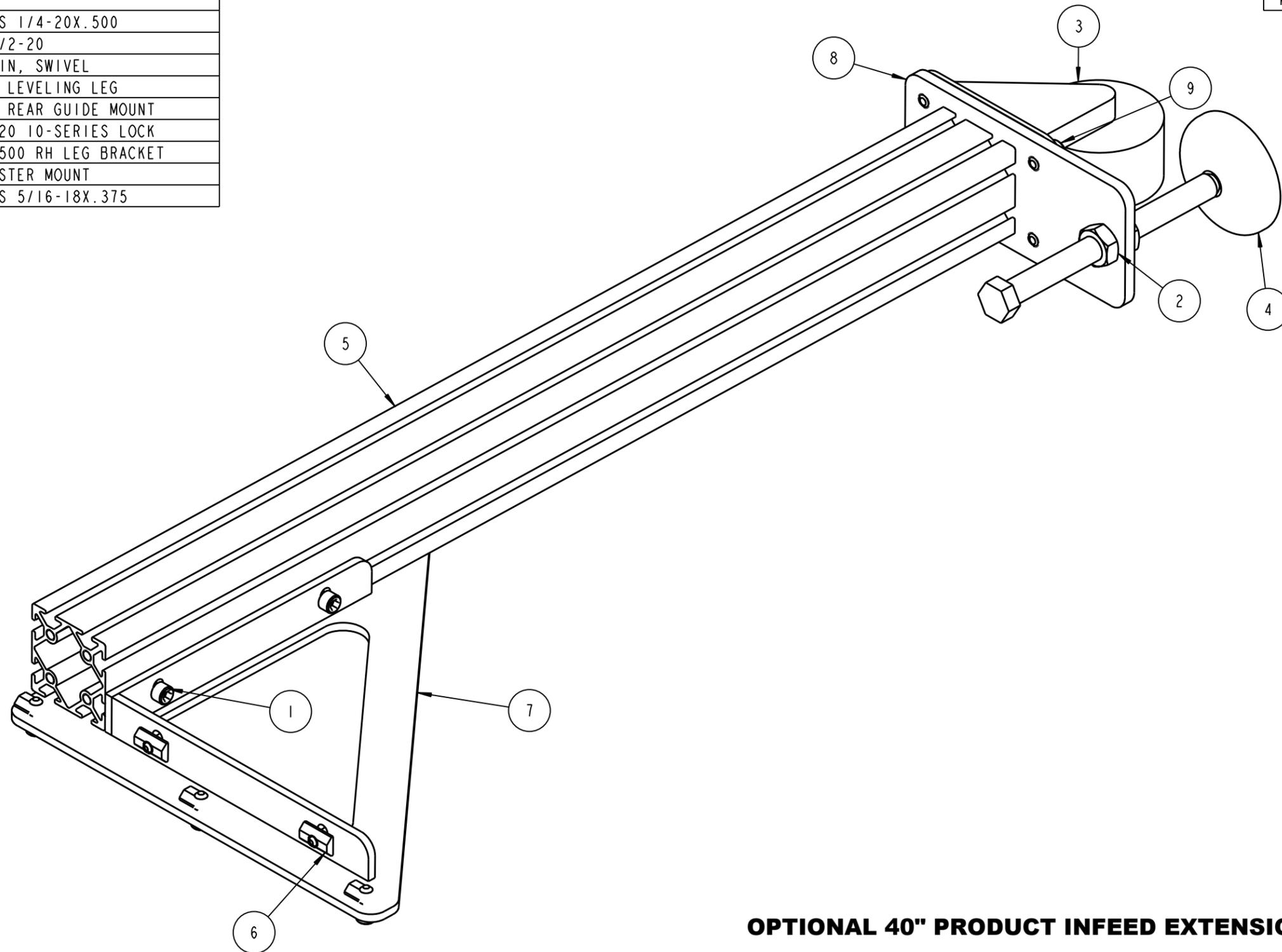


OPTIONAL 40" PRODUCT INFEEED EXTENSION

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.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE Oct-29-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: SA900-1	TITLE: ASSY, KR500 INFEEED EXTENSIOIN							
TRACED BY:	MASTER		FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551718-08						

ITEM	QTY	PART #	DESCRIPTION
1	11	107410	SCREW, SHCS 1/4-20X.500
2	1	108051	NUT, JAM 1/2-20
3	1	190620	CASTER-2.5IN, SWIVEL
4	1	501812-8	ASSY, 1/2" LEVELING LEG
5	1	541487-24	EXTRUSION, REAR GUIDE MOUNT
6	7	545901-03	T-NUT, 80/20 10-SERIES LOCK
7	1	566165-02	WLDMNT, KR500 RH LEG BRACKET
8	1	566168-01	WLDMNT, CASTER MOUNT
9	4	CSDD317	SCREW, SHCS 5/16-18X.375

REV NO	DATE	DESCRIPTION	ECN NO	BY

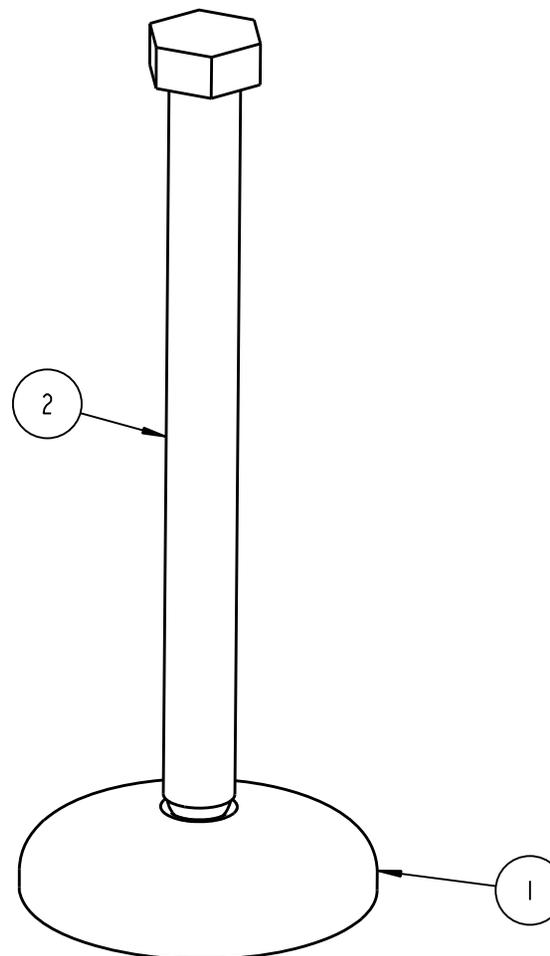


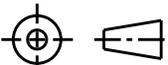
OPTIONAL 40" PRODUCT INFEEED EXTENSION

DRAWN BY: A KEY	SCALE 0.450	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Oct-29-24	.XX .XXX ANG. .01 .005 .5	HEAT TREAT: N/A	MODEL: KR500EW	TITLE: ASSY, KR500 RH EXTENSION LEG	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 566130-02
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY				

ITEM	QTY	PART #	DESCRIPTION
1	1	190634	FOOT, MOUNTING
2	1	501812-1	LEG, LEVELING

REV NO	DATE	DESCRIPTION	ECN NO	BY

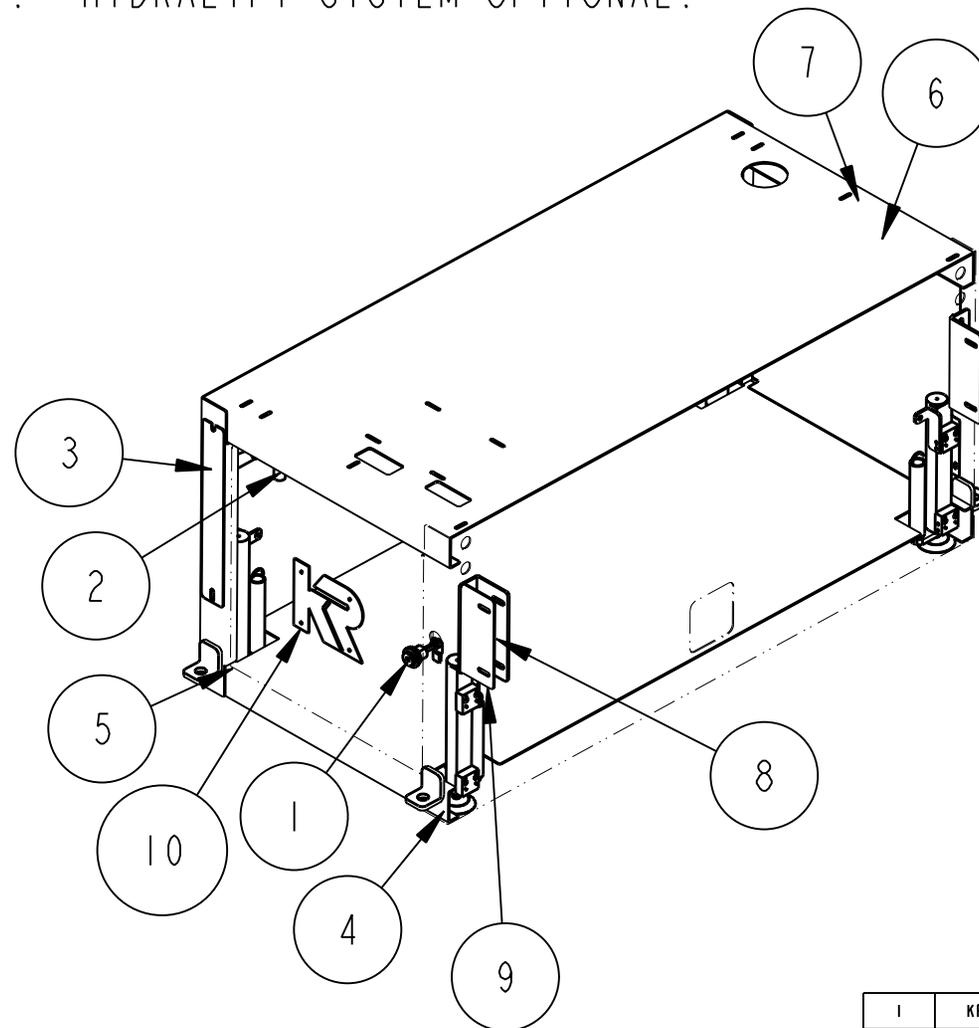
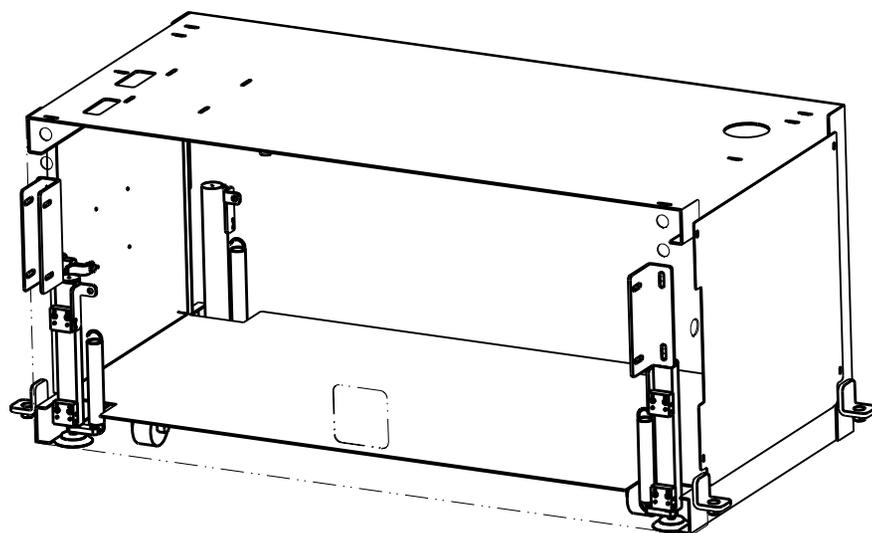


DRAWN BY: A KEY	SCALE 0.750	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.XX	.XXX	ANG.				
CHECKED BY:	DATE May-04-18	.01	.005	.5	HEAT TREAT: N/A	MODEL: 519	TITLE: ASSY, 1/2" LEVELING LEG	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 501812-8

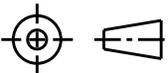
ITEM	QTY	PART #	DESCRIPTION
1	1	190689-1	DOOR LATCH
2	1	191029-1	PUMP, MOVOTEC PB4612FC
3	1	537344-02	COVER, LIFT KIT HOLE
4	2	539424-01	ASSY, RH HYDRALIFT LEG
5	2	539425-01	ASSY, LH HYDRALIFT LEG
6	1	551581-04	WLDMT, KR500W CABINET
7	1	551586-02	PANEL, REAR KR500 CABINET
8	2	551592-06	L-BRACKET, KR500W CABINET
9	1	551592-12	L-BRACKET, KR500W CABINET
10	1	560300-01	LOGO, KR

REV NO	DATE	DESCRIPTION	ECN NO	BY
1	11/05/2020	ADDED KR LOGO 560300-01	9892	MK

NOTES:
1. HYDRALIFT SYSTEM OPTIONAL.

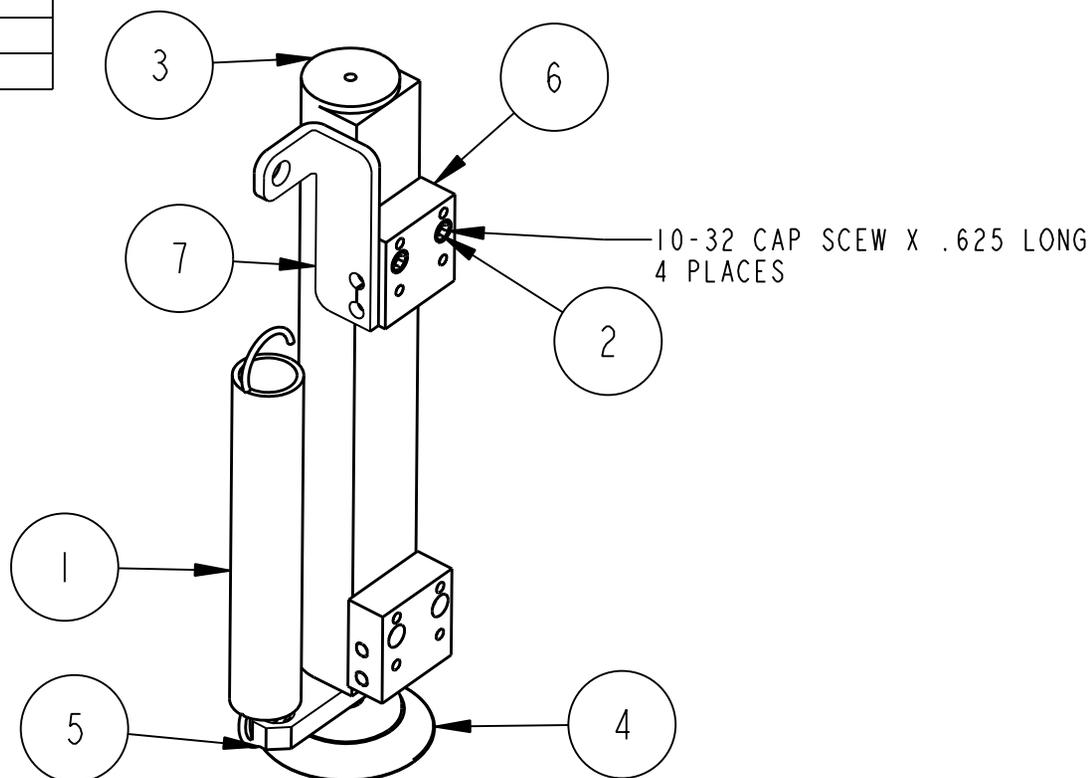


1	KR500W
REQ'D	WHERE USED

DRAWN BY: TJG	SCALE 0.080	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM OR REPRODUCED WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE 15-Apr-09		HEAT TREAT: N/A	MODEL: SA900-1	TITLE: ASSY, KR500W CABINET & COVERS	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO.: 1 OF 1	DRAWING # 551580-04	

ITEM	QTY	PART #	DESCRIPTION
1	1	102792	SPRING, EXTENSION
2	2	107429	SCREW, SHCS 10-32X.625
3	1	191029-2	CYLINDER, LIFT CB415
4	1	191029-3	PAD, LEVELING
5	1	537371-01	BRACKET, SPRING RETURN MOUNT
6	2	537596-01	BLOCK, HYDRAULIC LIFT LH
7	1	537597-02	BRACKET, HYDRAULIC LIFT SPRING

REV NO	DATE	DESCRIPTION	ECN NO	BY



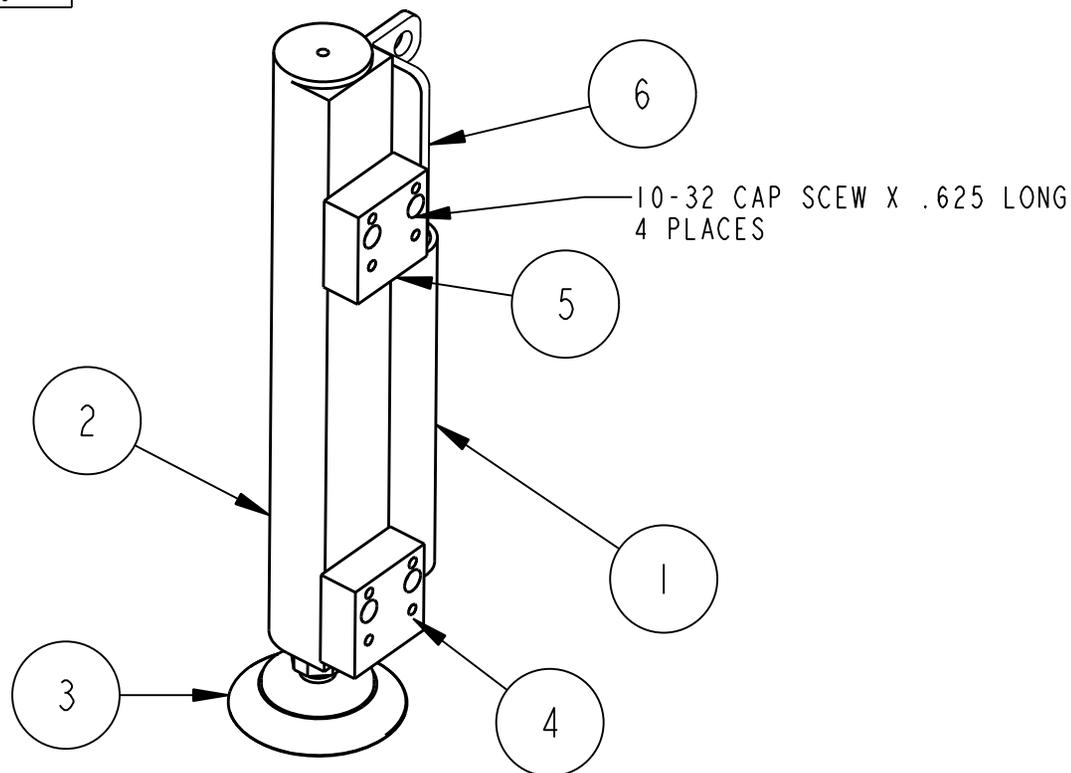
OPTIONAL HYDRALIFT

2	SP84700
REQ'D	WHERE USED

DRAWN BY: A KEY	SCALE 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.XX	.XXX	ANG.				
CHECKED BY:	DATE 26-Jul-00	.01	.005	.5	HEAT TREAT: N/A	MODEL: SP84700	TITLE: ASSY, LH HYDRALIFT LEG	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 539425-01
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY						

ITEM	QTY	PART #	DESCRIPTION
1	1	102792	SPRING, EXTENSION
2	1	191029-2	CYLINDER, LIFT CB415
3	1	191029-3	PAD, LEVELING
4	1	537371-01	BRACKET, SPRING RETURN MOUNT
5	2	537596-02	BLOCK, HYDRAULIC LIFT RH
6	1	537597-01	BRACKET, HYDRAULIC LIFT SPRING

REV NO	DATE	DESCRIPTION	ECN NO	BY



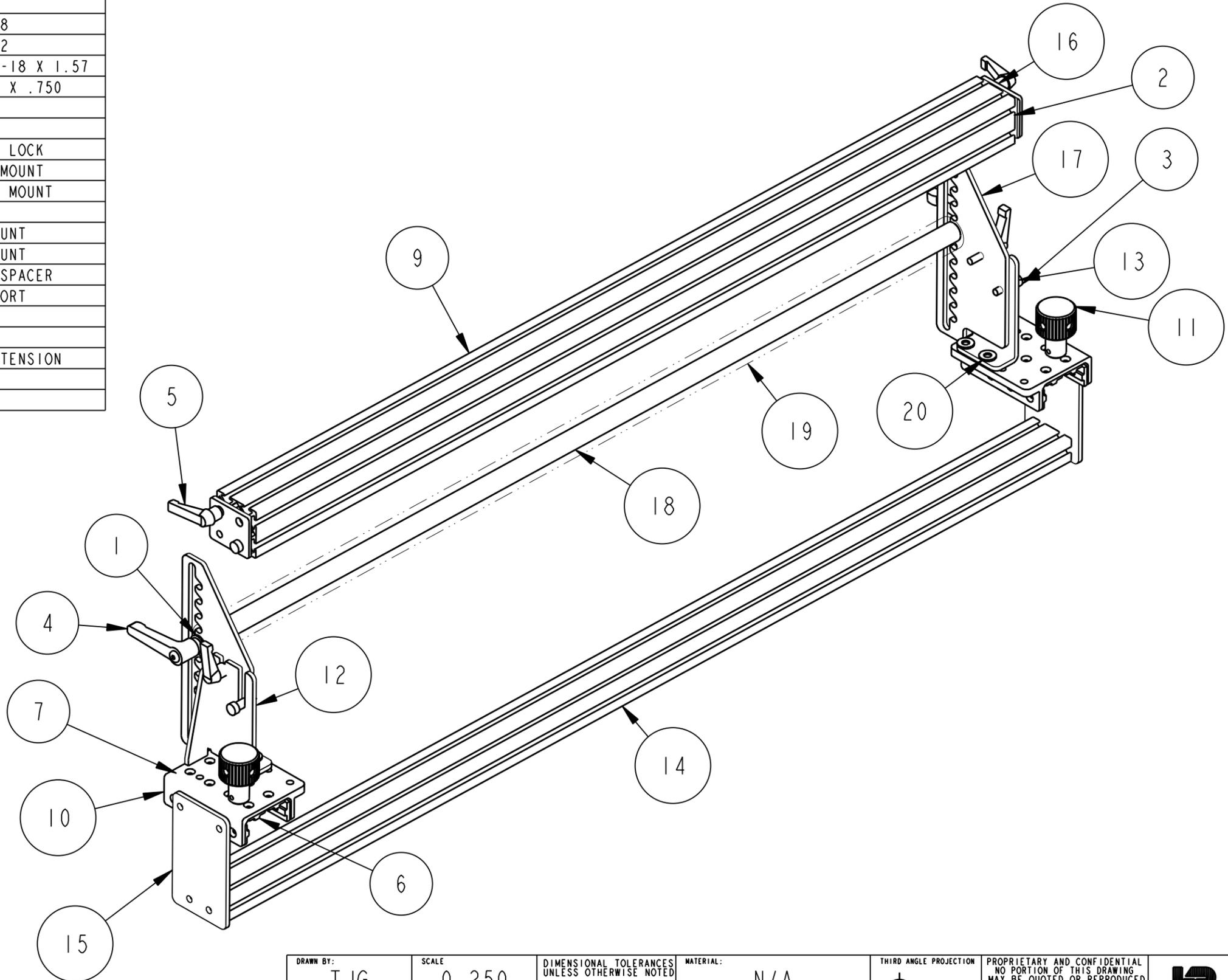
OPTIONAL HYDRALIFT

2	SP84700
REQ'D	WHERE USED

DRAWN BY: A KEY	SCALE 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA						
CHECKED BY:	DATE 26-Jul-00		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005	.5	HEAT TREAT: N/A
.XX	.XXX	ANG.										
.01	.005	.5										
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 539424-01						

ITEM	QTY	PART #	DESCRIPTION
1	2	100624	WASHER, FLAT 5/16
2	2	107101	BOLT, SHOULDER 5/16X3/8
3	2	107102	BOLT, SHOULDER 5/16X1/2
4	2	191944	HANDLE, QUICK ADJ 5/16-18 X 1.57
5	4	102140-2	HANDLE, RELEASE 1/4-20 X .750
6	14	545899-01	GLIDE, HEAD MOUNT
7	2	545899-02	GLIDE, HEAD MOUNT
8	2	545901-03	T-NUT, 80/20 10-SERIES LOCK
9	1	551487-21	EXTRUSION, REAR GUIDE MOUNT
10	2	551490-03	EXTRUSION, 2020 INKJET MOUNT
11	2	551510-03	KNOB, GUIDE CLAMP
12	1	551537-07	PLATE, CROSS TUBING MOUNT
13	1	551537-08	PLATE, CROSS TUBING MOUNT
14	1	551677-03	EXTRUSION, REAR GUIDE SPACER
15	2	551678-01	PLATE, REAR GUIDE SUPPORT
16	2	561329-01	WASHER, KR519 INFEED
17	2	561330-01	PLATE, KR500 ROLLER
18	1	561331-01	SHAFT, KR500 INFEED EXTENSION
19	1	566129-01	ROLLER, PRODUCT GUIDE
20	4	WA009	WASHER, FLAT 1/4

REV NO	DATE	DESCRIPTION	ECN NO	BY

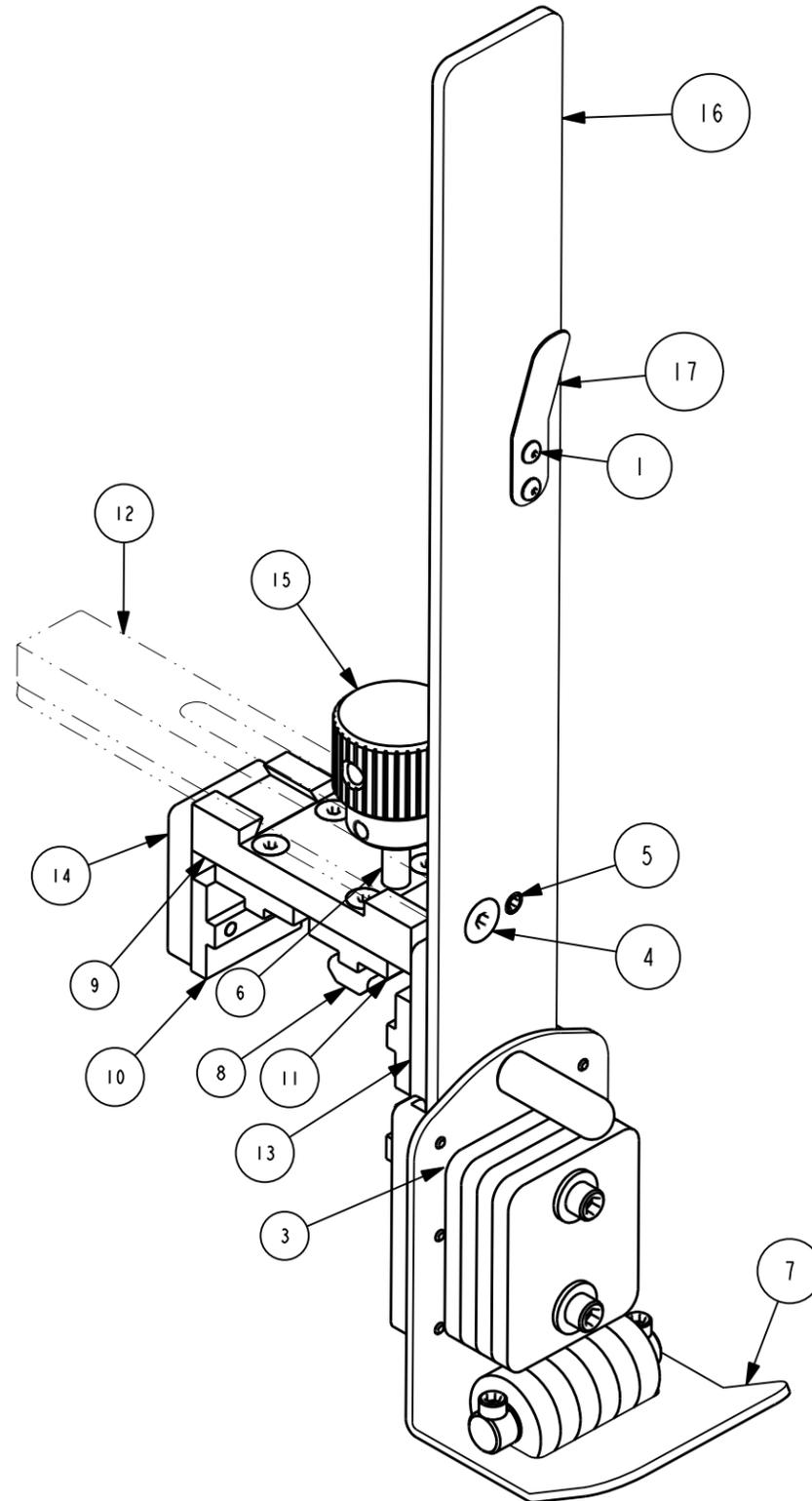


OPTIONAL REAR PRODUCT SUPPORT

DRAWN BY: TJG	SCALE: 0.250	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED <table border="1"> <tr> <td>.XX</td> <td>.XXX</td> <td>ANG.</td> </tr> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </table>	.XX	.XXX	ANG.	.01	.005	.5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE: Jul-17-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: SA900-1	TITLE: ASSY, REAR GUIDE MOUNT	SHEET NO. 1 OF 1						
TRACED BY:	MASTER	FINISH: N/A		DRAWING # 551529-08								

ITEM	QTY	PART #	DESCRIPTION
1	2	106821	SCREW, BUTTON HEAD #6-32X.250
2	4	107409	SCREW, SHCS 10-32X.500
3	10	107501	SCREW, FLATHEAD 10-32X.750
4	1	107504	SCREW, FLATHEAD 1/4-20X.500
5	1	107696	SCREW, SET 1/4-20X.875
6	1	108111	SCREW, SET 5/16-18X2.500
7	1	543357-08	ASSY, PRODUCT WEIGHT
8	1	545901-02	T-NUT, 80/20 15-SERIES LOCK
9	1	551319-02	BAR, DOVETAIL GATE ADJUSTMENT
10	4	551504-03	GLIDE, 15-SERIES 80/20
11	1	551504-04	GLIDE, 15-SERIES W/LOCK HOLE
12	1	551508-01	BAR, PRODUCT GATE MOUNT
13	1	551509-01	BAR, 3030 GUIDE
14	1	551509-02	BAR, 3030 GUIDE
15	1	551510-01	KNOB, GUIDE CLAMP
16	1	566124-01	GUIDE, PRODUCT WEIGHT
17	1	566128-01	CATCH, SPRING STEEL

REV NO	DATE	DESCRIPTION	ECN NO	BY



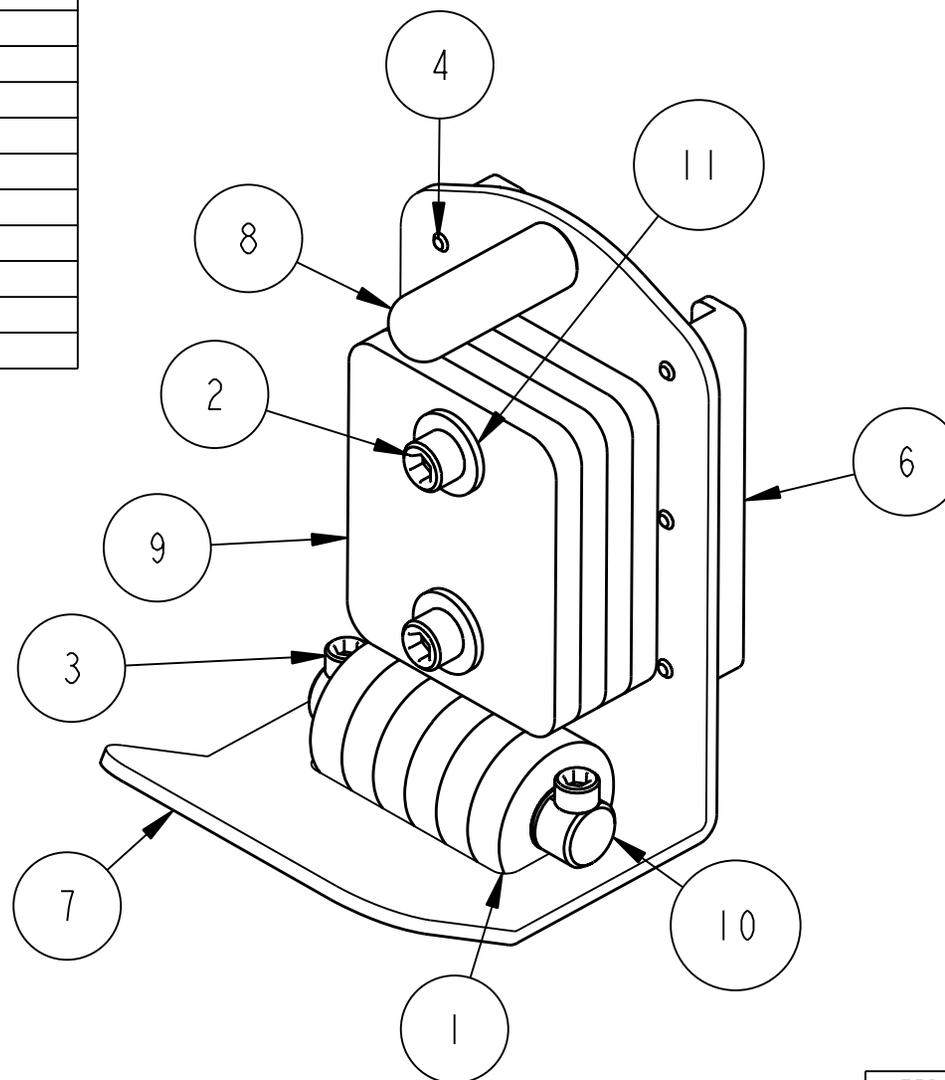
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CHECKED BY:	DATE Jul-17-24	.XX .XXX ANG. .01 .005 .5	HEAT TREAT: N/A	MODEL: KR500	TITLE: ASSY, PRODUCT WIEGHT	
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 551505-13

OPTIONAL PRODUCT WEIGHT

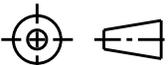
ITEM	QTY	PART #	DESCRIPTION
1	6	103108	BEARING, FLAT .500
2	2	107402	SCREW, SHCS 1/4-20X1.250
3	2	107429	SCREW, SHCS 10-32X.625
4	6	107436	SCREW, SHCS 6-32X.500
5	1	107500	SCREW, FLATHEAD 10-32X.500
6	2	543354-01	GUIDE, WEIGHT SLIDE
7	1	543355-08	PLATE, SLIDE MOUNT
8	1	565839-01	HANDLE, BELT SUPPORT
9	4	566126-01	WEIGHT, PRODUCT
10	1	566127-01	SHAFT, PRODUCT WEIGHT ROLLER
11	2	WA009	WASHER, FLAT 1/4

REV NO	DATE	DESCRIPTION	ECN NO	BY



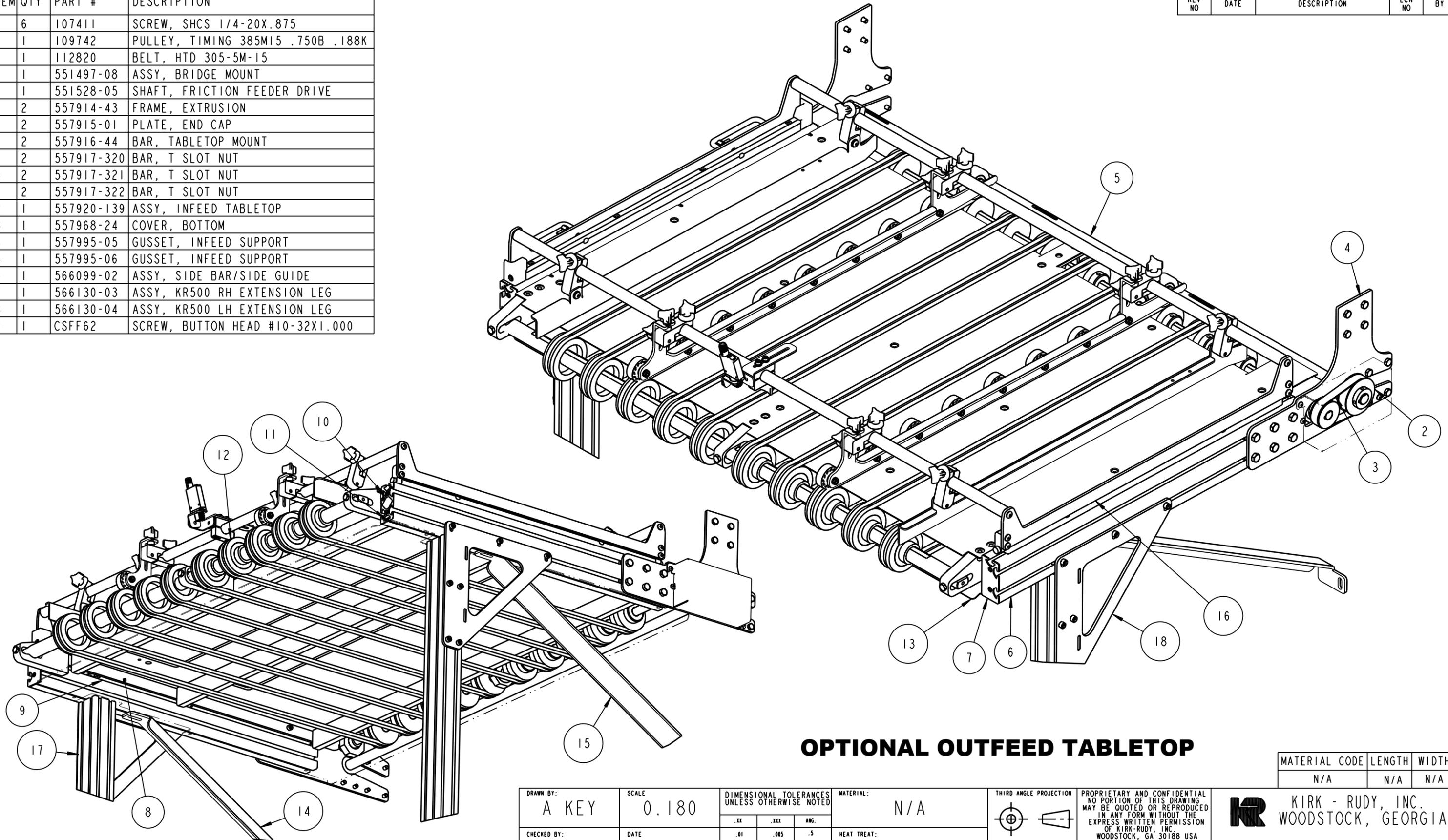
OPTIONAL PRODUCT WEIGHT

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.XX	.XXX		ANG.									
.01	.005	.5										
CHECKED BY:	DATE Jul-17-24	HEAT TREAT: N/A	MODEL: KR500	TITLE: ASSY, PRODUCT WEIGHT								
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 543357-08						

ITEM	QTY	PART #	DESCRIPTION
1	6	107411	SCREW, SHCS 1/4-20X.875
2	1	109742	PULLEY, TIMING 385MI5 .750B .188K
3	1	112820	BELT, HTD 305-5M-15
4	1	551497-08	ASSY, BRIDGE MOUNT
5	1	551528-05	SHAFT, FRICTION FEEDER DRIVE
6	2	557914-43	FRAME, EXTRUSION
7	2	557915-01	PLATE, END CAP
8	2	557916-44	BAR, TABLETOP MOUNT
9	2	557917-320	BAR, T SLOT NUT
10	2	557917-321	BAR, T SLOT NUT
11	2	557917-322	BAR, T SLOT NUT
12	1	557920-139	ASSY, INFEED TABLETOP
13	1	557968-24	COVER, BOTTOM
14	1	557995-05	GUSSET, INFEED SUPPORT
15	1	557995-06	GUSSET, INFEED SUPPORT
16	1	566099-02	ASSY, SIDE BAR/SIDE GUIDE
17	1	566130-03	ASSY, KR500 RH EXTENSION LEG
18	1	566130-04	ASSY, KR500 LH EXTENSION LEG
19	1	CSFF62	SCREW, BUTTON HEAD #10-32X1.000

REV NO	DATE	DESCRIPTION	ECN NO	BY



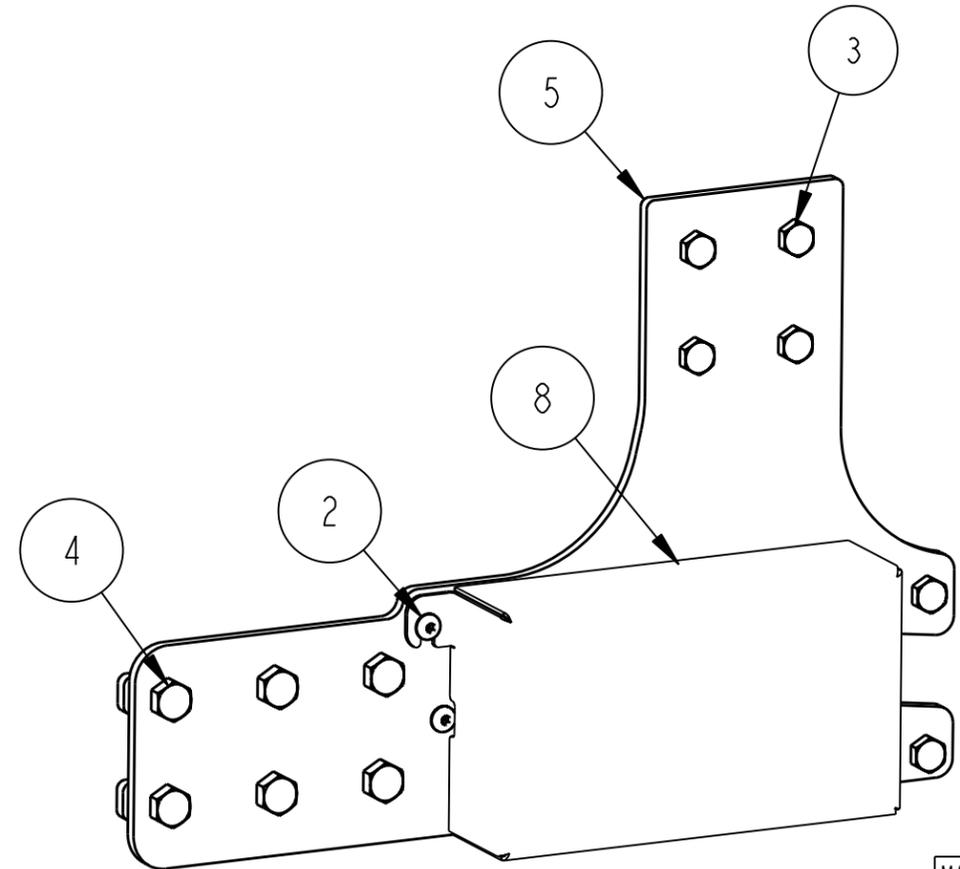
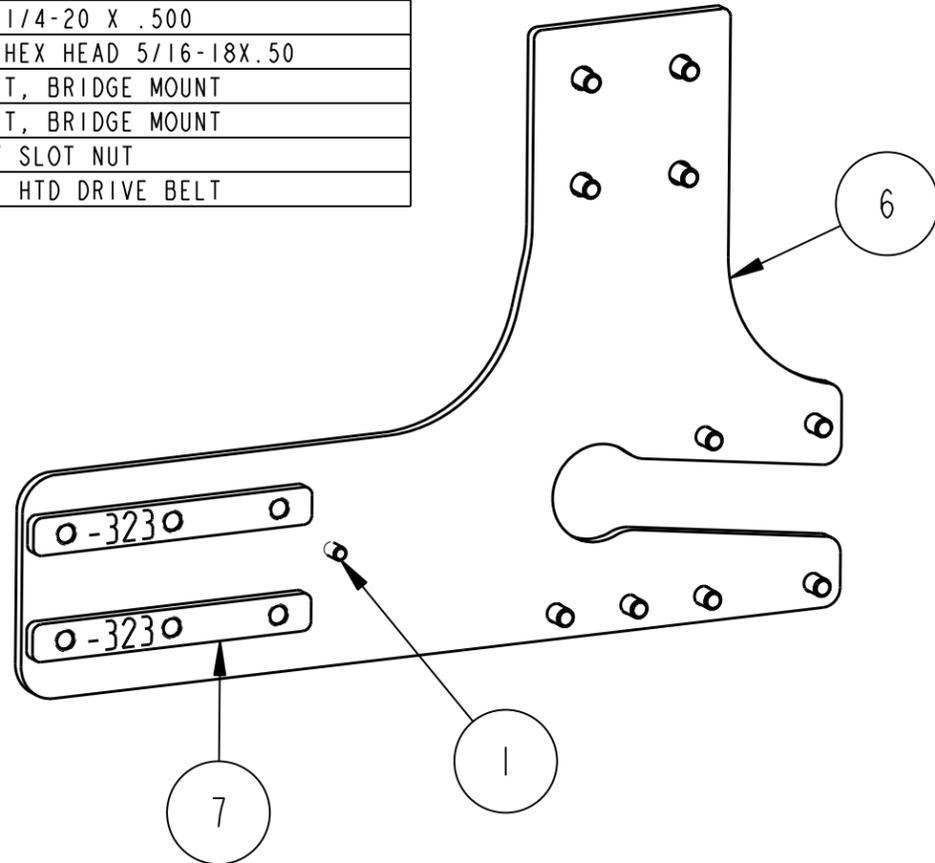
OPTIONAL OUTFEED TABLETOP

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DRAWN BY: A KEY	SCALE 0.180	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Apr-14-25	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: 619	TITLE: ASSY, KR500EW OUTFEED TABLE	
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 5		DRAWING # 566228-01

ITEM	QTY	PART #	DESCRIPTION
1	2	106810	SCREW, BUTTON HEAD #10-32X.500
2	2	106811	SCREW, BUTTON HEAD #10-32X.250
3	20	107327	BOLT, 1/4-20 X .500
4	12	107347	BOLT, HEX HEAD 5/16-18X.50
5	1	551540-10	BRACKET, BRIDGE MOUNT
6	1	551540-11	BRACKET, BRIDGE MOUNT
7	4	557917-323	BAR, T SLOT NUT
8	1	566230-01	COVER, HTD DRIVE BELT

REV NO	DATE	DESCRIPTION	ECN NO	BY



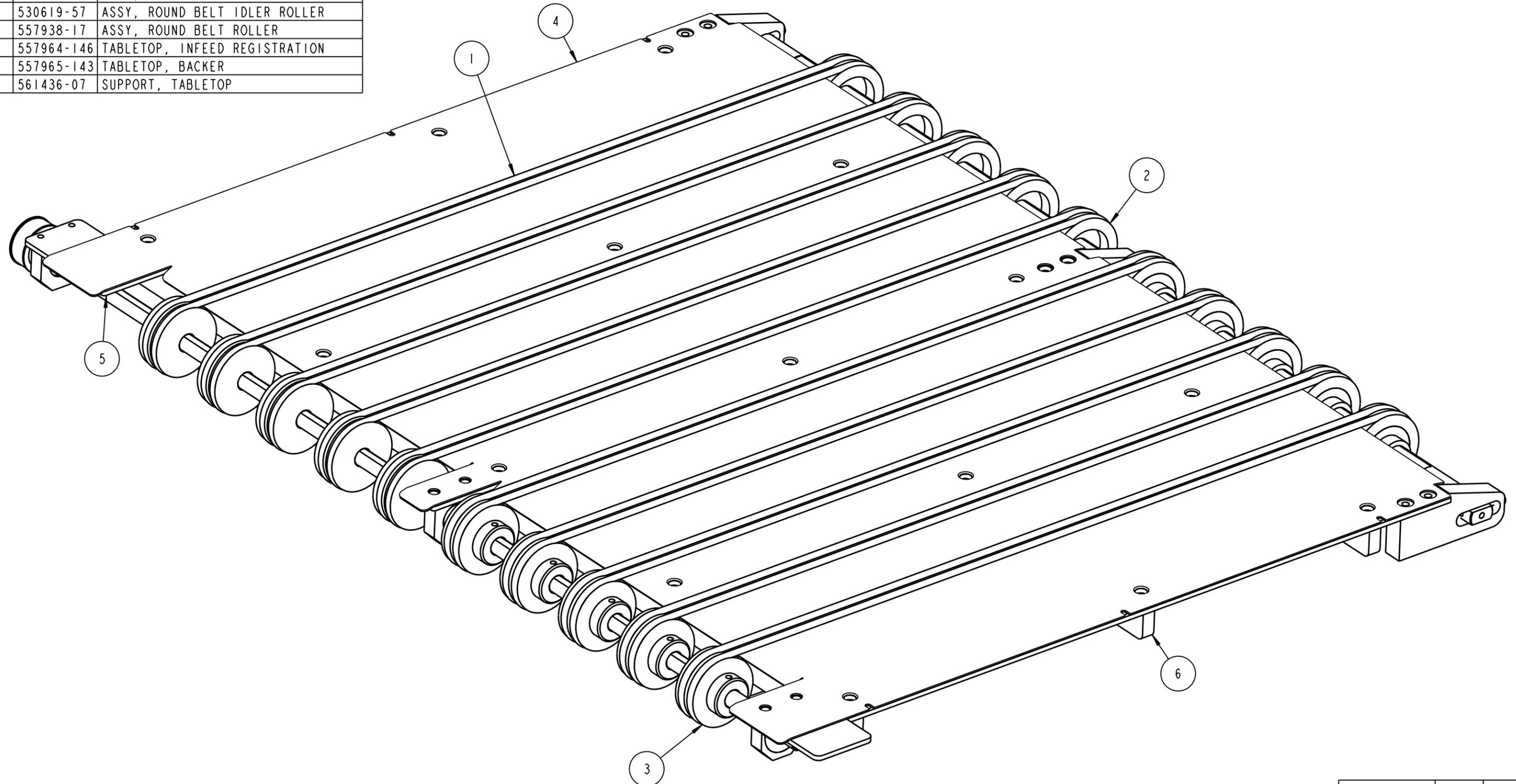
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OPTIONAL OUTFEED TABLETOP

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.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE Apr-14-25	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: 500EW	TITLE: ASSY, BRIDGE MOUNT	SHEET NO. 1 OF 1						
TRACED BY:	MASTER	FINISH: N/A	DRAWING # 551497-08		DRAWING # 551497-08	DRAWING # 551497-08						

ITEM	QTY	PART #	DESCRIPTION
1	20	112810-2	BELT, ROUND 6MM X 62.5"
2	1	530619-57	ASSY, ROUND BELT IDLER ROLLER
3	1	557938-17	ASSY, ROUND BELT ROLLER
4	1	557964-146	TABLETOP, INFEED REGISTRATION
5	1	557965-143	TABLETOP, BACKER
6	3	561436-07	SUPPORT, TABLETOP

REV NO	DATE	DESCRIPTION	ECN NO	BY



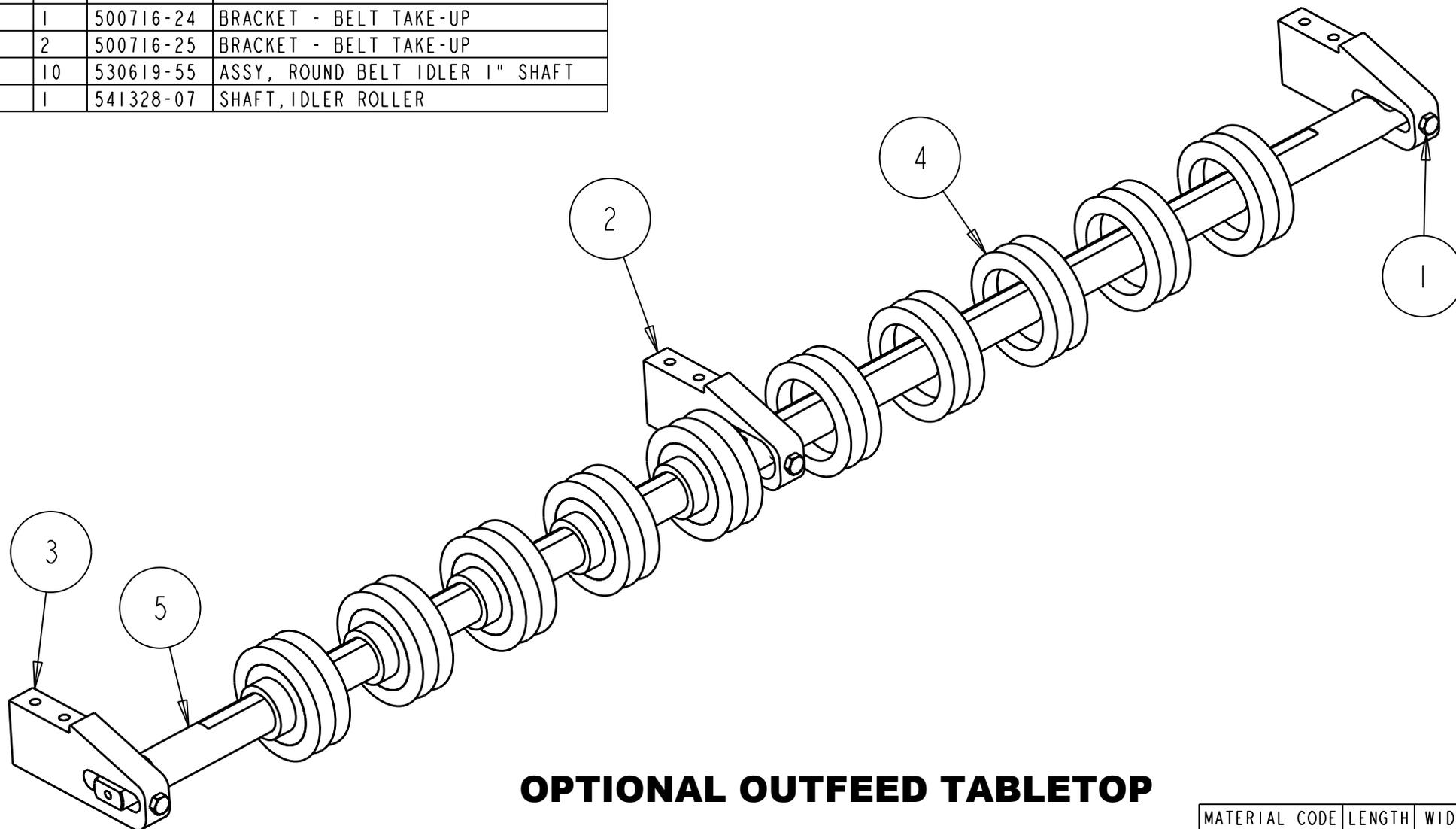
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OPTIONAL OUTFEED TABLETOP

DRAWN BY: A KEY	SCALE 0.300	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Apr-14-25	.XX .XXX ANG. .01 .005 .5 REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	MODEL: 619	TITLE: ASSY, INFEED TABLETOP	
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 557920-139

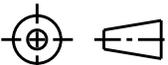
ITEM	QTY	PART #	DESCRIPTION
1	3	107325	HEX HEAD BOLT
2	1	500716-24	BRACKET - BELT TAKE-UP
3	2	500716-25	BRACKET - BELT TAKE-UP
4	10	530619-55	ASSY, ROUND BELT IDLER 1" SHAFT
5	1	541328-07	SHAFT, IDLER ROLLER

REV NO	DATE	DESCRIPTION	ECN NO	BY



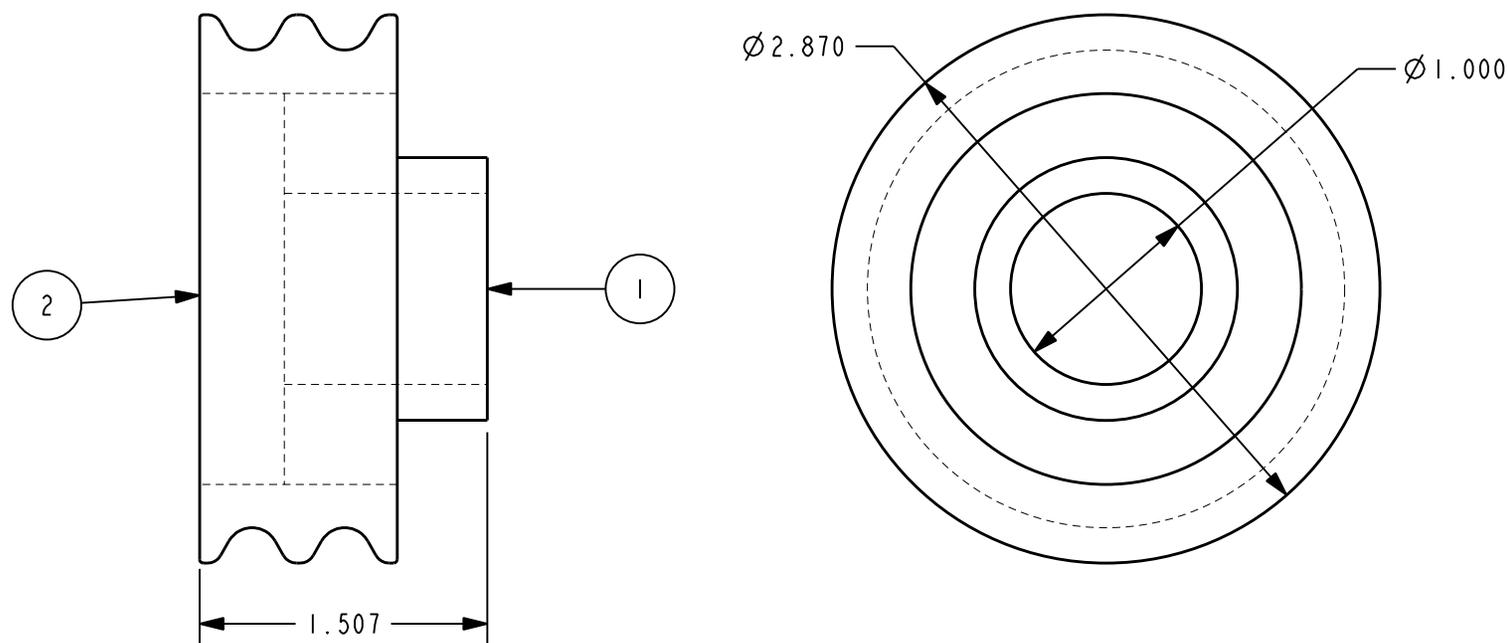
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.XX	.XXX		ANG.									
.01	.005	.5										
CHECKED BY:	DATE Jul-11-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: 500EW	TITLE: ASSY, ROUND BELT IDLER ROLLER							
TRACED BY:	MASTER		FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 530619-57						

ITEM	QTY	PART #	DESCRIPTION
1	1	103808	BEARING, HUB 1.000
2	1	547663-07	PULLEY, ROUND BELT IDLER

REV NO	DATE	DESCRIPTION	ECN NO	BY



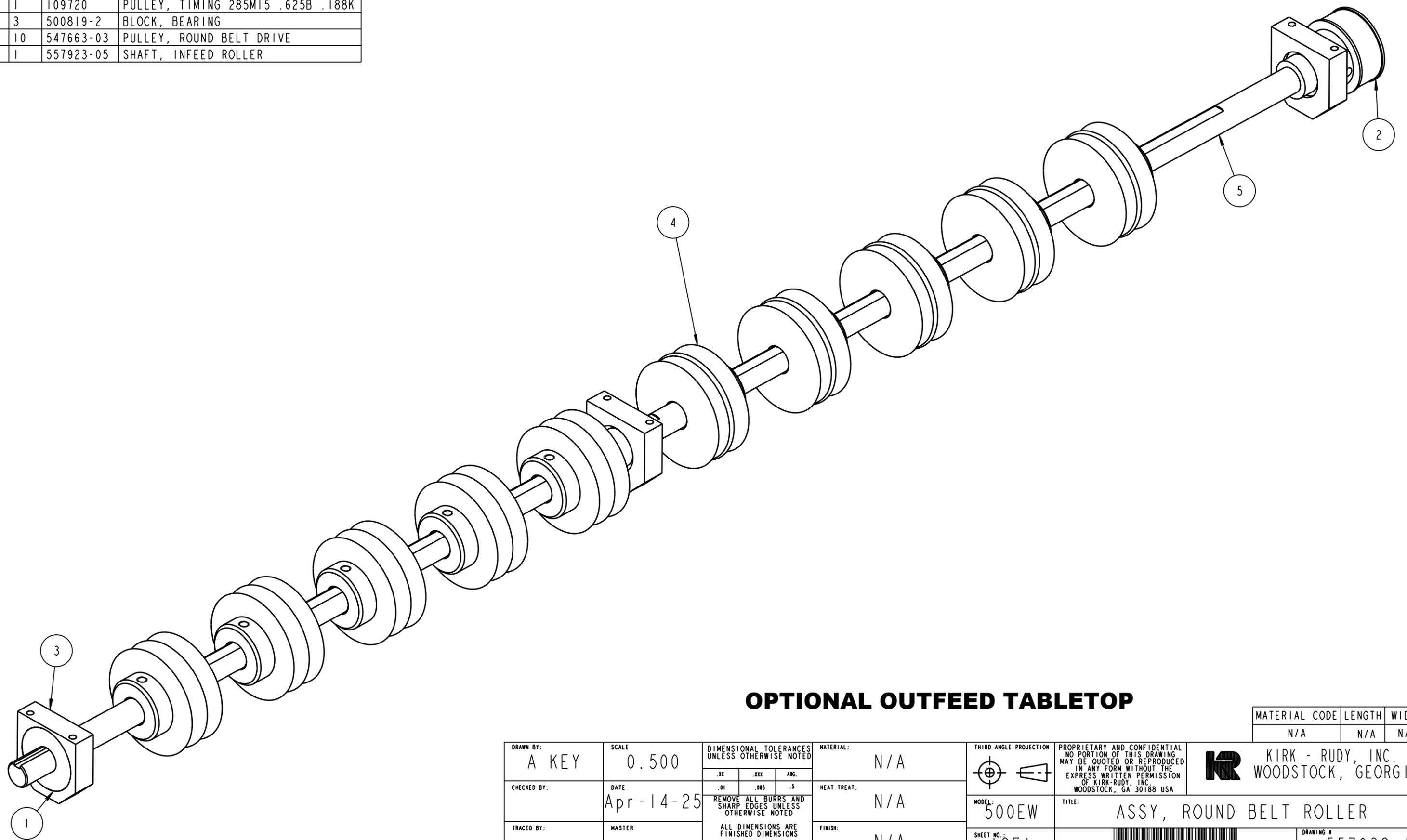
OPTIONAL OUTFEED TABLETOP

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DRAWN BY: JPM	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED .XX .XXX ANG. .01 .005 .5	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Jul-11-24		HEAT TREAT: N/A	MODEL: 835	TITLE: ASSY, ROUND BELT IDLER 1" SHAFT	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 530619-55

ITEM	QTY	PART #	DESCRIPTION
1	3	103804	BEARING, HUB .625
2	1	109720	PULLEY, TIMING 285MI5 .625B .188K
3	3	500819-2	BLOCK, BEARING
4	10	547663-03	PULLEY, ROUND BELT DRIVE
5	1	557923-05	SHAFT, INFEED ROLLER

REV NO	DATE	DESCRIPTION	ECN NO	BY



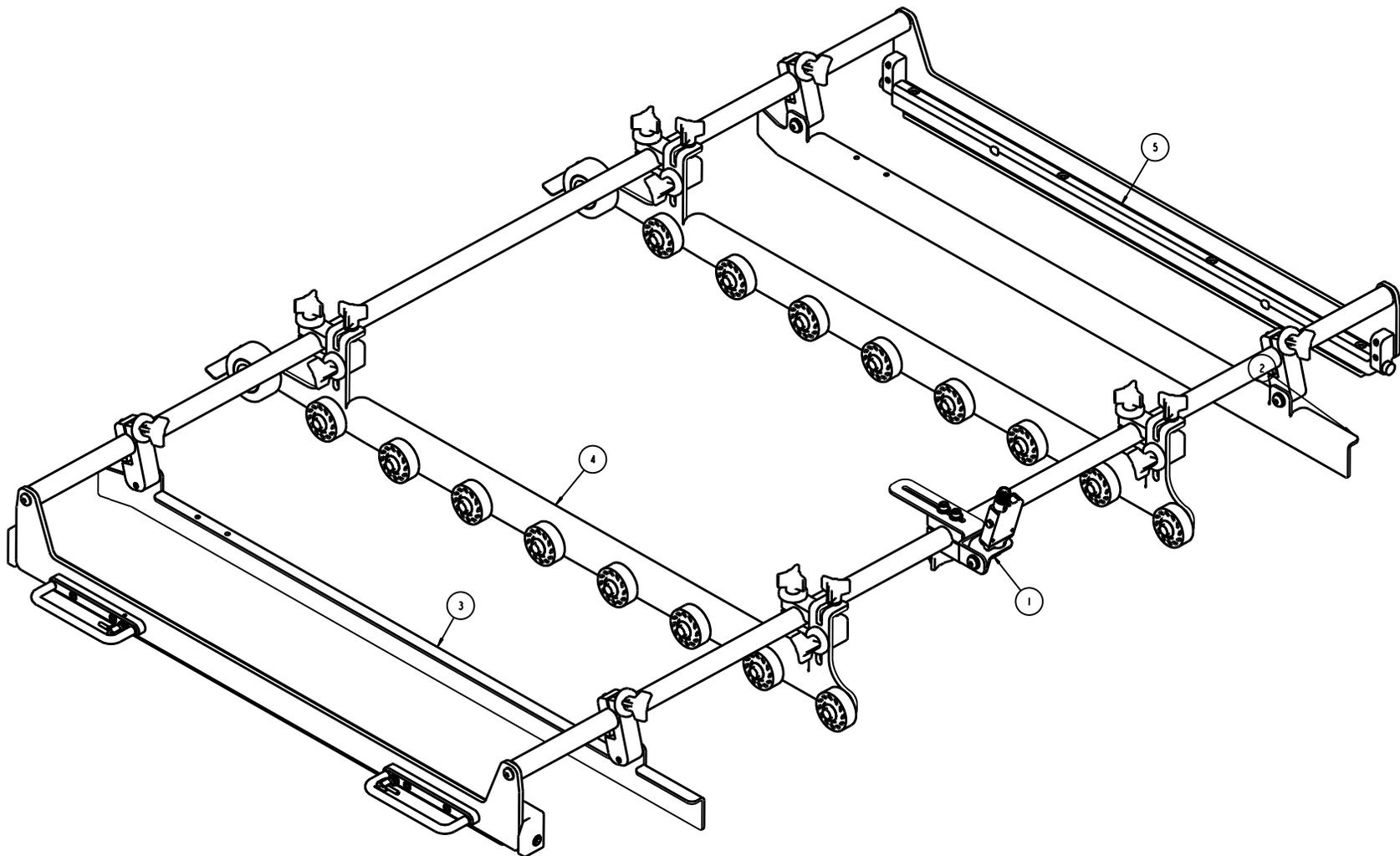
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.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE Apr-14-25	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: 500EW	TITLE: ASSY, ROUND BELT ROLLER	SHEET NO. 1 OF 1						
TRACED BY:	MASTER	FINISH: N/A		DRAWING # 557938-17								

ITEM	QTY	PART #	DESCRIPTION
1	1	535209-25	ASSY, SENSOR CLAMP BRACKET .75"
2	1	557934-44	ASSY, LH SIDEGUIDE 31.75"
3	1	557934-46	ASSY, RH SIDEGUIDE 31.75"
4	2	559100-33	ASSY, NO CRUSH ROLLER SKID BAR
5	1	566109-04	ASSY, OPENING SKID BAR MOUNT

REV NO	DATE	DESCRIPTION	ECN NO	BY



OPTIONAL OUTFEED TABLETOP

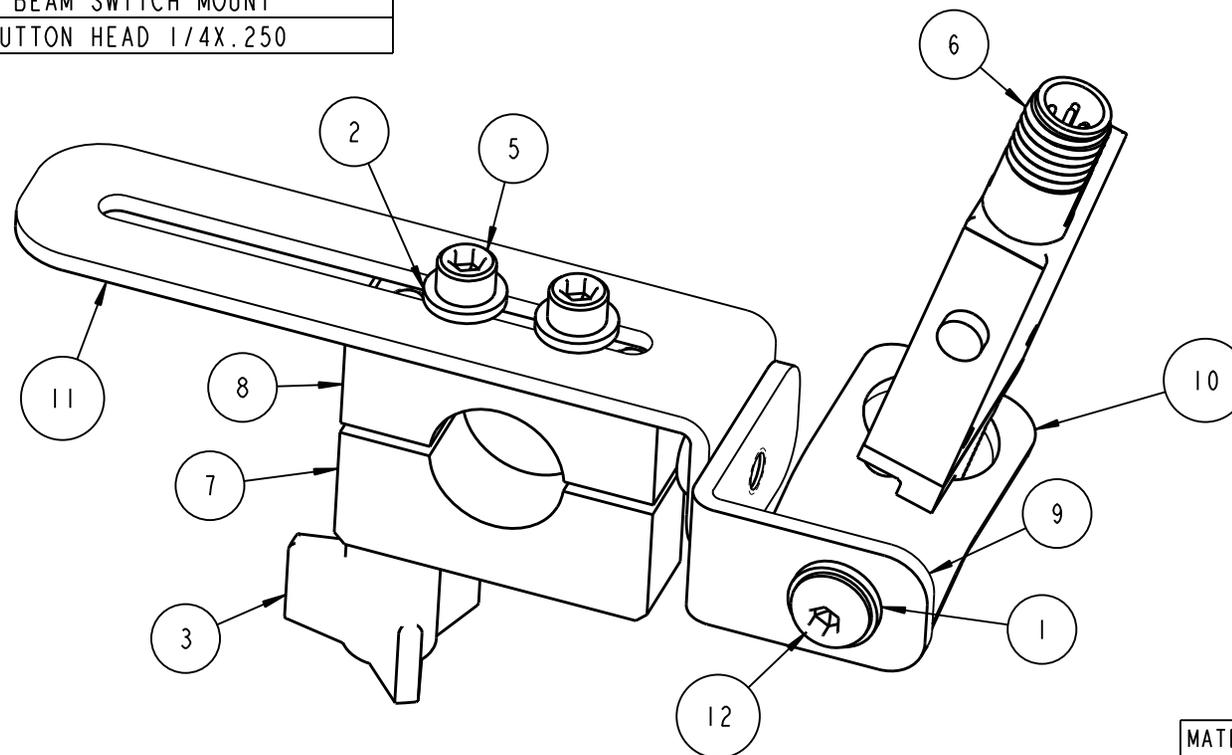
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FORM BY: A KEY	SCALE 0.375	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED -.01 .012 .015	MATERIAL: N/A	THIRD ANGLE PROJECTION	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING IS TO BE COPIED OR REPRODUCED OR SET OFF IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF KIRK - RUDY, INC. WOODSTOCK, GA 30188 USA	 KIRK - RUDY, INC. WOODSTOCK, GEORGIA
CHECKED BY:	DATE Apr-14-25	REWORK ALL DIMS AND SAFETY CHECK UNLESS OTHERWISE NOTED	HEAT TREAT: N/A	NO. 500EW	TITLE: ASSY, SIDE BAR/SIDE GUIDE	
DRAWN BY:	INSTR	ALL DIMENSIONS ARE FOLLOWING DIMENSIONS DO NOT SCALE - DONE TO DIMENSIONS ONLY	FINISH: N/A	SHEET 1 OF 2	REV. 2 566099-02	

ITEM	QTY	PART #	DESCRIPTION
1	2	100603	WASHER, FLAT 1/4ID
2	2	100619	WASHER, FLAT 10-32
3	1	102151	KNOB, HAND 3 PRONG 10-32 X 1.25
4	1	107406	SCREW, SHCS 10-32X1.250
5	2	107409	SCREW, SHCS 10-32X.500
6	1	202261-47	BANNER, SWITCH SME312DQD
7	1	535209-03	BLOCK, CLAMP BOTTOM
8	1	535209-04	BLOCK, CLAMP TOP
9	1	554974-28	BRACKET, BEAM SWITCH
10	1	557974-28	BRACKET, BEAM SWITCH
11	1	566231-01	BRACKET, BEAM SWITCH MOUNT
12	2	CSFF63	SCREW, BUTTON HEAD 1/4X.250

REV NO	DATE	DESCRIPTION	ECN NO	BY

OPTIONAL OUTFEED TABLETOP

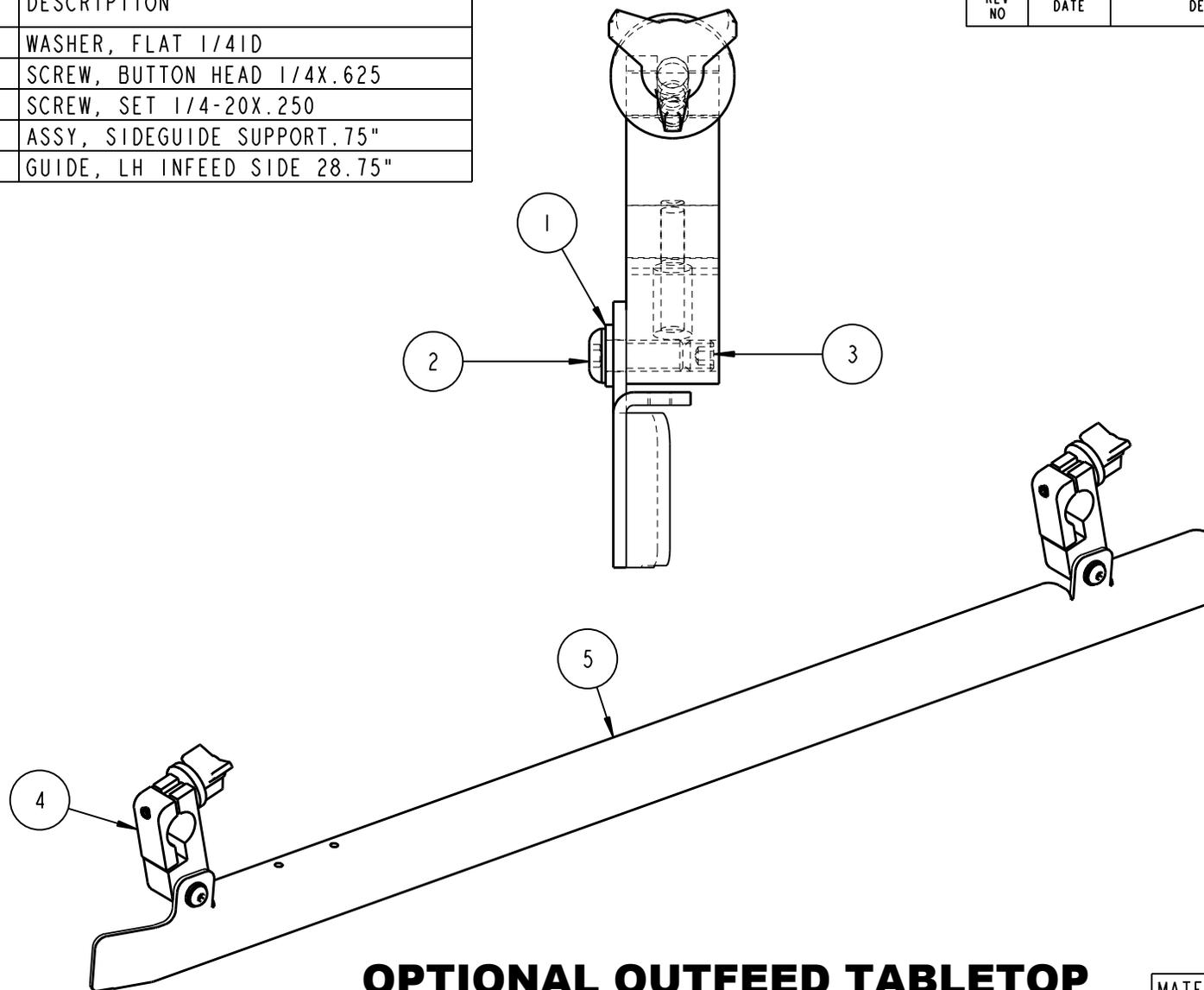


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DRAWN BY: A KEY	SCALE 1.000	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED			MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA
		.XX	.XXX	ANG.				
CHECKED BY:	DATE Apr-14-25	.01	.005	.5	HEAT TREAT: N/A	MODEL: GEN	TITLE: ASSY, SENSOR CLAMP BRACKET .75"	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 535209-25
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY						

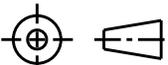
ITEM	QTY	PART #	DESCRIPTION
1	2	100603	WASHER, FLAT 1/4ID
2	2	106815	SCREW, BUTTON HEAD 1/4X.625
3	2	107633	SCREW, SET 1/4-20X.250
4	2	538403-19	ASSY, SIDEGUIDE SUPPORT .75"
5	1	557933-92	GUIDE, LH INFEEED SIDE 28.75"

REV NO	DATE	DESCRIPTION	ECN NO	BY



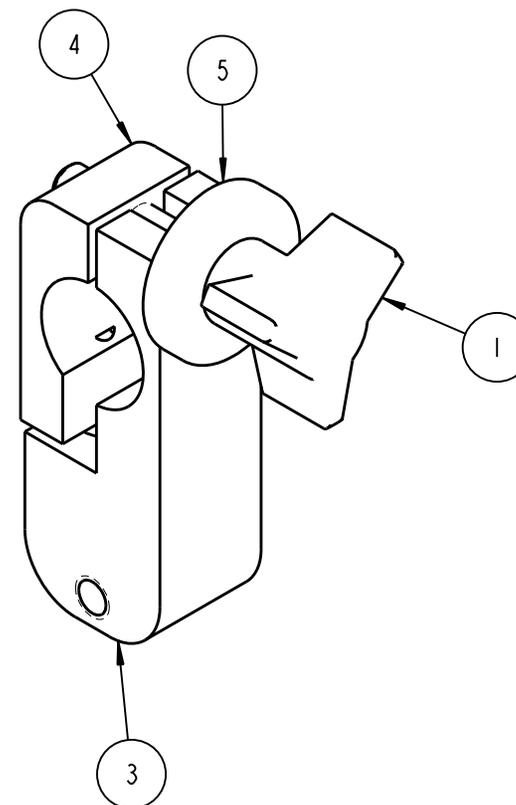
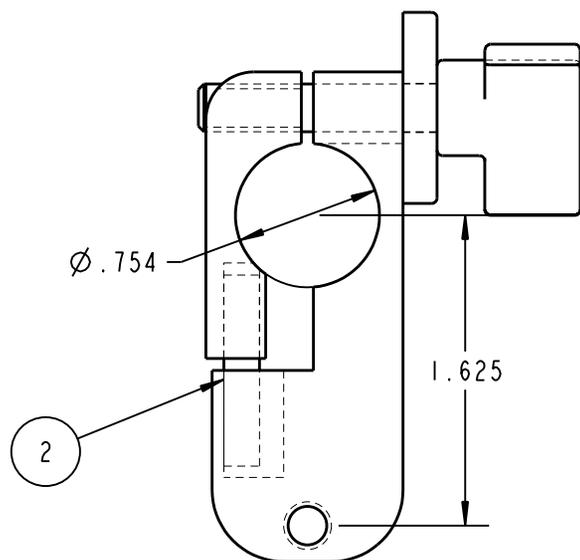
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		.XX	.XXX	ANG.				
CHECKED BY:	DATE Apr-14-25	.01	.005	.5	HEAT TREAT: N/A	MODEL: 500EW	TITLE: ASSY, LH SIDEGUIDE 31.75"	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 557934-44
		ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY						

ITEM	QTY	PART #	DESCRIPTION
1	1	102152	KNOB, HAND 3 PRONG 1/4-20 X 1.25
2	1	105419	DOWEL, PIN .188X1.000
3	1	538401-18	BLOCK, SIDEGUIDE SUPPORT 3/4"
4	1	538402-03	BLOCK, SIDEGUIDE CLAMP
5	1	SP6383-1	SPACER, GEAR COVER

REV NO	DATE	DESCRIPTION	ECN NO	BY

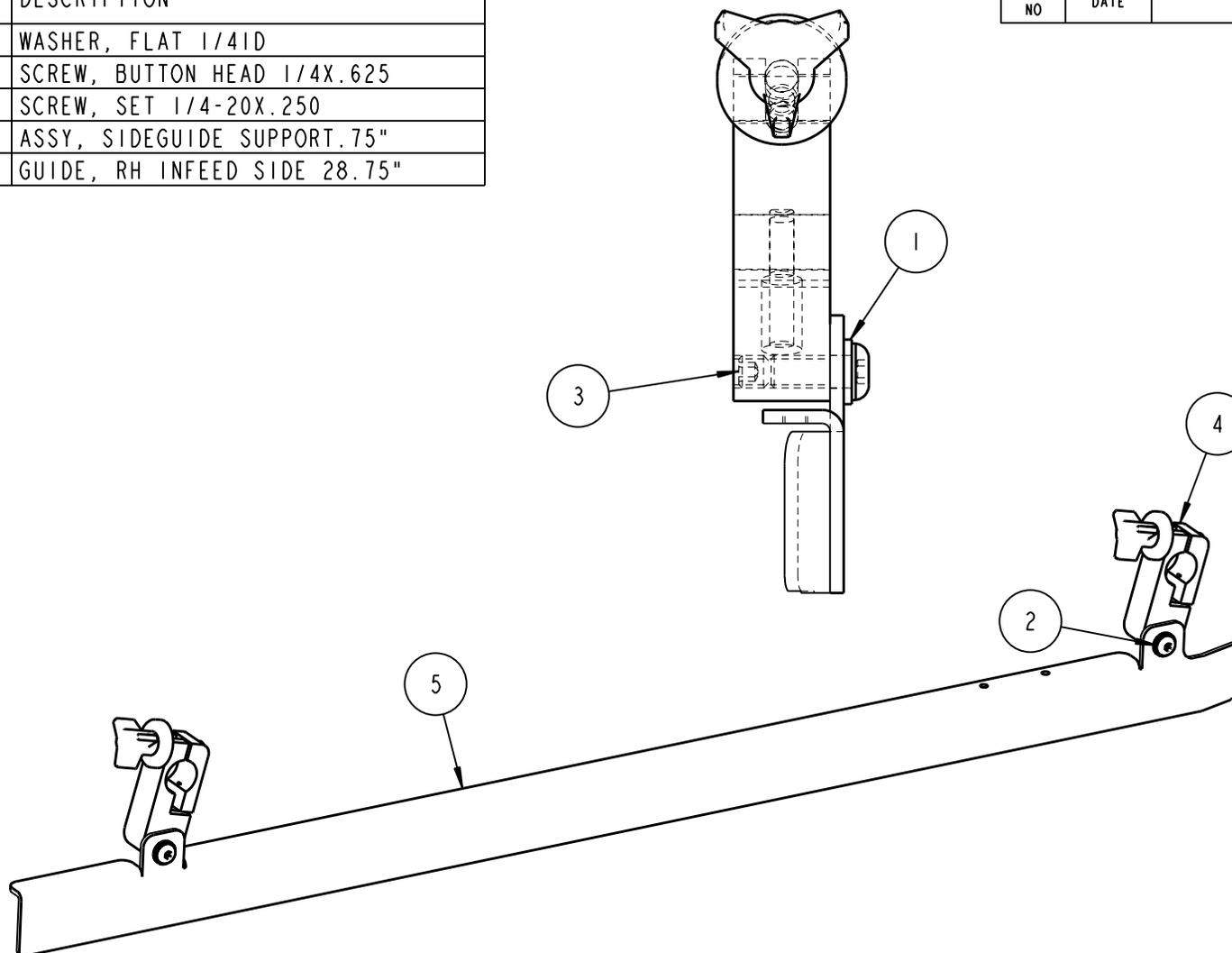


OPTIONAL OUTFEED TABLETOP

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		.XX	.XXX	ANG.				
CHECKED BY:	DATE Apr-19-23	.01	.005	.5	HEAT TREAT: N/A	MODEL: 519	TITLE: ASSY, SIDEGUIDE SUPPORT.75"	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 538403-19

ITEM	QTY	PART #	DESCRIPTION
1	3	100603	WASHER, FLAT 1/4ID
2	2	106815	SCREW, BUTTON HEAD 1/4X.625
3	2	107633	SCREW, SET 1/4-20X.250
4	2	538403-19	ASSY, SIDEGUIDE SUPPORT.75"
5	1	557933-96	GUIDE, RH INFEED SIDE 28.75"

REV NO	DATE	DESCRIPTION	ECN NO	BY



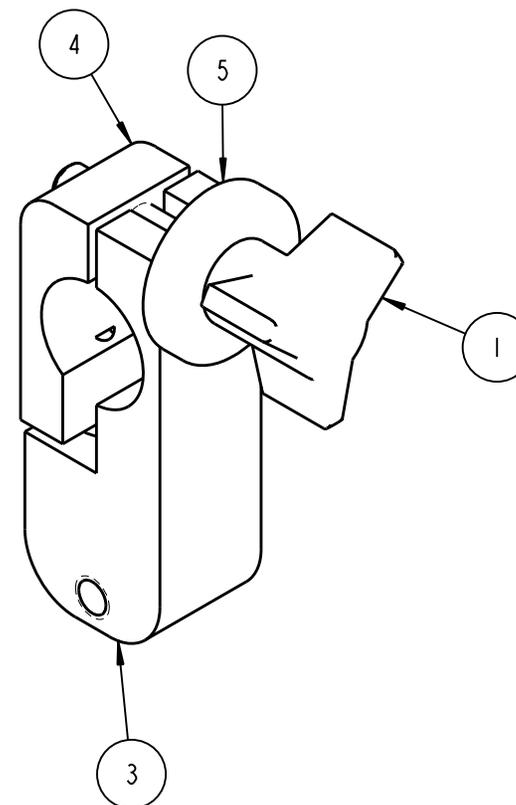
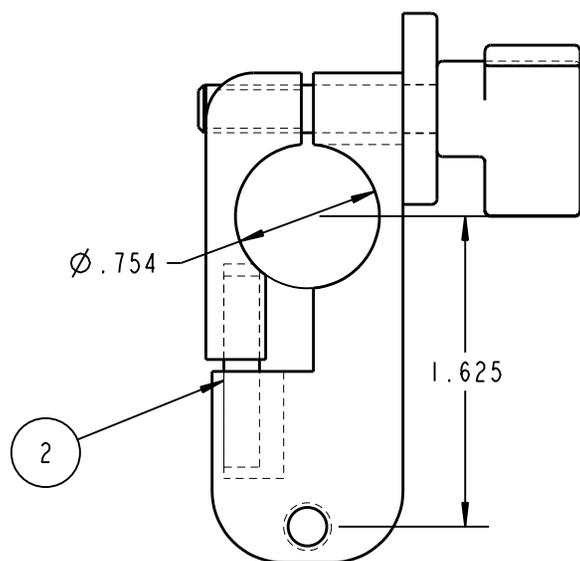
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.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY: 	DATE Apr-14-25	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: 500EW	TITLE: ASSY, RH SIDEGUIDE 31.75"							
TRACED BY: 	MASTER		FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 557934-46						

ITEM	QTY	PART #	DESCRIPTION
1	1	102152	KNOB, HAND 3 PRONG 1/4-20 X 1.25
2	1	105419	DOWEL, PIN .188X1.000
3	1	538401-18	BLOCK, SIDEGUIDE SUPPORT 3/4"
4	1	538402-03	BLOCK, SIDEGUIDE CLAMP
5	1	SP6383-1	SPACER, GEAR COVER

REV NO	DATE	DESCRIPTION	ECN NO	BY

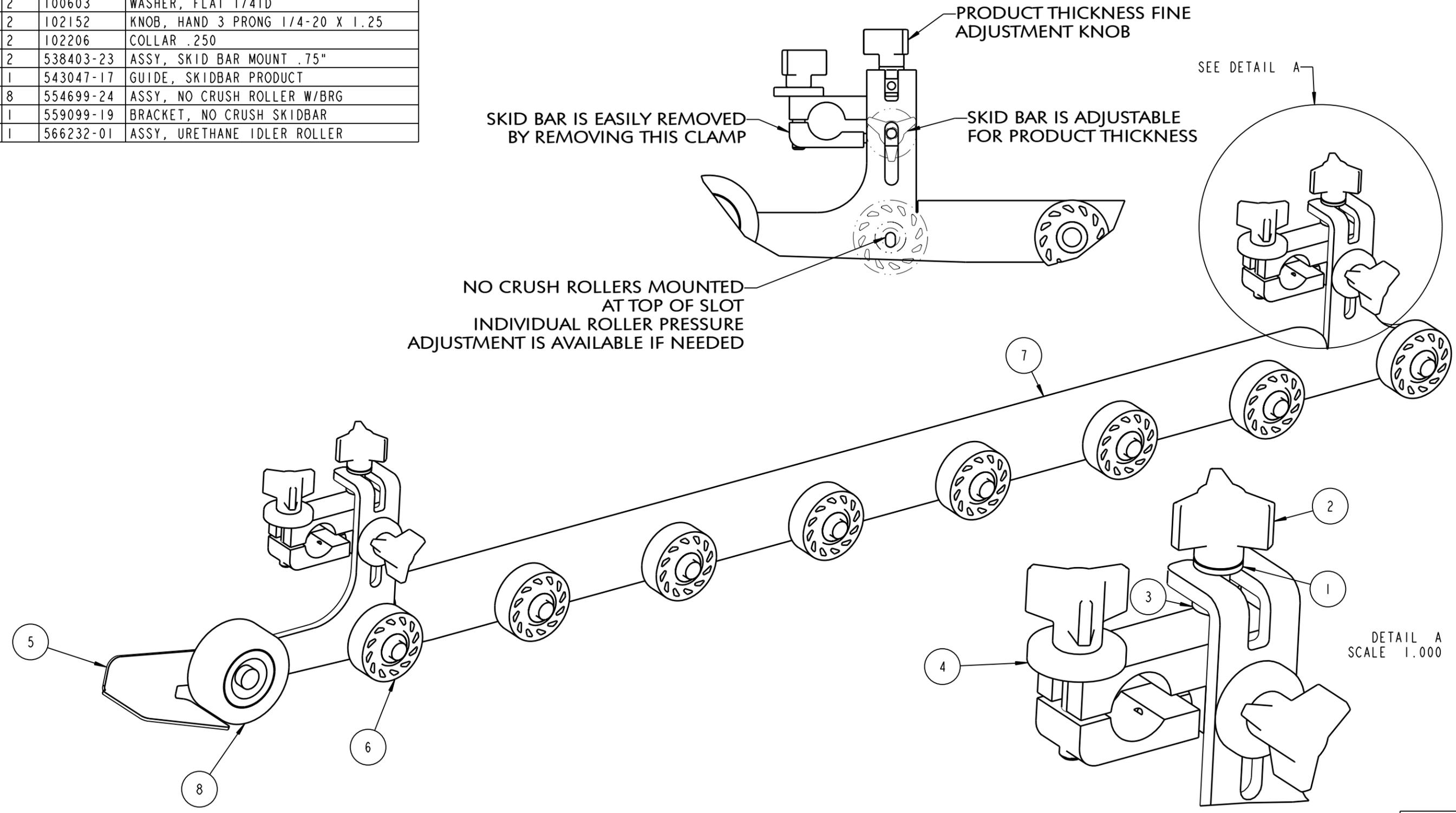


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CHECKED BY:	DATE Apr-19-23		<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX			.XXX	ANG.	.01	.005	.5	HEAT TREAT: N/A
.XX	.XXX	ANG.										
.01	.005	.5										
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 538403-19						

ITEM	QTY	PART #	DESCRIPTION
1	2	100603	WASHER, FLAT 1/4ID
2	2	102152	KNOB, HAND 3 PRONG 1/4-20 X 1.25
3	2	102206	COLLAR .250
4	2	538403-23	ASSY, SKID BAR MOUNT .75"
5	1	543047-17	GUIDE, SKIDBAR PRODUCT
6	8	554699-24	ASSY, NO CRUSH ROLLER W/BRG
7	1	559099-19	BRACKET, NO CRUSH SKIDBAR
8	1	566232-01	ASSY, URETHANE IDLER ROLLER

REV NO	DATE	DESCRIPTION	ECN NO	BY



DETAIL A
SCALE 1.000

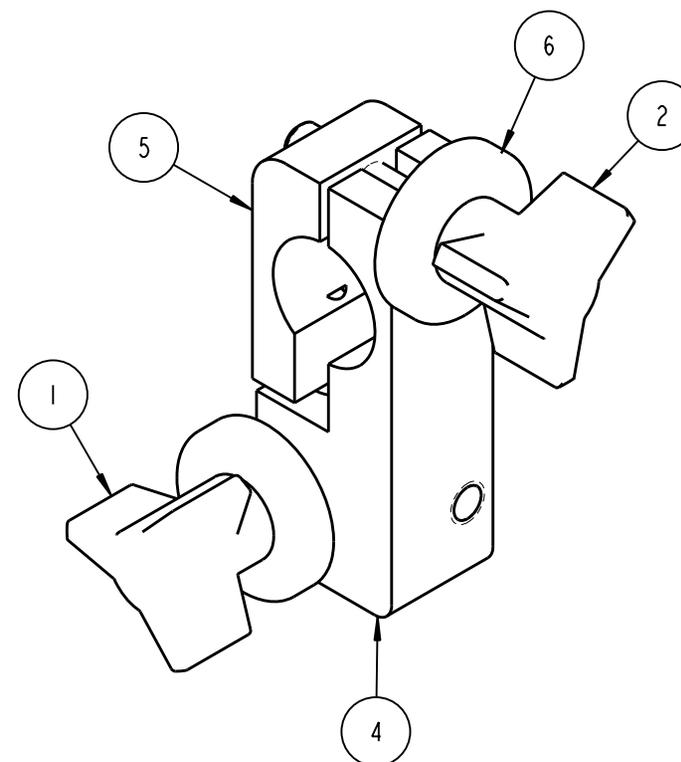
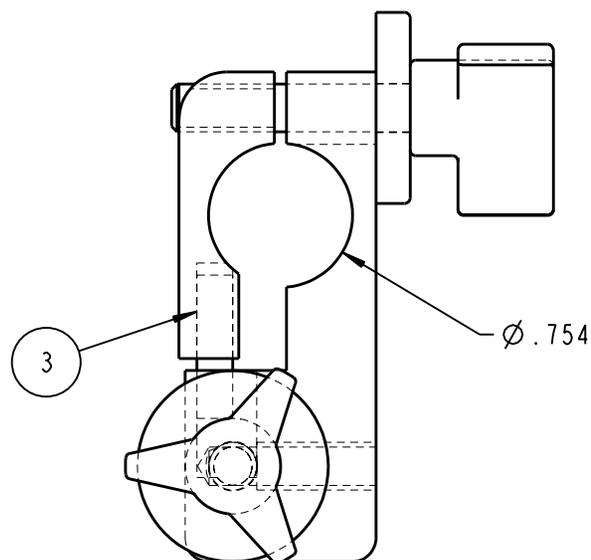
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.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE Apr-14-25	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: 500EW	TITLE: ASSY, NO CRUSH ROLLER SKID BAR							
TRACED BY:	MASTER		FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 559100-33						

ITEM	QTY	PART #	DESCRIPTION
1	1	102145	KNOB, HAND 3 PRONG 1/4-20 STUD
2	1	102152	KNOB, HAND 3 PRONG 1/4-20 X 1.25
3	1	105421	DOWEL, PIN .188X.750
4	1	538401-21	BLOCK, SIDEGUIDE SUPPORT 3/4"
5	1	538402-03	BLOCK, SIDEGUIDE CLAMP
6	2	SP6383-1	SPACER, GEAR COVER

REV NO	DATE	DESCRIPTION	ECN NO	BY



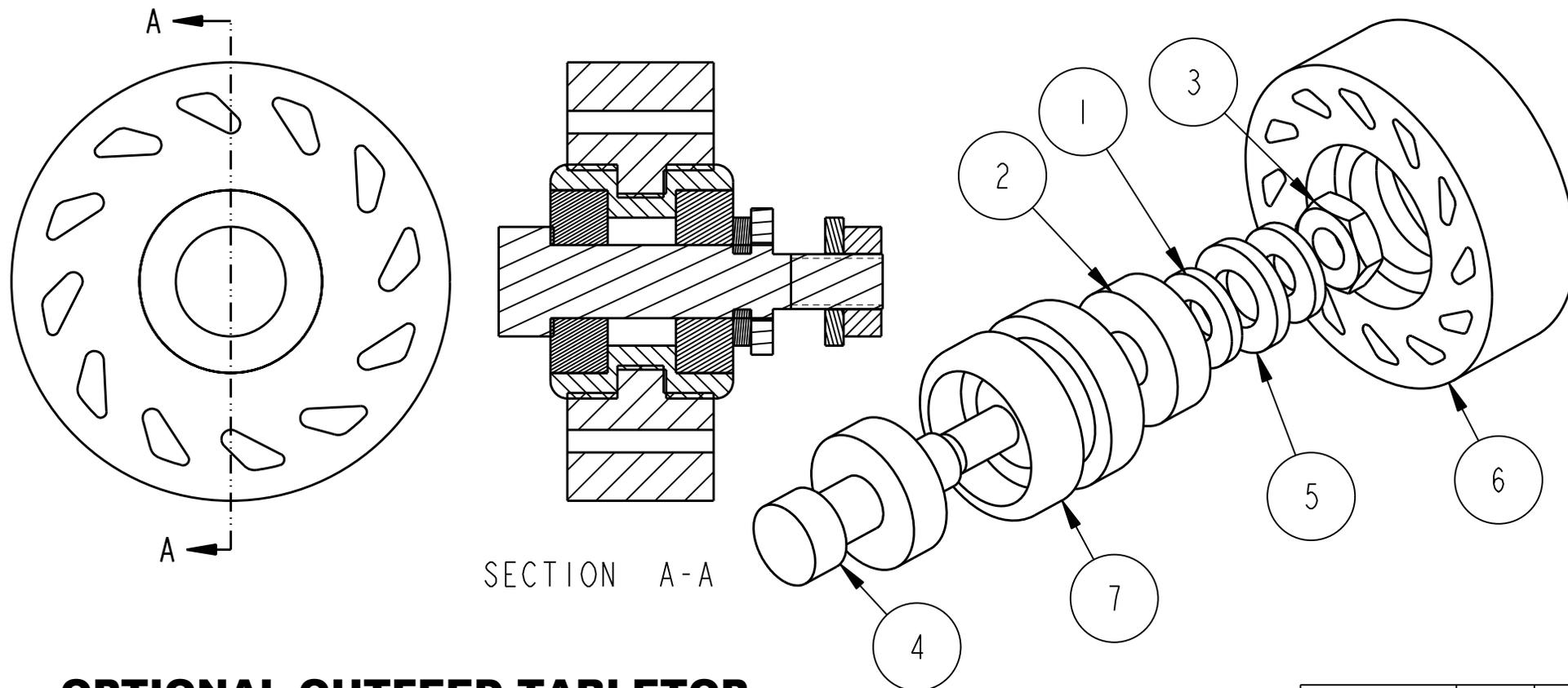
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.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE Jun-14-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: 519	TITLE: ASSY, SKID BAR MOUNT .75"	DRAWING # 538403-23						
TRACED BY:	MASTER		FINISH: N/A	SHEET NO.: 1 OF 1								

ITEM	QTY	PART #	DESCRIPTION
1	2	100619	WASHER, FLAT 10-32
2	2	103104	BEARING, FLAT .250
3	1	106709	NUT, HEX #10-24
4	1	107005	BOLT, SHOULDER 1/4X3/4
5	1	193720	WASHER, BRASS .265ID X .500OD X .062THK
6	1	554695-01	ROLLER, NO CRUSH 4-00153
7	1	554698-06	HUB, NO CRUSH ROLLER

REV NO	DATE	DESCRIPTION	ECN NO	BY



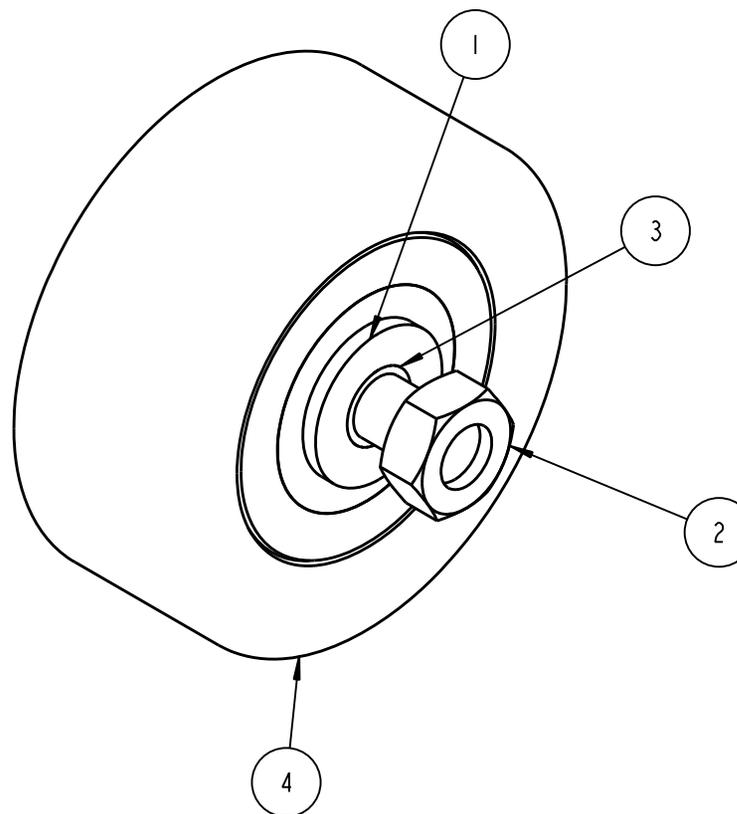
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CHECKED BY:	DATE Jan-23-24		HEAT TREAT: N/A	MODEL: GEN	TITLE: ASSY, NO CRUSH ROLLER W/BRG	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 554699-24

ITEM	QTY	PART #	DESCRIPTION
1	1	100629	SHIM, 5/16 X 5/8 X 1/16
2	1	106720	NUT, HEX 1/4-20
3	1	107103	BOLT, SHOULDER 5/16X5/8
4	1	500339-4A	ASSY, UPPER ROLLER

REV NO	DATE	DESCRIPTION	ECN NO	BY



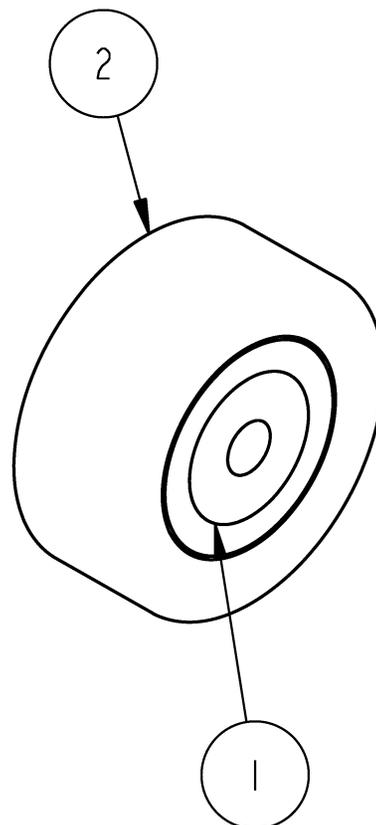
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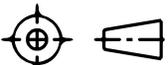
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		.XX	.XXX	ANG.				
CHECKED BY:	DATE Apr-15-25	.01	.005	.5	HEAT TREAT: N/A	MODEL: 500	TITLE: ASSY, URETHANE IDLER ROLLER	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 566232-01

ITEM	QTY	PART #	DESCRIPTION
1	2	103810	BEARING, FLAT .312
2	1	500339-4	ROLLER, UPPER

REV NO	DATE	DESCRIPTION	ECN NO	BY
1	03/31/2025	REPLACED (2) 103107 WITH (2) 103810	10346	RM

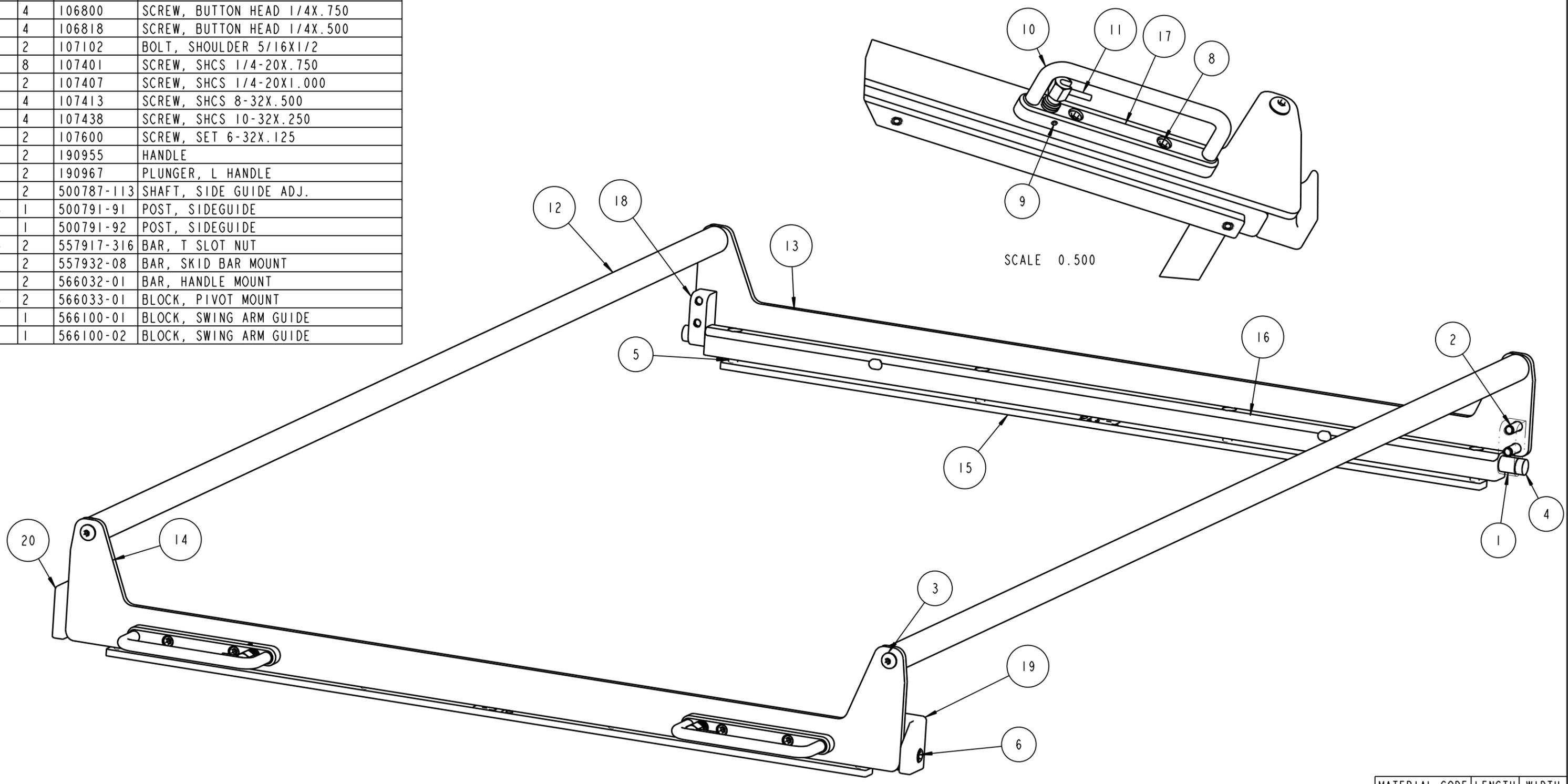


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		.XX	.XXX	ANG.				
CHECKED BY:	DATE 15-Oct-09	.01	.005	.5	HEAT TREAT: N/A	MODEL: 219RSF	TITLE: ASSY, UPPER ROLLER	
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY			FINISH: N/A	SHEET NO.: 1 OF 1		DRAWING # 500339-4A

ITEM	QTY	PART #	DESCRIPTION
1	2	100112	BUSHING, SL.313ID.438OD.500LG
2	4	106800	SCREW, BUTTON HEAD 1/4X.750
3	4	106818	SCREW, BUTTON HEAD 1/4X.500
4	2	107102	BOLT, SHOULDER 5/16X1/2
5	8	107401	SCREW, SHCS 1/4-20X.750
6	2	107407	SCREW, SHCS 1/4-20X1.000
7	4	107413	SCREW, SHCS 8-32X.500
8	4	107438	SCREW, SHCS 10-32X.250
9	2	107600	SCREW, SET 6-32X.125
10	2	190955	HANDLE
11	2	190967	PLUNGER, L HANDLE
12	2	500787-113	SHAFT, SIDE GUIDE ADJ.
13	1	500791-91	POST, SIDEGUIDE
14	1	500791-92	POST, SIDEGUIDE
15	2	557917-316	BAR, T SLOT NUT
16	2	557932-08	BAR, SKID BAR MOUNT
17	2	566032-01	BAR, HANDLE MOUNT
18	2	566033-01	BLOCK, PIVOT MOUNT
19	1	566100-01	BLOCK, SWING ARM GUIDE
20	1	566100-02	BLOCK, SWING ARM GUIDE

REV NO	DATE	DESCRIPTION	ECN NO	BY



SCALE 0.500

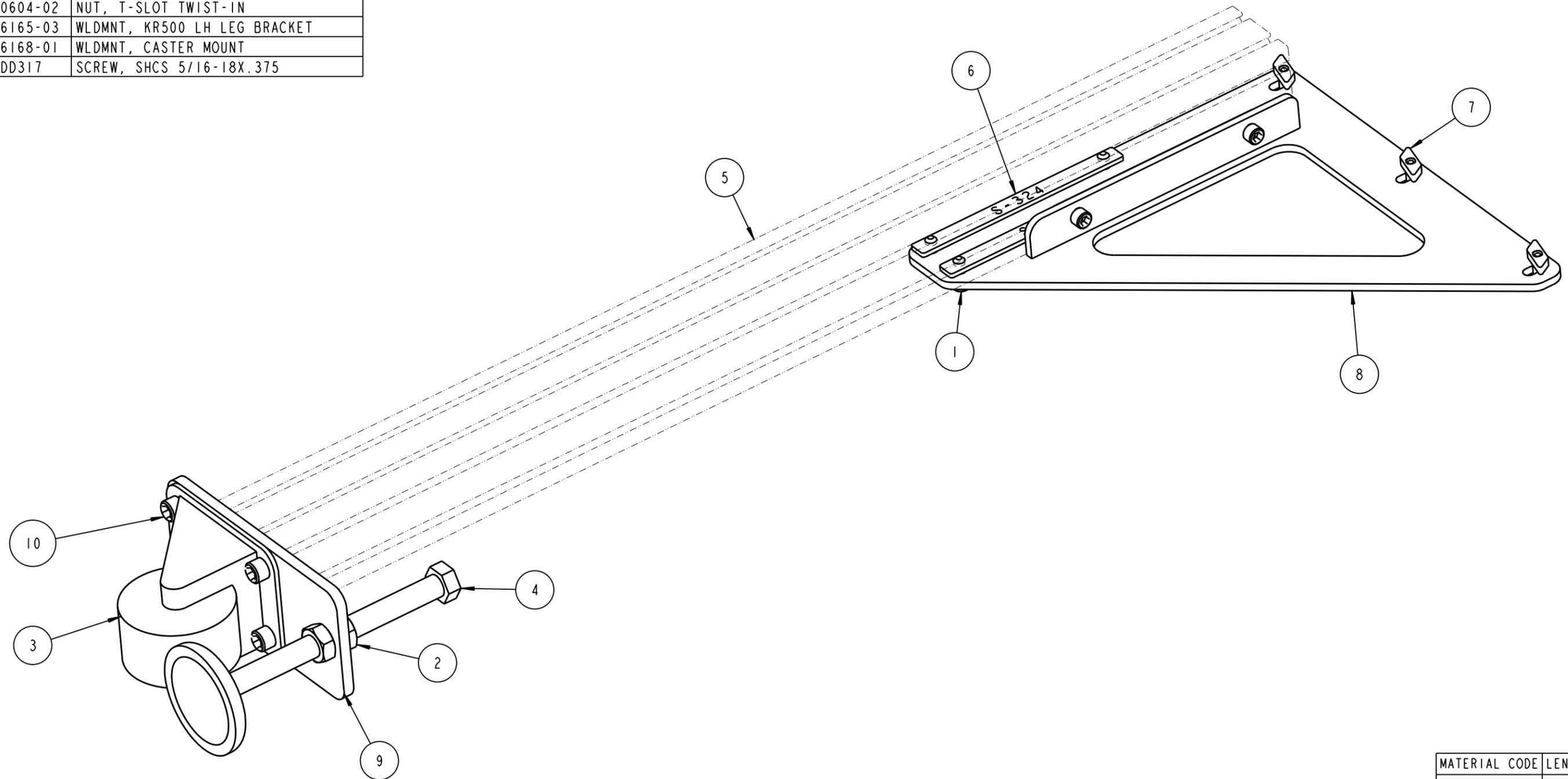
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.XX	.XXX	ANG.										
.01	.005	.5										
CHECKED BY:	DATE Jun-14-24	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	HEAT TREAT: N/A	MODEL: 619	TITLE: ASSY, OPENING SKID BAR MOUNT							
TRACED BY:	MASTER	FINISH: N/A	SHEET NO. 1 OF 1	DRAWING # 566109-04								

ITEM	QTY	PART #	DESCRIPTION
1	9	107410	SCREW, SHCS 1/4-20X.500
2	1	108051	NUT, JAM 1/2-20
3	1	190620	CASTER-2.5IN, SWIVEL
4	1	501812-8	ASSY, 1/2" LEVELING LEG
5	1	541487-25	EXTRUSION, REAR GUIDE MOUNT
6	3	557917-324	NUT, TRACK MOUNT
7	3	560604-02	NUT, T-SLOT TWIST-IN
8	1	566165-03	WLDMNT, KR500 LH LEG BRACKET
9	1	566168-01	WLDMNT, CASTER MOUNT
10	4	CSDD317	SCREW, SHCS 5/16-18X.375

REV NO	DATE	DESCRIPTION	ECN NO	BY



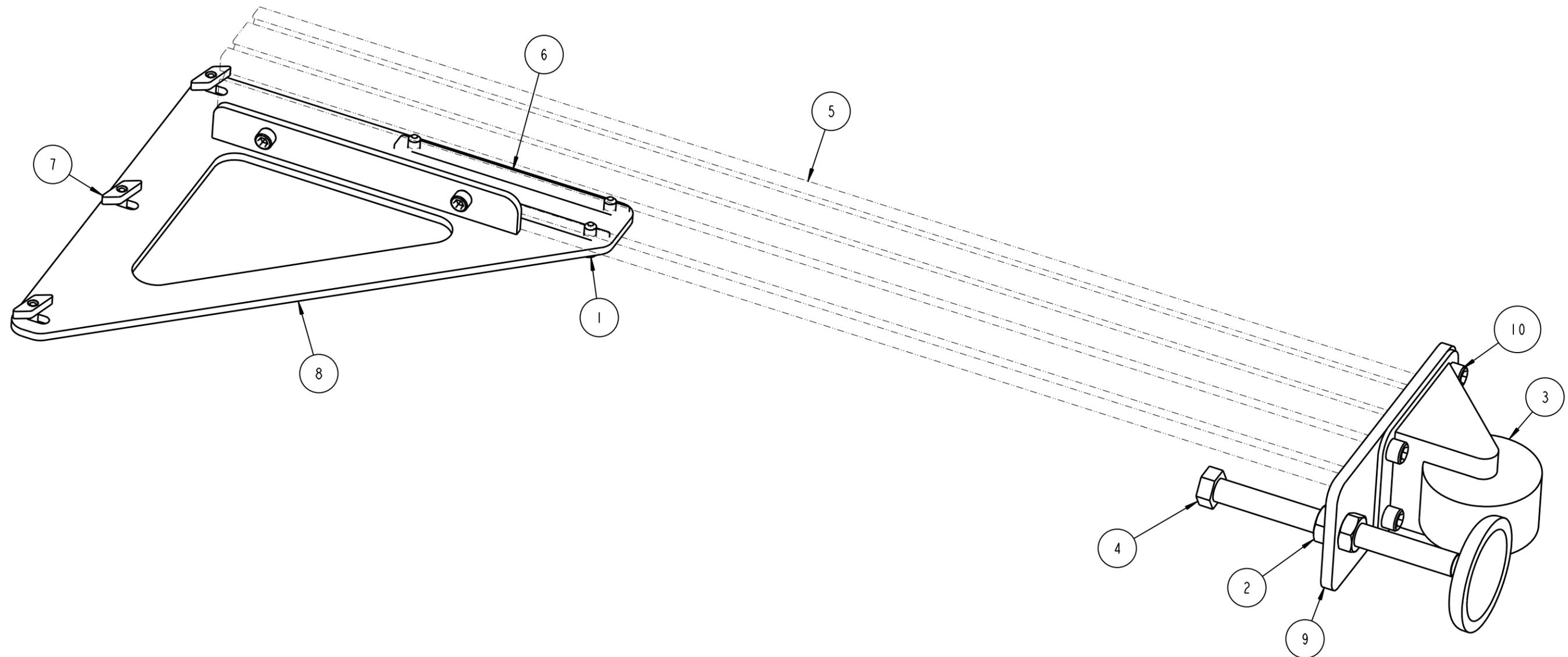
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OPTIONAL OUTFEED TABLETOP

DRAWN BY: A KEY	SCALE 0.450	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA					
CHECKED BY:	DATE Apr-15-25	<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX	.XXX	ANG.		.01	.005	.5	HEAT TREAT: N/A	MODEL: KR500EW
.XX	.XXX	ANG.									
.01	.005	.5									
TRACED BY:	MASTER	REMOVE ALL BURRS AND SHARP EDGES UNLESS OTHERWISE NOTED ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 566130-03					

ITEM	QTY	PART #	DESCRIPTION
1	9	107410	SCREW, SHCS 1/4-20X.500
2	1	108051	NUT, JAM 1/2-20
3	1	190620	CASTER-2.5IN, SWIVEL
4	1	501812-8	ASSY, 1/2" LEVELING LEG
5	1	541487-25	EXTRUSION, REAR GUIDE MOUNT
6	3	557917-324	NUT, TRACK MOUNT
7	3	560604-02	NUT, T-SLOT TWIST-IN
8	1	566165-04	WLDMNT, KR500 LH LEG BRACKET
9	1	566168-01	WLDMNT, CASTER MOUNT
10	4	CSDD317	SCREW, SHCS 5/16-18X.375

REV NO	DATE	DESCRIPTION	ECN NO	BY



MATERIAL CODE	LENGTH	WIDTH
N/A	N/A	N/A

DRAWN BY: A KEY	SCALE 0.450	DIMENSIONAL TOLERANCES UNLESS OTHERWISE NOTED	MATERIAL: N/A	THIRD ANGLE PROJECTION 	PROPRIETARY AND CONFIDENTIAL NO PORTION OF THIS DRAWING MAY BE QUOTED OR REPRODUCED IN ANY FORM WITHOUT THE EXPRESS WRITTEN PERMISSION OF KIRK-RUDY, INC. WOODSTOCK, GA 30188 USA	KIRK - RUDY, INC. WOODSTOCK, GEORGIA					
CHECKED BY:	DATE Apr-15-25	<table border="1"> <thead> <tr> <th>.XX</th> <th>.XXX</th> <th>ANG.</th> </tr> </thead> <tbody> <tr> <td>.01</td> <td>.005</td> <td>.5</td> </tr> </tbody> </table>	.XX	.XXX	ANG.		.01	.005	.5	HEAT TREAT: N/A	MODEL: KR500EW
.XX	.XXX	ANG.									
.01	.005	.5									
TRACED BY:	MASTER	ALL DIMENSIONS ARE FINISHED DIMENSIONS DO NOT SCALE - WORK TO DIMENSIONS ONLY	FINISH: N/A	SHEET NO. 1 OF 1		DRAWING # 566130-04					

OPTIONAL OUTFEED TABLETOP

10.0 ELECTRICAL

10.1 Schematic List

KR500 Friction Feeder Schematic # 210550 00 01

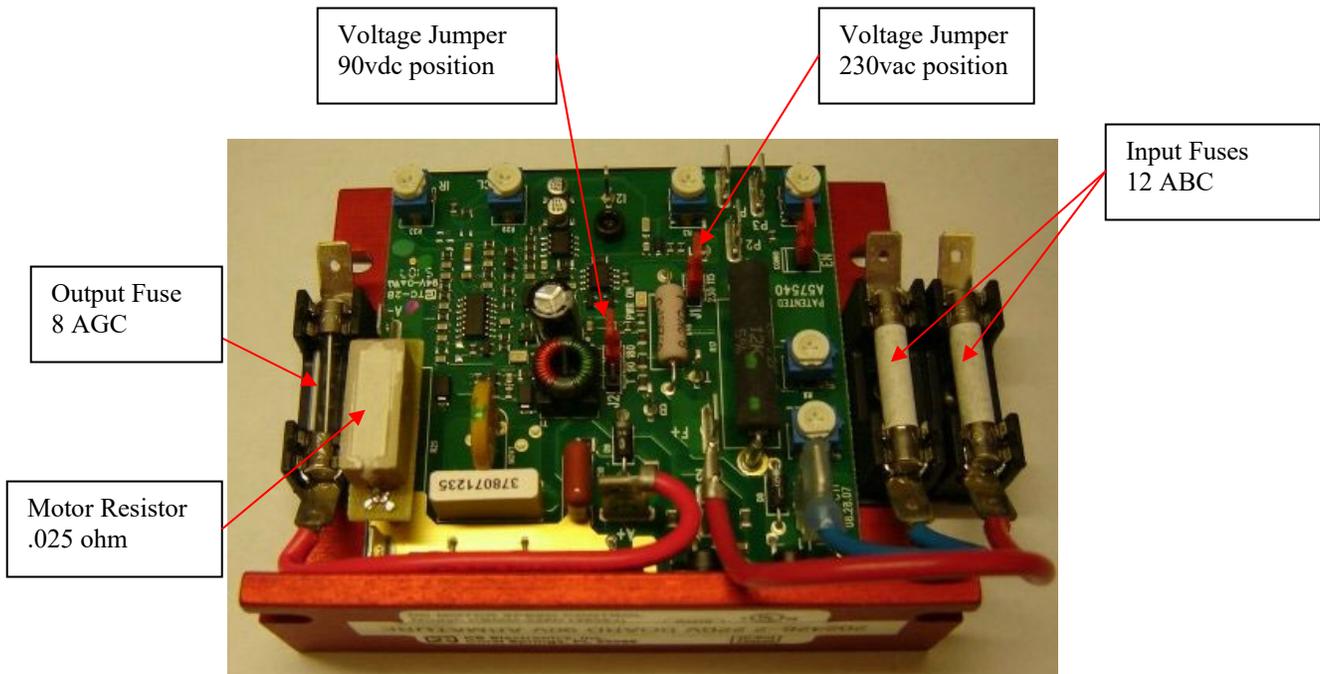
10.2 Electrical Parts List

10.3 Motor Control Board Settings

The motor control board settings are the following:

Output Fuse	8 AGC
Input Fuses	12 ABC
Motor Resistor	.025 ohm
Voltage Jumper Position	230vac
Voltage Jumper Position	90vdc

See picture below for motor control board setting locations. **Note: Trim pot settings for max, min, IR, CL, decel and accel are preset at factory. Factory technician should only change them.**



11.0 APPENDIX

The following manufacturer's specification sheets are shipped with each feeder:

LESSON INFORMATION

KB MOTOR BOARD INFORMATION

FMC TECHNOLOGIES

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13.0 WARRANTY AND SERVICE

Warranty: Kirk-Rudy, Inc., warrants to the original retail purchaser that this product is free from defects in the material and workmanship, and agrees to repair or replace, at Kirk-Rudy's option, any defective product within (90) days from the date of purchase. This warranty is not transferable. It covers damage resulting from defects in material or workmanship, and it does not cover conditions or malfunctions resulting from the normal wear, neglect, abuse or accident.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESSED WARRANTIES. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY IMPLIED WARRANTY ARISING OUT OF A COURSE OF DEALING, CUSTOM, OR USAGE OF TRADE.

Limitation of Remedies: If product is proven to be defective within the warranty period stated above, THE EXCLUSIVE REMEDY, AT KIRK-RUDY'S OPTION, SHALL BE TO REFUND THE PURCHASE PRICE OF OR TO REPAIR OR REPLACE THE DEFECTIVE PRODUCT, provided that the defective product is, at Kirk-Rudy's choice, returned immediately to Kirk-Rudy or authorized service representative designated by Kirk-Rudy, or made available at user's premises in a location suitable for servicing.

Limitation of Liability: Kirk-Rudy shall not otherwise be liable for any losses or damages, whether direct, indirect, special, incidental, or consequential, regardless of the legal or equitable theory asserted, including contract, negligence, warranty, or strict liability.

To obtain replacement parts and service, contact an Authorized Kirk-Rudy Dealer. Use Kirk-Rudy part numbers when ordering.

USE ONLY GENUINE KIRK-RUDY REPLACEMENT PARTS

KIRK-RUDY, INC.
125 LORRAINE PARKWAY
WOODSTOCK, GA 30188 USA
770-427-4203
FAX 770-427-4036

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 maintaining 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 SYSTEM

This labeling system is reliable, versatile and durable. It will operate for years with very light maintenance if it is performed regularly. Most of the maintenance takes only a few minutes and substantially increases the operational life of the system and maintains label placement accuracy.

Not all sections may apply to your equipment.

Daily:	D
Weekly:	W
Monthly	M
Quarterly	Q
Semi-Annually	S

ASSEMBLY TITLE: LABELING HEAD ASSEMBLY

D- Remove glue residue and labels from all rollers and idler. DO NOT use a knife or other tool to scrape the rollers. Adhesive Remover such as Goo-Gone or 3M Adhesive Remover is recommended. DO NOT use an adhesive remover that reacts with plastics or sensor lenses will be damaged.

M- Check for loose idlers and components and tighten as needed.

S – Lubricate all idler rollers shafts using 80w-90w gear lube on the white bearings where they contact the axle.

ASSEMBLY TITLE: UNWIND ASSEMBLY

S- Check and adjust dancer spring. If final spring tension is too soft then replace.

S- Check and inspect band brake. Replace if torn

ASSEMBLY TITLE: REWIND ASSEMBLY

S- Check and inspect friction disc (if applicable), Replace when worn out.

S- Check Kinetrol (if applicable) for leaks, Replace if necessary.

ASSEMBLY TITLE: BRAKE BRUSH ASSEMBLY

S- Reverse brake brush direction

S- 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- Lubricate all idler rollers shafts using 80w-90w gear lube on the white bearings where they contact the axle.

ASSEMBLY TITLE: PEEL PLATE ASSEMBLY

D- Clean all the parts that may acquire labels or glue residue. DO NOT use a knife or other tool to scrape the rollers. Adhesive removers are recommended.

W- Inspect Teflon tape on peel plate tip. Replace if the steel is exposed.

S – Lubricate all idler rollers shafts 80w-90w gear lube

ASSEMBLY TITLE: DRIVE AND PINCH ROLL ASSEMBLY

D- Remove glue residue and labels from drive roller. DO NOT use a knife or other tool to scrape the rollers. Isopropyl alcohol and adhesive removers are recommended.

W- Clean the knurled roll with a soft brass brush and adhesive remover.

M- Check and inspect drive roll. No play should be present when powered up. If there is a groove the width of the label liner, replace the worn roller.

M – Lubricate knurled roll shafts using 80w-90w gear lube.

S- Inspect and Lubricate, springs and slugs.

ASSEMBLY TITLE: ROLLER/BRUSH IMPRESSER

D- Check the rollers/brushes. They should be 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. Glass cleaner on a clean towel then wipe the membrane.

ASSEMBLY TITLE: ELECTRICAL

W- Check the foam filter for the fan. Clean or replace.

ASSEMBLY TITLE: CONVEYOR

D – Inspect conveyor chain for broken flights of table top chain

W – Inspect conveyor for labels / adhesive and remove as needed

S – Check gearbox oil levels and add as needed.

American Lubricants SHC-90W oil.

ASSEMBLY TITLE: FEEDSCREW

W – Remove glue residue and labels from feed screws

W – Lubricate internal feedscrew drive assembly, with multi-purpose grease.

S – Lubricate grease fittings / chains / bearings with quality multi-purpose grease – as needed

ASSEMBLY TITLE: VERTICAL ROLLER

W – Remove labels from rollers with adhesive remover / cleaner

W – Lubricate chains with food grade grease.

ASSEMBLY TITLE: EJECT STATION

D – Clean all parts that have acquired label or glue residue

ASSEMBLY TITLE: INFEEED / OUTFEED BANK SENSOR

W – Clean and glue residue or labels off sensor and/or reflectors

ASSEMBLY TITLE: SLEEVE

M – Drive rollers – Inspect for wear and clean with a citrus based adhesive removal

M – Inspect tension belts for cutter blade and cutter assembly for wear. Replace as needed.

M – Inspect cutter blades and bearings for wear. Replace as needed

M – Inspect perforation blades / bearings for wear and free of debris. Replace as needed.

S- Check, inspect, and grease all lead screws (threaded rods)

S – Inspect mandrel and bearings for wear. Ensure they spin freely
Replace as needed.

NOTES:

GENERAL PURPOSE FEEDSCREW LUBRICATION GUIDE

During your weekly maintenance of your Quadrel Labeling Systems equipment follow the steps below to ensure proper lubrication of the internal drive system for your feedscrew assembly.



Step 1 – Your dual feedscrews are connected inside the conveyor with a spline shaft assembly. First remove the chain so you have easy access to the this.



Step 2 – Open your feedscrews to your largest product. This will expose the spline assembly shaft that you will be applying the multi-purpose grease to.



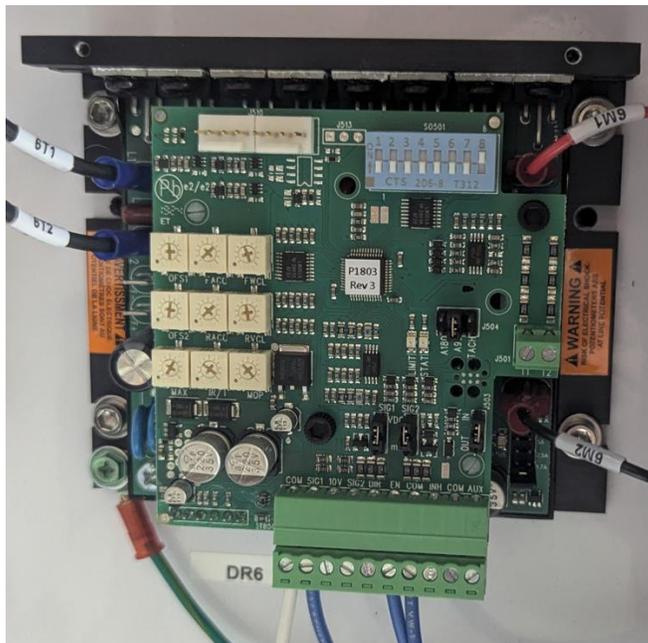
Step 3 – Apply multi-purpose grease to the now exposed spline shaft assembly. Ensure to apply multi-purpose grease all the way around the spline shaft– Top, bottom and sides



Step 4 – Slowly move the feedscrews in and out to so the grease can spread evenly over the length of entire spline shaft assembly.

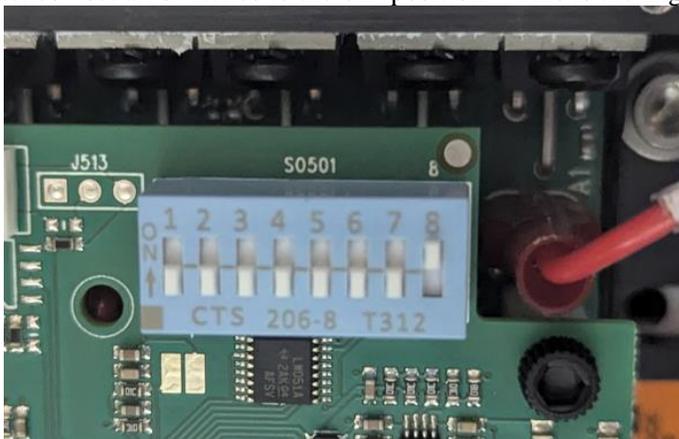
Step 5 – Reconnect conveyor chain

Setup procedure for Powered rewind using MGC403-11-00MD drive

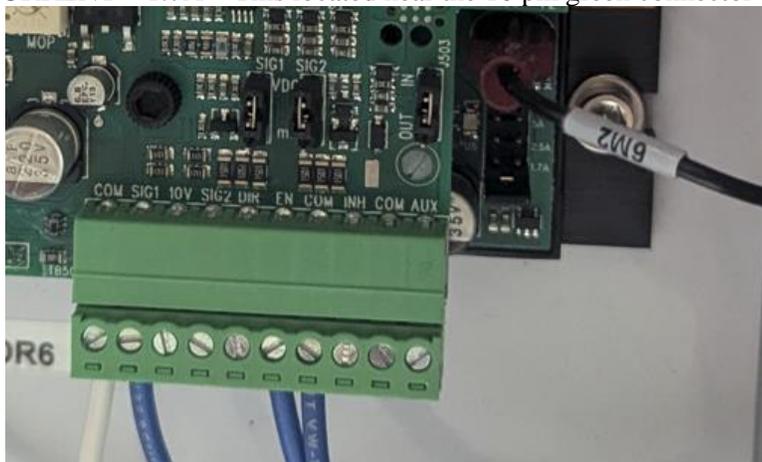


Upon receiving drive set the following **BEFORE** installing in the machine.

1. Dip switches - set all switches to the off position. This is the Light blue row of switches shown in the image below

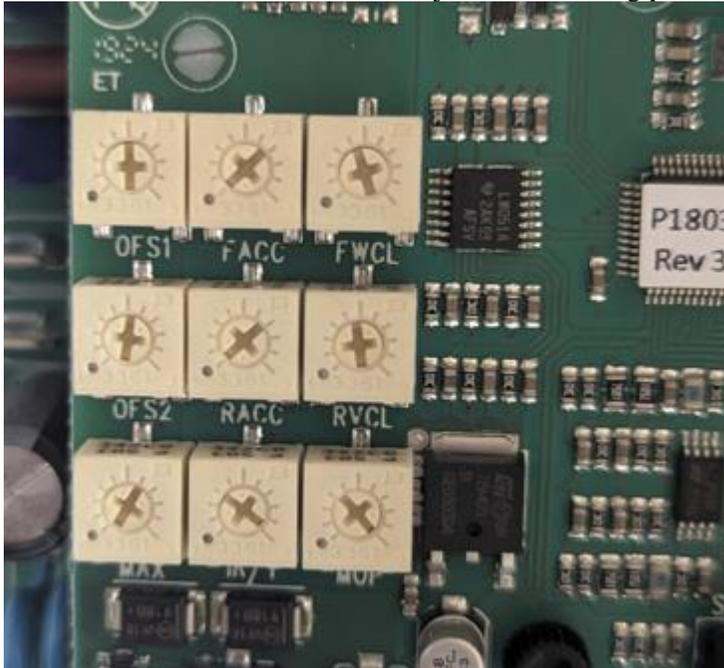


- a.
 2. Set Jumpers on drive based on electrical schematic for your machine
 - a. SIG1 – VDC
 - b. SIG2 – VDC
 - c. J504 – A90
 - d. AMP CURRENT – 1.7A – This located near the 10 pin green connector that



i.

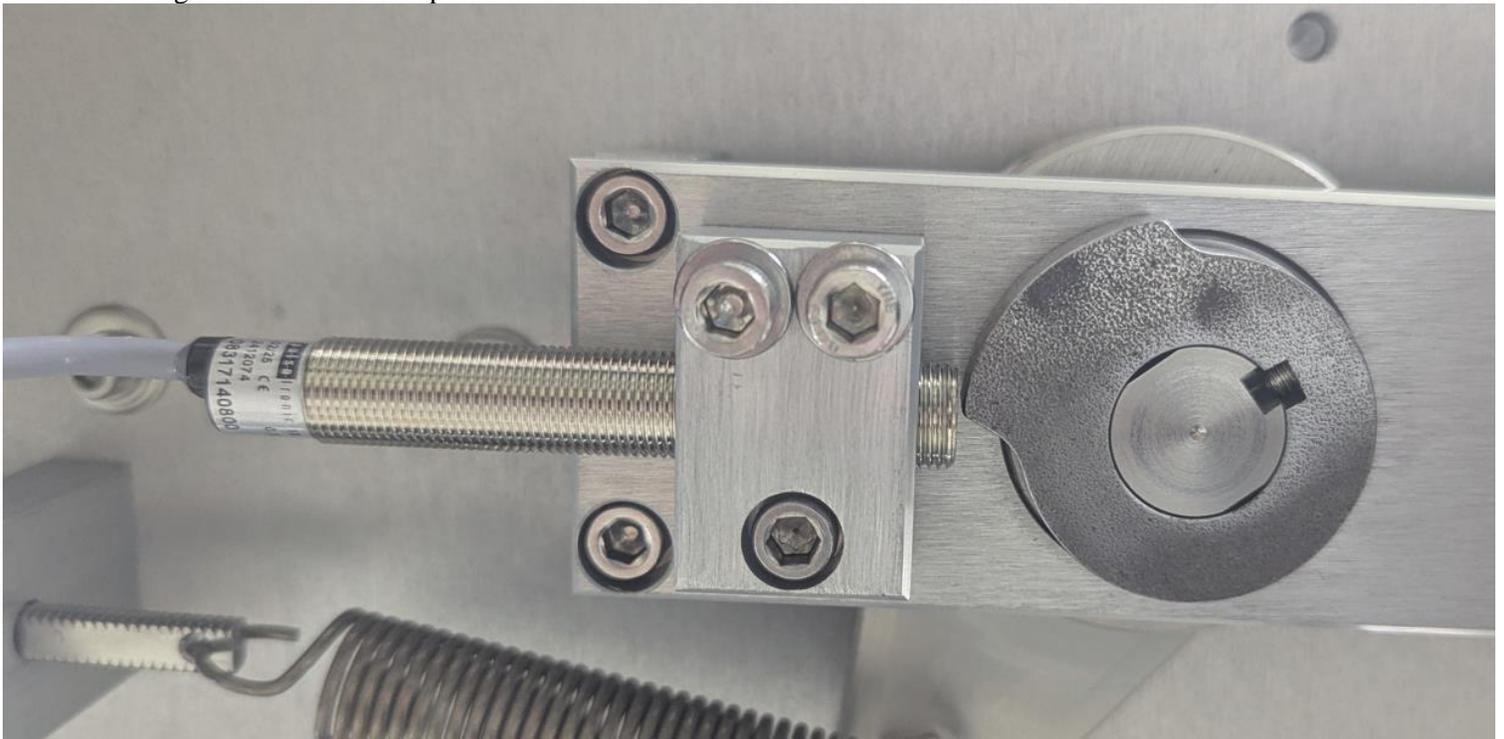
3. Using a small flat blade / Slot screwdriver adjust the following pots as indicated in the image below:



- a.
- i. Top row **OFS1** – WILL BE ADJUSTED AT LATER STEP
 - ii. Top row – **FACC** - turn counter clockwise until it stops.
 - iii. Top row **FWCL** – set to half way point – midpoint
 - iv. Middle row - **OFS2** – turn counter clockwise until it stops. This turns the pot OFF
 - v. Middle row – **RACC** - turn counter clockwise until it stops
 - vi. Middle row – **RVCL** – set to half way point – midpoint
 - vii. Bottom row – **MAX** – Set to 3/4 point
 - viii. Bottom row – **Leave other 2 pots at factory setting – DO NOT ADJUST**

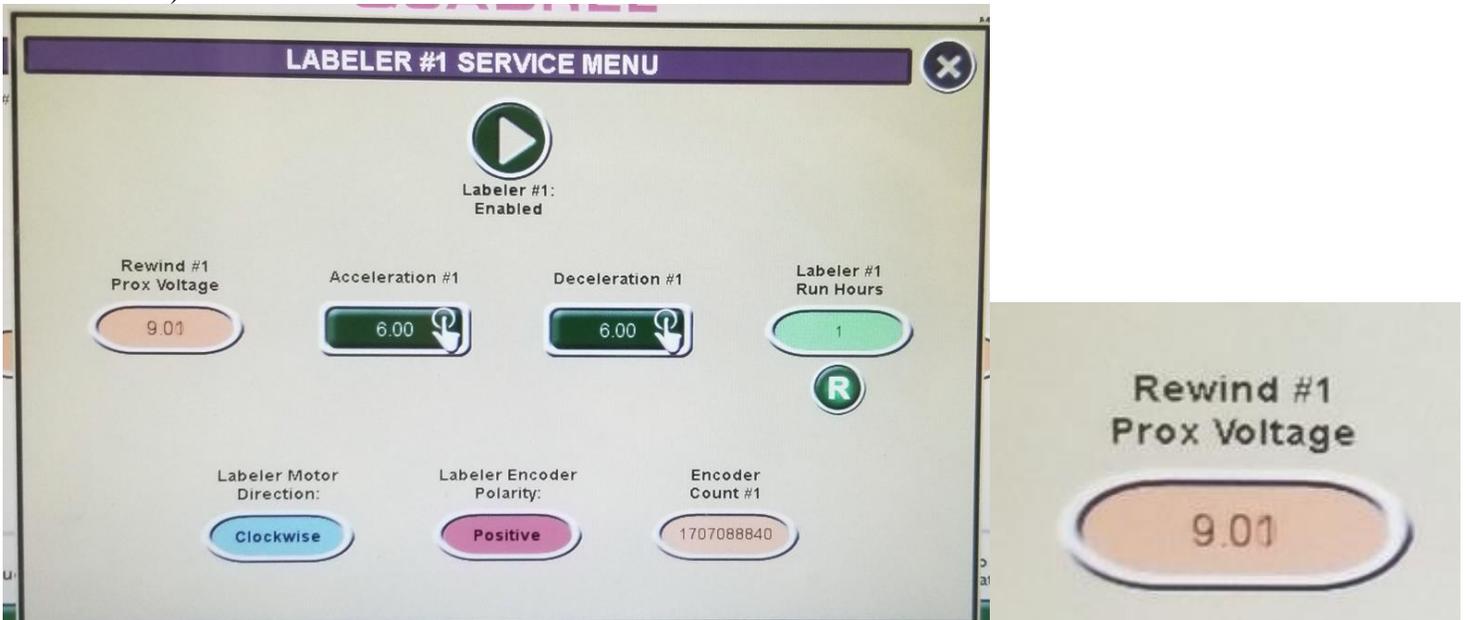
4. Install drive in machine then proceed to next steps

5. Set the Cam on the rewind dancer per image below when the dancer arm is at rest. Rest is when the arm is all the way back against the rubber bumper as shown

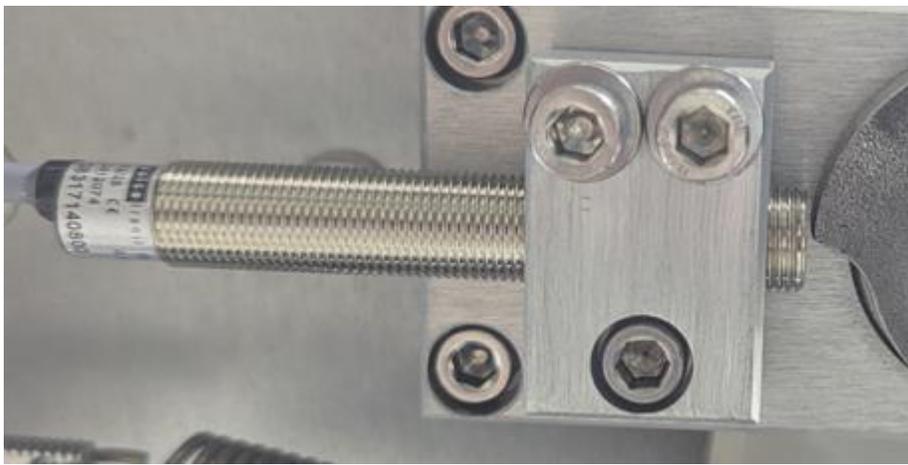




6. On the HMI go to into labeling head service menu. You will be looking at the REWIND PROX VOLTAGE (example below)



7. Adjust the sensor gap at the cam by loosening the bolt using an allen key so that the sensor can be moved forward or backward. The bolt does NOT touch the sensor. Loosening it opens the clamp so you can adjust.
8. Set the gap so the REWIND PROX VOLTAGE on the HMI reads **.90 it must be under 1 volt.**
 - a. **Retighten screw so the clamp sensor no longer moves**



b.

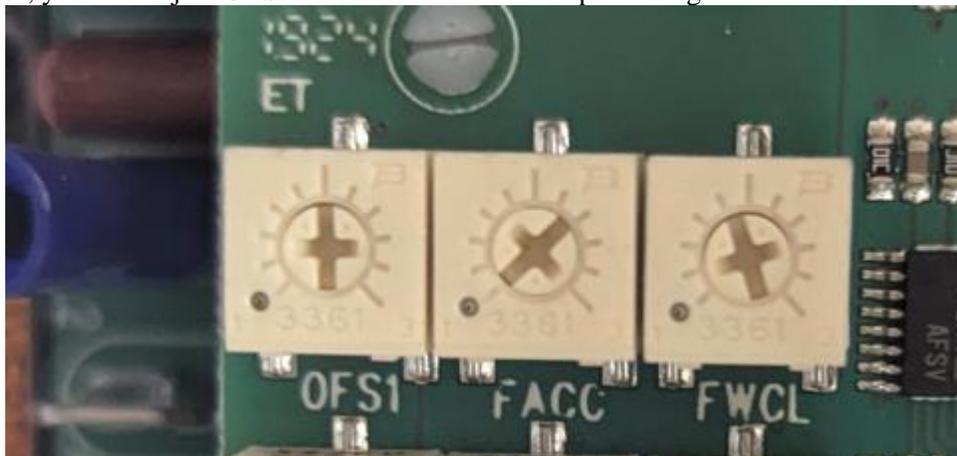
9. Test by moving the rewind dancer arm forward. When doing this you should see the rewind prox voltage on the HMI increase up to 9 volts

a. If you do not see the voltage increase steadily, recheck cam sensor gap in step 7

10. Turn on rewind switch on the back of the labeler. This will engage / turn on the motor.

11. Move the rewind dancer arm forward the rewind hub should start to turn clockwise. It will slow then stop as you move forward. Rewind hub should ALWAYS be turning clockwise. If it moves counter clockwise move to **step 11a**

a. While holding the arm in the position where it started to run counter clockwise, it MUST be running counter clockwise, you will adjust **OFS1** until the rewind hub stops moving.



i.

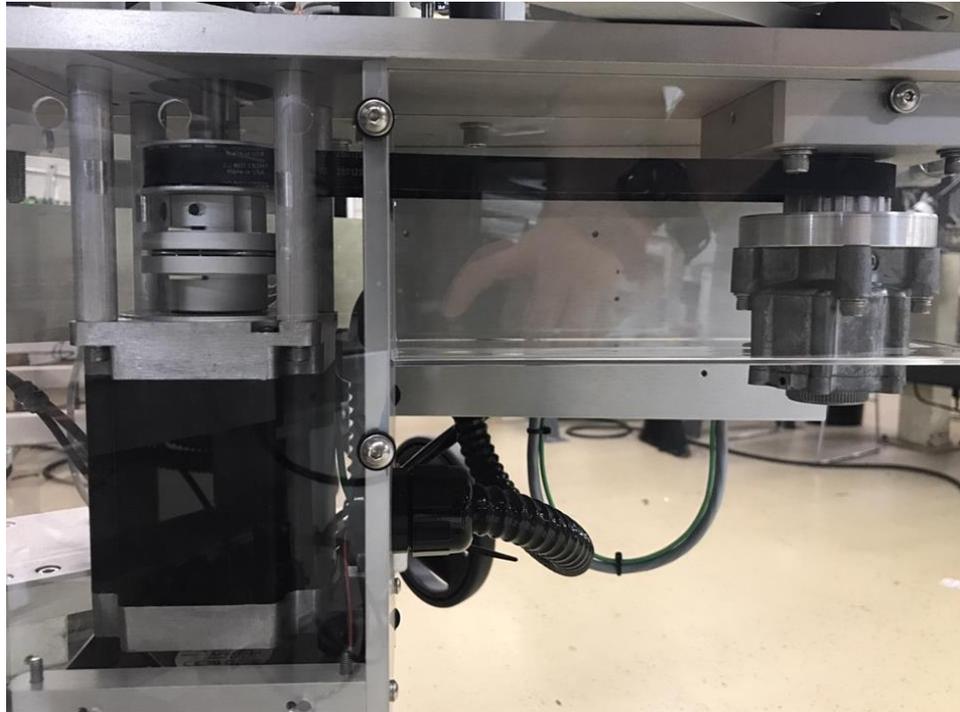
b. This adjustment may need to be done multiple times until it no longer moves counter clockwise when rewind arm is all the forward and at rest.

9.2 BELTS

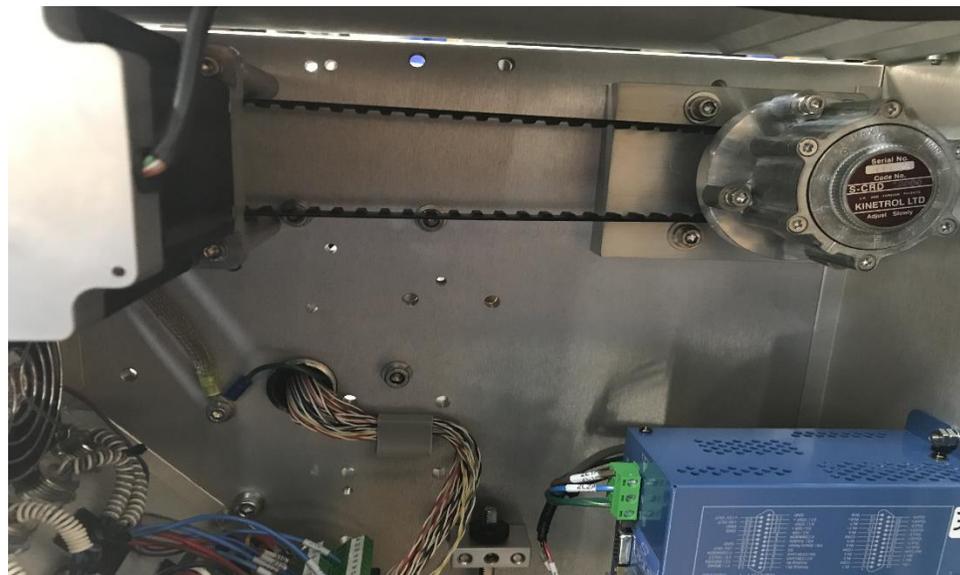
Monthly, a visual inspection of the rewind belt and timing belt, to do this depending on the labeling head you may need to remove the bottom cover on the head.

Refer to photos below.

Servo labeling head.



Stepping labeling head.



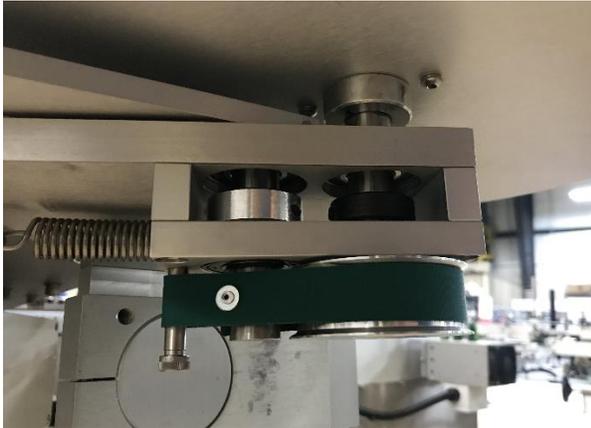
CAUTION

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.

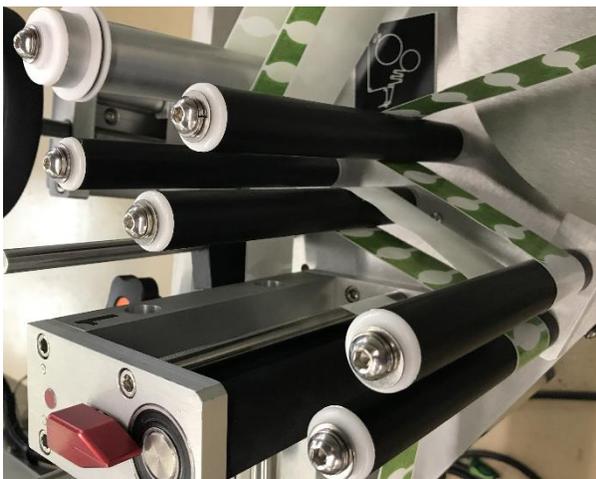


For replacement parts see the unwind assembly drawing for your labeling head in this manual.

9.3 ROLLERS

It is important that your labeler is as clean as possible in its environment in order for it to perform properly. 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

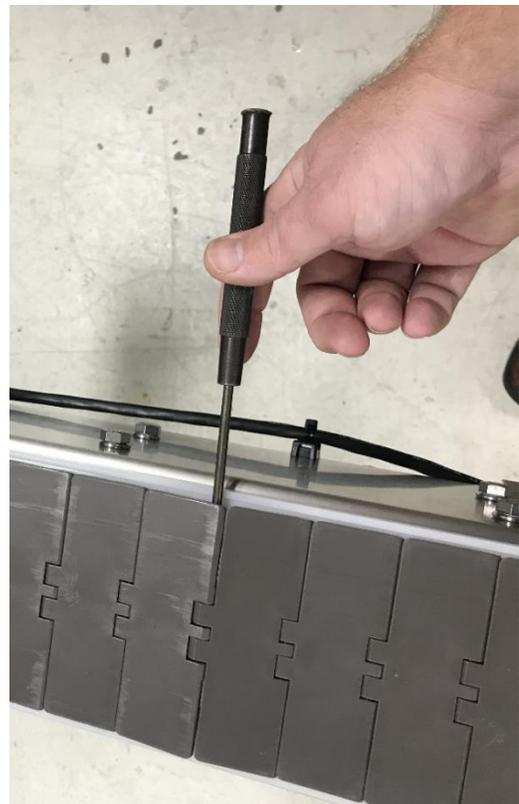
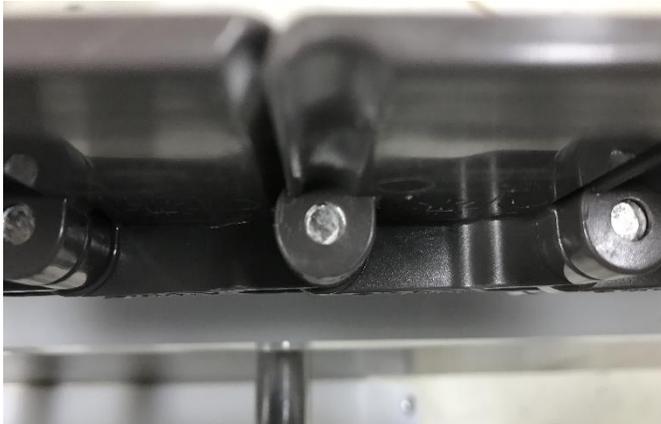
The sensors all have an electronic eye called a photocell; these must be free of lint or dirt. Since the photocells are generally made with glass or plastic lenses. They naturally attract substances which could easily trigger the sensor, use a cotton swap to gently clean the eye of the sensor as you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

In the event a jam occurs on your Quadrel Labeler reference the following steps to clear.

1. Press the conveyor stop button or the emergency stop if you are unable to reach the stop button.
2. Clear the jam manually in the affected area of the equipment where jam is located
3. Once jam is cleared reenergize the estop, if pressed, and press the reset button (where applicable) to clear faults.
4. Put equipment back into "run" and press start to turn the system back online to continue labeling

11 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.

Return of defective parts

To return a defective part, you will need to get an RMA number from Quadrel. All RMA's are issued through our parts department. Please specify the serial number of the equipment, the client's name, address, phone number, contact name and the nature of the problem. To get a replacement 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.