EDGE TECHNOLOGIES

Revision 1

Rebel

OPERATIONS MANUAL

REBEL Series
SERVO SHORT BAR FEEDER
REBEL

MANUAL FOR USE AND MAINTENANCE

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S/H

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General information

Please read and understand the Manual before operating the bar loader

1.1 Contents of this Manual

The bar feeder/Unloader manufacturer has provided this manual as an integral part of the machine. Adherence to the instructions of the manual will help prevent injury to the operator and damage to the machine as well as helping to realize the maximum potential of the bar feeder/unloader and machine tool. Particularly important points of information are preceded by the following symbols and text:

 Warning Indicates a potential danger to life or risk of personal injury. Exercise extreme caution.

 Caution Indicates a possible hazardous condition. Take precautions according to the Instructions following these warnings to help prevent injury to personnel or damage to the equipment.

1.2 Machine Safety

It is the user's responsibility to provide proper safety devices and equipment to safeguard the operator from harm for any particular use, operation or set-up, and to adequately safeguard the machine, or machines, to conform to all Federal, State and Local Government Safety Standards and all industry safety standards. It is suggested that only trained personnel operate the machine and equipment because improper use could damage the machine and cause personal injuries.

1.3 Indemnification

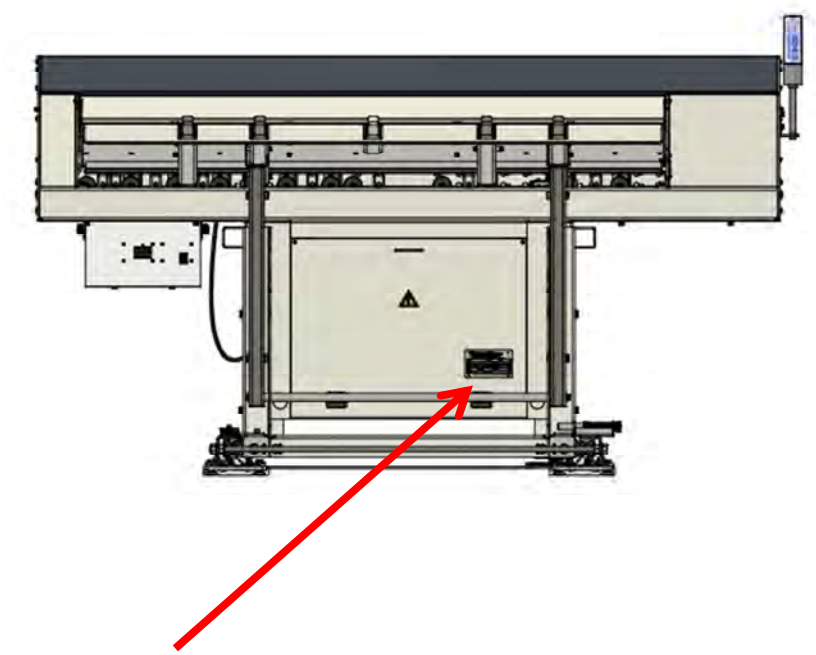
User agrees to indemnify and hold harmless Edge Technologies from any and all claims or liabilities from accidents involving these machines caused by failure of users, his employees, or agents to follow instructions, warnings or recommendations furnished by Edge Technologies, or by failure of user to comply with Federal, State and local laws applicable to such equipment including the occupational Safety and Health Act of 1970.

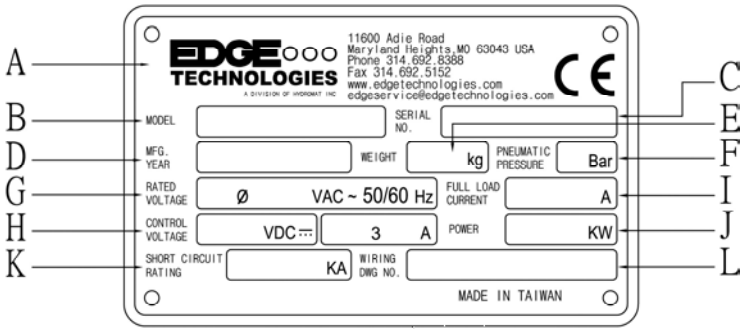
1.4 Hardware and Software Changes

As Edge Technologies continues to be the premier bar feeder supplier in the industry, ongoing development and changes to software and hardware is normal. All software noted in this manual are current at the print of this manual. For latest developments and changes please visit www.EdgeTechnologies.com for the latest information or contact us.

1.5 Machine Data Plate

A. **Name of manufacturer**
B. **Model(Type)**
C. **Serial Number**
D. **Manufacture Date**
E. **Weight of Machine**
F. **Pneumatic Pressure**
G. **Rated Voltage**
H. **Control Voltage**
I. **Full Load Current**
J. **Power**
K. **Short Circuit Rating**
L. **Wiring Drawing Number**





Important information When inquiring about or ordering parts please have the machine model type and serial number on hand. Refer to the machine data plate for this information.

1.6 Technical Support

For technical support please contact the Edge Technologies Service Department by phone at 314-810-3927 or by email edgeservice@edgetechnologies.com

2. Technical Information

2.1 Description of the Machine

The Rebel Servo loader is a compact loading system for materials in the diameter range of 8 - 80mm. Parts are gently extracted from the sub-spindle of single-spindle lathes. With a large magazine capacity allowing for long unattended operation, the Rebel combines the advantages of auto material loading with a small footprint and an economical price.

Following Features

- Conversational Control Features State-of-the-Art Touch Screen and Menu Driven Programming
- Programmable Bar Diameter & Part Length
- Linear Feed & Servo Drive
- Adjustable magazine angle
- Remote Control Pendant
- Axial Shift
- Fold Away Axial Track
- All Electric Operation
- Belt Drive
- Extended V-Tray
- Easy Load Simulation
- Spindle Liner Storage
- Extra Large Magazine
- Easy load
- USB dongle security

Options Available

- Z axial shift device
- Lathe spindle liners, normally required
- Custom Roller angles
- V-Tray Kit
- Air blow mode
- Varity pusher diameters
- Load/Unload Options

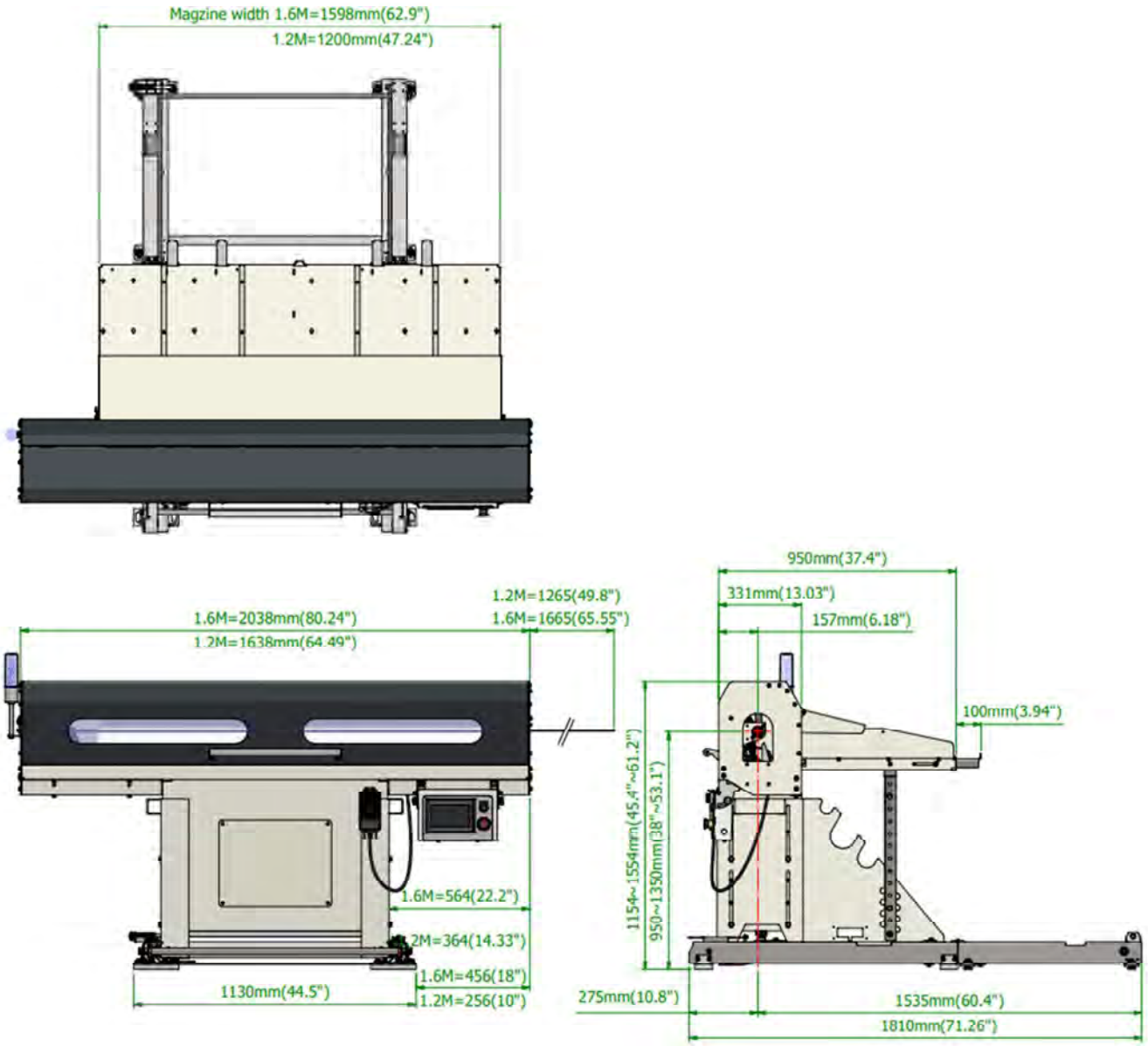
2.2 Machine Footprint

 **Caution machine placement is important and proper planning should be observed. A level floor free from cracks is ideal for anchoring of the machine. As the customer is the one that decides on machine installation it is their responsibility to be aware of proper floor requirements.**

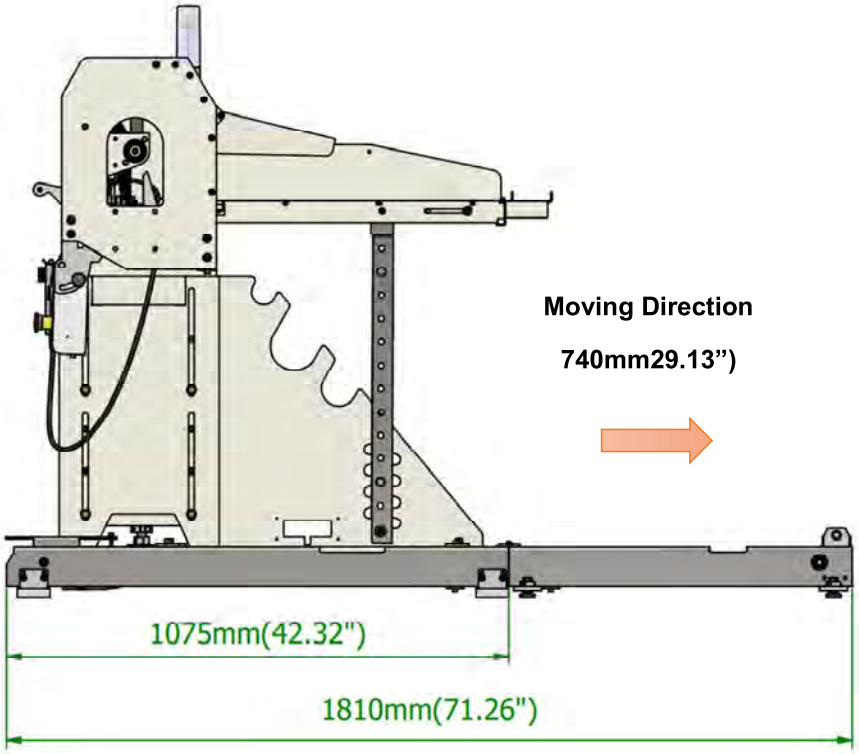
Placement of the loader is important to gain the use of all the features including the axial shifting of the machine. It is important to review the lathe layout to be sure proper clearance exists of the axial track assembly. On some lathes accessories may prohibit proper placement such as tool changers and transformers. Some loader placement requires the machine to be placed less than ideal from the rear of the lathe. In these conditions special V-tray extensions may be required from Edge. These special application parts must be present when installing the unloader. Special design and manufactured options are available from Edge Technologies.

The most common type of loader configuration is a rear load with the lathe to the right of the loader. Other configurations are available such as a front material load that places the magazine in front of the operator. The loader can be ordered to load from the left of the lathe as required. Contact Edge Technologies Sales Department for more information.

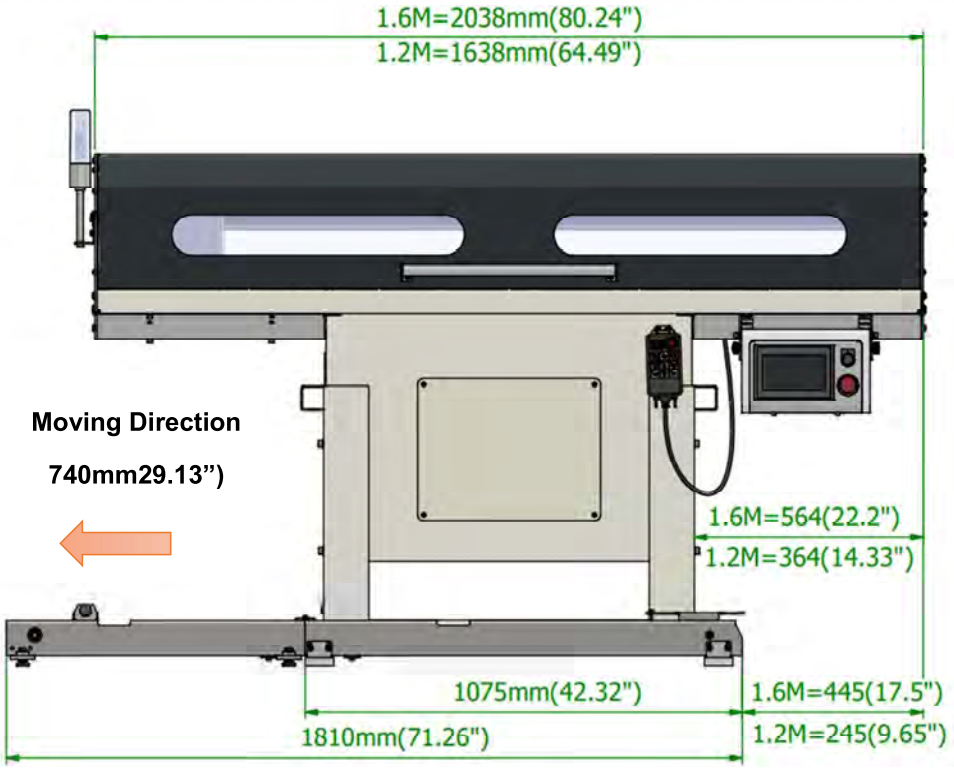
Machine dimension



Moving in X-Direction



Moving in Z-Direction



2.3 Specifications and Capacities

Center Line Height
950mm (38”) - 1350mm (53.1”)

Bar Diameter
6mm (.236”) - 80mm (3.15”)*

Bar Length
152mm (6”) - 915mm (36”)*

Rapid Return Rate
1300mm/sec. (4’/sec.)

Bar Change Time
Approx. 20 seconds

Bar Pushers
6mm dia. Hardened steel

10mm dia. Hardened steel

19mm dia. Hardened steel

*The maximum bar length must not exceed the measured length from front of chuck jaw/collet

Operating Voltage
Electric supply 230V (60Hz) - 3 Phase

Power Consumption
220/440V 0.4A 50/60Hz

Pusher Rod
One included

Weight
1.6M = 350KG / 410KG (with silding rail)

1.2M = 345KG / 405KG (with silding rail)

X & Z Axial Track Travel
X Axis = 760mm

Z Axis = 760mm

Rack Capacity

- **Standard Size**

ψ6=109pcs, ψ80=8pcs,

Frame witch=700mm, 2-step angle adjustment

- **Ext Size**

ψ6=145pcs, ψ80=12pcs,

Frame witch=990mm, 2-step angle adjustment

2.3.1 Options Available

6mm diameter bar pusher

Magazine extension rack

Z axial shift device

Lathe spindle liners

90° Rollers

Load/Unload Option

V-Tray Kit

Optional V-Tray Used when gap between lathe sheet metal and spindle coolant collector exceeds 8 inches.

2.4 Bar Stock Requirements

 **Warning Under no circumstances should a bar be run that extends past the end of the lathe spindle! Failure to comply with this rule may result in injury or death to the operator or personnel in the vicinity of the machine and /or severe damage to the machinery!**

 **Caution If the diameter difference between the material and the interior diameter of the spindle or spindle reduction is smaller than 2 mm, you must expect the pusher to jam in the spindle.**

 **Caution The ends of the bar should be relatively straight to the diameter of the bar to help ensure proper positioning of the bar as it reaches the facing position and to keep the bar pusher from sliding off the bar while feeding the material. In most cases chamfering the lathe side of the bar is required and with spindle rotation at approximately 50rpms.**

Material should be relatively straight and clean. A chamfer on the leading bar edge is highly recommended. While bent stock will not necessarily cause problems within the lathe spindle while turning, it may prevent loading if bar condition is such that the bar collides with the back of the lathe spindle or it binds while feeding into the spindle. Bars of small diameter may not pick up properly from the magazine if they are not straight. Excessive chips, burrs or dirt may cause binding within the spindle.

2.5 Safety

 **Warning safety switches should always be in place during bar load operation.**

The loader is designed to be safe and reliable to operate. However, the machine can be dangerous if used improperly by untrained personnel. Personnel should be familiar with the operating instructions of the equipment before using and must follow standard safety practices. The loader is equipped with safety devices to prevent accidental damage to the machine and injury to the operator. These devices must not be bypassed or tampered with.

2.5.1 Covers

 **Warning covers should always be in place during bar load operation.**

The loader is supplied with covers to prevent access to moving parts during operation. The hood of the loader is equipped with a safety switch to place the machine in alarm if the hood is not closed. The magazine cover prevents access to the material on the rack and the bar separators.

2.5.2 Axial Shifting Switch

 **Warning bar loader should always be in place during bar load operation.**

The loader is equipped with an axial shifting device to allow the machine to be moved away from the lathe without losing the alignment. A safety switch on the axial shifting device prevents operation of the loader if it is not in the proper position.

2.5.3 Lathe Door Safety

Warning lathe door safety if used should not be bypassed

An input to the loader for monitoring the lathe door is available. If used, this input will prevent movement of the loader when the lathe door is open. This parameter is normally set during machine installation. It is not advisable that this feature is disabled once enabled.

2.5.4 Emergency Stop Buttons

Warning Indicates a potential danger to life or risk of personal injury. Exercise extreme caution. These buttons should be tested monthly to verify the proper emergency stoppage of the lathe and loader.

There are two emergency stop buttons on the bar feeder. Button ES1 is the emergency stop button on the HMI control panel housing. Button ES2 is the emergency stop button on the remote pendant control. Pressing either emergency stop button disconnects the Emergency Stop Relay.

Contacts from the emergency stop buttons are incorporated into the interface with the lathe emergency stop circuit to enable the lathe to be manually placed into emergency stop condition from the unloader control panel.

The lathe emergency stop system will place the unloader into emergency stop as well.

Warning Indicates a potential danger to life or risk of personal injury. Exercise extreme caution. Only qualified personnel should diagnose and test electrical problems.

2.5.5 Electrical Safety

WARNING!

ONLY QUALIFIED ELECTRICIAN OR SERVICEMAN SHOULD PERFORM ANY ELECTRICAL TROUBLESHOOTING OR MAINTENANCE TO THIS EQUIPMENT.

DO NOT PERFORM ANY MAINTENANCE, REPAIRS OR ADJUSTMENTS ON THIS EQUIPMENT WITHOUT FIRST LOCKING OUT ALL ELECTRICAL CONTROLS IN ACCOURDANCE WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES.

PERSONNEL SHOULD BE TRAINED IN OSHA COMPLIANT LOCK-OUT/TAG-OUT AND ELECTRICAL SAFETY PROCEDURES.

MAKE CERTAIN THAT THE POWER SUPPLY IS DISCONNECTED BEFORE ATTEMPTING TO SERVICE OR REMOVE ANY COMPONENTS!

NEVER SHOULD ADJUSTMENTS, MAINTENANCE OR CLEANING BE PREFORMED WITHOUT FOLLOWING PROPER SAFETY PROCEDURES IN ACCORDANCE WITH LOCAL, STATE AND NATIONAL SAFETY CODES.

Before making any electrical connections be certain the voltage for which the unloader requires from the lathe is verified with a voltmeter at the power supply connector. Verify this voltage matches the required voltage of the unloader, see machine operator manual section ***2.3 Machine Specifications***. Failure to do so may result in injury or damage to the equipment. Normally an loader is ordered from Edge Technologies to be placed with a specific lathe model. The wiring interface is set in accordance with current information received to Edge Technologies. There are times the lathe manufacture may update and change the main connector pin locations and circuits. It is important this is verified with the schematics of the lathe and loader. In some cases a harness is provided which must be wired into the lathe. All previous safety advises and information must be adhered to. This form of connection allows for quickly unplugged for cleaning or service without having to disconnect “hard wired” connections.

Before starting the loader, check to be sure no tools, packing, or other material have been left in the loader or lathe.

2.6 Electrical connection

Warning The power for the unloader and the input and output signals between the bar feeder and lathe are supplied through the interface cable. The interface cable is normally pre-wired for the lathe application when shipped from Edge. The installer should verify the connection to the lathe before applying voltage to the system. If the lathe is not equipped with an interface connection for the machine plug and cables will be supplied. This supplied harness must be wired into the lathe electrical cabinet by a qualified technician. The lathe must support an unloader type interface for the machines to be connected. Additionally some lathes types power output may be higher than the required 230 voltage. If this is the case an additional transformer will be required to step down the lathe voltage for the unloader.

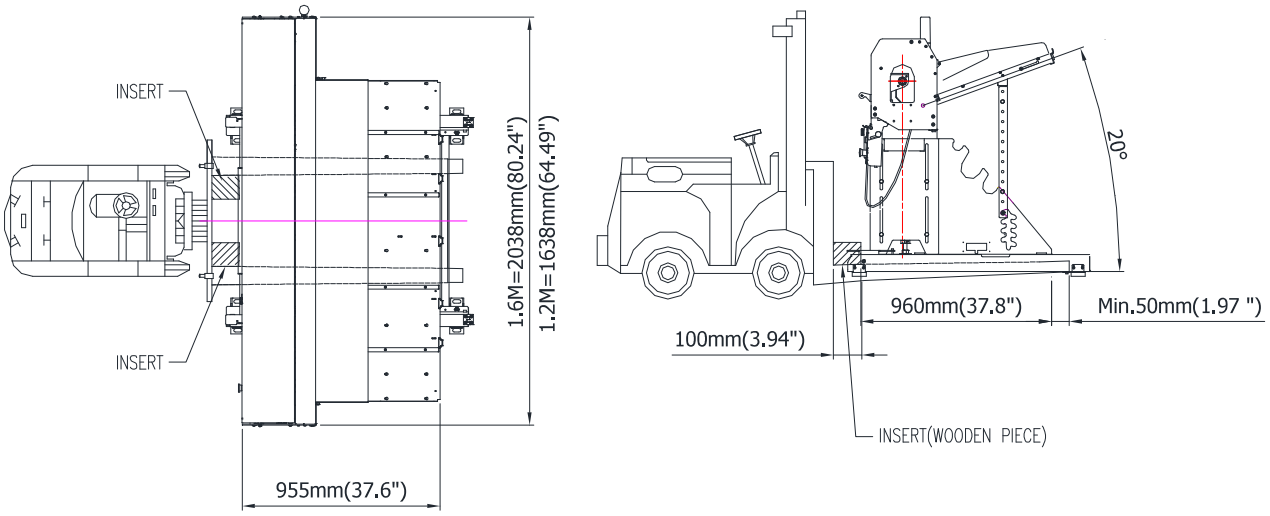
***Note the wiring interface contained in this manual is a generic 1 to 1 pin to wire call out. Each lathe brand is different from one to another. Please contact Edge Technologies for the proper interface schematic if you do not have one.**

3. Transportation and Handling

Warning The weight of the machine without packaging is approximately 1100 lbs. Only trained operators are to use lifting equipment. Verify the equipment to be used for moving the machine is rated to safely lift the weight of the unloader plus the packaging material. Make special note that the machine is top heavy and take proper precautions.

3.1 Lifting and Moving by Forklift

Lifting and moving the unloader by forklift is the preferred method of handling the machine. The machine should be moved only by personnel qualified in the operation of forklifts. The forks must extend past the machine cabinet, see the drawings below. Lift the machine from the side opposite the magazine maintaining sufficient clearance from the forklift mast to avoid contact. Care should be taken to keep the load balanced. Do not lift the machine any higher than necessary.



3.2 Lifting with a crane

Warning heed proper lifting techniques.

Warning The weight of the machine without packaging is approximately 1100 lbs. Only trained operators are to use lifting equipment. Verify the equipment to be used for moving the machine is rated to safely lift the weight of the unloader plus the packaging material. Make special note that the machine is top heavy and take proper precautions.

Lifting and moving the loader with a crane is possible if a forklift is not available. The crane must be capable of lifting at least 1,100 lbs. The machine should only be moved by personnel qualified in the operation of the crane. Two padded lifting bars that extend at least 12 inches past the sides of the cabinet are required. Ideally the lifting bars will have eyebolts attached. The lifting bars are placed under the pan of the unloader next to the electrical cabinet (see diagram. The lifting straps or chains should be padded to prevent damage to the sheet metal covers. The machine should be lifted slowly a short distance. The balance should be checked and adjusted if necessary before continuing. Never lift the machine higher than necessary.

4. Installation

Caution The following instructions should be carried out only by skilled, trained personnel. Proper alignment and installation is crucial to achieve optimal performance of the unloader. Improper alignment can cause difficulty during unloading, damage to the unloader and damage to the actuator and sub spindle bearings on the lathe.

4.1 Lathe Preparation

Prior to beginning the loader installation the lathe must be properly leveled. It is strongly recommended that the lathe be anchored to the floor to prevent it from shifting. Verify the need for extended spindle liners and the length of material to be used.

The ideal situation for a smooth installation is to be sure the lathe is capable of running production of the material to be loaded. The loader installation is one of the last steps in the manufacturing process of the part.

4.2 Setting Distance From Lathe

During the ordering process of a loader many requirements and bits information are reviewed to ensure a timely installation. Information Edge receives may be correct at that time, however once the installation commences we may find an issue with an item one of the other vendors changed. For the installer it is important to review the placement of the loader and the specifications and requirements to install are met.

The loader should be placed as closely as possible to the rear of the lathe while making sure the pusher is able to reach to the face of the chucking package. Maintaining sufficient clearance to allow the loader to be moved on the axial shifting device. Some lathe applications require the use of a V-Tray extension, this is available from Edge Technologies. The area to be occupied by the

loader while shifted away from the lathe should also be checked for sufficient clearance. Some lathe configurations may limit the axial shifting of unloader.

Note – It is important to check and record the loaders max pusher reach before installation. If this value is too short a review of lathe and loader specifications will be necessary.

4.2.1 Optional V-Tray Extension

Used when gap between lathe sheet metal and spindle coolant collector exceeds 8 inches. Certain applications may require custom produced kits. Please contact Edge Technologies to speak with a specialist.

Rollers are the standard equipment on the extended V-Tray. A solid V-Tray design is available with custom angles as required.

The extension is manually adjustable for various pusher diameters. A locking lever on each side of the roller is used to maintain the position of roller or tray. See image below.

4.3 Axial Track

 **WARNING do not move the axial track when the electrical door is open. Interference of the track and door will occur.**

 **WARNING before shifting the unloader be sure the pusher is in the home position.**

 **WARNING before shifting the loader be sure the lathe is in an emergency stop or is powered off.**

The axial shifting device can be configured to move the loader away from the lathe either parallel or perpendicular to the spindle axis. No additional parts are required for changing direction of the axial shift. To reduce the overall foot print of the machine a newly designed fold away axial track assembly was designed. This allows for a cleaner appearance and reduces trip hazards with track fixed to the floor. When the track is in the up position a locking plate keeps the track securely up.

4.3.1 Axial Track Assembly

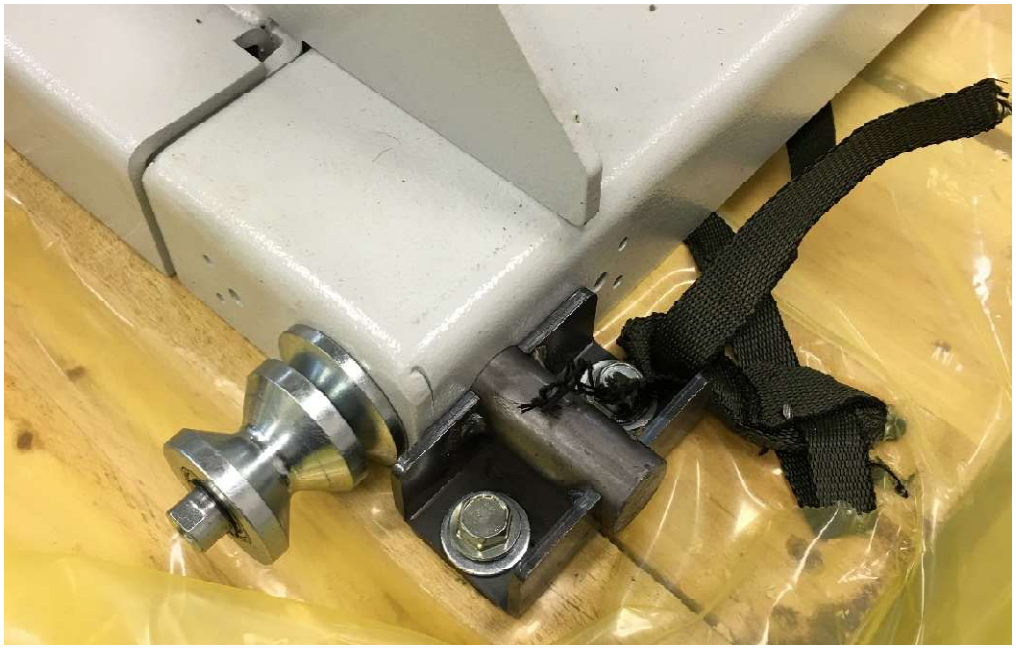
 **Warning Lifting of bar loader onto axial shift frame is required. Check the axial shifting for any obstruction by lathe or other**

 **Caution be sure there is efficient room to lift machine with forklift**

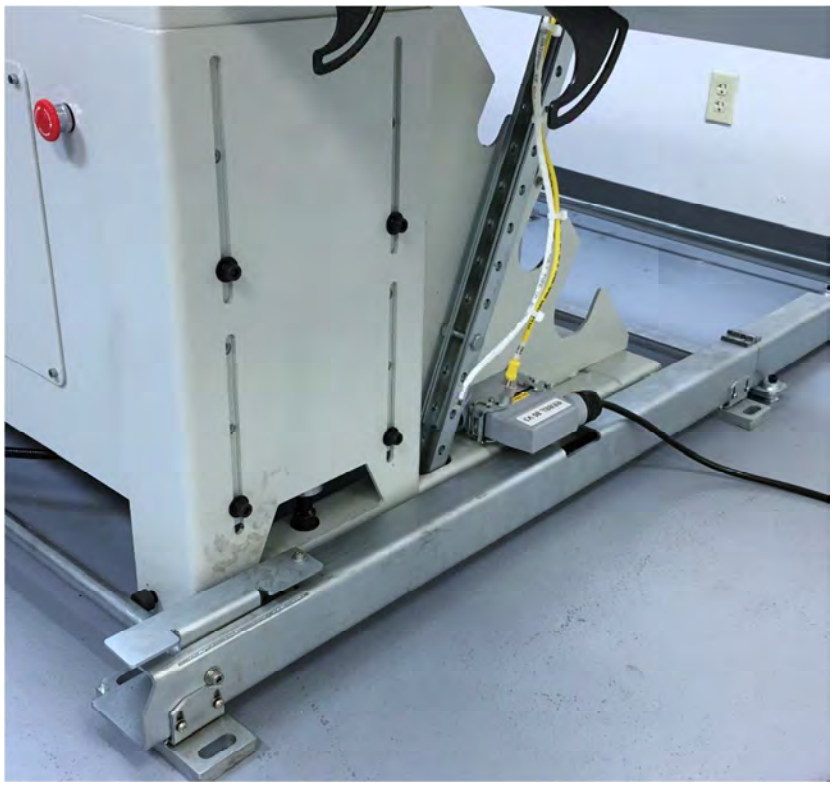
Before attempting to install machine onto axial track refer to these instructions for safe and accurate installation.

If not done so prior, unwrap the axial track assembly.

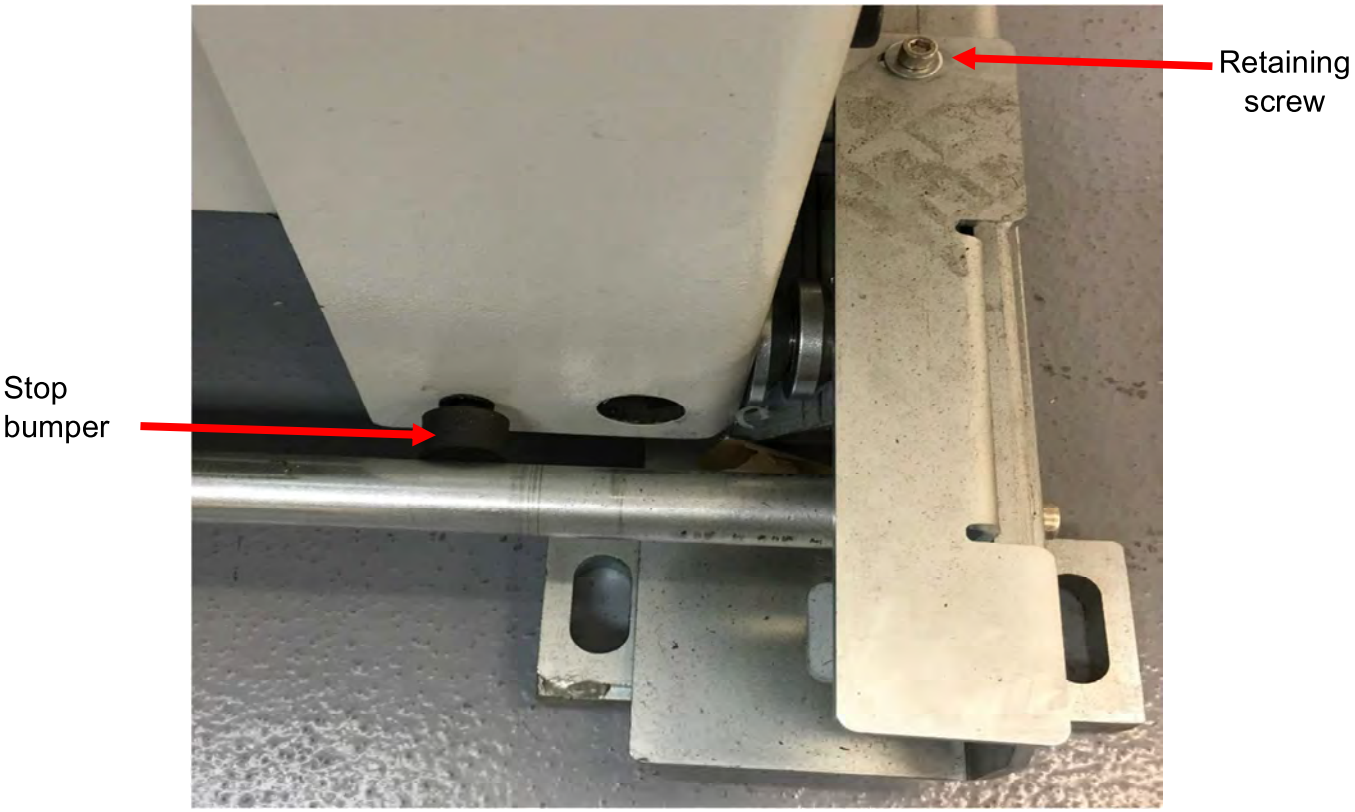
1. Locate the left and right machine tracks and place them on the floor near machine install location.
2. Locate the front support rod and fasten to the left and right tracks.
3. Set the jack screws and mounting plate so there is no preload of the jack screw.
4. The machine will have special shipping brackets that will need to be removed prior to removing from the shipping pallet. The brackets will need to be used if the machine is to be shipped in the future.



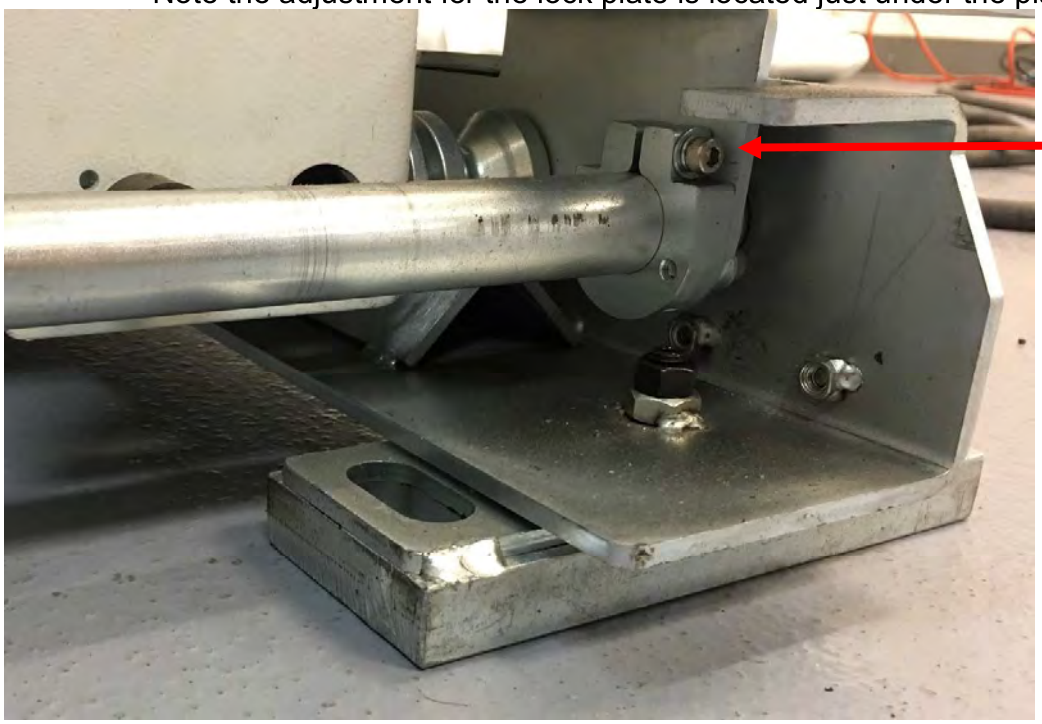
5. With the shipping brackets removed position a lift truck under the under the base of the machine from the front of the machine and lift the machine.
6. Prior to placing the machine onto the axial track inspect the machine rollers for damage. Lower machine onto the axial track via cut outs in the upper track position.



7. Move the machine fore and aft to verify proper placement.
8. Place the machine forward against the bumper stops and lower lock plate lock down.
9. Place retaining screw on lock plate on both sides of assembly, right is shown in image

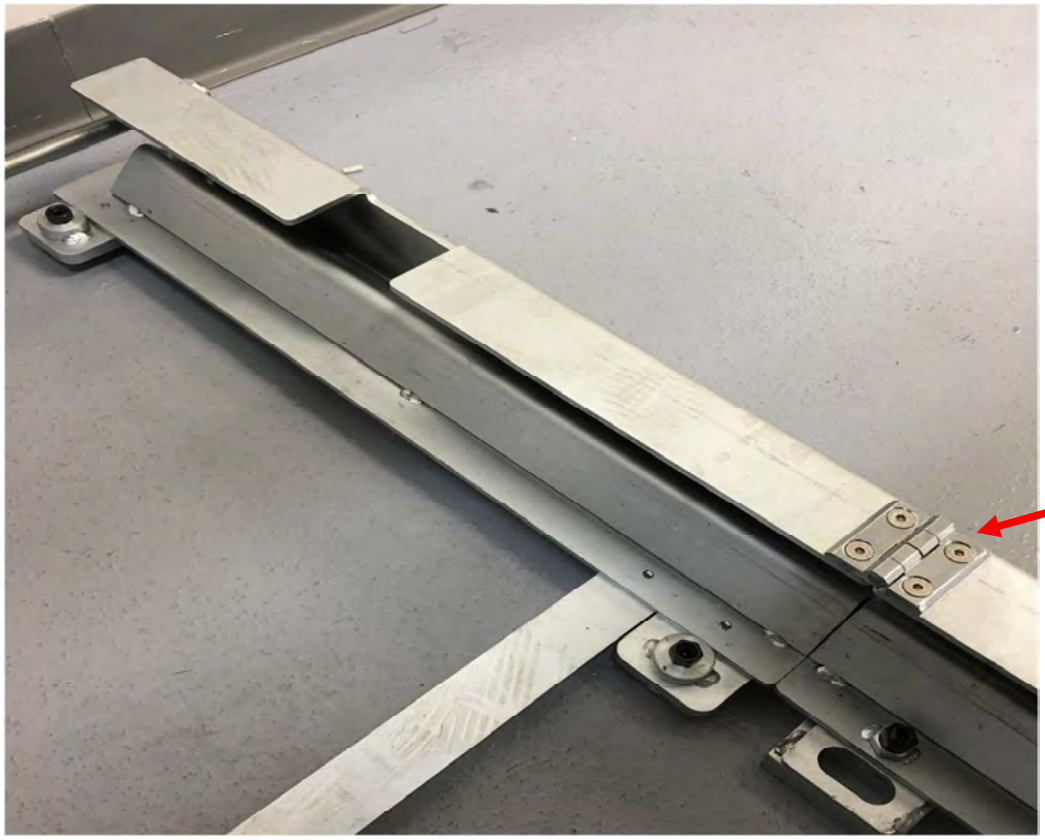


Note the adjustment for the lock plate is located just under the plate assembly.



Lock plate adjustment cam

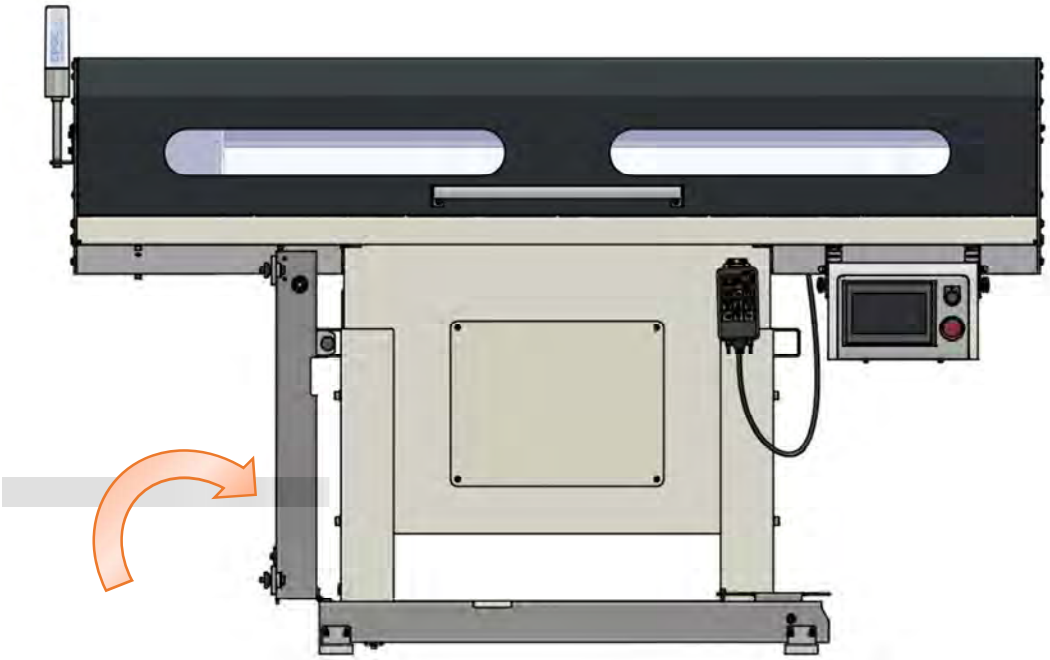
10.Next attach the hinges to the swing away axial track with screws provided

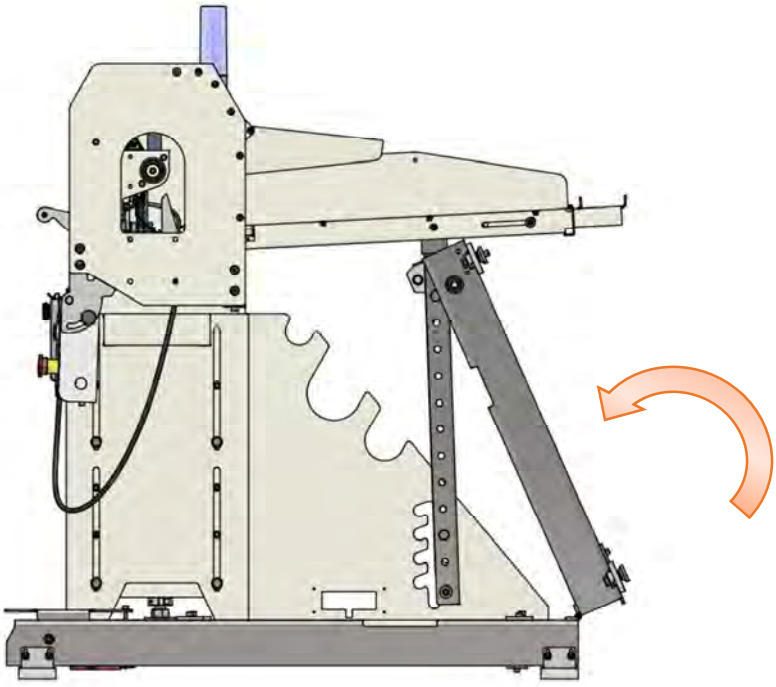


Attached hinge with supplied screws

10. Once the machine is mounted to the axial track level the axial track with the jack screws provided. The final leveling will take place during the alignment process.

11. The machine is now ready to be aligned and anchored



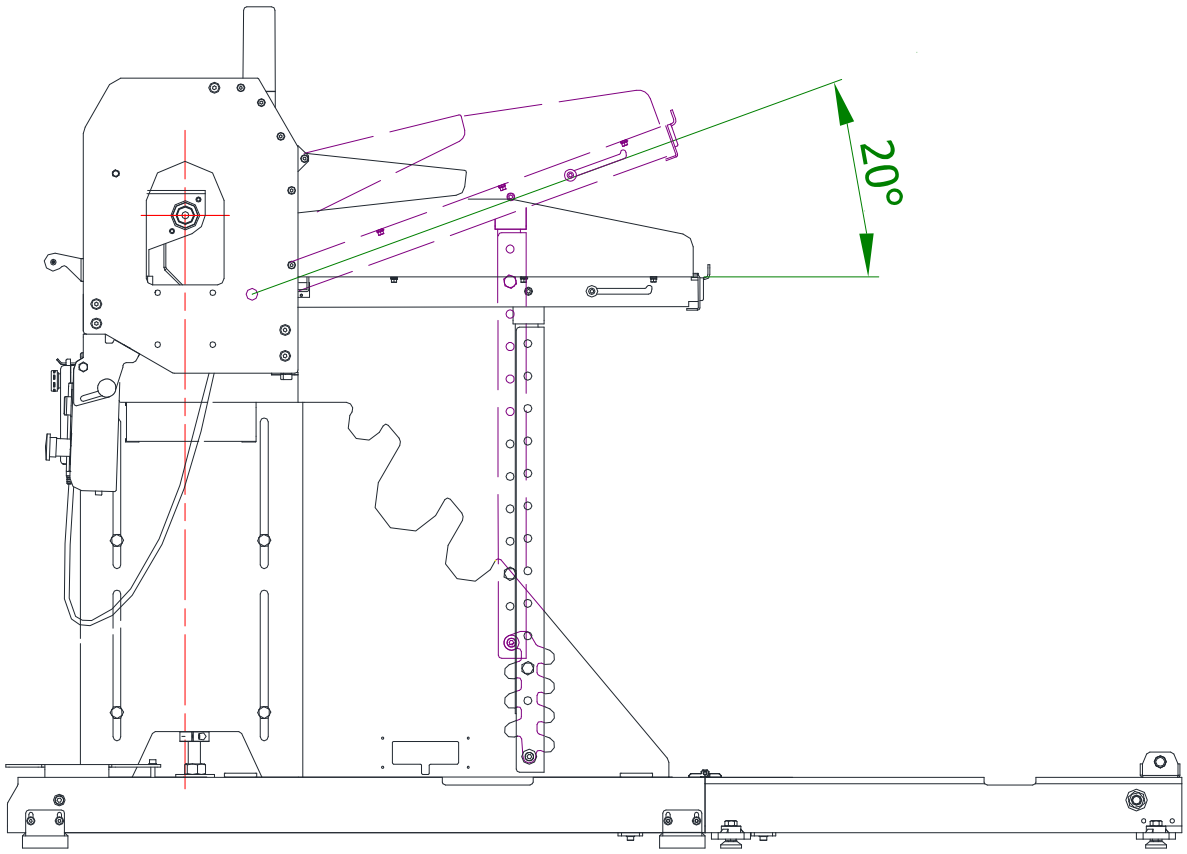


4.4 Magazine Description

Warning only make magazine adjustment when in lathe and loader is in emergency stop

The magazine is built into the loader and not intended to be removed. There is angle adjustment from a -10 degrees to a +20 degrees. As the height of the machine is increased during the install process the magazine stands will require an adjustment as well. The magazine is normally facing away from the operator. If the desire to load product from the magazine via the front of the machine the entire loader will need to be special ordered installed in that orientation. The magazine alone cannot be changed.

See section ***5.2 Adjustment of Magazine Angle***



4.5 Spindle Liner

 **Warning prior to spindle liner insertion be sure the lathe is in emergency stop or power to lathe is off. Never remove or install a spindle liner to a spindle that can be powered on during this process.**

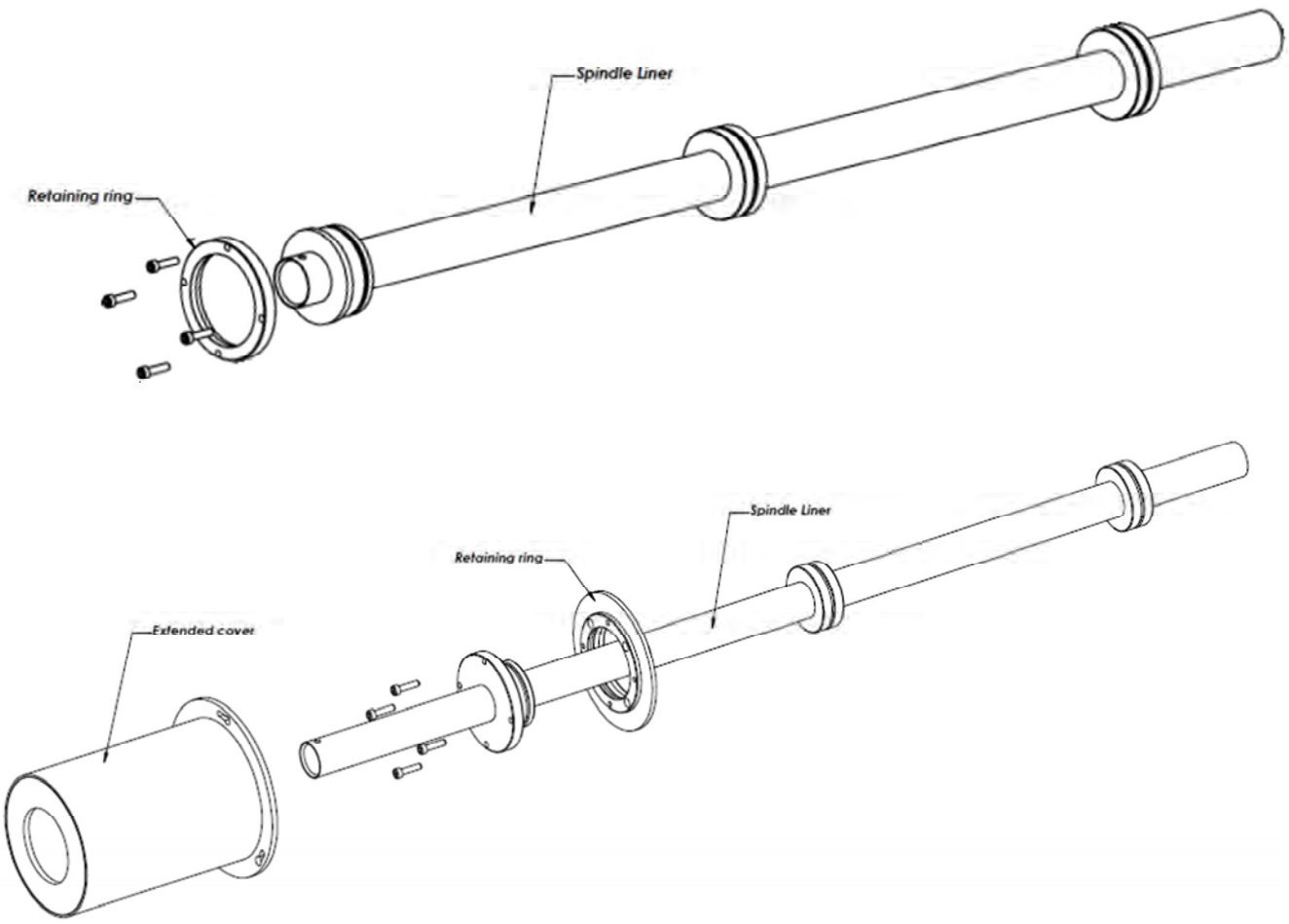
 **Warning do not operate lathe if using an extended spindle liner and the extended cover is off of the spindle. Doing so could cause personal injury and machine damage.**

 **Caution be sure to use the proper fasteners for the spindle liner retaining ring and if equipped spindle liner extension housing.**

For the most reliable insertion of material the lathe spindle normally requires a spindle liner. This liner reduces the inner diameter of the spindle to the diameter of the material. The liner should be approximately 2mm larger than the material.

When installing a spindle liner for the first time the liner end may need to be cut. This is a normal practice for the liner to be longer for the various chucking packages that are available. A longer liner is better to have than a too short of one. The end of the liner should be approximately 13mm from the rear of the chuck jaws or collet. Any further and this could cause a load or remnant ejection issue

Normally a spindle liner will be part of the options ordered from Edge Technologies. Additional spindle liners can be order from Edge technologies.


Spindle Liner
Retaining ring
Spindle Liner
Retaining ring
Extended cover

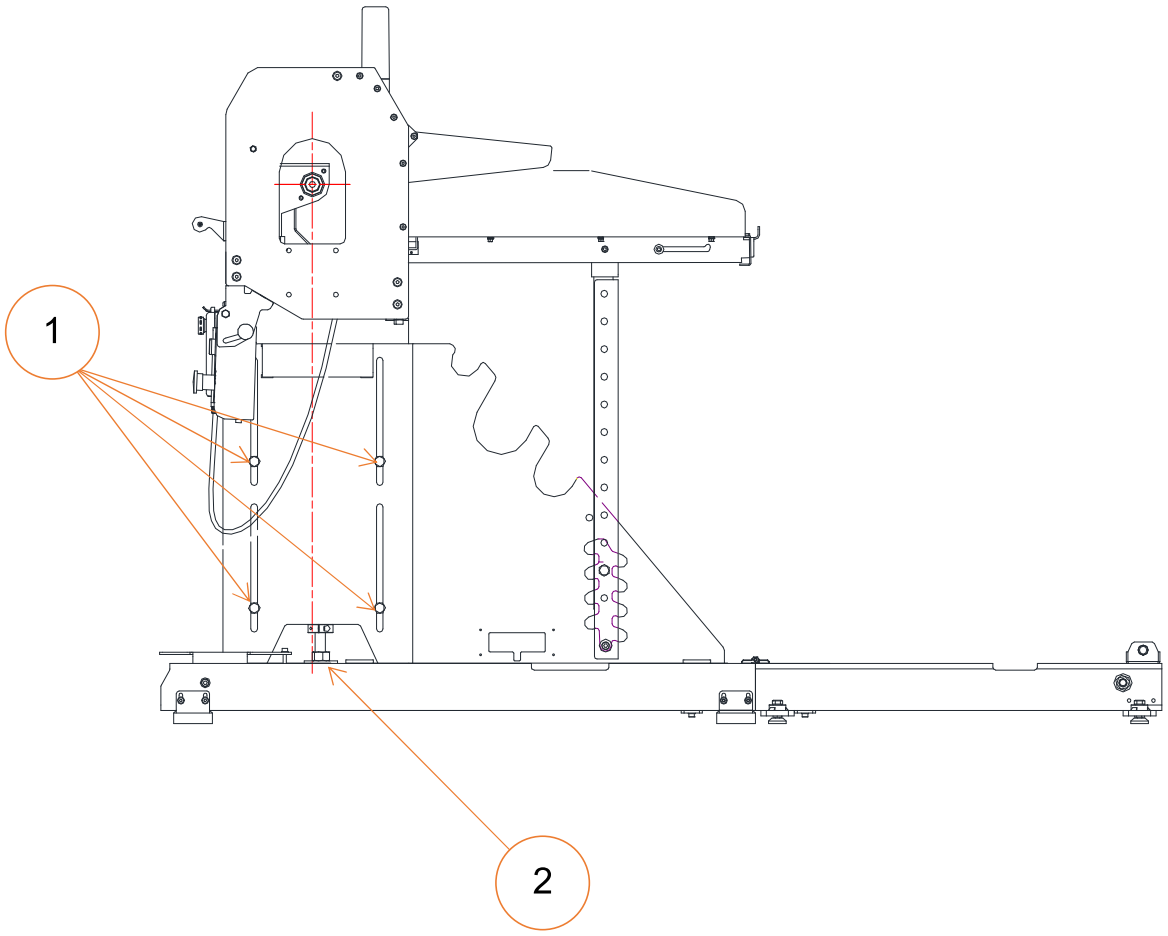
4.6 Alignment and Installation

Caution should be taken, only qualified electrician or serviceman should perform any electrical troubleshooting or maintenance to this equipment.

The loader alignment procedure is a little different from a magazine bar feeder in that a laser alignment can be an option. Visual alignment by the extractor rod and spindle liner is the typical method for aligning an unloader.

Caution be sure the proper spindle liner is used for the lathe and material

Elevation of the machine is adjusted by the two jack screws located at the center of each stand. If lowering the machine locate the jackscrew thread clamps. Loosen the clamp and thread the clamp down so the lowering of the machine may be facilitated. If low loosen the four bolts securing the leg to the stand (1). Turn the jack screw (2) to raise or lower the unloader center height. The side-to-side alignment is set by sliding the machine on the floor. **Note be sure the jack screws on the axial track are not lifting the track at this point.**


1
2

Use this section as an installation guide and record installation values.

****The lathe chucking package is required to be installed on the lathe spindle prior to****
****loader installation****

1. Once machine has been placed onto axial shift assembly alignment may be performed.
2. Verify the installation position compatibility
3. With the proper pusher installed in the loader extend the pusher out past the front of the unloader and record the distance from the face of the loader to the end of the pusher.
   Pusher length **_____**
4. Next measure from the face of the spindle collet or chuck to the outer lathe sheet metal and record this value Lathe ***Collet/chuck to sheet metal length*****_____**. If the value in step 3 is less than step 4 verify machine build data for the application.
5. Normally the pusher should be able to reach the face of the collet or chuck face
6. Now the loader can be placed into position next to the lathe and aligned.

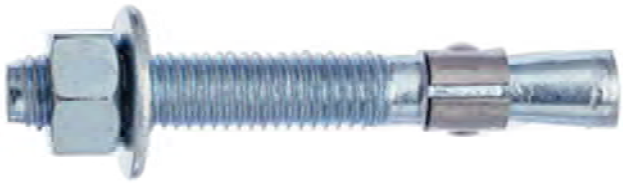
Aligning and Anchoring the loader

 **Warning be sure lathe and loader emergency stop is engaged when performing the manual alingment procedure.**

Lathe must be operational to perform the alingment with the proper chucking package and jaws installed as required

Have the bar stock and correct spindle liner for the bar stock on hand to finetune the alingment.

1. Remove any covers on the lathe to gain access to the rear of the spindle
2. If not already done so connect the loader into the lathe connector for power and electrical cicuits.
3. Be sure ther are no alarms present. Clear and resolve any alarms that are active.
4. From the lathe side install the initial spindle liner for setup. If an extended liner is used it must be installed with the cover.
5. Posisiton the loader behind the lathe spindle.
6. Extend the pusher out to the rear of the sindle.
7. Use the jack screw to raise and lower the loader to aling the pusher to the spindle center.
8. Look into the spindle from the chuck end and observe the ring of light around the bar stock. Move the loader so the ring is equal all around the pusher.
9. Once the pusher is centered at the end of the spindle push it into the lathe.
10. Looking through the spindle from the chuck the goal is to have the pusher equally spaced from the sides.
11. Use the selected bar stock to slide into the sindle liner and verify a smooth transition. If requried adjust loader to the transition is smooth. Be sure to set the bar diameter in the part menu.
12. Once the alingment is satifactory tighten the stand bolts.
13. Recheck the alingment, if saticfactory move on to drill the holes in the floor to anchor the unloader.



Caution wear protective eyewear when operating a hammer drill or hammer to strike a floor anchor.

When the alignment is completed the loader must be anchored to the floor to prevent it from moving out of position. The machine is supplied with ½" diameter wedge anchor bolts to secure the axial track to the floor. It is recommended to drill the holes for the anchor bolts completely through the floor if possible or at least as deep as the anchor bolt is long so that the bolt may be driven flush with the floor should the machine need to be moved. Alignment should be rechecked after anchoring the machine to the floor to make sure the alignment has not changed. This includes moving the machine on the axial track and rechecking alignment. Small adjustments to the alignment can be made by the leveling nuts on the leveling feet.

5. Systems and Settings

5.1 V-Tray System

The V-Tray is raised and lowered to allow the material to enter the spindle. The system is a simple and straight forward design with just a few components. The system is a self-calibrating systems and will not require the operator to force a calibration of the actuator. The following list of components make up the V-Tray system.

Both accessed from the front panel

- 1. Vertical actuator
- 2. Cable encoder

1. Vertical Actuator

2. Cable Encoder

Manual drill access port location on underside

The V-Tray can be raised and lowered by use of a ¼ shank drill insert. This insert is placed itno the drive motor shaft on the gearbox side. To access this port remove the screw plug and insert the drill insert to the motor shaft. The V-tray may be raised and lowered via the drill operation.

Raising the V-Tray manully

Warning when raising or lowering the V-Tray manually with a powered drill or by means of a hand rachet. Personal and or machine injury could accour if directtions are not followed.

Warning do not manually move the v-tray while machine is under power.

Caution be sure no material or parts are in the V-Tray when moving the V-Tray manually

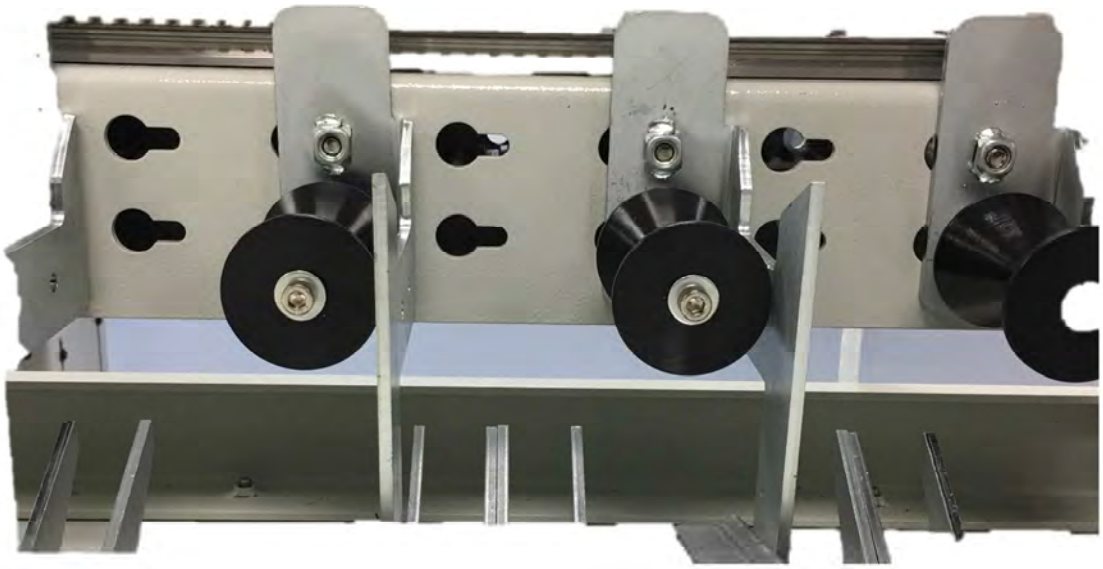
The V-Tray can be raised and lowered by use of a 5mm ¼ shank drill insert. This insert is placed itno the drive motor shaft on the gearbox side. To access this port remove the screw plug and insert the drill insert to the motor shaft. The V-tray may be raised and lowered via the drill operation.

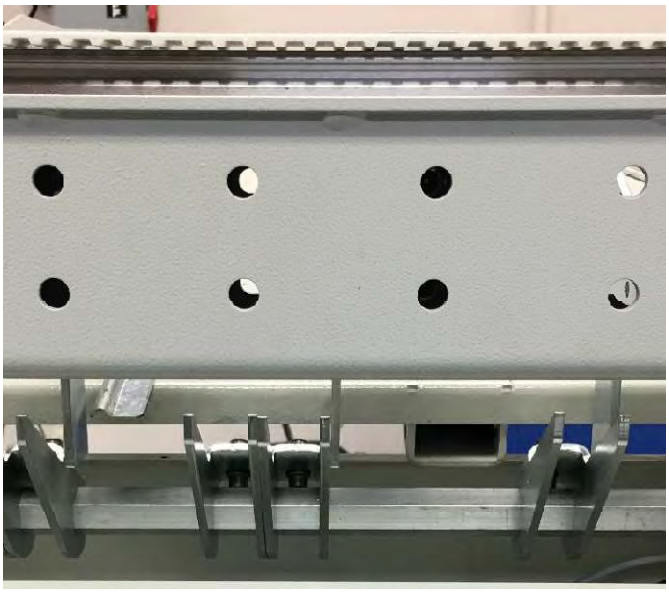
Underside of V-Tray actuator for illustrative purpose only, do not service

5mm ¼ shank drive
drill insert

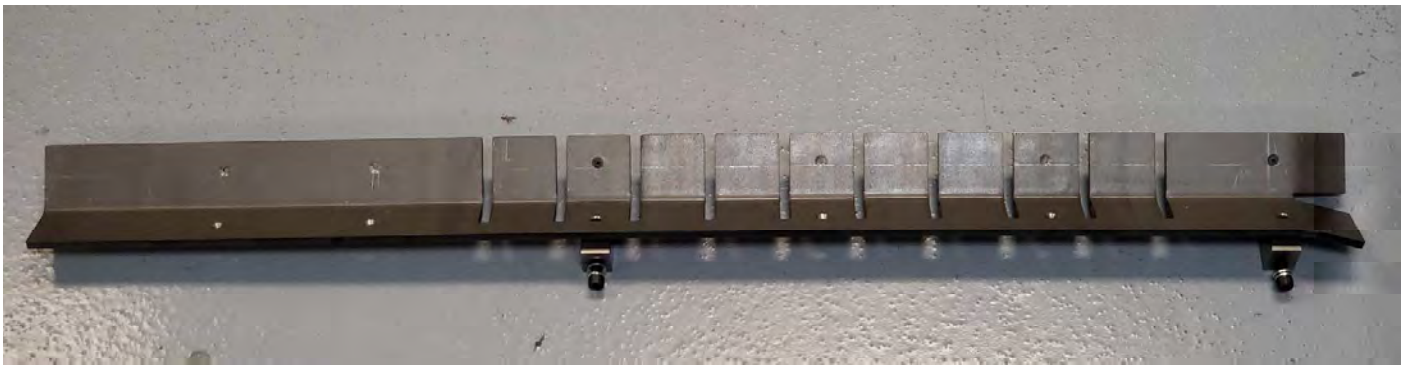
(Included)

There are 2 types of V-Tray configurations available in the Rebel loader. The first is a 90 degree roller design which is standard equipment. This design allows for low friction and smooth material introduction into the spindle. The rollers may be positioned in a variety of positions depending on length of the material. This type of loading reduces movement stress on material since the lowering of the V-Tray to the fingers allows for easy material transition from the magazine.





The second type of V-Tray is a steel tray bent to a typical 90 degrees, other degree plates are available as required.



5.1.1 Adjustment of the rollers

 **Caution do not adjust rollers unless the emergency stop is engaged on the lathe and loader.**

 **Caution observe roller and finger plate location. Machine damage will occur if plates contact rollers.**

To move rollers to different locations use an M5 hex wrench inserted into the holes opposite of the rollers.

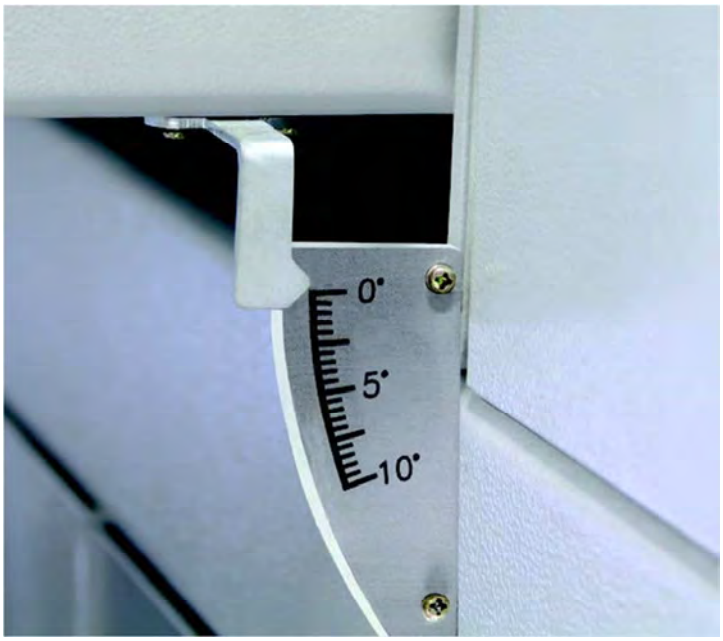
- With material removed from the V-Tray raise the V-Tray
- Place the loader into emergency stop
- Loosen the screws enough to allow the roller assembly to slide out of the key holes
- Relocate the roller to the desired keyhole location and tighten the 2 screws
- Be sure the rollers don’t interfere with finger plates
- Once adjustment has been made close the hood.
- Reset emergency stop on loader and lathe.

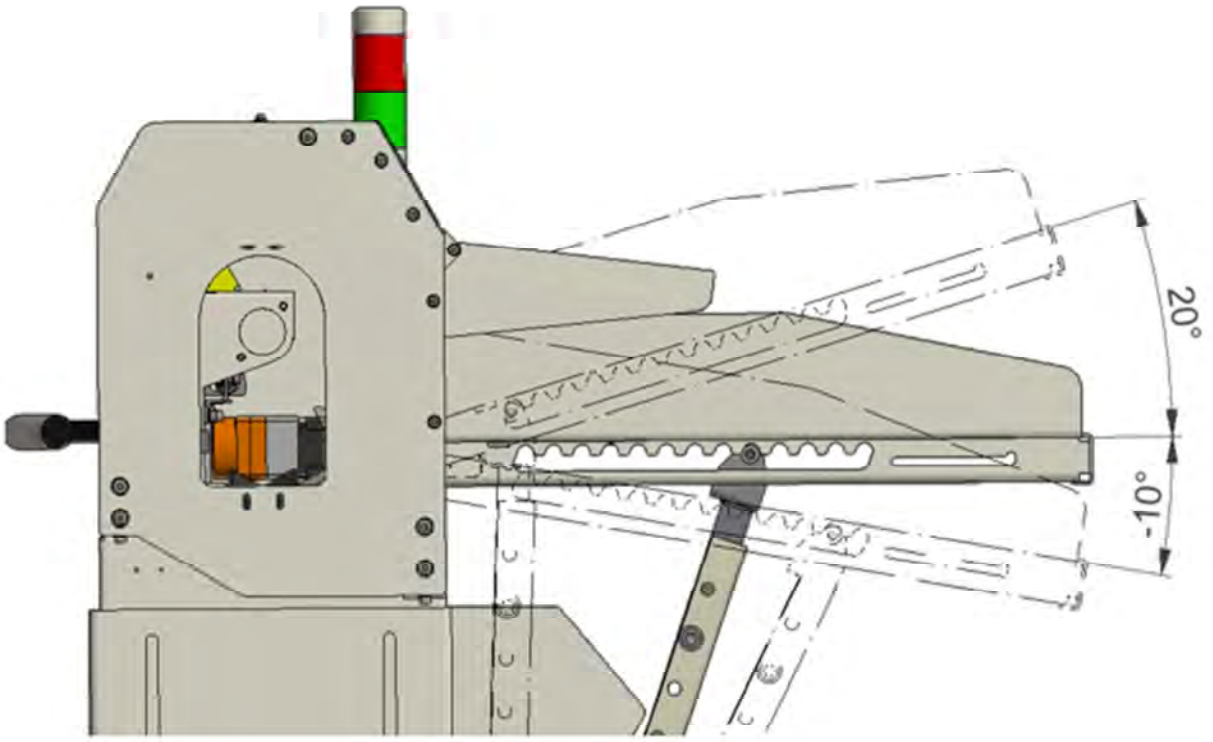
5.2 Adjustment of Magazine Angle

Caution it is recommended that 2 people lift and set the angle of the magazine due to the awkward position one must be in the lift and set.

Caution do not adjust the magazine with material in the magazine.

The magazine support is firmly attached to the frame of the machine and can easily be set from 0 to 20 degrees. Additional retaining liners and material flow directors can be easily attached to the magazine area. The initial angle of the magazine can be positioned via the vertical retaining posts. A smaller adjustment can be easily made by lifting the magazine to raise or lower the angle of the magazine for variations of part densities and shapes. See image below.




20°
-10°

5.3. Bar Pushers

 **Warning do not rotate lathe spindle with pusher extended into the spindle. This will cause damage to the lathe and bar pusher.**

 **Warning do not allow bar pusher end to contact a rotating bar, pusher and machine damage will occur.**

 **Caution be sure the proper pusher diameter and spindle liner are installed.**

The Rebel uses a single bar pusher system with a pre feeder pusher. Both pusher designs are for pushing against material that is not rotating. Doing so will damage pusher.

The pusher should be chosen just smaller than the material diameter yet thick enough to push the material into the spindle without the pusher bending. There are 3 standard pusher diameters with the Rebel. Additional pusher diameters are available through Edge Technologies.

The pusher transition between pre-feed and long pusher is a simple and effective design. Pushers can be changed quickly and easily from the pusher retaining sleeve by removing the retaining pin and switching pushers.

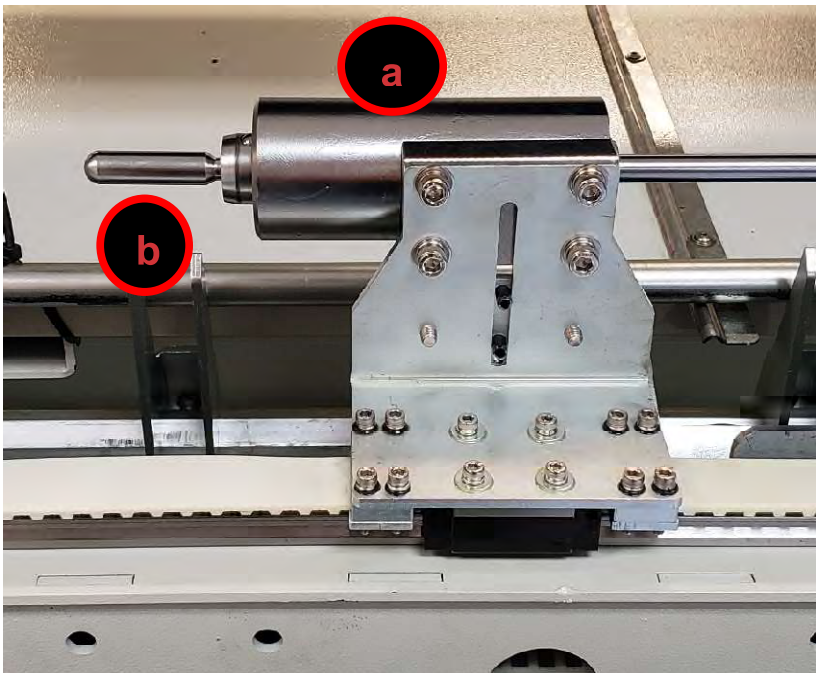
5.3.1 Changing Long Pushers

Caution do not change pushers when loader has power to the servo. Servo must be disabled by the emergency stop

The bar pusher is a quick change design and can be changed out in just seconds.

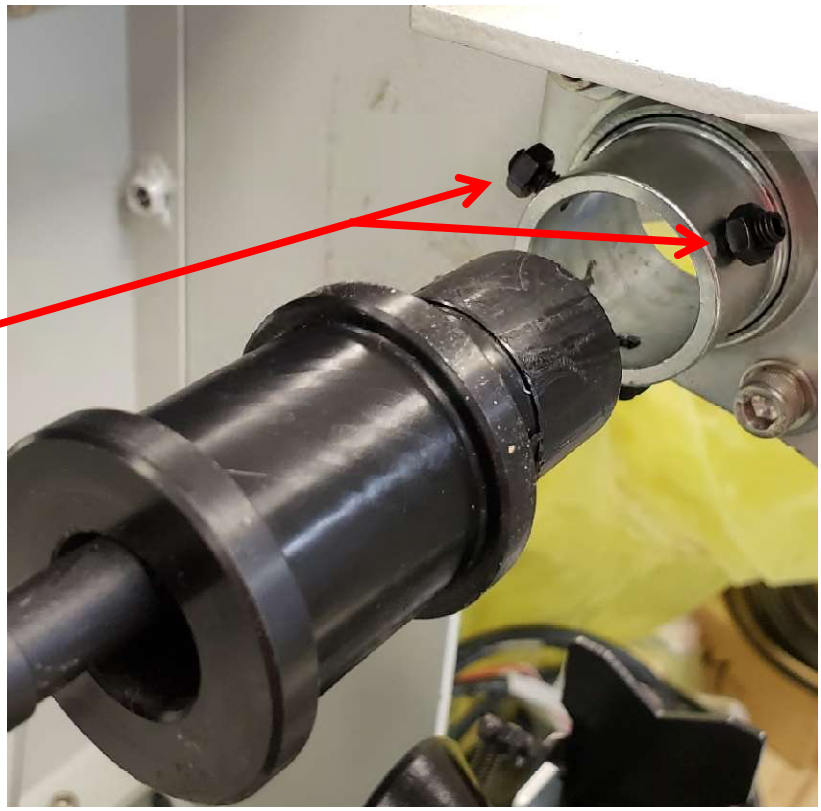
1. Set the emergency stop of the bar feeder, lathe should then follow into emergency stop
2. If equipped remove air supply to machine
3. Open the hood
4. Disconnect any electrical connector or air fitting from the pusher mounting if equipped
5. With the power disabled move the pusher forward.
6. Pull the retaining pin back and slide the pusher away from the home location

Hold the pusher carriage **(a)** firmly in place and push the pusher lock pin **(b)** towards the lathe. This will release the pusher from the pusher dock.



7. Once the pusher is released from the housing pull the pusher towards the home position and out of the vertical retaining ring
8. Remove the vertical retaining ring and replace with the selected ring

Back off lock nuts and loosen set screws.

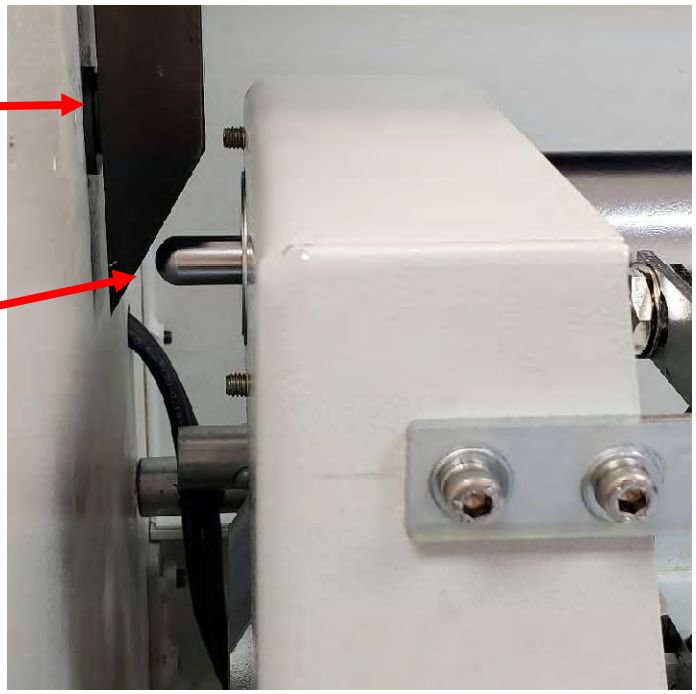


9. Install selected pusher into pusher housing
10. Be sure the pusher lock in assembly is in place
11. Reverse procedure with new pusher. Be sure pusher assembly is in the lock position.

Note lock position

Transition plate

When the pusher is at home position the pin should extend approximately 1 inch

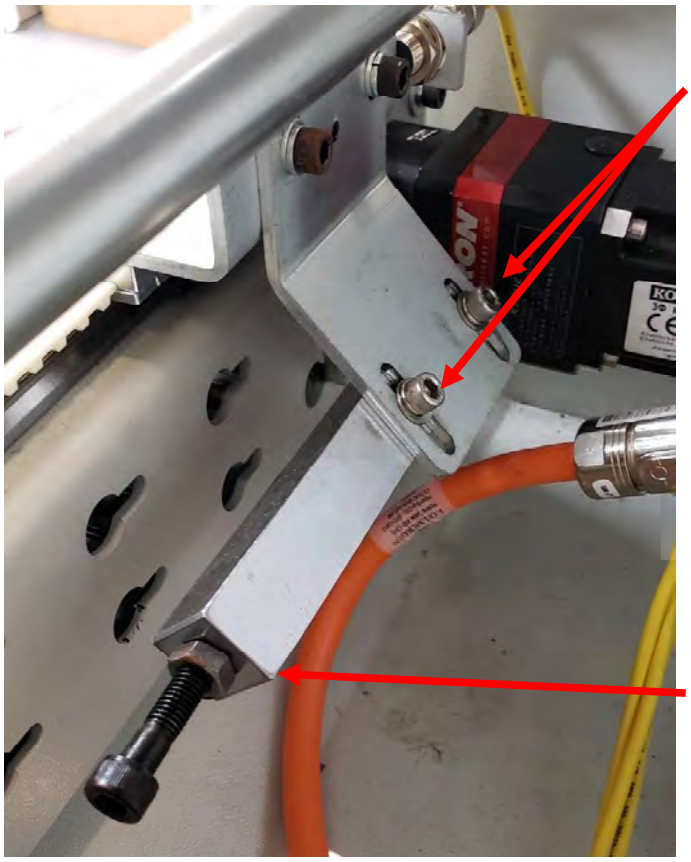


5.3.2 Pre Feed Pusher

Warning do not allow bar pusher end to contact a rotating bar, pusher and machine damage will occur.

Warning do not change pushers when loader has power to the servo. Servo must be disabled by the emergency stop

The Pre feed pusher will push the bar just past the long feed pusher face. This will allow the long pusher to move the bar to the facing positon. The pre feed pusher is adjustable to the material diameter and process requirements.



The placement of the pre feed pusher to the material may be moved as required. The pre feed pusher may be off set from center for tubing or placed at different locations on the end of the bar to assist in loading.

The pre feed pusher length may be shortened by trimming the length. If a longer pre feed pusher is required a screw and nut may be used to add the required length. Extended pre feed pushers are available as special requests.

5.4 Axial Shifting

 **Caution When moving the unloader on the axial shifting device the pusher must be retracted to the home position or machine damage will occur.**

The axial shifting device allows the unloader to be moved away from the lathe in either the X axis (shown or the Z axis depending on the customer's preference at time of setup. The machine can then be returned to its original position without loss of alignment.

 **Caution return pusher to home position then place loader into emergency stop prior to starting axial track procedure.**

Follow the instructions below to shift loader

1 Be sure extractor is at home position
2 Engage emergency stop of loader
3 Be sure there are no obstructions of axial shifting. Make sure the axial track rails are clear of any chips or debris.
4 From the rear or side of loader, remove the retaining plate holding fold away axial track and lower track down to floor
5 Be sure the track is level with the anchored portion of the track. There are 4 jack screws on each side of the fold away track to level as required
6 At the front of the machine remove the M5 screw from the foot plate.
7 Press foot release at front of machine and slowly slide machine to desired position

5.5 Finger System

The finger system is used to adjust for various diameters of parts to be unloaded. Finger plates are the standard for the machine. If desired a V-Tray angled plate is an option. Finger plate movement is performed by a linear actuator with a rope sensor to determine positioning. Proximity sensors are used to determine the physical hard stops of the finger system The PLC uses theses inputs to determine finger plate positioning.

Parts of the Finger system

- **Finger actuator**
- **Rope encoder**
- **Max travel prox switch**
- **PLC**
- **Adjustable finger plates**

Warning when moving finger plates when the V-Tray is up. They can be positioned that allows for contact with a roller if care is not taken.

5.5.1 Finger Plate Adjustment

Warning if the V-Tray is up and a roller is over the finger plates when the V-tray is lowered this will cause roller to plate contact and cause damage to the machine.

Caution when working with the hood open

Finger plates can be easily adjusted buy loosening the locking nut and unscrew and moving the plate to the desired location. It is important to note the location of the rollers as they can cause interference of the finger plates.

This adjustment is required when material is shorter than 36’’.

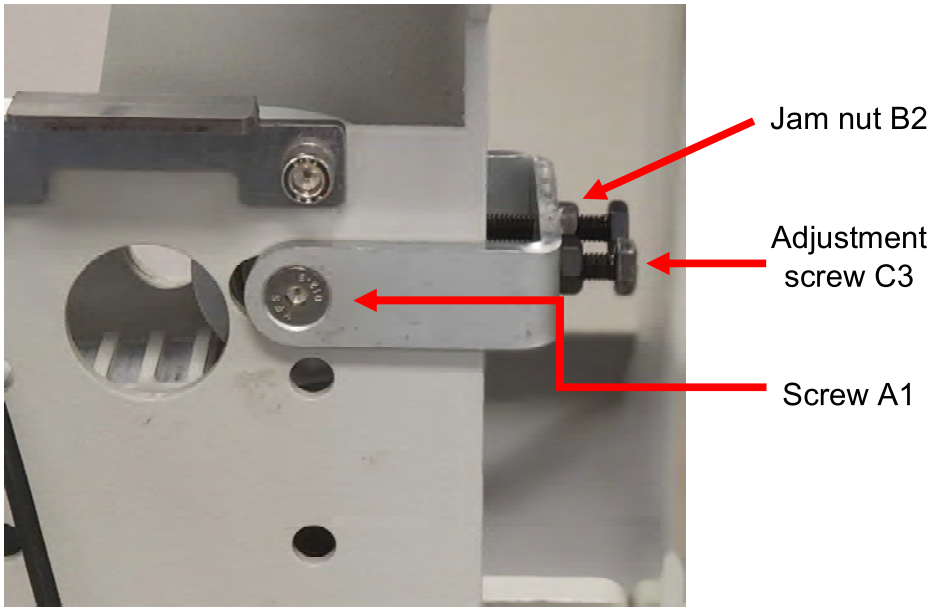
1. Be sure the loader is free of material
2. Start with the V-Tray in the down position using the pendant. If the fingers move when the Pendant up and down button is pressed navigate to Manual screen and change the setting from **Pendant Jogs Fingers** to **Pendant Jog V-tray**.
3. Set the proper material diameter in ***Part-> Material,*** V-Tray will then adjust the height as required when raised
4. Place lathe and loader into emergency stop
5. Open loader hood
6. Test fit the sample material that will be loaded by placing it into the V-tray
7. If adjustment is required, loosen the locking nut and screw and slide the plate to the desired position and lock the screw and nut. It may be required to adjust roller placement as well. See roller adjustment procedure in this manual
8. Close the loader hood and reset the emergency stop on the lathe and loader. Clear alarms from both machines.
9. Use the Pendant to raise the V-tray and verify proper loading of material.
10. If material drops 2 bars in verify bar diameter setting

Warning if the V-Tray is up and a roller is over the finger plates when the V-tray is lowered this will cause roller to plate contact and cause damage to the machine.

5.6 Drive Belt adjustment

Warning power to the lathe and unloader must be isolated from both machines prior to adjustment.

The drive belt adjustment on the Rebel is made by moving the front drive belt pulley by means of adjusting screws at the front of the bar feeder. Loosen the two bolts (A1), one on each side of the pulley shaft. Loosen the jam nuts (B2), turn the tightening screws (C3) clockwise to draw the pulley shaft forward and tighten the belt. Jog the pusher forward and backward several times and observe the tracking of the belt on the front and rear pulleys. If the belt pulls to one side loosen the opposite side tensioning screw. When the belt is tracking properly re-tighten the two bolts on the pulley shaft, alternating between the two in small increments until snug.



6. OPERATIONS AND DESCRIPTION

6.1 Material preparation

Caution!

Material should be relatively straight and clean. While bent stock will not necessarily cause problems within the lathe spindle while turning, it may prevent loading if bar condition is such that the bar collides with the back of the lathe spindle or it binds while feeding into the spindle.

Bars of small diameter may not pick up properly from the magazine, if they are not straight. Excessive chips, burrs or dirt may cause binding within the spindle. The ends of the bar should be relatively straight to the diameter of the bar to help ensure proper positioning of the bar as it reaches the facing position and to keep the bar pusher from sliding off the bar while feeding the material.

Under no circumstances should a bar be run that extends past the end of the lathe spindle! Failure to comply with this rule may result in injury or death to the operator or personnel in the vicinity of the machine and /or severe damage to the machinery!

The max length of material

Type	Mod	Max length mm
REBEL	1200	1200 Bar length depends on spindle length.
	1600	1600 Bar length depends on spindle length

The flatness of material must be within 0.5mm/M.

7. Control Operations

7.1 HMI Description

⚠ WARNING

Only trained personnel should operate the bar feeder.

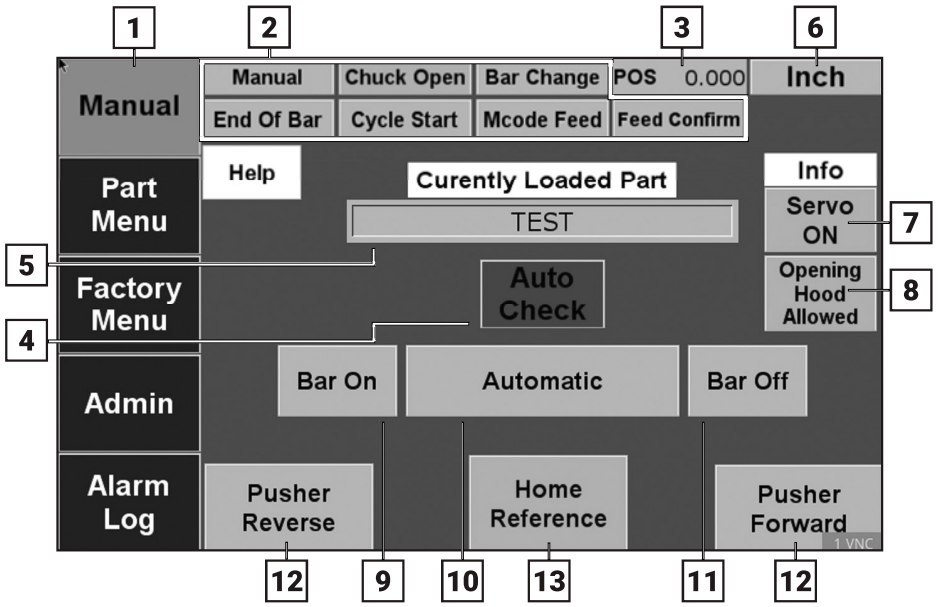
The Minuteman bar feeder features a 7” full touchscreen HMI.

The HMI is a microprocessor-based, touchscreen unit that receives user input commands directly through the touchscreen. Understanding the function of the HMI is essential in operating the bar feeder.

NOTICE

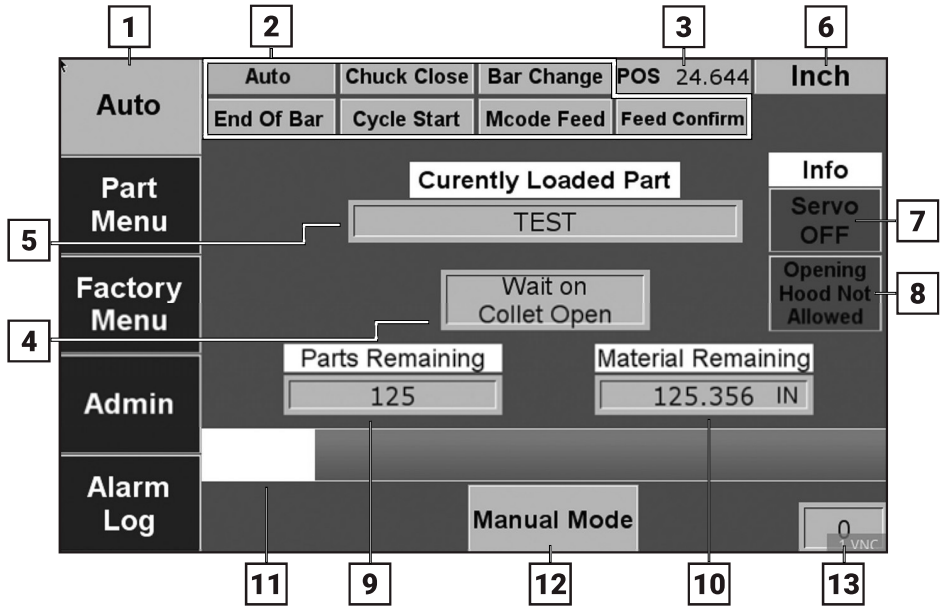
Do not use harsh cleaning chemicals on the HMI screen. Use of a microfiber cloth towel and denatured alcohol is permissible. Clean the screen with the power off.

7.2 Manual and Auto Screen Layouts



Manual Screen

1	Mode status = Manual or Automatic mode	7	Servo on/off indicator
2	Status of interface signals	8	Hood opening allowed indicator
3	Current pusher position	9	Bar on button
4	Auto Check. When green all conditions to go into auto are made. When red, press to see what conditions are missing.	10	Automatic button
5	Current part program	11	Bar off button
6	Current unit of measurement. Tap to change between metric and inches. This can be done at any time	12	Jog pusher buttons
		13	Home Reference button



Automatic Screen

1	Mode status = Manual or Automatic mode	7	Servo on/off indicator
2	Status of interface signals	8	Hood opening allowed indicator
3	Current pusher position	9	Parts remaining indicator
4	Current script item	10	Material remaining indicator
5	Current part program	11	Material remaining visual indicator
6	Current unit of measurement. Tap to change between metric and inches. This can be done at any time	12	Manual mode button
		13	Current step number

7.3 Handheld Pendant Layout

NO.	Function
1.	Emergency Stop
2.	Alarm Light
3.	Cycle Start Light
4.	Bar End Light
5.	Collet Open Light
6.	Bar Change Light
7.	Feed Stop Light
8.	Automatic Start Light
9.	Automatic Start
10.	Manual Mode Light
11.	Manual Mode
12.	Pre Auto Light
13.	Pre Auto
14.	Channel Down Light
15.	Manual Loading
16.	Pusher Extracted
17.	Manual Insert/Extract
18.	Grippers Closed Light
19.	Manual Loading
20.	Pusher Home
21.	Manual Retreat (Left)
22.	Channel Open Light
23.	Manual Channel Open/Close
24.	Pusher Home (reversed)
25.	Manual Advance (Right)

7.4 Power Up

⚠ DANGER

Improper use of the electrical cabinet can result in electrocution and damage to the machine.

1. Have the bar stock in the bar feeder magazine and the lathe ready for production to power up and place the bar feeder in Automatic mode.

2. Turn the main breaker switch on from the bar feeder electrical cabinet.

3. Make sure the Emergency Stop buttons on the pendant and the main control panel are released.

4. Press and hold the green On button on the main control cabinet. The green button will light when the bar feeder is on.

5. Close the collet on the lathe.

6. Press the Automatic button on the touchscreen to place the bar feeder in Automatic mode. Reference the Auto Check screen for all conditions that must be met before pressing the Automatic button.

7.5 Advance / Retreat at Low Speed

To advance at low speed, press  and  .

To retreat at low speed, press  and  .

7.6 Automatic Work Operation

Press the automatic button on the touchscreen, or press Pre-Auto and then Auto on the handheld pendant, to place the bar feeder in Automatic mode. Reference the Auto Check screen for all conditions that must be met before pressing the automatic button.

7.7 Resetting the Bar Feeder Home Position

Press the Home reference button.

Once the Home switch turns on, the Home reference indicator will turn from red to green. It is still possible to reference when the indicator is green.

This procedure should be done any time the bar feeder fails to properly reach a position, or the Home Reference Lost alarm occurs.

NOTICE

Do not use Bar On if a bar is already in the bar feeder. Doing so will cause damage to the machine.

Bar On

A new bar can be loaded by using the Bar On button. The lathe collet must be open for Bar On to function. The channel must be open, the chuck must be open, and the pusher must be extracted.

1. Press the Bar On button.
2. The grippers will close on the bar, but only if a bar is present. There need not be a bar in the channel at this step.
3. A new bar will fall into the guide channel.
4. The pre-feed pusher will move the bar forward ahead of the pusher collet.
5. The pre-feed pusher will retract and the channel will close.
6. The grippers will hold the bar as the pusher collet is forced over the material.
7. The grippers will open and the bar will move forward to the facing position and stop.
8. Manually close the lathe collet. The bar feeder can now be placed in Automatic, and machining may begin.

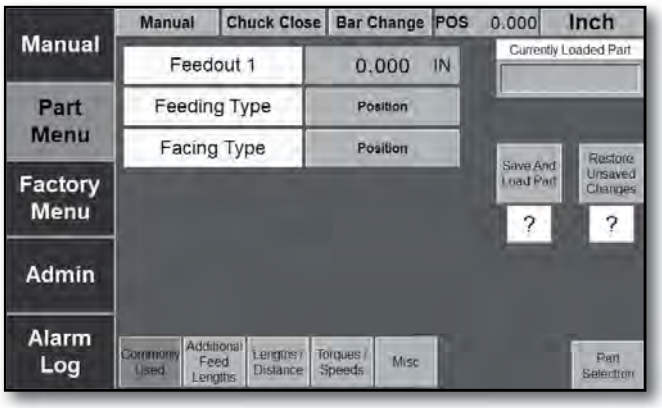
Bar Off

If the material in the channel is too long to drop through the remnant slot, use the Bar Off button.

1. Press Bar Off.
2. The bar pusher will retract to the Home reference position.
3. The grippers will close on the bar, and the pusher will pull off the material.
4. The grippers will open.
5. The grippers will reclose to check for material.
6. The grippers will reopen.

8. Parameters

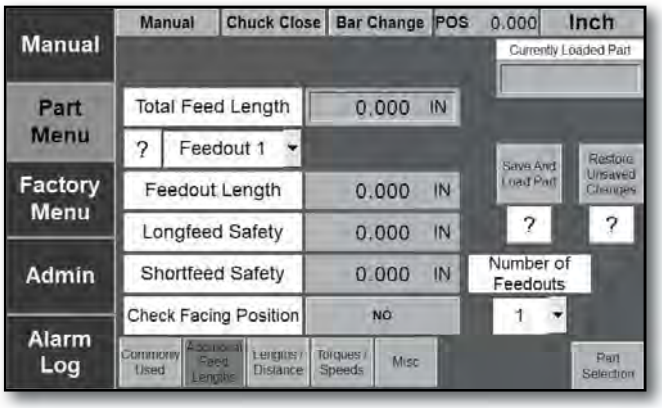
8.1 Parameter Pages and Definitions: Part Menus



Feedout 1: When only using one feedout, this is the part length. If you wish to use multiple feedouts, modify the values in the Additional Feed Lengths screen. Calculate the proper setting by adding the length of part + width of cut-off tool + facing stock. Used with Max End of Bar Position, Feedout 1 generates an end-of-bar signal (Max Feed Position – Part Length 1).

Feeding Type: Feeding Type selects the mode for feeding material in Automatic mode. If you select Position, the bar feeds to positions specified by part lengths. Turret Stop feeds until the bar feeder detects the bar has hit At Feed safeties, for higher reliability.

Facing Type: The Position selection feeds the bar to a position. This position is controlled by Facing Position (Factory Menu), Facing Length (Part Menu), and Chuck Jaw Length (Part Menu). Turret Stop feeds the bar until the bar feeder detects the bar has hit a hard stop.



Total Feed Length: This sets the total length of the part to be machined. This value is not entered but calculated from the sum of each feedout and is used to calculate parts remaining.

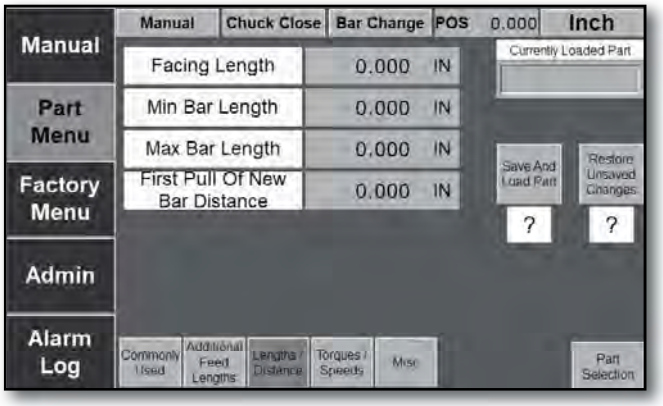
Feedout 1: Select which feedout you wish to modify. The bar feeder will feed these out in order.

Feedout Length: The length will feed out for the feedout number selected above.

Longfeed Safety: This is an incremental value. If the bar feeder attempts to feed a part but exceeds the position it expected to feed out by this amount, the bar feeder will alarm out.

Shortfeed Safety: This is a decremental value. If the bar feeder attempts to feed a part but comes up less than the expected feedout position by this value, the bar feeder will alarm out.

Check Facing Position: This uses the longfeed and shortfeed safeties to check that the new bar was fed to the correct facing position (Factory Menu). With this option disabled, the bar feeder will still alarm out if the position is off by more than an inch.

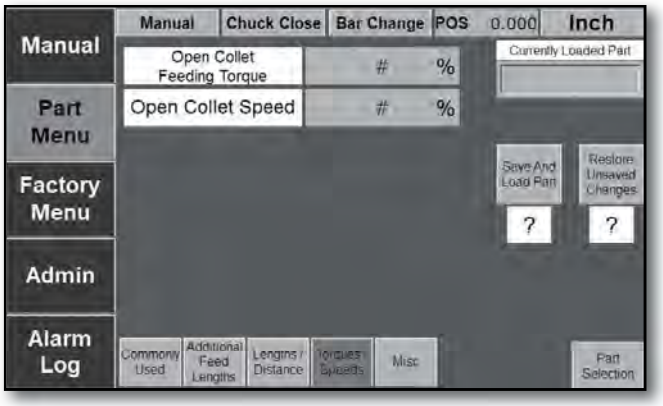


Facing Length: The additional length the bar will be fed after the facing position is reached.

Min Bar Length: If a bar is measured at less than this length, the bar feeder will alarm out. Setting this properly will help with process reliability.

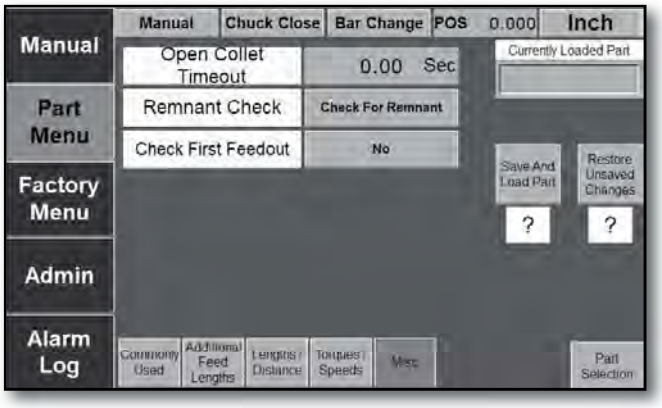
Max Bar Length: If a bar is measured at more than this length, the bar feeder will alarm out. Setting this properly will help with process reliability. This value also allows the bar to be measured faster, as the bar feeder will quickly push the bar to a calculated distance before the flag, at which point it will slow down to the bar measurement speed.

First Pull of New Bar Distance: When a new bar is loaded, the bar feeder will expect the bar to be pulled this distance for Swiss-type applications. This is useful, as the lathe can load the bar into the guide bushing without requiring the distance to be the same as the part length. On fixed headstock machines, the bar feeder makes the first feed of the new bar this distance for position/ torque mode feeding before feeding out parts.



Open Collet Feeding Torque: This represents the maximum possible torque when feeding the bar into the lathe. Larger bars may need higher torque. If the torque is set too high for thin bars, it is possible to bend the bar and subsequently break a tool during machining.

Open Collet Speed: This represents the speed that the bar will be fed into the lathe.

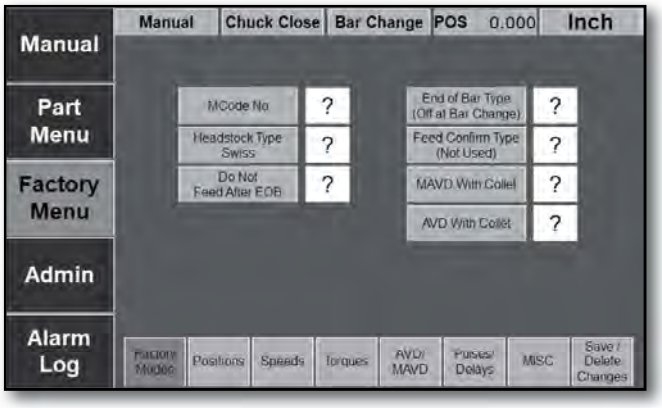


Open Collet Timeout: When the bar feeder is in automatic, if the lathe collet is open for longer than the open collet timeout, the bar feeder will alarm out.

Remnant Check: By choosing Check for Remnant, when the pusher returns to do a bar change, the grippers will verify that a remnant is left in the bar feeder collet and not in the lathe or channel. Do Not Check For Remnant is used when either a loose-fitting collet or no collet is used to eject the part out of the front of the lathe with a new bar. The bar feeder will not alarm out when no bar is detected by the grippers.

Check First Feedout: Ignores longfeed and shortfeed safeties on the very first feedout when going intoo automatic. This is mostly intended for swiss machines that do an initial cutoff when going into automatic after the z axis was moved. This option is disabled when feeding into position.

8.2 Parameter Pages and Definitions: Factory Menus



MCode Yes/No: MCode Feed commands the bar feeder to feed the bar. If MCode is set to yes, when the collet opens, the bar feeder will require the MCode feed signal (sent from the lathe) to feed a part. If MCode is set to no, the bar feeder will feed as soon as the collet opens (as long as the feed stop signal is off).

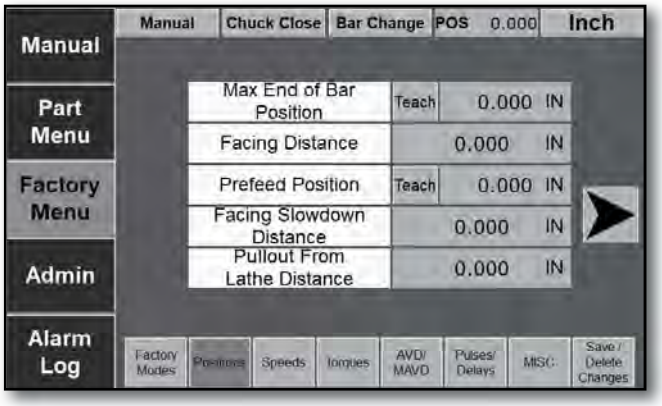
Headstock Type Swiss/Fixed: This sets the type of lathe the bar feeder is connected to, enabling/ disabling the synchronization system, and makes other changes to the bar feeder.

Do Not Feed After EOB: When set to Feed After EOB, this leaves the lathe in charge of when to change the bar. The bar feeder will keep feeding parts until the lathe sends the bar change signal. This is normally not recommended but can be useful if the lathe does not have a second EOB signal.

End of Bar Type: Pulse enables the pulse timer for the end of bar. Latch, which is used for most lathes, turns the end-of-bar signal on until the bar change is complete. Double Pulse does 2 pulses instead of one to improve signal reliability on lathes where a single pulse is unreliable (extending the pulse timer can also help). Off at Bar Change sends the signal until the lathe responds with a bar change signal, then shuts off the end-of-bar signal.

MAVD With/Without Collet: MAVD With Collet indicates the MAVD will open and close with the lathe collet signal. MAVD Without Collet indicates the MAVD will always remain closed.

AVD With/Without Collet: AVD With Collet indicates the AVD will open and close with the lathe collet signal. AVD Without Collet indicates the AVD will always remain closed.



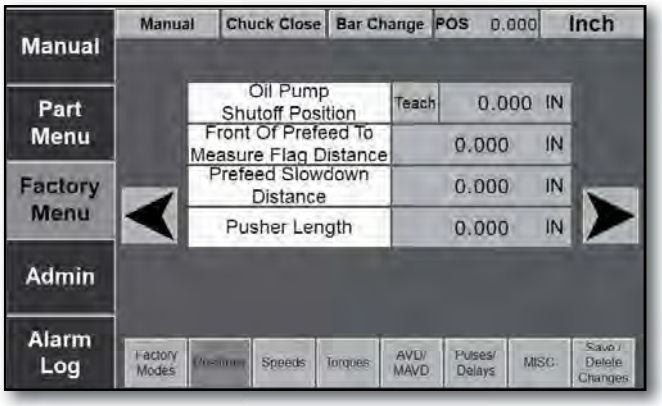
Max End of Bar Position: This is the maximum position of the pusher when feeding the bar into the lathe. It is used to ensure that the chuck jaws are gripping enough material to machine a new part.

Facing Distance: This is the distance from the measurement flag to the face of the lathe collet or chuck. If there is a value entered in Facing Length (Part Menu), that will extend this position.

Prefeed Position: This is the position to which the prefeed pusher will advance each new bar to be gripped and pressed onto the pusher collet.

Facing Slowdown Distance: At this position, the bar will start feeding slower before tripping the measurement flag to ensure a more accurate position of the bar in the spindle, and to help with feeding reliability.

Pullout From Lathe Distance: This is the distance the pusher will retract in a slower and higher torque state to get the bar sufficiently out of the spindle before pulling back at bar change return speed.

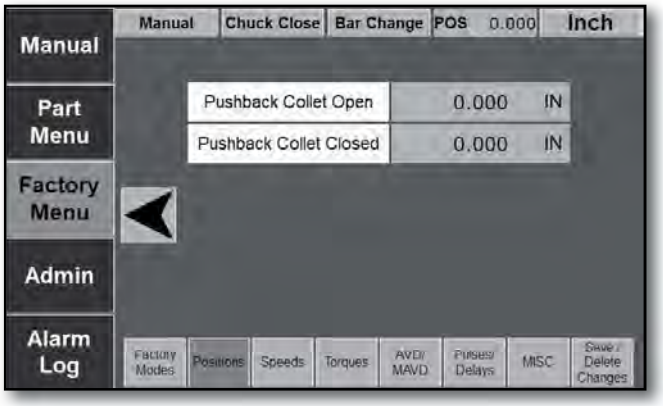


Oil Pump Shutoff Position: This is the position to shut off the oil pump. This position should be after the pusher collet has moved past the guide channels. Setting this position too far could result in undesired oil transfer to the lathe.

Front of Prefeed to Measure Flag Distance: This is the distance between the front of the prefeed pusher at the prefeed position and the measurement flag. This value is needed to calculate the bar length. This can be adjusted by small amounts if the bar length is slightly off to compensate for differences in sensors.

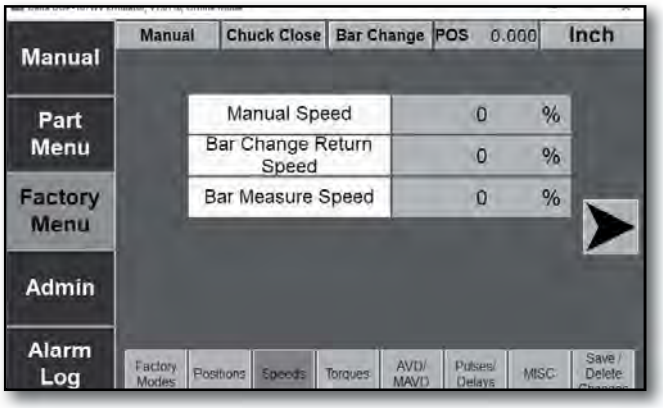
Prefeed Slowdown Distance: This is the distance before the prefeed position where the bar feeder will slow down the prefeed pusher to prevent the bar sliding in the channel. This helps to ensure the accurate measurement of a newly loaded bar.

Pusher Length: This parameter is the length of the pusher. It is used to help make the bar measurement more accurate. This value is measured from the tip of the pusher to the front of the prefeed pusher.



Pushback Collet Open: When the collet is open, if the pusher is forced back more than this amount, the bar feeder will alarm out. A value of zero will ignore this alarm. It is mostly used for Swiss-type applications.

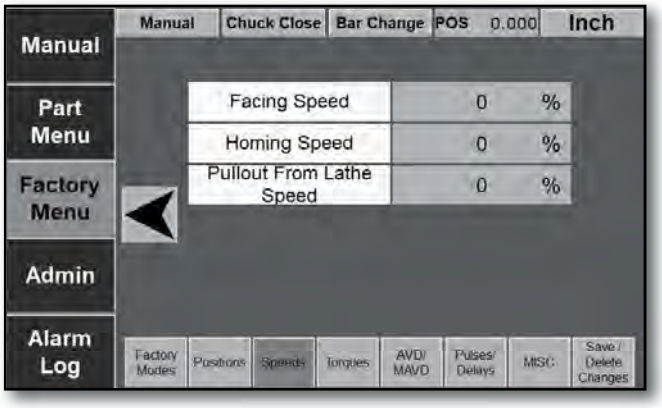
Pushback Collet Closed: When the collet is closed, if the pusher is pushed back further than this amount, the bar feeder will alarm out. A value of zero will ignore this alarm. It is used exclusively for fixed headstock applications.



Manual Speed: While in manual mode, this is the speed the pusher will move when the left/right arrow buttons on the handheld pendant are pushed.

Bar Change Return Speed: After the lathe sends the bar change command, the pusher will travel to the Home reference position at this speed.

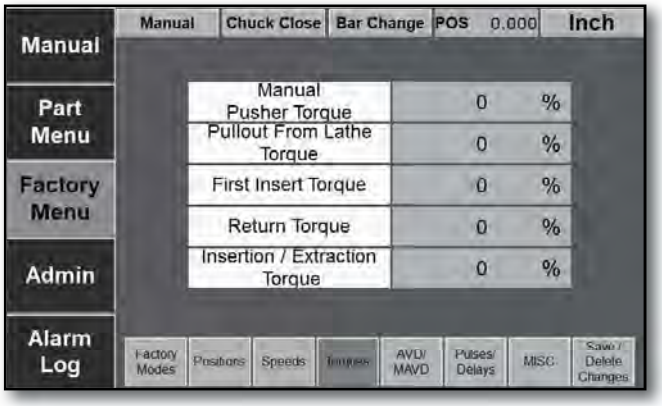
Bar Measure Speed: This parameter controls the speed at which the bar will be measured as it trips the measurement flag. Slower is more accurate. After the bar is measured, the (prefeed) pusher will change to the facing speed.



Facing Speed: This is the pusher speed before the bar reaches a point it can be measured (controlled by maximum bar length) and after a bar has been measured.

Homing Speed: This is the speed the pusher travels when trying to find the Home reference position. Slower speed prevents the pusher from slamming into the back of the machine.

Pullout From Lathe Speed: When executing a bar change, the bar feeder will pull out the remnant from the lathe at this speed before moving at the bar change return speed. This ensures that the remnant does not come off the pusher collet during remnant extraction.



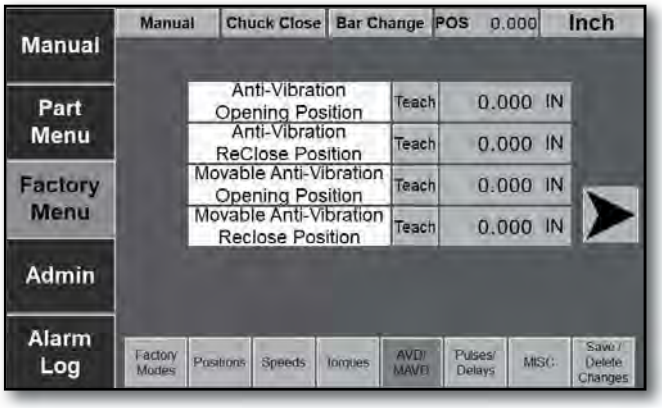
Manual Pusher Torque: This is the max torque the pusher will exert when doing manual moves.

Insertion / Extraction Torque: This is the torque used to assist the cylinder during insertion and extraction.

Pullout From Lathe Torque: When pulling the remnant out of the lathe, the bar feeder will use this torque until the pusher has pulled back the distance entered in the pullout from the lathe distance parameter (see Factory Menu).

First Insert Torque: This is the torque used when a new bar is pushed through the lathe collet after a bar change.

Return Torque: This is the torque used when the pusher is returning home.

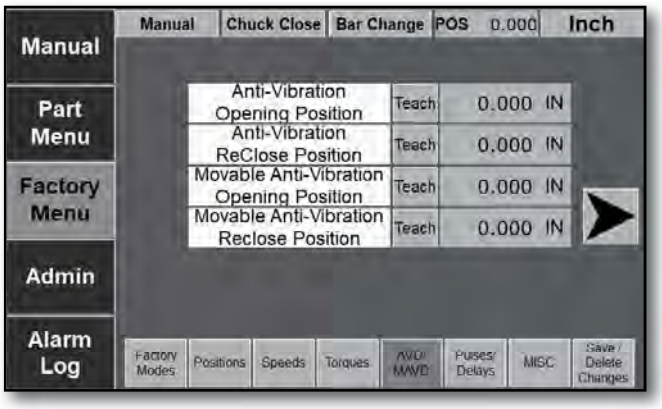


Anti-Vibration Opening Position: At this position, the first AVD will open. This position should be before the pusher collet reaches the first anti-vibration device.

Anti-Vibration Reclose Position: At this position, the AVD will reclose on the pusher. This stabilizes the pusher and helps reduce vibration. This position should be after the pusher collet passes fully through the AVD.

Moveable Anti-Vibration Opening Position: At this position, the MAVD will open. This should be before the pusher collet reaches the MAVD.

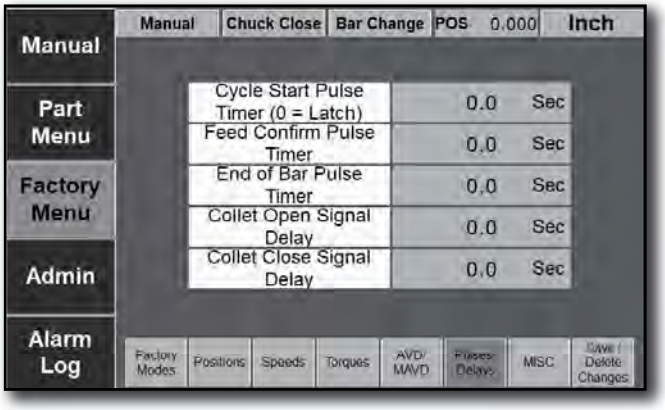
Moveable Anti-Vibration Reclose Position: At this position, the MAVD will reclose on the pusher. This stabilizes the pusher and helps reduce vibration. This position should be after the pusher collet passes fully through the MAVD.



1st Channel Opening Position: Set the opening position of the first channel.

2nd Channel Opening Position: Set the opening position of the second channel.

3rd Channel Opening Position: Set the opening position of the third channel.



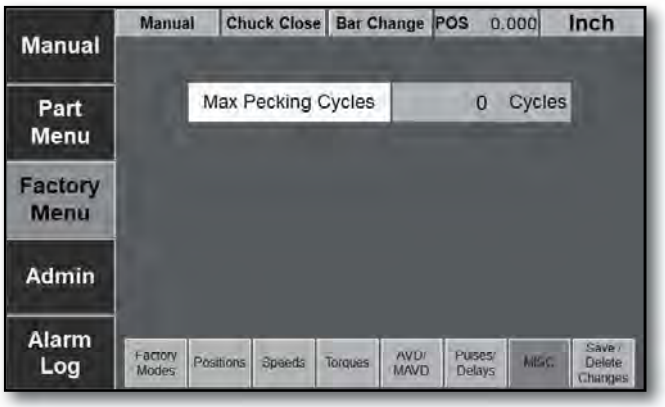
Cycle Start Pulse Timer: This sets the amount of time to keep on the cycle start signal. 0 is latch. The bar feeder will wait for the collet to close before turning the signal off.

Feed Confirm Pulse Timer: This sets the amount of time to keep on the feed confirm signal. 0 is latch. The bar feeder will wait for the collet to close before turning the signal off.

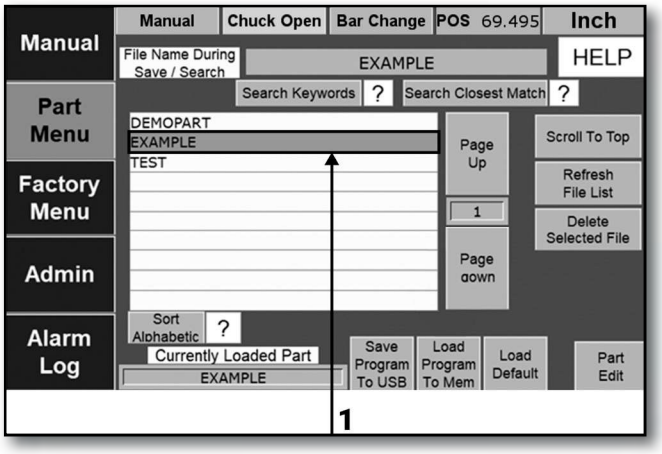
End of Bar Pulse Timer: This sets the amount of time to keep on the end-of-bar signal. Most lathes use a latch and not a pulse, so this should usually be 0 (latch). When set to 0, the bar feeder will wait for the collet to close before turning the signal off.

Collet Open Signal Delay: The bar feeder will delay the collet open signal it receives from the lathe.

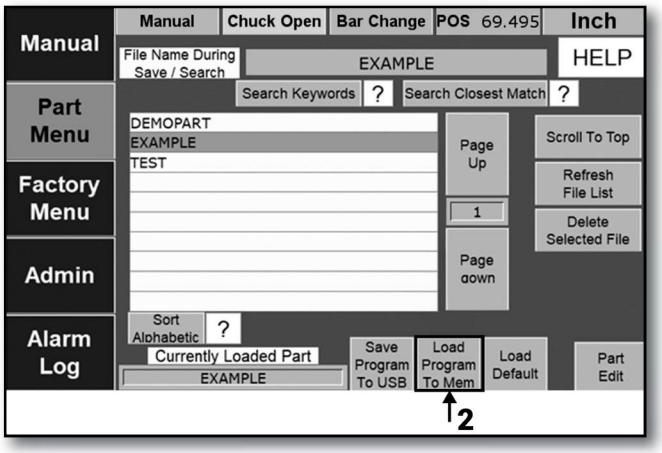
Collet Close Signal Delay: The bar feeder will delay the collet close signal it receives from the lathe.



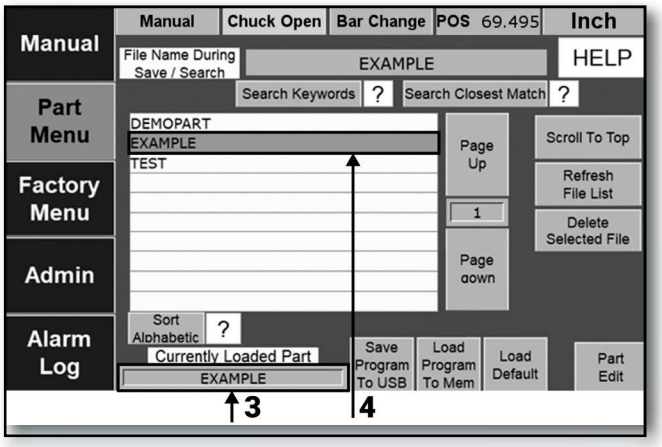
Max Pecking Cycles: When feeding the bar into the spindle, if the bar feeder detects the bar is stuck, it will "peck" the bar the number of times in this parameter by repeatedly backing up and pushing again. If the bar is still stuck after pecking this many times, the bar feeder will alarm out.



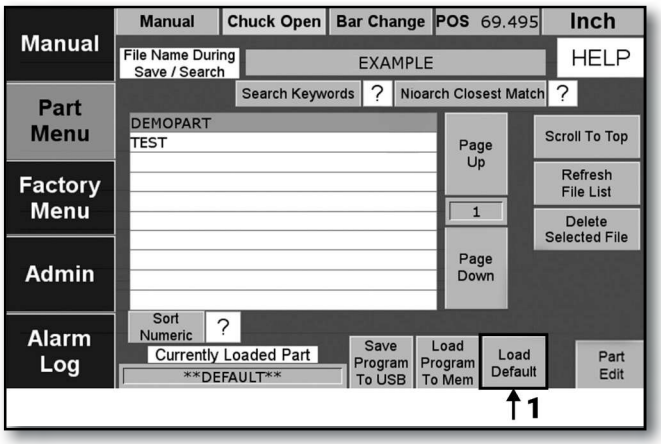
Select a part from the Part Menu. (**1**)



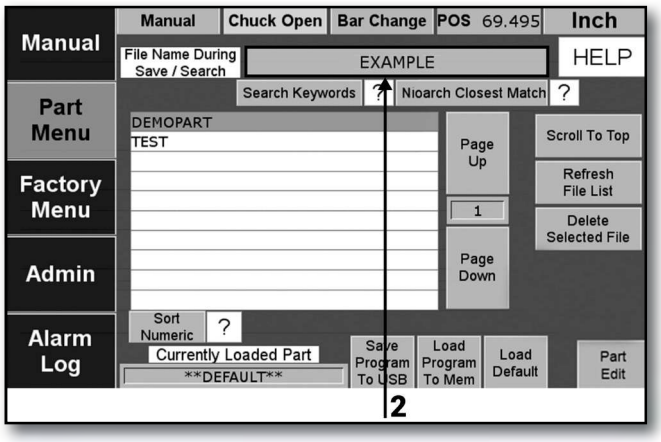
Press “Load Program to Mem.” This copies the part from the USB drive into the PLC memory. (**2**)



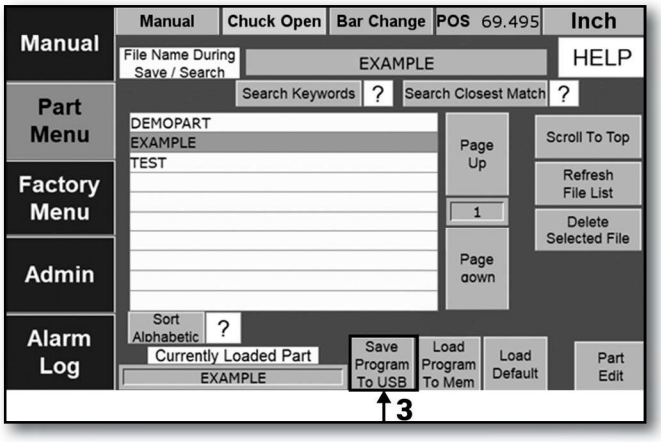
The “Currently Loaded Part” (**3**) will update to show the part that was just loaded. (**4**)



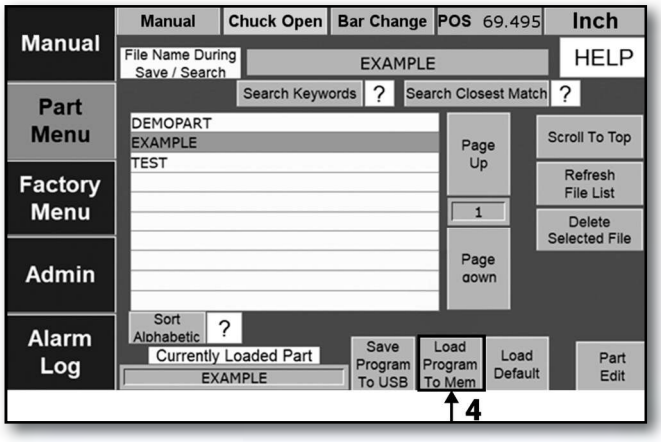
Press “Load Default.” This will load parameters for the default part that was created after the machine was installed. The default part can be changed from Admin -> Save Default Part. (**1**)



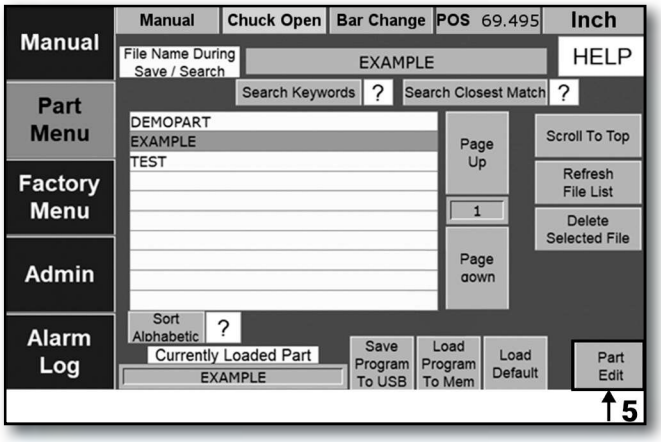
Enter the name you want the part to be called. (**2**)



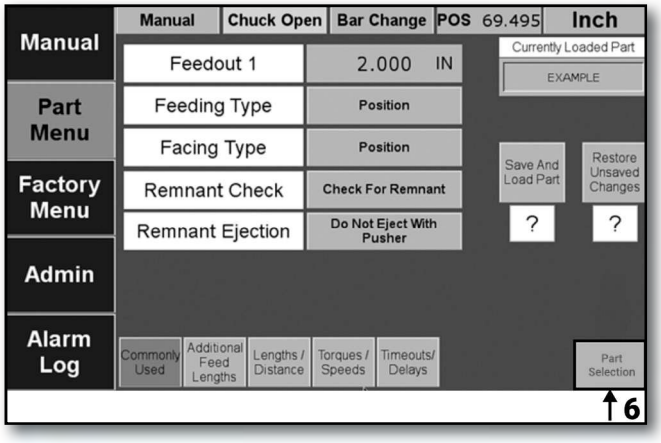
Press “Save Program to USB.” This will create a part file on the USB drive with the name entered. (**3**)



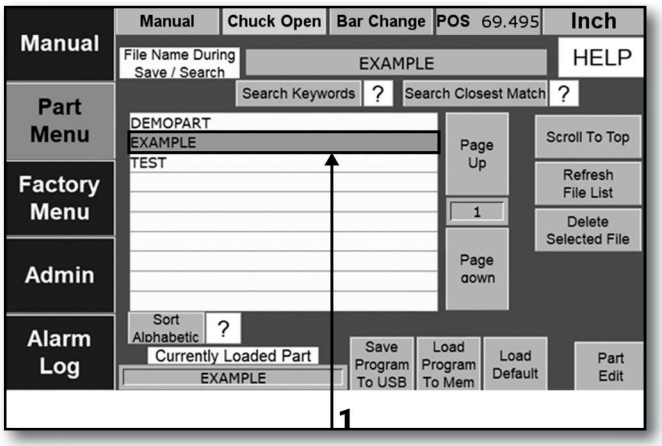
Press “Load Program to Mem.” This will load the newly created part file into the PLC. (**4**)



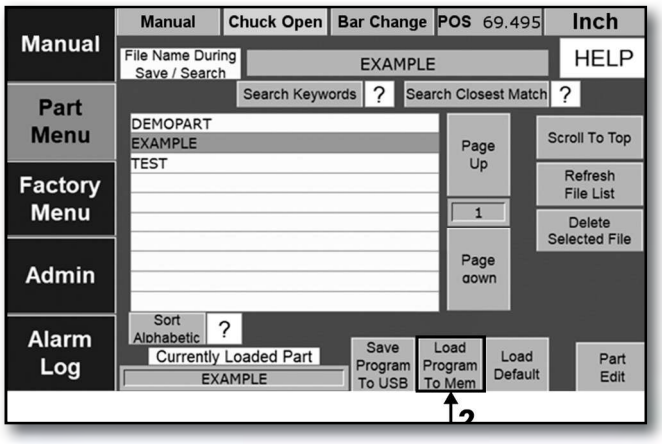
Press “Part Edit.” (**5**)



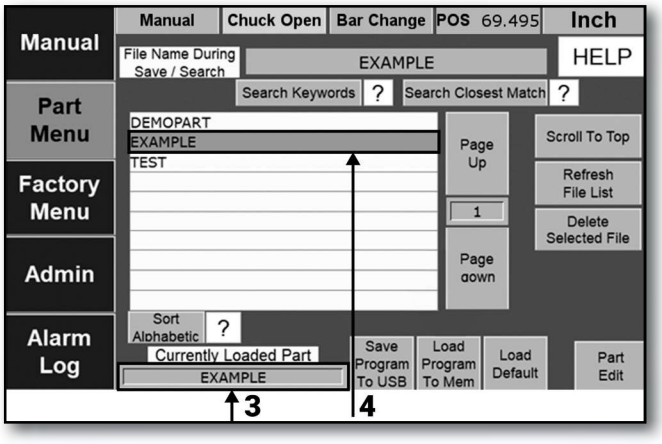
Edit your part parameters. Notice a red message “Current Part Not Saved.” Press the “Save and Load Part” button. This will save the part to the USB drive as well as update the part in the PLC. (**6**)



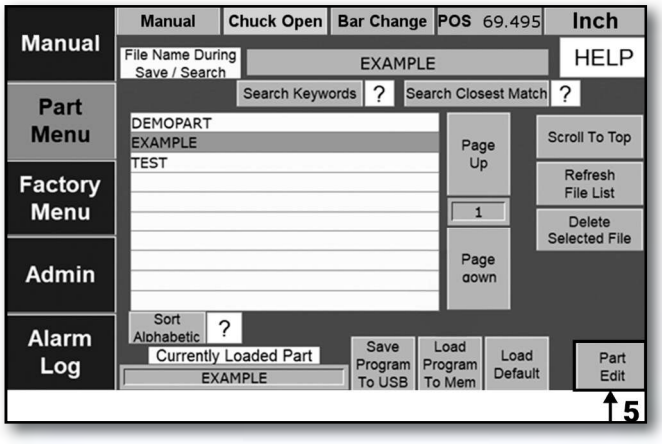
Select a part from the Part Menu. (**1**) If the part is already loaded, skip to step 4.



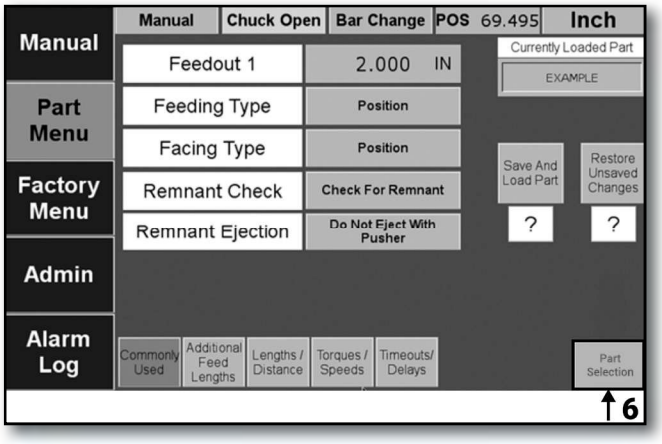
Press "Load Program to Mem." This copies the part from the USB drive into the PLC memory. (**2**)



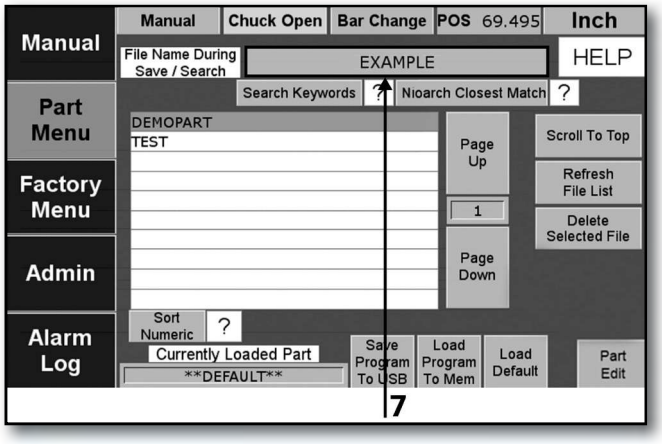
The "Currently Loaded Part" will update (**3**) to show that the part that was just loaded. (**4**)



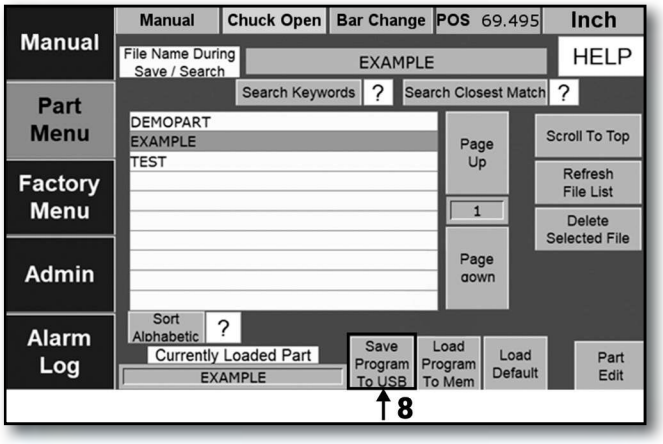
Select Part Edit. (**5**)



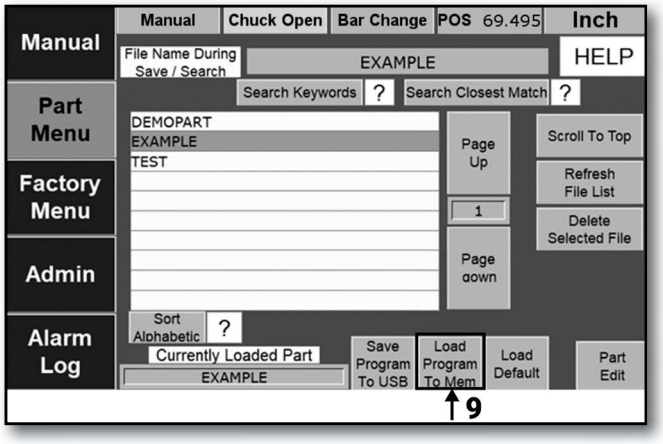
Edit your parameters. Select Part Selection. (**6**)



Enter the name of your new part. (**7**)



Press “Save Program to USB.” (**8**)



Press “Load Program to Mem.” (**9**)

8.6 Parameter Pages and Definitions: Admin Menus

Level	Password
0	00000000
1-Part Loading	258
2-Part Edit	235
3-Factory Menu	88
4-User Admin	11600116

10. Alarms

10.1 Alarm Table

⚠ DANGER

Only a qualified electrician or serviceman should perform electrical troubleshooting or maintenance to this equipment.

Alarm Name	Possible Cause	Sensor
Emergency Stop	The E-stop is pressed in, or the green button has not been pressed since power up. • Make sure the lathe is not in alarm other than a bar feeder alarm. • Release E-stop on the bar feeder pendant. • Release E-stop on the bar feeder control panel. • Press green button. • Ensure synchronization switches are not pressed. • Some applications require power cycling both machines to clear Emergency Stop.	E-stops ES1 and ES2. Synchronization Switches LS41 and LS51.
Bar Too Long	The bar feeder measured a bar that was longer than the maximum bar length parameter (see Part Menu, Section 8.1). • Ensure the measurement sensor is working properly. • Verify the Max Bar Length parameter is set correctly.	Measurement flag sensor S02.
Pusher Stall	In manual operation, the pusher has stalled. • Press E-stop and clear the jam. Release E-stop and press green button.	
Lathe Alarm	The lathe is in alarm. • Attempt to clear the lathe's alarm condition.	
No Bar Detected	No bar was detected by the grippers, or by the measurement flag. • If a bar is present, but not being detected, remove air pressure, and then check functionality of gripper sensor or measurement flag sensor.	Measurement flag sensor S02 Gripper sensor S07
Pusher Could Not Find Home Switch	During the Home reference, the pusher moved home and hit the hard stop, but the home sensor did not detect it. • Check functionality of home sensor. • If the pusher is stuck, remove air pressure. Then investigate the jam and increase homing torque if needed.	Home sensor S01
Home Could Not Be Reached	The pusher tried to move home, but the home sensor did not detect it. • Check functionality of home sensor. • Remove air pressure, then check for a jam. Possibly increase the return torque (see Factory Menu, Section 8.2).	Home sensor S01

Alarm Name	Possible Cause	Sensor
Servo Alarm…	This alarm indicates the Servo drive is in alarm. The alarm message will also display the script item that was executed when this alarm occurred. For example, “Servo alarm move facing” indicates an alarm occurred during the move to facing position. This is useful for troubleshooting. • On the alarm screen, select the alarm and then press the alarm info button for more information about the specific reason a given Servo alarm occurred.	
HMI Script Not Running	The HMI script has crashed, please contact Edge Technologies	
No USB Drive Plugged In	The HMI requires a USB drive to function.	
Illegal Character in File Name	Revise the file name with acceptable characters.	
Lathe Alarm	The lathe is in alarm. • Attempt to clear the lathe’s alarm condition.	
Failed to Load Default Part	There is no default part saved on the USB drive. • To save a default part, press “save default part” in the Admin Menu (see Admin Menu, Section 8.3).	
Feed Length Is Zero	No value has been entered for the feed length parameter. • Enter a value for the feed length parameter.	
Remnant Did Not Drop	A bar is still being detected in the grippers after the remnant extraction. • Check for a tight pusher collet, material slipping in the grippers, or inadequate air pressure. • Ensure that Part Length (see Part Menu, Section 8.1) and Max End of Bar (see Factory Menu, Section 8.2) are set correctly. • Check functionality of gripper sensor.	Gripper sensor S07
No Material Detected by Grippers	Material should be detected by grippers but wasn’t. • Ensure a remnant is not left in the spindle or in the guide channel. • If the magazine is empty, put more bars in the magazine. • If there is material present which is not being detected, remove air from the machine and check the functionality of gripper switch. • When using a front eject collet, this alarm can be disabled during remnant extraction by setting the remnant check parameter to “Do Not Check For Remnant” (see Part Menu, Section 8.1).	Gripper sensor S07
Bar Too Short	The bar measured is shorter than the value entered in the minimum bar length parameter (see Part Menu, Section 8.1), or less than 3”. • Ensure the measurement flag sensor is working properly.	Measurement flag sensor S02
Set Position Error	PLC could not command a set position to the Servo drive. Please contact Edge Technologies.	
Script Search Failed	There’s a problem with the script. Please contact Edge Technologies.	
Change Torque Failed	PLC could not command a torque change to the Servo drive. Please contact Edge Technologies.	

Alarm Name	Possible Cause	Sensor
Change Torque Failed	PLC could not command a torque change to the Servo drive. Please contact Edge Technologies.	
Failed to Load Default Factory	Factory default does not exist on the USB drive. Please contact Edge Technologies.	
Air Pressure Too Low	The compressed air is too low on the air regulator. • Ensure adequate air pressure is applied to the machine. At least 80 PSI is required to run the bar feeder. • The dial on the side of the pressure sensor needs to be adjusted.	Air pressure sensor S09
Short Feed Safety	The pusher didn't reach the expected feedout distance.	
Long Feed Safety	The pusher exceeded the expected feedout distance.	
Failed Auto Check	Conditions to go into auto were not met. • Go to the manual screen and press the auto check button to see which conditions were not met.	
Hood Open Alarm	The hood has been opened during a movement that is not allowed with the hood open. • Close the hood or check the functionality of the hood safety switch.	Hood Safety Switch S08
Pecking Limit Exceeded	Pecking cycles have exceeded the value entered in max pecking cycles (see Factory Menu, Section 8.2). • Clear any obstruction in the spindle. Utilize slow rpm spindle rotation during bar change. • Verify collet fits in the spindle. • Verify pusher fits in the spindle.	
Machine Lockout in Less Than Five Days	Contact Edge Technologies.	
Extraction Failed	The pusher did not retract to the expected position during the remnant pull off. • Remove air pressure before investigating. • Ensure that the pusher collet is not too tight, and that no burrs are present on bar stock. • Check air cylinder functionality. • Check extraction sensor functionality.	Extraction sensor S06
Insertion Failed	Pusher did not reach expected position during insertion. • Check prefeed position (see Factory Menu, Section 8.2). • Ensure that the pusher collet is not too tight, and that no burrs are present on bar stock. • Remove air pressure and verify air cylinder functionality.	
Extraction Cylinder Forward	The bar feeder attempted to open the channel with the extraction cylinder forward. • Clear the alarm by pushing the introduction / extraction button on the pendant, then press open channel button.	
Waited Too Long for Hood to Close Bar Change	After a bar change signal is sent, if the hood is open, the bar feeder will wait two minutes before alarming out. • Close the hood. Do a bar off, bar on, and then start back in auto.	

Alarm Name	Possible Cause	Sensor
Lathe Not in Auto with Collet Open	When the lathe is taken out of auto and the collet is opened, the bar feeder will alarm out to prevent feeding. • If the lathe was in auto, verify the lathe auto signal.	
Position Lost, Home Bar Feeder	If the pusher is moved while the bar feeder is powered off, the position will be lost. This requires a Home reference. • Press the Home reference button on the manual screen.	
Servo re-enable failed	Communication between the PLC and servo motor lost. • Power cycle bar feeder. If the alarm remains, call Edge Technologies.	
Default Part File Does Not Exist	There is no default part saved on the USB drive. • To save a default part, press “save default part” in the Admin menu (see Admin Menu, Section 8.3).	
Default Factory File Does Not Exist	Factory default does not exist on the USB drive, please contact Edge Technologies.	
Failed Auto Check	Conditions to go into auto were not met. • Go to the manual screen and press the auto check button to see which conditions were not met.	
Already at Zero When Homing	The Home reference was executed while the pusher was already home. • Jog pusher forward, then hit the Home reference button.	
Lathe Alarm	The lathe is in alarm. • If the lathe is not in alarm, check the interface wiring.	
Pushback Limit Exceeded	The value in either pushback collet open or pushback collet closed has been exceeded. • Ensure proper lathe collet tension. • Check for burrs on the bar stock.	
Pusher Not at Zero When Grippers Activated	The gripper button the on pendant was pressed while the pusher was not at zero. • Jog the pusher home, then press the gripper button on the pendant.	
Measurement Flag Triggered Before Expected	The measurement flag tripped before an attempt was made to measure a bar. • Verify measurement flag sensor functionality. • Verify functionality of air cylinder for measurement flag.	
Test Alarm	The test alarm button was pressed in the admin menu (see Admin Menu, Section 8.3).	
Negative Parts Remaining	The calculated parts remaining are a negative number. This indicates improperly set parameters. Please contact Edge Technologies.	
Bar Length Longer Than Facing Length	This indicates improperly set parameters. Please contact Edge Technologies.	
Lathe Door Open	• If the lathe door is closed, check wiring. • Service parameters (see Admin Menu, Section 8.3) can disable lathe door safety if the signal is not provided by the lathe	

Alarm Name	Possible Cause	Sensor
Chuck Closed Before Feedout Finished	The chuck closed before the pusher could reach the expected position for a feedout. • Increase the dwell time in the lathe program. • Ensure the feed confirm signal is not backwards.	
Chuck Close During Bar On	Open the chuck, then press bar on.	
Attempted Production Restart with Preload Bar	This is specifically related to ethernet connectivity. Please refer to the Fanuc FOCAS manual.	
Commit Did Not Shut Off	This is specifically related to ethernet connectivity. Please refer to the Fanuc FOCAS manual.	
Lathe Command Part Number is Zero	Factory default does not exist on the USB drive, please contact Edge Technologies.	
No Part Found with Commanded Number	This is specifically related to ethernet connectivity. Please refer to the Fanuc FOCAS manual.	
No Machine Type Back-up Exists	Please contact Edge Technologies.	
No Machine Type in PLC	Please contact Edge Technologies.	
PLC IO Module Error	The PLC lost communication to the required IO module. Please contact Edge Technologies.	
Pusher Forced Movement	In manual mode, if the pusher unexpectedly moves, the Servo will turn off. • If you need to manually move the pusher by hand or with the crank handle, first press the pusher disable button in the admin menu (see Admin Menu, Section 8.3).	
Absolute Move Position Not Reached	The Servo drive was commanded to an absolute position, but it did not reach that position. • Check the torque settings. • Make sure no speeds are set to zero.	
CRC Check Failure	The file on the USB drive is corrupted. Please contact Edge Technologies.	
PLC Not in Run Mode	Check the toggle switch for run mode on the front of PLC, under the SD card flap.	
Channel Close Timeout	The channel didn't close after an attempt was made to close it. • Remove air pressure before clearing jams.	
Channel Open Timeout	The channel didn't open after an attempt was made to open it. • Remove air pressure before clearing any jams.	
Failed to Load Default IO Config	Please contact Edge Technologies.	
Change Acceleration Error	Please contact Edge Technologies.	

11. Interface Signal Definitions

Common (from lathe) – This is the 24v DC supply voltage from the lathe for signal sent to the bar feeder control. The voltage cannot be mixed with the bar feeder power supply.

Cycle start (bar change end, program start) – Typically, this is a normally open circuit controlled by the bar feeder Cycle Start/MCode Finish relay. Voltage is supplied by the lathe. This circuit lets the lathe know the bar change is completed and that the lathe should resume the program.

Automatic mode (Automatic mode on, bar feeder ready for work, spindle interlock) – Typically, this is a normally open circuit controlled by the bar feeder. Voltage is supplied by the lathe. This supplies the lathe with the bar feed automatic signal. If the bar feeder safety circuit is open, the bar feeder will not go into Automatic mode.

End of bar (bar end, block delete, program stop) – Typically, this is a normally open circuit controlled by the bar feeder end-of-bar relay. Voltage is supplied by the lathe. This circuit is closed once the bar feeder has determined the current bar is too short to produce any more parts.

Bar feeder on – Typically, this is a normally open circuit controlled by the bar feeder alarm relay. Voltage is supplied by the lathe.

Lathe Emergency Stop (MC ready) – Voltage is supplied by the bar feeder, and control is performed by the lathe. When this circuit is opened, it will stop bar feeder operation.

Common (from bar feeder) – This is the 24v DC supply voltage from the bar feeder used for signals sent to the lathe control. The voltage cannot be mixed with the lathe power supply.

Lathe manual/auto – Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed. This circuit can be bypassed if necessary.

Bar change (end of cycle) – Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed. This circuit is closed once the lathe has received the end-of-bar signal from the bar feed and the lathe is machining the last part from the current bar.

Chuck/collet open – Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed common.

Feed/torque stop - Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed common.

Door safety – Typically, this is a normally open circuit controlled by the lathe. Voltage is supplied by the bar feed common. The signal prevents the bar pusher from feeding in Automatic mode if the door is open.

Bar feeder Emergency Stop – Voltage is supplied by the bar feeder, and the control is performed by the lathe relay. When this circuit is opened, this will stop bar feeder and lathe operation.

Power supply – The power supply serves as the supply voltage to the bar feeder from the lathe, usually 3 phase 200v-220v, nominal voltage 208v. In some applications, the supply voltage at the customer may be 440v. In this application, a transformer will be required before electrical connection can be made. Catastrophic electrical damage can occur to the bar feeder if a transformer is required but not present.

Common (from lathe) - Voltage is sent from the lathe to power relays in the bar feeder.

Cycle Start - Cycle start is used to answer a latched MCode from the lathe. Typically, this signal is for acknowledging that material has been loaded during a bar change or pushed to position during feeding cycles. This MCode is usually for the bar change cycle or sometimes can be used to answer the feed stop (torque stop).

Automatic mode (Automatic mode on, bar feeder ready for work, spindle interlock) - When wired, this signal ensures that the lathe does not run without the bar feeder in Automatic mode. The lathe will react in other ways when the automatic signal from the bar feeder is not being sent. Some lathes generate an alarm when the lathe is put into "memory mode," or a spindle interlock alarm may show up when attempting to rotate the spindle, or a "bar feeder torque off" alarm may show.

End of bar (bar end, block delete, program stop) – The end-of-bar signal is sent from the bar feeder to the lathe. The lathe needs to know that the bar feeder has reached the specified limit position of the pusher. This position is set in the bar feeder factory settings. The signal can be sent multiple ways at different durations.

Bar feeder on - This signal is typically used as a bar feeder alarm to the lathe. If the lathe always receives a signal that the bar feeder is in alarm, it will show a message saying that the bar feeder is in alarm. If set correctly, the alarm state of the bar feeder and the lathe should correspond to each other.

Lathe emergency stop (MC ready) - This signal is incredibly important. The signal sends the bar feeder voltage out to a relay in the lathe. The voltage should be returned to the bar feeder unless the lathe is in Emergency Stop.

Bar feeder common - The bar feeder common will be sent to a relay in the lathe. When the lathe relay is fired it will allow the corresponding signal to be seen by the bar feeder. If no signals are coming through from the lathe to the bar feeder, it could be that the common is not being sent back. This could be because of a wiring issue. It could also be that the bar feeder interface is not turned on in the lathe.

Lathe manual/auto – Edge Technologies products typically use this to limit feeding. If the bar feeder does not see the lathe automatic signal, it will not feed material when the collet opens.

Bar change (end of cycle) - This signal typically corresponds with an MCode from the lathe. Usually, the MCode will be used to send a bar change signal to the bar feeder. When this signal is sent, if properly set up, the lathe should latch to this MCode until it receives "cycle start" from the bar feeder.

Chuck/collet open - The chuck open signal lets the bar feeder know that the main spindle clamp is open or closed. When the bar feeder is in Automatic mode and it receives the collet open signal, it will feed at a fixed speed and torque (that is, if all restrictions are satisfied, including torque stop, lathe automatic, and door safety).

Feed stop - This signal is used to stop the bar feeder from pushing when the bar feeder is in Automatic mode and the collet is open. It can also be used in the opposite way: that it does not push at all until the bar feeder is in Automatic mode, the collet is open, and the feed stop is given. In this instance, it would be used as an MCode feed. Feed stop is generally used in the bar change process so that the bar feeder does not push before it pulls remnant out of the collet.

Door safety - This signal is from the lathe door safety. If the lathe door is open, then the bar feeder should not be able to feed forward. This can also be used like a feed stop depending on the lathe and bar feeder.

Bar feeder Emergency Stop - Signal will be sent to the lathe to generate Emergency Stop on the lathe.

Power supply – Always check voltage at the lathe plug before the bar feeder is plugged in. The bar feeder plug wiring should also be checked to the wiring print supplied with the bar feeder. Check the wiring of the bar feeder plug, check that the lathe voltage is on the same pins as the plug, and check that the voltage of the lathe is proper and does not fluctuate beyond safe operating voltage.

7. Maintenance

 **Warning prior to loader maintenance isolate main power**

For consistent operation of the bar feeder maintenance checks should be performed regularly. The area around the bar feeder should be kept clean to avoid safety issues.

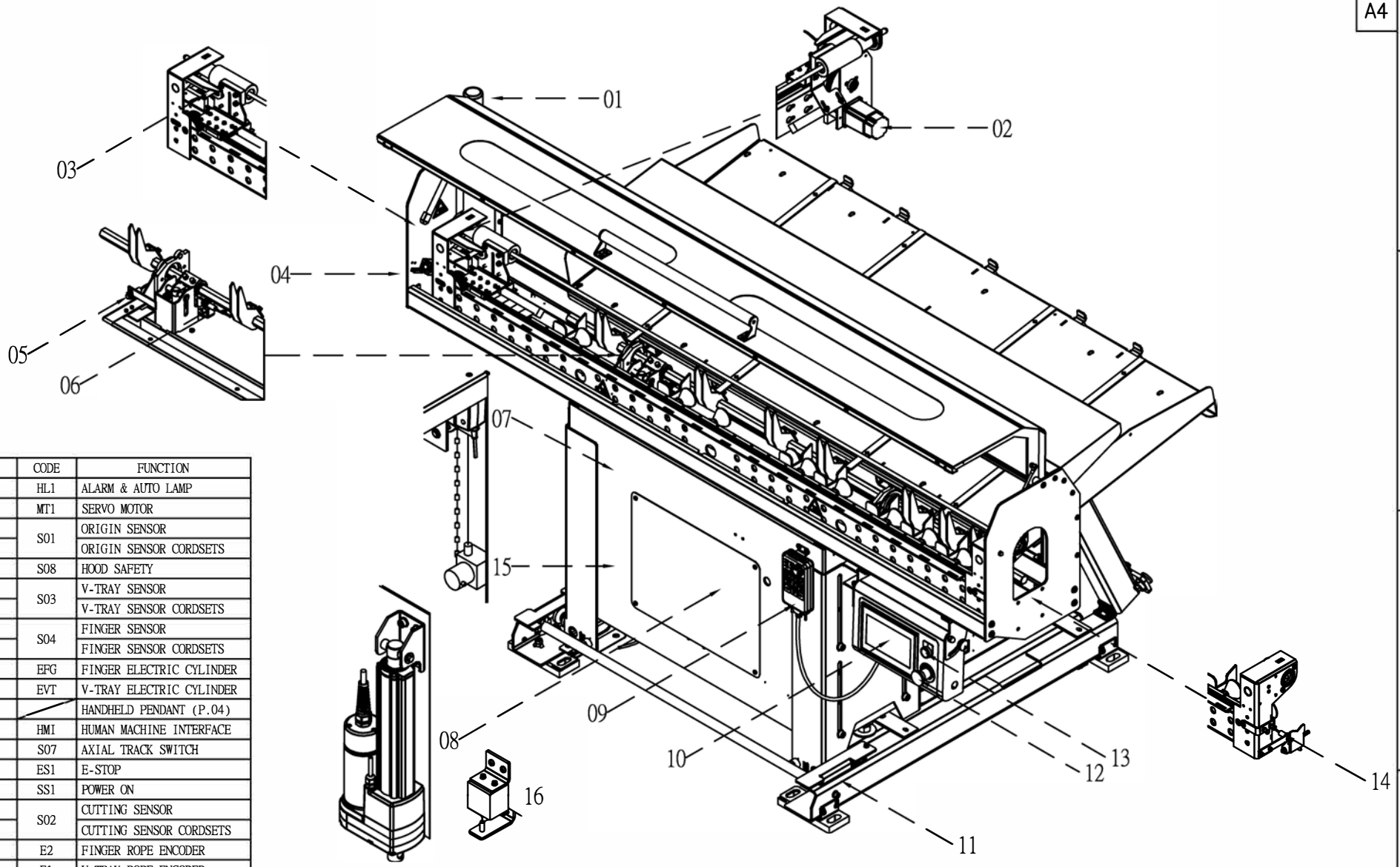
7.1 Periodic Maintenance

The items on the chart below should be performed at the intervals as listed.

Lubricated monthly or 200 hours of operation with a general purpose grease.

Component	Action	Time in hours		Regular	Period
Fasteners	Check tightness				Yearly
V-Tray	Check wear and clean		1250 Hours		
Friction Points	Lubrication	200 hours			
Dive Belt	Tension		1250 Hours		
Bar Feeder Interior	Clean Chips		1250 Hours	As needed	

A4

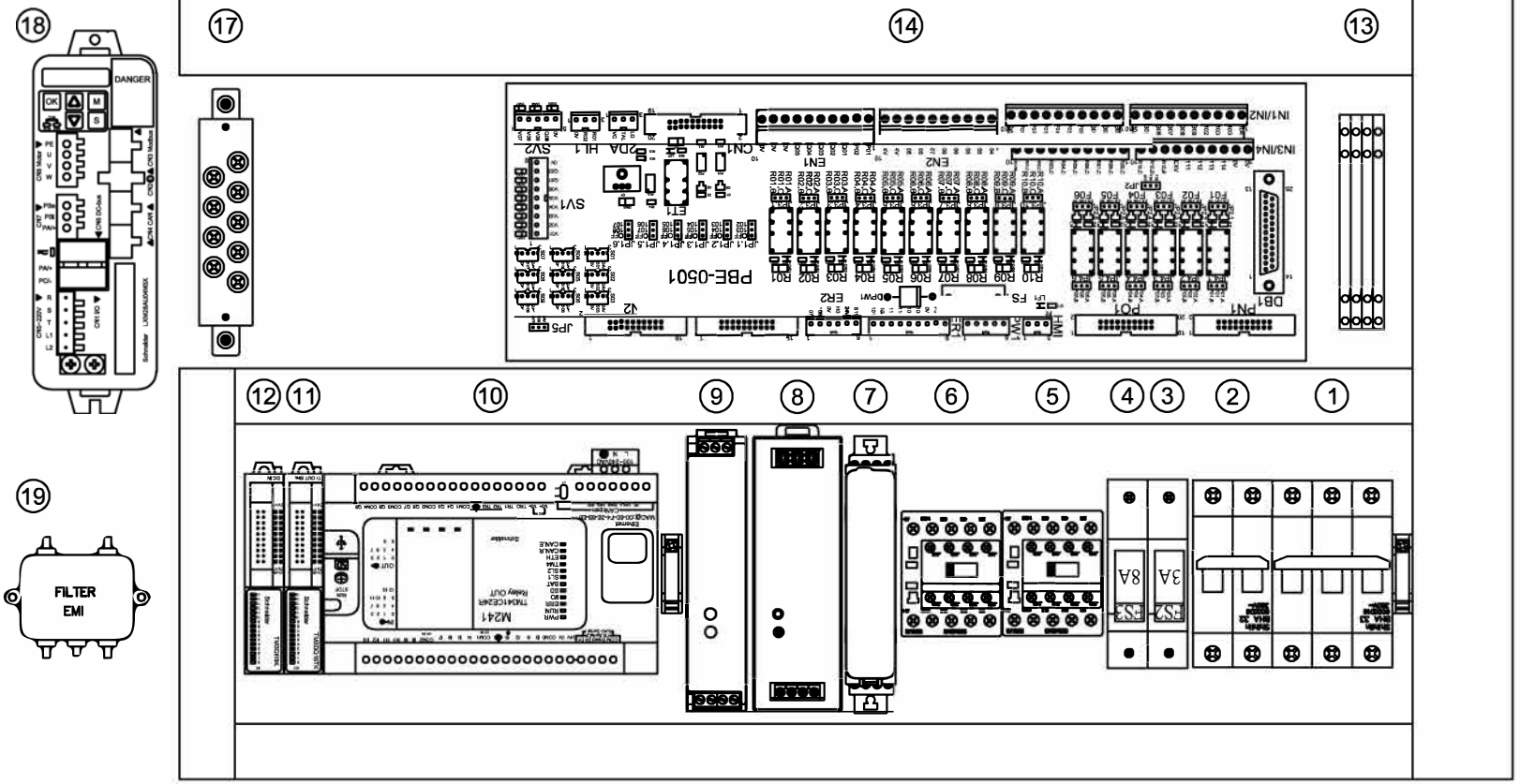


NO.	PART NO.	CODE	FUNCTION
01	J630113	HL1	ALARM & AUTO LAMP
02	J212052	MT1	SERVO MOTOR
03	J312500	S01	ORIGIN SENSOR
	J312541		ORIGIN SENSOR CORDSETS
04	J311802	S08	HOOD SAFETY
05	J312500	S03	V-TRAY SENSOR
	J312540		V-TRAY SENSOR CORDSETS
06	J312500	S04	FINGER SENSOR
	J312540		FINGER SENSOR CORDSETS
07	PJ11105	EFG	FINGER ELECTRIC CYLINDER
08	PJ10795	EVT	V-TRAY ELECTRIC CYLINDER
09	JVRE7B202		HANDHELD PENDANT (P.04)
10	J210519	HMI	HUMAN MACHINE INTERFACE
11	J311802	S07	AXIAL TRACK SWITCH
12	J3107041	ES1	E-STOP
13	J310705	SS1	POWER ON
14	J312500	S02	CUTTING SENSOR
	J312540		CUTTING SENSOR CORDSETS
15	J230305	E2	FINGER ROPE ENCODER
16	J230305	E1	V-TRAY ROPE ENCODER

BAR FEEDER TYPE: REBEL	FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 01	
LATHE NAME: CE	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Machine electricity position			
LATHE TYPE:	DRAWING NO.: JVRE-776010-EG				VERSION: D0	

EDGE TECHNOLOGIES

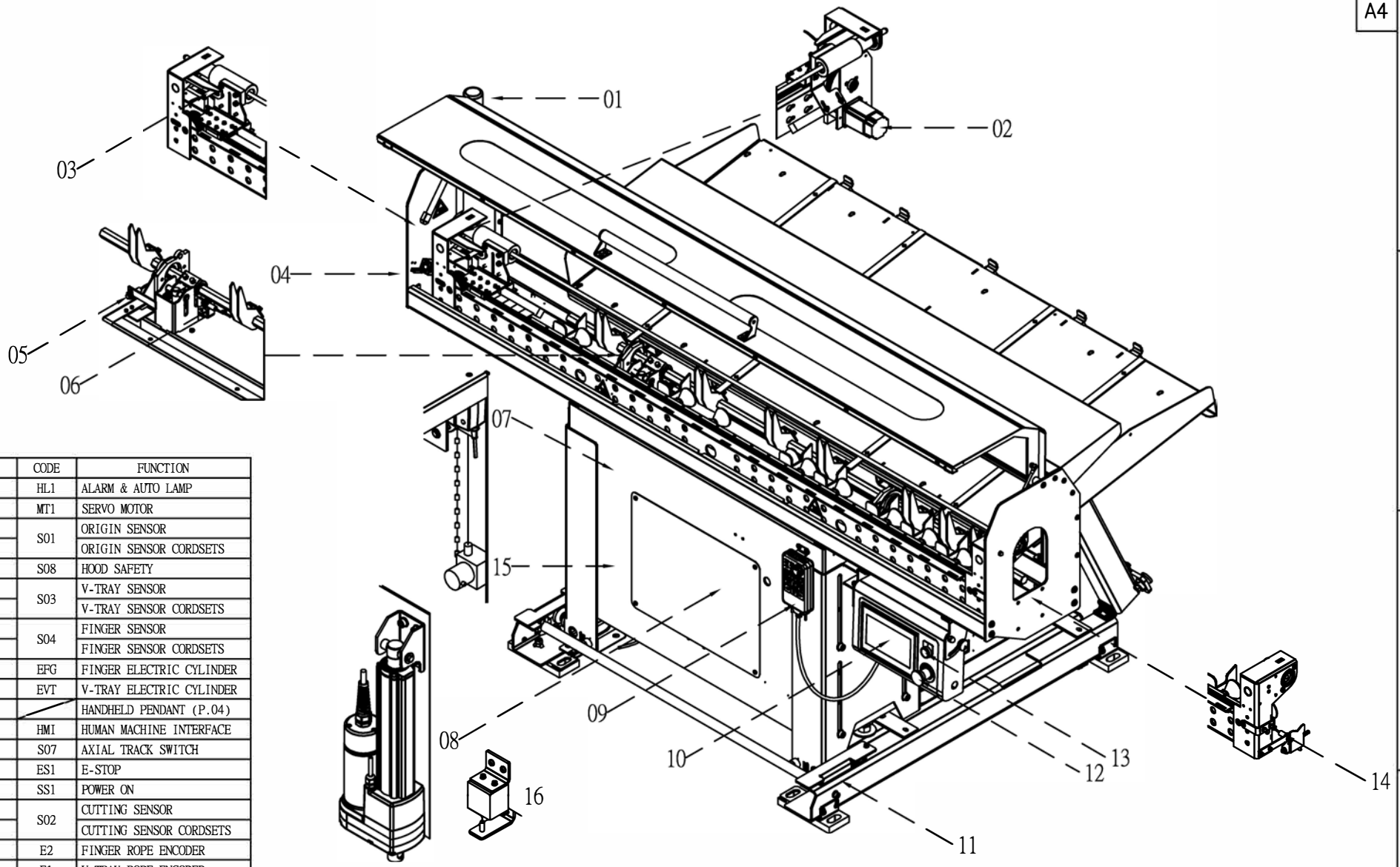
A4



NO.	PART NO.	CODE	FUNCTION	NO.	PART NO.	CODE	FUNCTION
1.	J310524	NFB	NO FUSE BREAKER	11.	J212063	PQA	OUTPUT MODULE
2.	J310526	CP1	CIRCUIT PROTECTION	12.	J212008	PIA	INPUT MODULE
3.	J312102 + J312107	FS2	FUSE SOCKET / 3A FUSE	13.	J610547	TB	TERMINAL BLOCK
4.	J312102 + J312108	FS3	FUSE SOCKET / 8A FUSE	14.	J515004	MPCB	PCB (PBE-0501)
5.	J312709 + J312710	MC1+ACT1	MAGNETIC CONTACTOR	15.			
6.	J312709 + J312710	MC2+ACT2	MAGNETIC CONTACTOR	16.			
7.	J313413	SAF	SAFETY RELAYS	17.	J631202	GND	FACILITIES GROUND
8.	J230113	PS1	POWER SUPPLY(240W)	18.	J212051	SVO	SERVO MOTOR DRIVER - 400W
9.	J230112	PS2	POWER SUPPLY(75W)	19.	J220405	FIL	FILTER
10.	J212006	PLC	PLC	20.			

BAR FEEDER TYPE			FIRST DATE	REVISION DATE	MAIN VOLTAGE	SIGNAL VOLTAGE	PAGE
REBEL	EDGE TECHNOLOGIES		2022/03/24	2024/08/22	220V AC 3-PHASE	24V DC	P. 03
LATHE NAME			DRAWN BY	CHECKED BY	DESCRIPTION		
CE			LIN		Distribution of Electric parts		
LATHE TYPE					DRAWING NO.		VERSION
					JVRE-776010-EG		D0

A4



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	J312540		V-TRAY SENSOR CORDSETS
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	J312540		FINGER SENSOR CORDSETS
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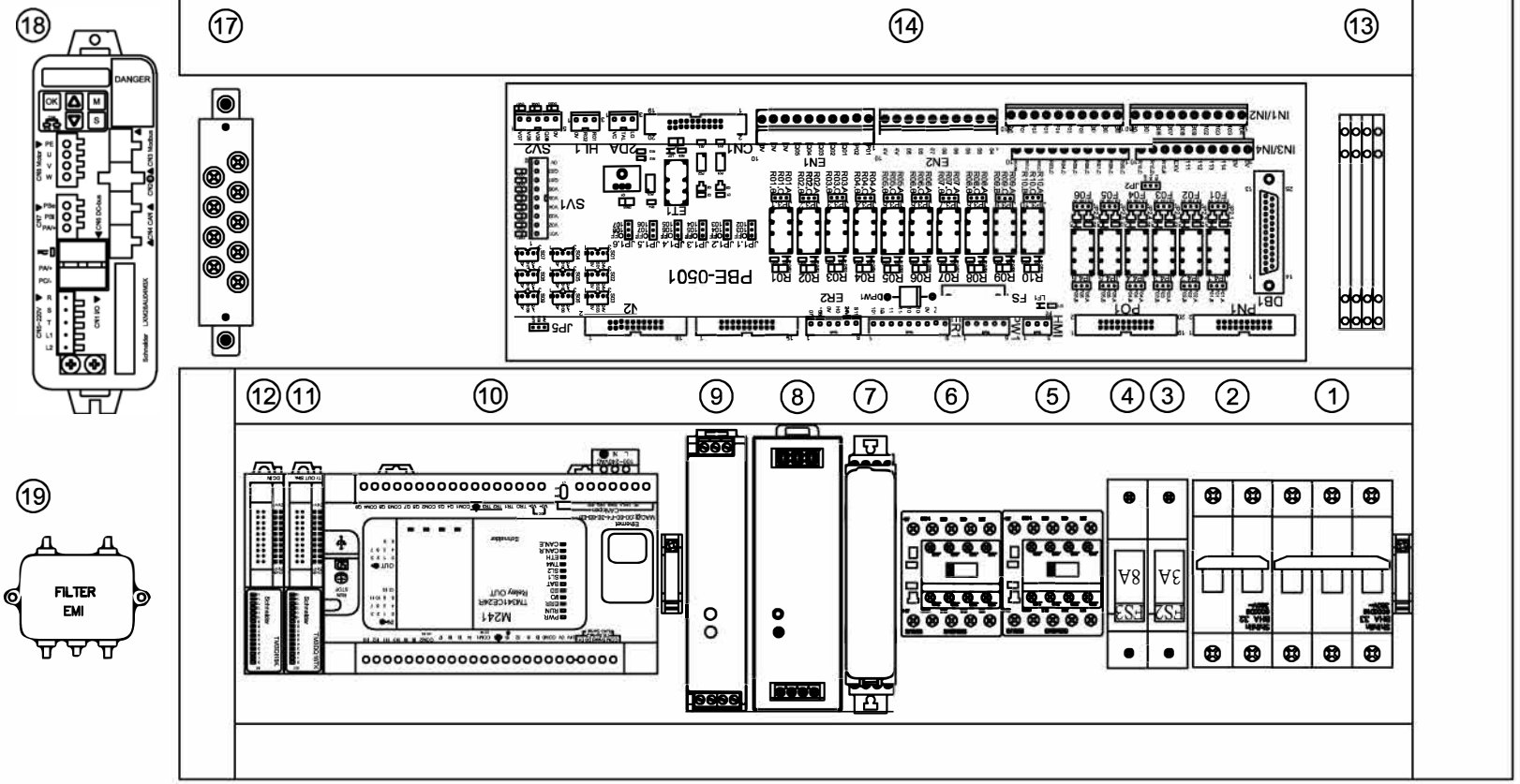
08	PJ10795	EVT	V-TRAY ELECTRIC CYLINDER
09	JVRE7B202		HANDHELD PENDANT (P.04)
10	J210519	HMI	HUMAN MACHINE INTERFACE
11	J311802	S07	AXIAL TRACK SWITCH
12	J3107041	ES1	E-STOP
13	J310705	SS1	POWER ON
14	J312500	S02	CUTTING SENSOR
	J312540		CUTTING SENSOR CORDSETS
15	J230305	E2	FINGER ROPE ENCODER
16	J230305	E1	V-TRAY ROPE ENCODER

BAR FEEDER TYPE: REBEL	FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 01	
LATHE NAME: CE	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Machine electricity position			
LATHE TYPE:	DRAWING NO.: JVRE-776010-EG				VERSION: D0	

EDGE TECHNOLOGIES

A4



NO.	PART NO.	CODE	FUNCTION	NO.	PART NO.	CODE	FUNCTION
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2.	J310526	CP1	CIRCUIT PROTECTION	12.	J212008	PIA	INPUT MODULE
3.	J312102 + J312107	FS2	FUSE SOCKET / 3A FUSE	13.	J610547	TB	TERMINAL BLOCK
4.	J312102 + J312108	FS3	FUSE SOCKET / 8A FUSE	14.	J515004	MPCB	PCB (PBE-0501)
5.	J312709 + J312710	MC1+ACT1	MAGNETIC CONTACTOR	15.			
6.	J312709 + J312710	MC2+ACT2	MAGNETIC CONTACTOR	16.			
7.	J313413	SAF	SAFETY RELAYS	17.	J631202	GND	FACILITIES GROUND
8.	J230113	PS1	POWER SUPPLY(240W)	18.	J212051	SVO	SERVO MOTOR DRIVER - 400W
9.	J230112	PS2	POWER SUPPLY(75W)	19.	J220405	FIL	FILTER
10.	J212006	PLC	PLC	20.			

BAR FEEDER TYPE			FIRST DATE	REVISION DATE	MAIN VOLTAGE	SIGNAL VOLTAGE	PAGE
REBEL	EDGE TECHNOLOGIES		2022/03/24	2024/08/22	220V AC 3-PHASE	24V DC	P. 03
LATHE NAME			DRAWN BY	CHECKED BY	DESCRIPTION		
CE			LIN		Distribution of Electric parts		
LATHE TYPE					DRAWING NO.		VERSION
					JVRE-776010-EG		D0

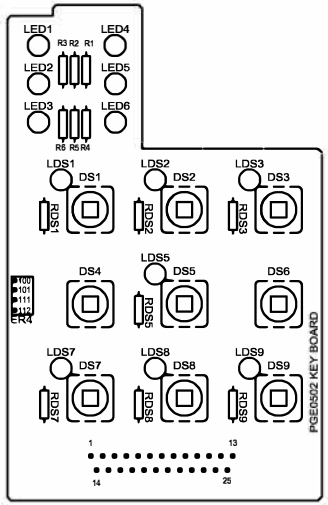
A4

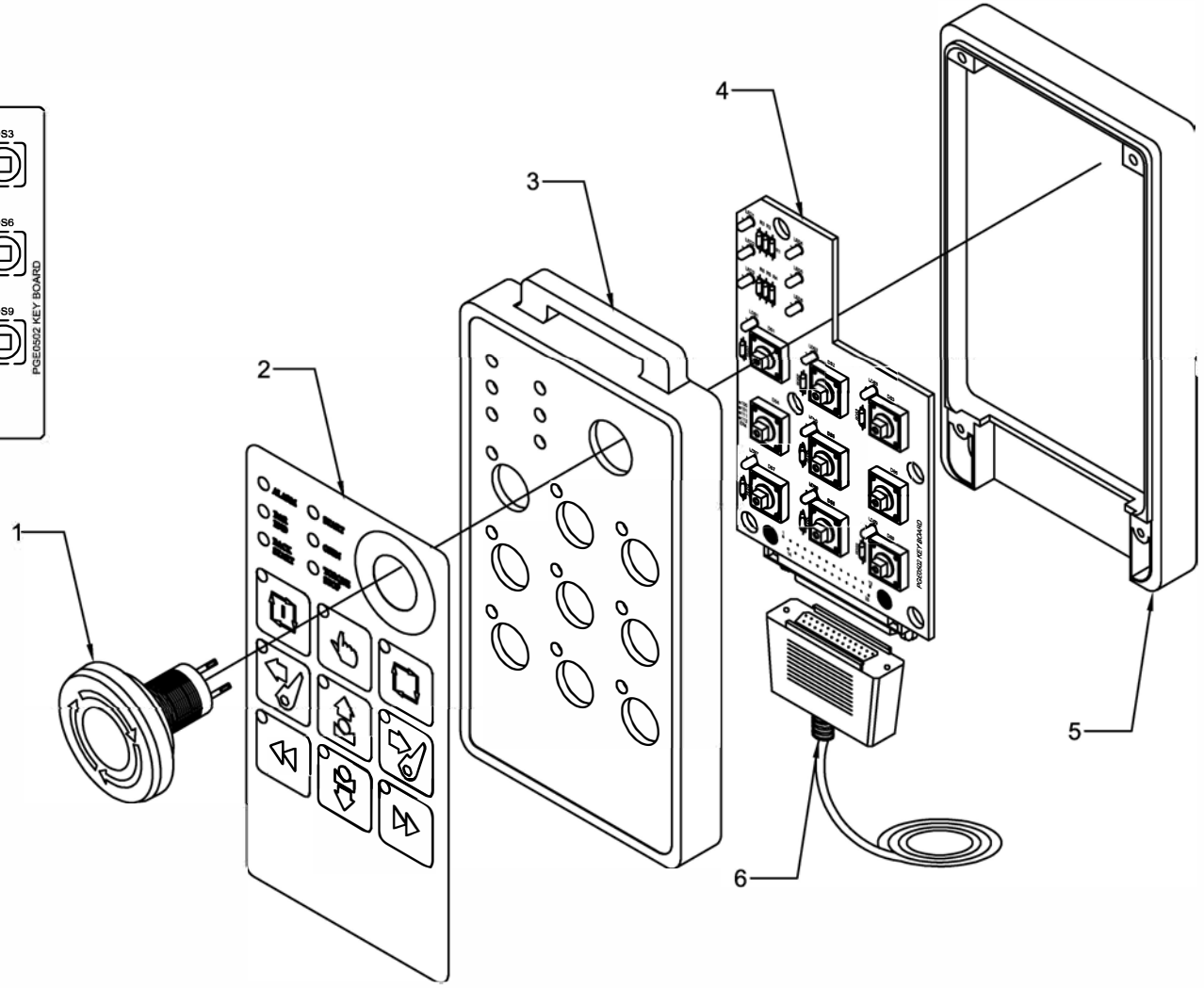
RIGHT: JL01

L01.1 L01 L01.2

LEFT: JL01

L01.1 L01 L01.2





NO.	PART NO.	CODE	NAME
01	J310702	ES2	EMERGENCY STOP
02	T16311303		STICKER
03	G91120500		TOP
04	J515002	HPCB	PCB PGE-0502 (DISTRIBUTION BOX)
05	G91120600		BOTTOM
06	J420600		CABLE

BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 04
LATHE NAME: CE		DRAWN BY: LIN	CHECKED BY	DESCRIPTION: Decomposition of remote control pendant		
LATHE TYPE				DRAWING NO.: JVRE-776010-EG		VERSION: D0

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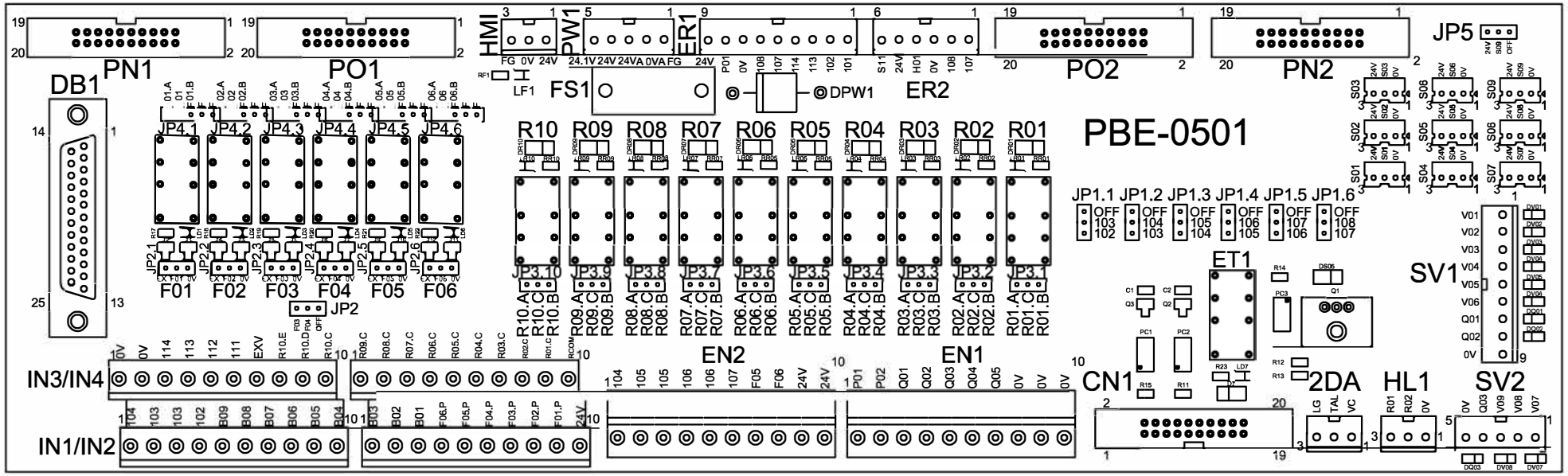
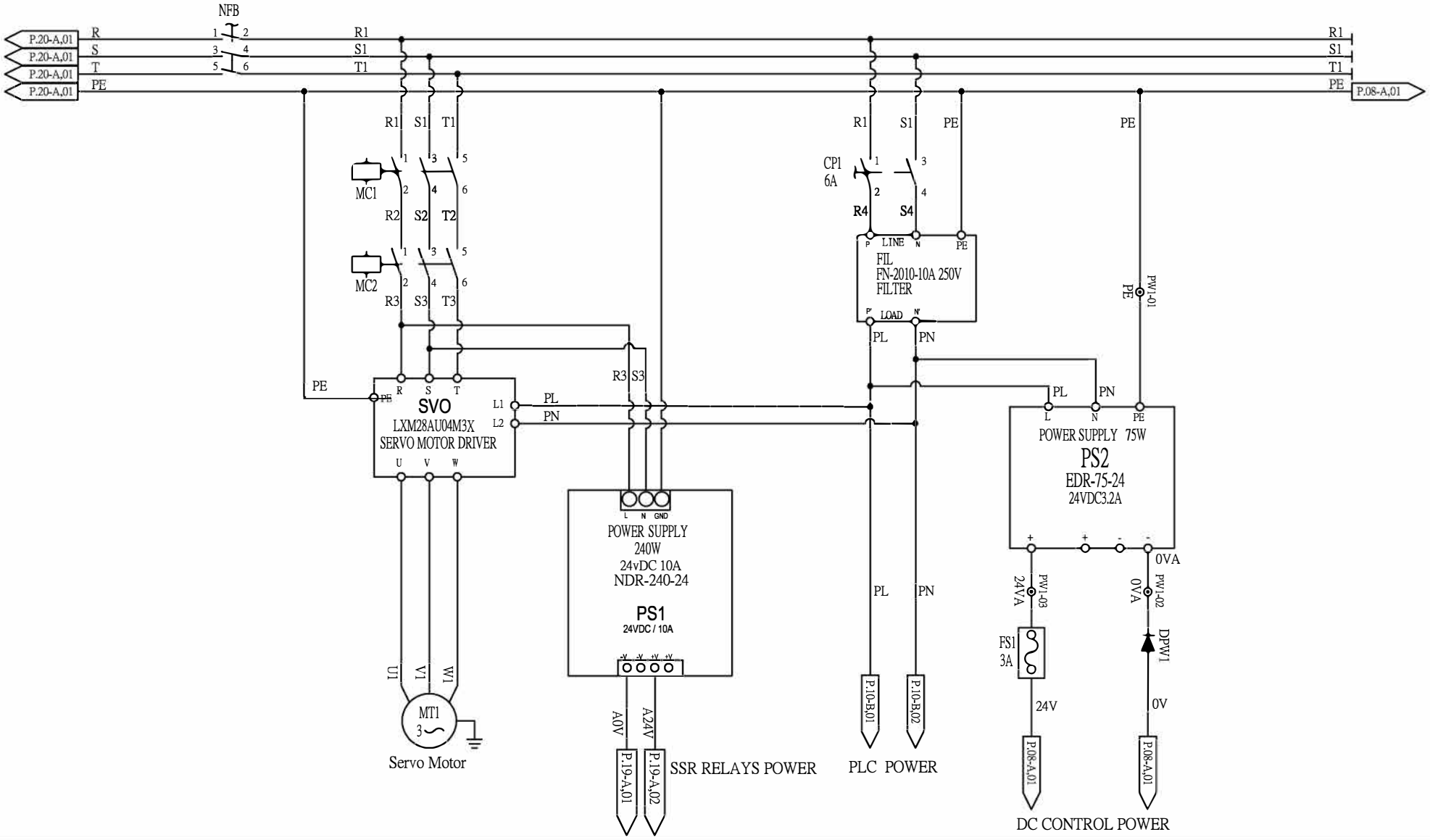
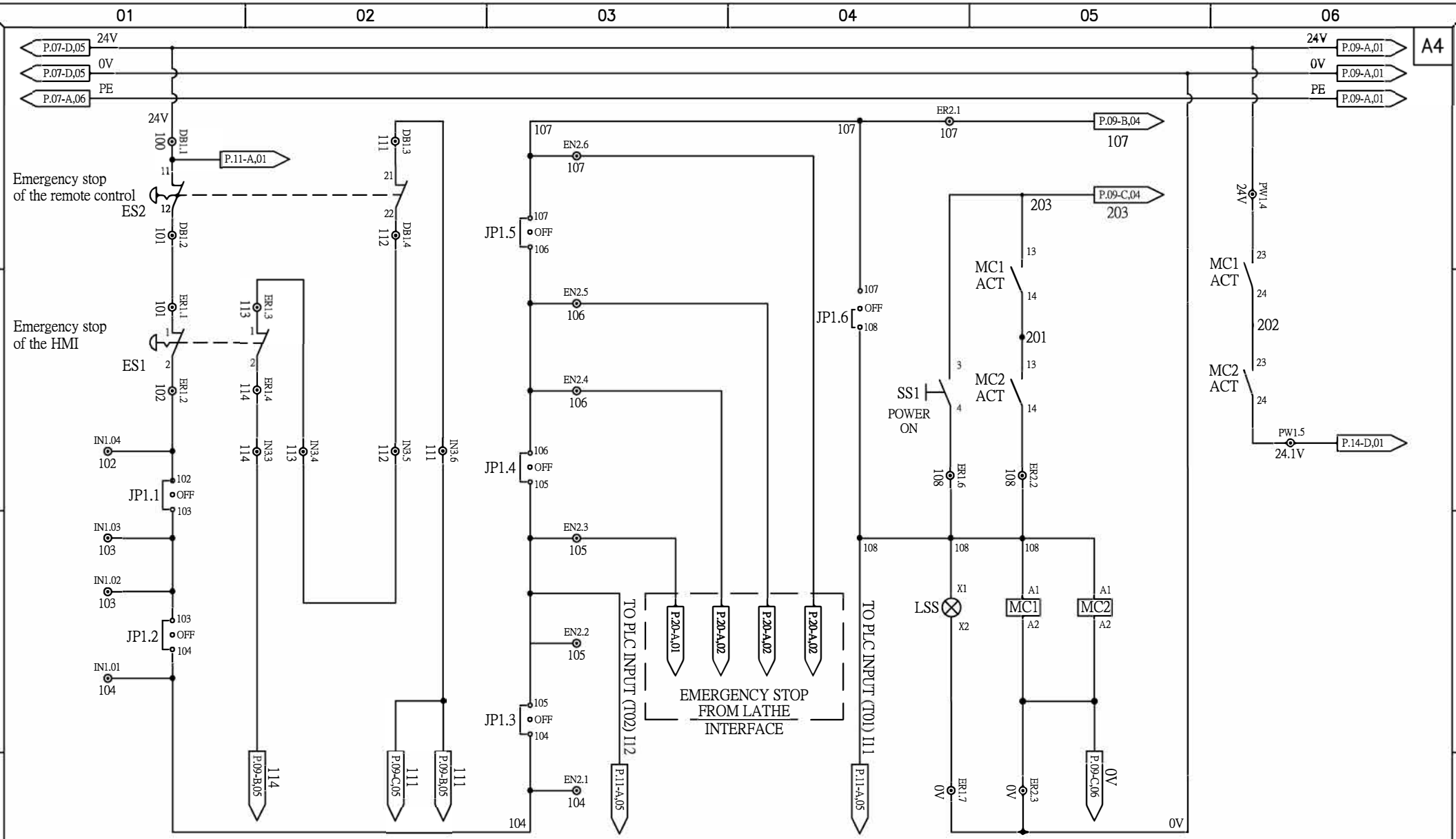


NO.	PART NO.	CODE	NAME
01	J515005	R1~R10 / F01~F06	RELAY
02	J620106	F1	FUSE
03	J515004	MPCB	PCB board (PBE-0501)

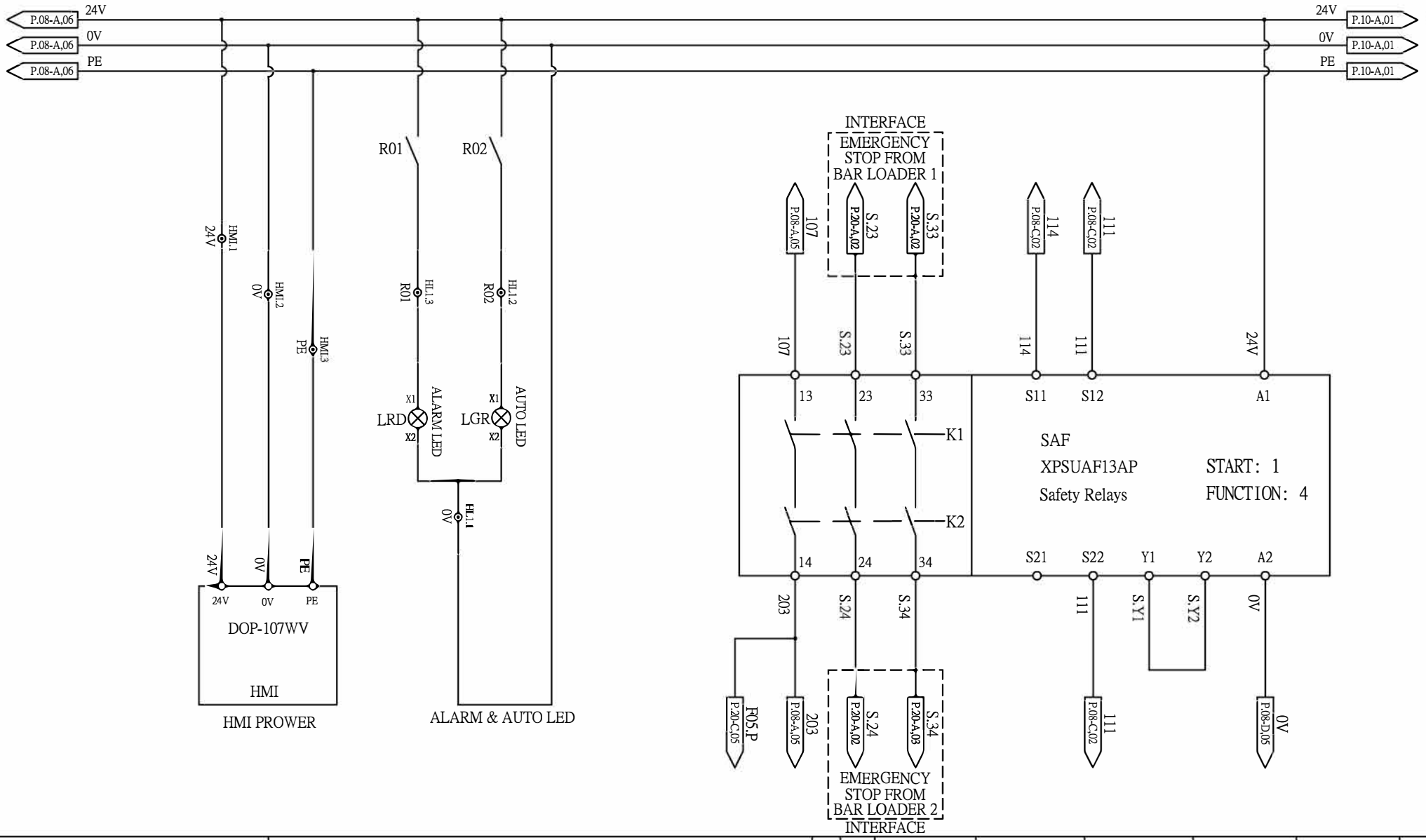
BAR FEEDER TYPE: REBEL			FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE / SIGNAL VOLTAGE: 24V DC / PAGE: P. 06
LATHE NAME: CE	EDGE TECHNOLOGIES		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main PC board
LATHE TYPE:					DRAWING NO.: JVRE-776010-EG / VERSION: D0



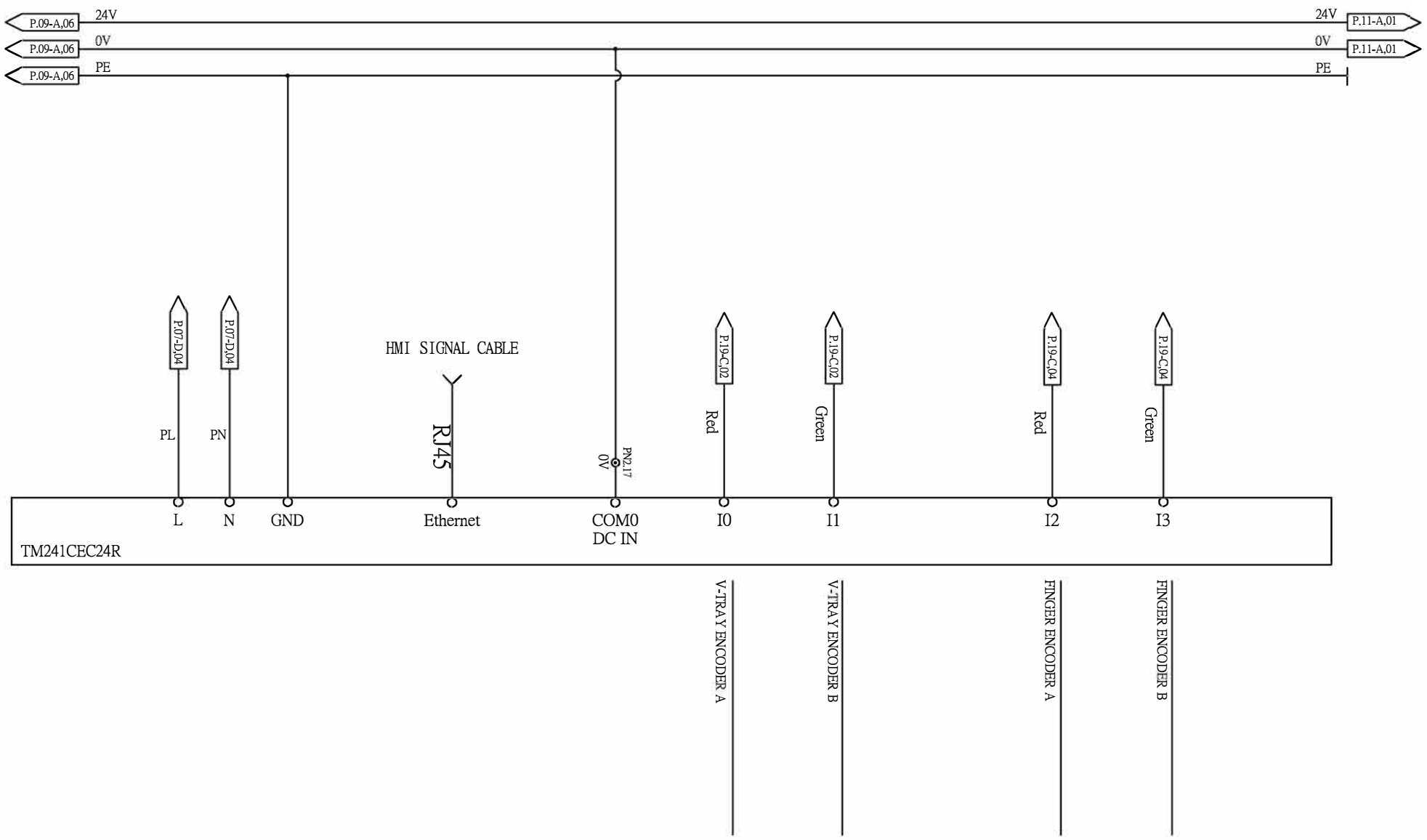
BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 07
LATHE NAME: CE	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main circuit 1		
LATHE TYPE:				DRAWING NO.: JVRE-776010-EG		VERSION: D0



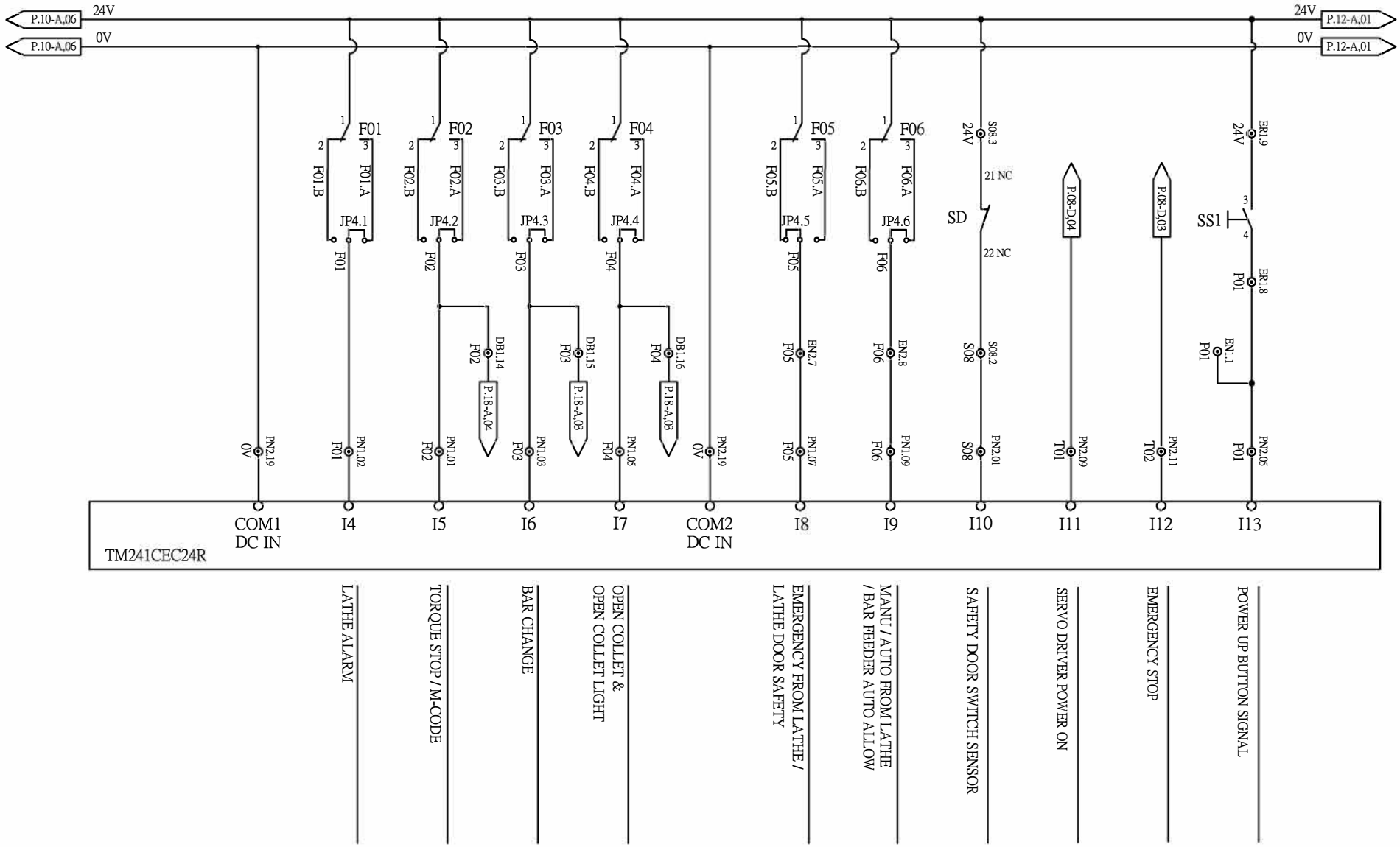
BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 08
LATHE NAME: CE	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main circuit 2		
LATHE TYPE:				DRAWING NO.: JVRE-776010 -EG		VERSION: D0



BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 09
LATHE NAME: CE	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Main circuit 3		
LATHE TYPE:				DRAWING NO.: JVRE-776010-EG		VERSION: D0

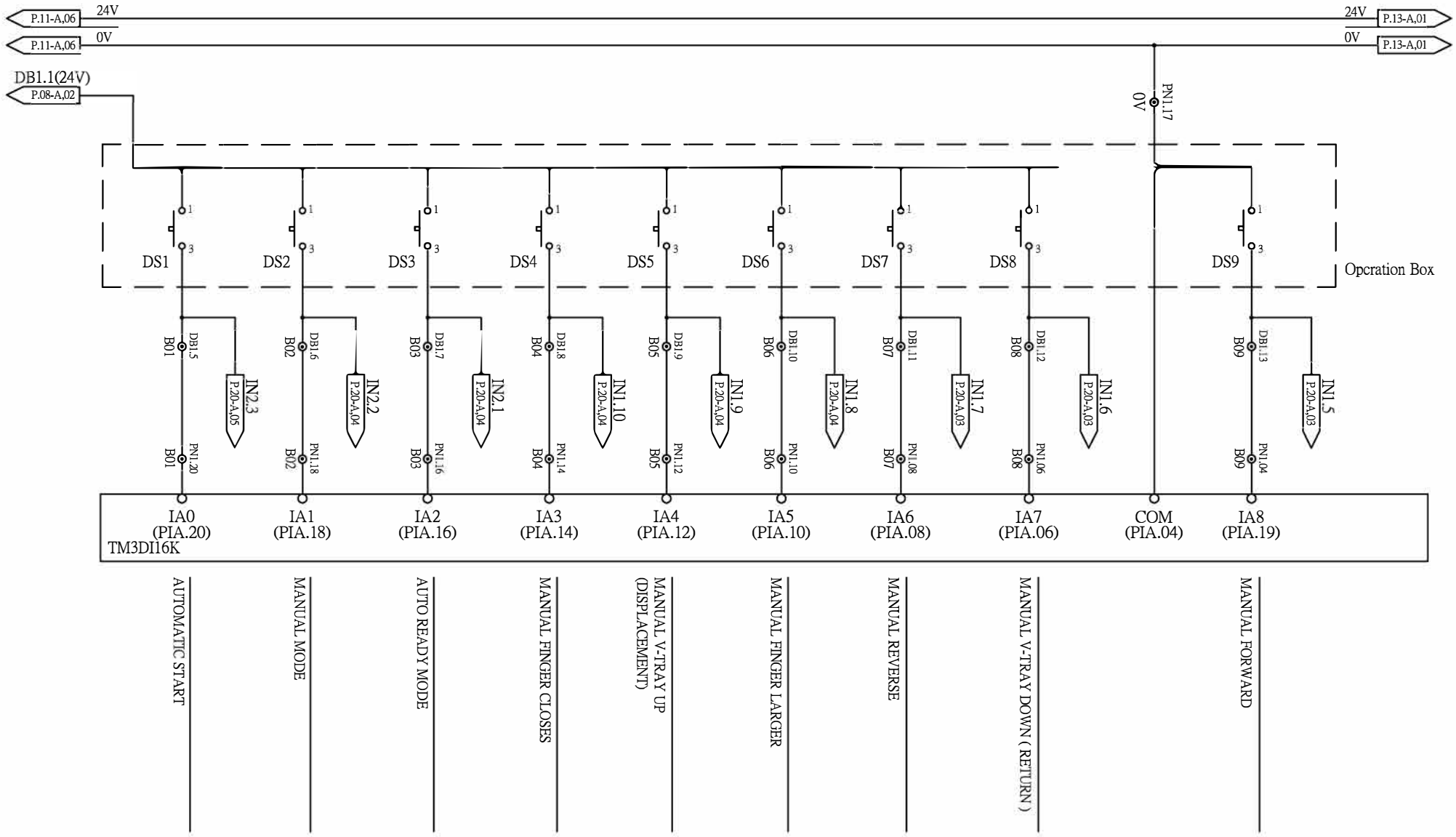


BAR FEEDER TYPE: REBEL	EDGE TECHNOLOGIES		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 10
LATHE NAME: CE			DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC INPUT		
LATHE TYPE:					DRAWING NO.: JVRE-776010-EG		VERSION: D0



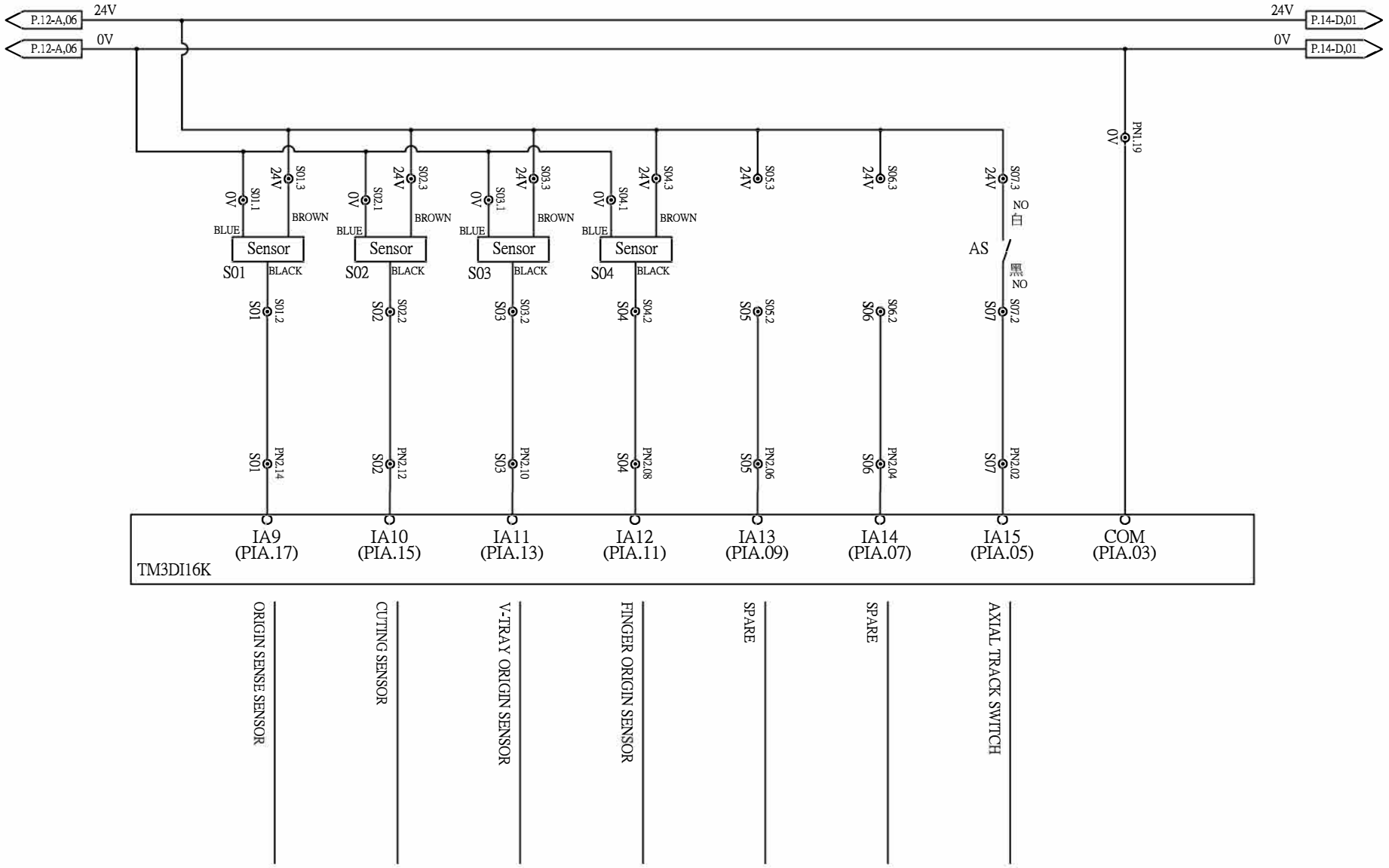
BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 11
LATHE NAME: CE	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC INPUT		
LATHE TYPE:				DRAWING NO.: JVRE-776010 -EG		VERSION: D0

A4

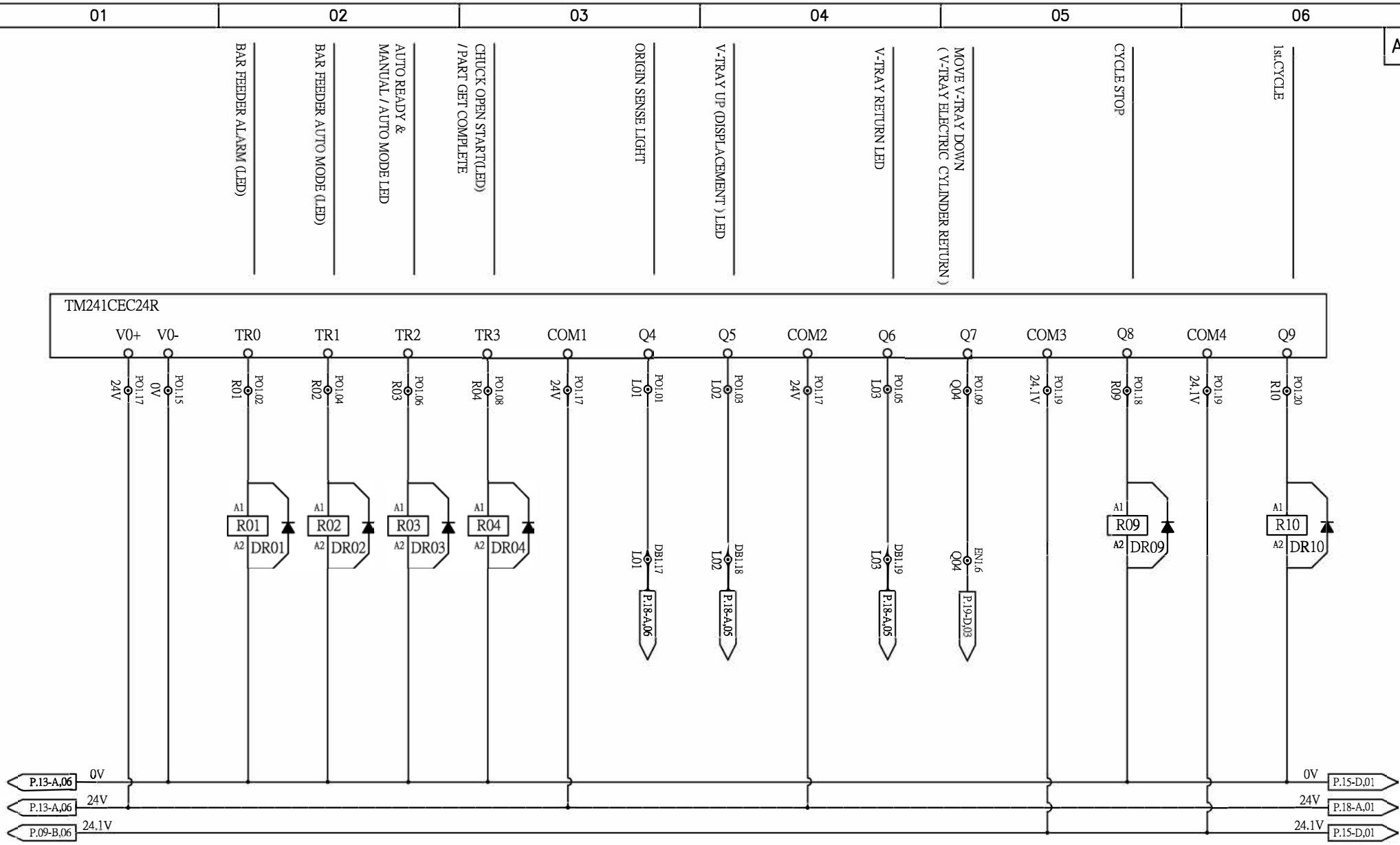


BAR FEEDER TYPE: REBEL	EDGE TECHNOLOGIES	FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 12
LATHE NAME: CE		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC INPUT		
LATHE TYPE:				DRAWING NO.: JVRE-776010 -EG		VERSION: D0

A4

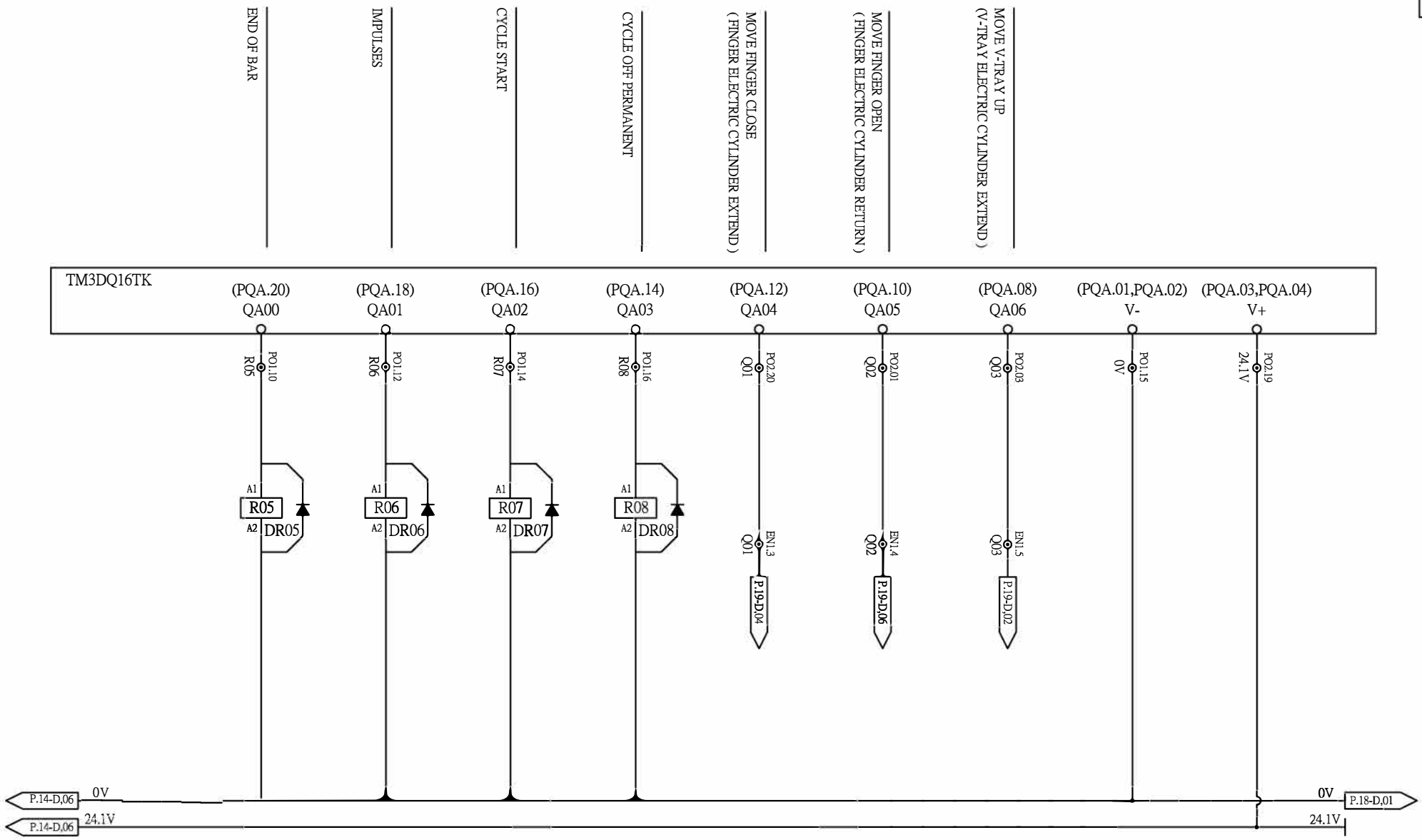


BAR FEEDER TYPE: REBEL	EDGE TECHNOLOGIES		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 13
LATHE NAME: CE			DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC INPUT		
LATHE TYPE:					DRAWING NO.: JVRE-776010 -EG		VERSION: D0



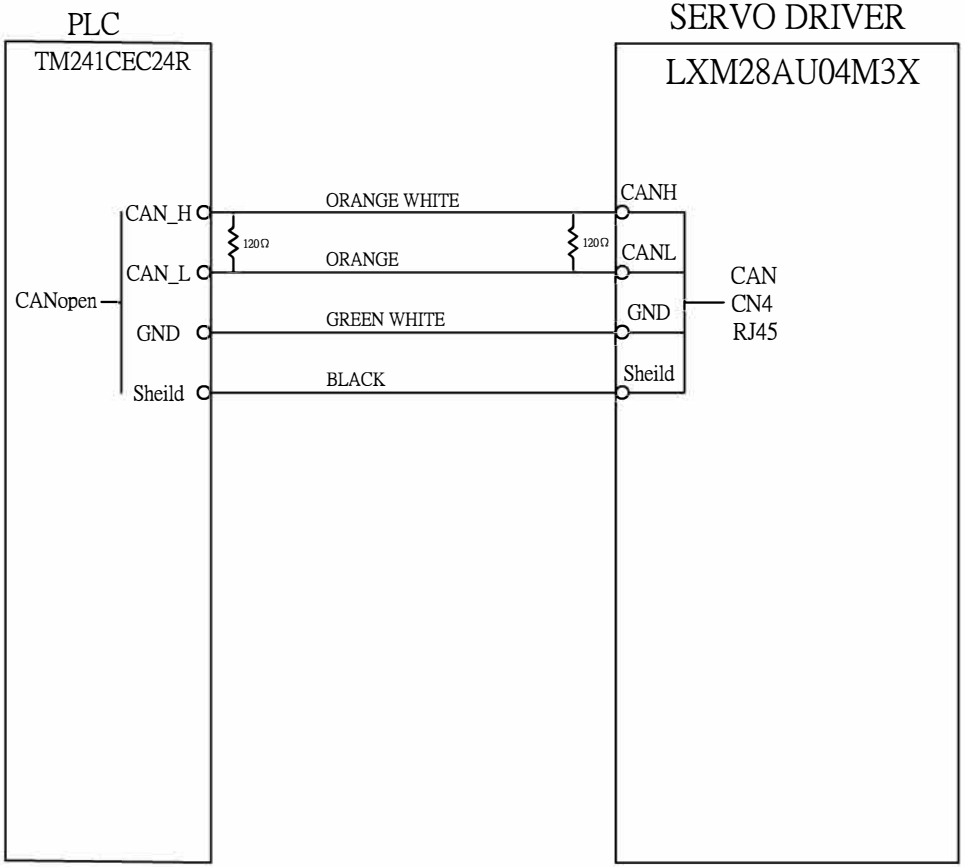
BAR FEEDER TYPE: REBEL	EDGE TECHNOLOGIES	FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 14
LATHE NAME: CE		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC OUTPUT		
LATHE TYPE:				DRAWING NO.: JVRE-776010 -EG		VERSION: D0

A4

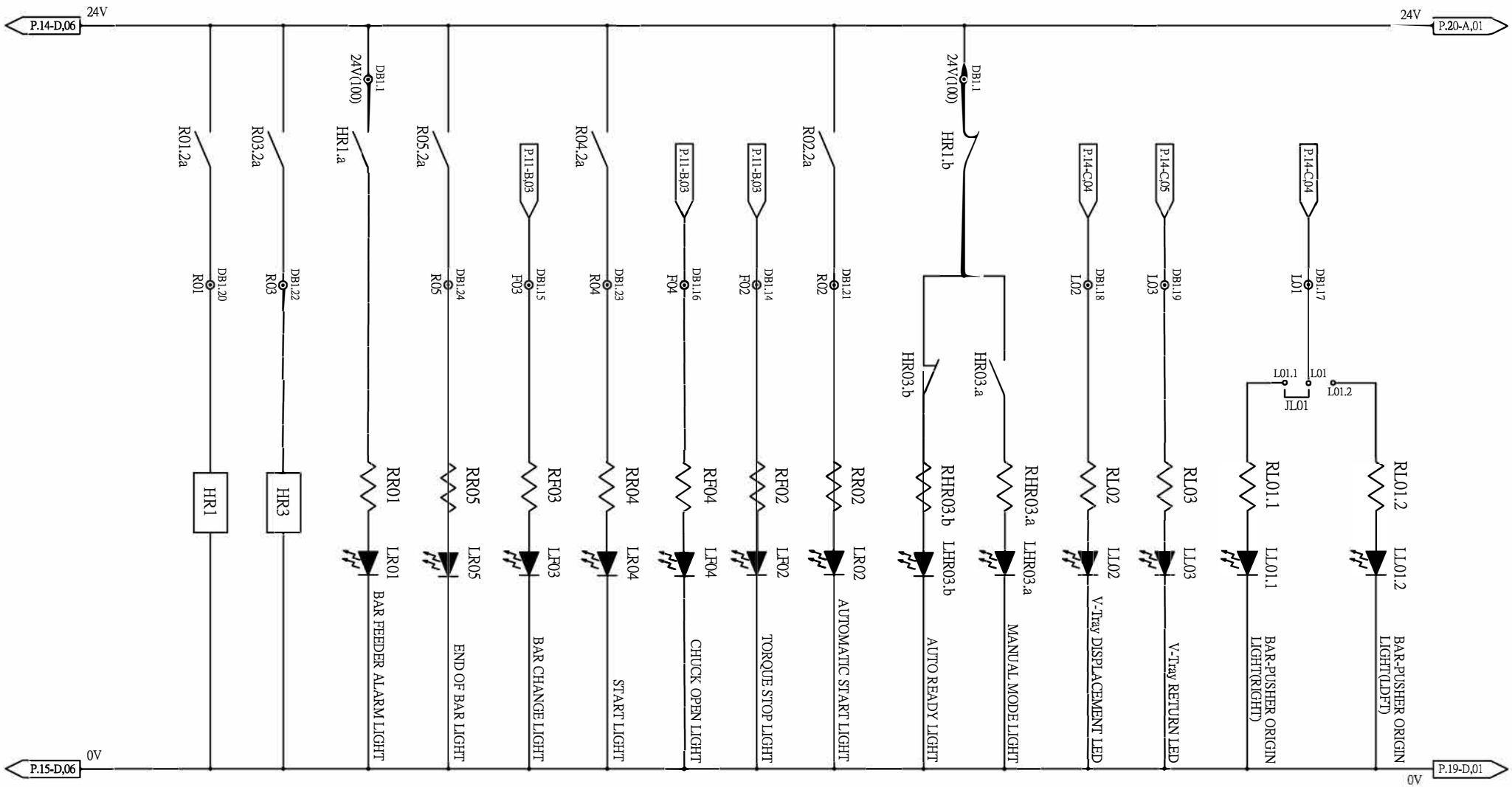


BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 15
LATHE NAME: CE	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PLC OUTPUT		
LATHE TYPE:				DRAWING NO.: JVRE-776010-EG		VERSION: D0

A4

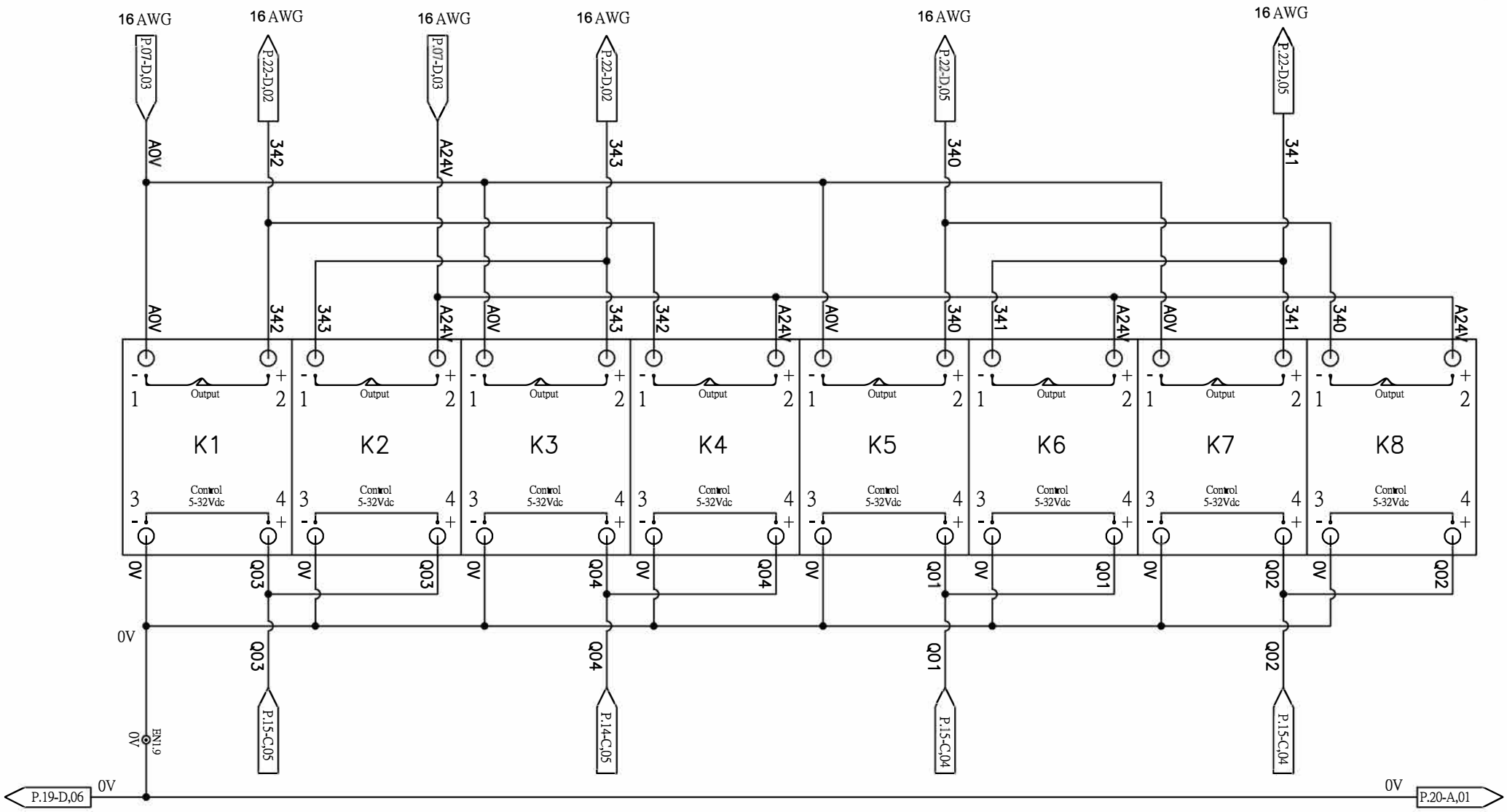


BAR FEEDER TYPE: REBEL	EDGE TECHNOLOGIES		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 17
LATHE NAME: CE			DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: CANopen		
LATHE TYPE:					DRAWING NO.: JVRE-776010 -EG		VERSION: D0

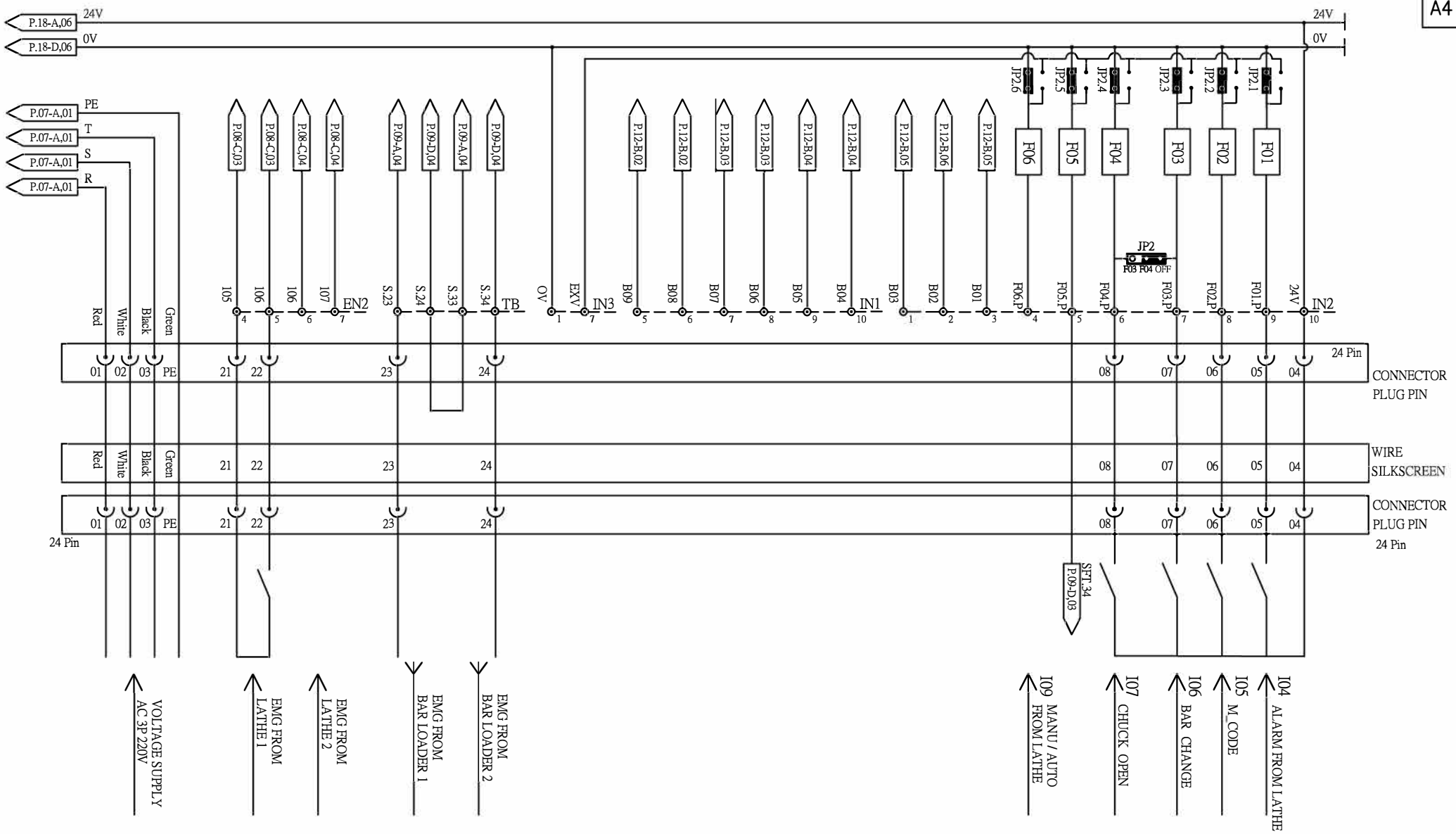


BAR FEEDER TYPE: REBEL	EDGE TECHNOLOGIES	FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 18
LATHE NAME: CE		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: LED circuit of Remote control pendant		
LATHE TYPE:				DRAWING NO.: JVRE-776010 -EG		VERSION: D0

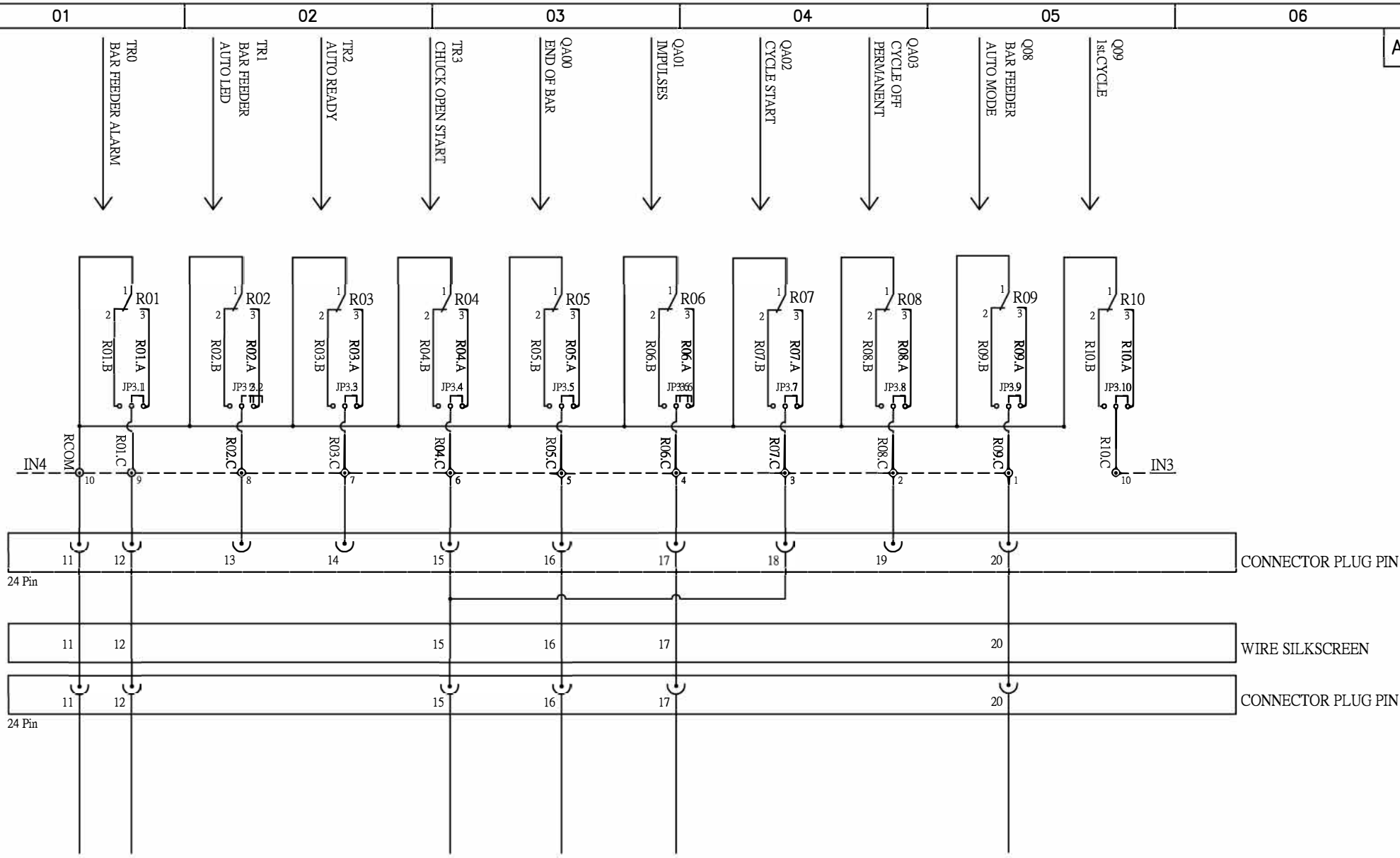
A4



BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 19
LATHE NAME: CE	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: SSR RELAYS		
LATHE TYPE:				DRAWING NO.: JVRE-776010 -EG		VERSION: D0



BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC
LATHE NAME: CE	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Interface 1	PAGE: P. 20
LATHE TYPE:				DRAWING NO.: JVRE-776010 -EG	VERSION: D0

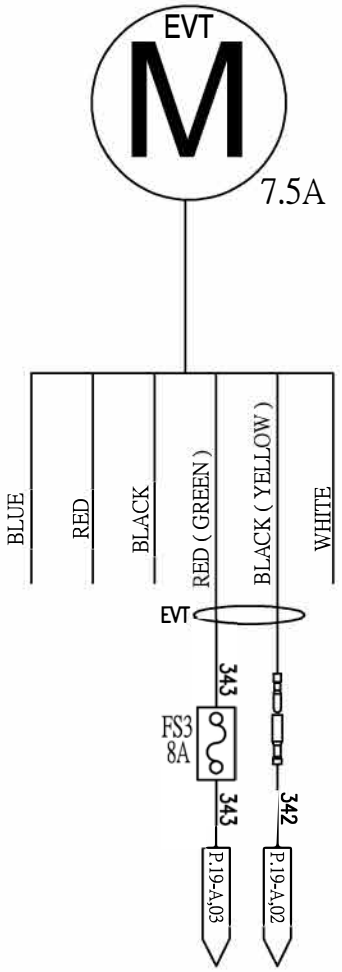


BAR FEEDER TYPE: REBEL			FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 21
LATHE NAME: CE	EDGE TECHNOLOGIES		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Interface 2		
LATHE TYPE:					DRAWING NO.: JVRE-776010-EG		VERSION: D0

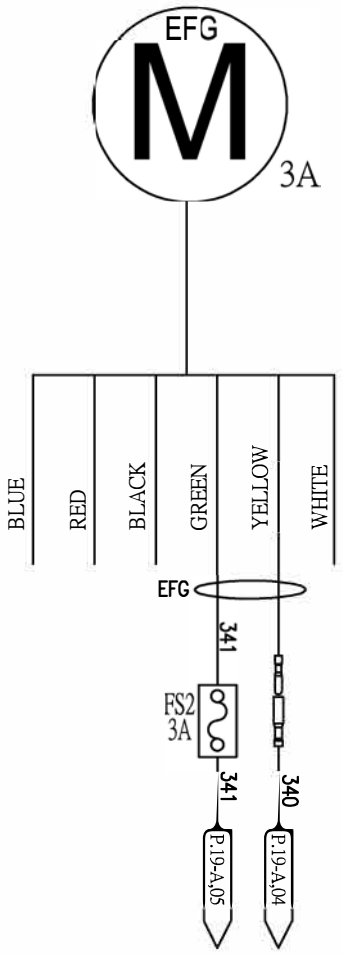
01 02 03 04 05 06

A4

V-Tray Actuator



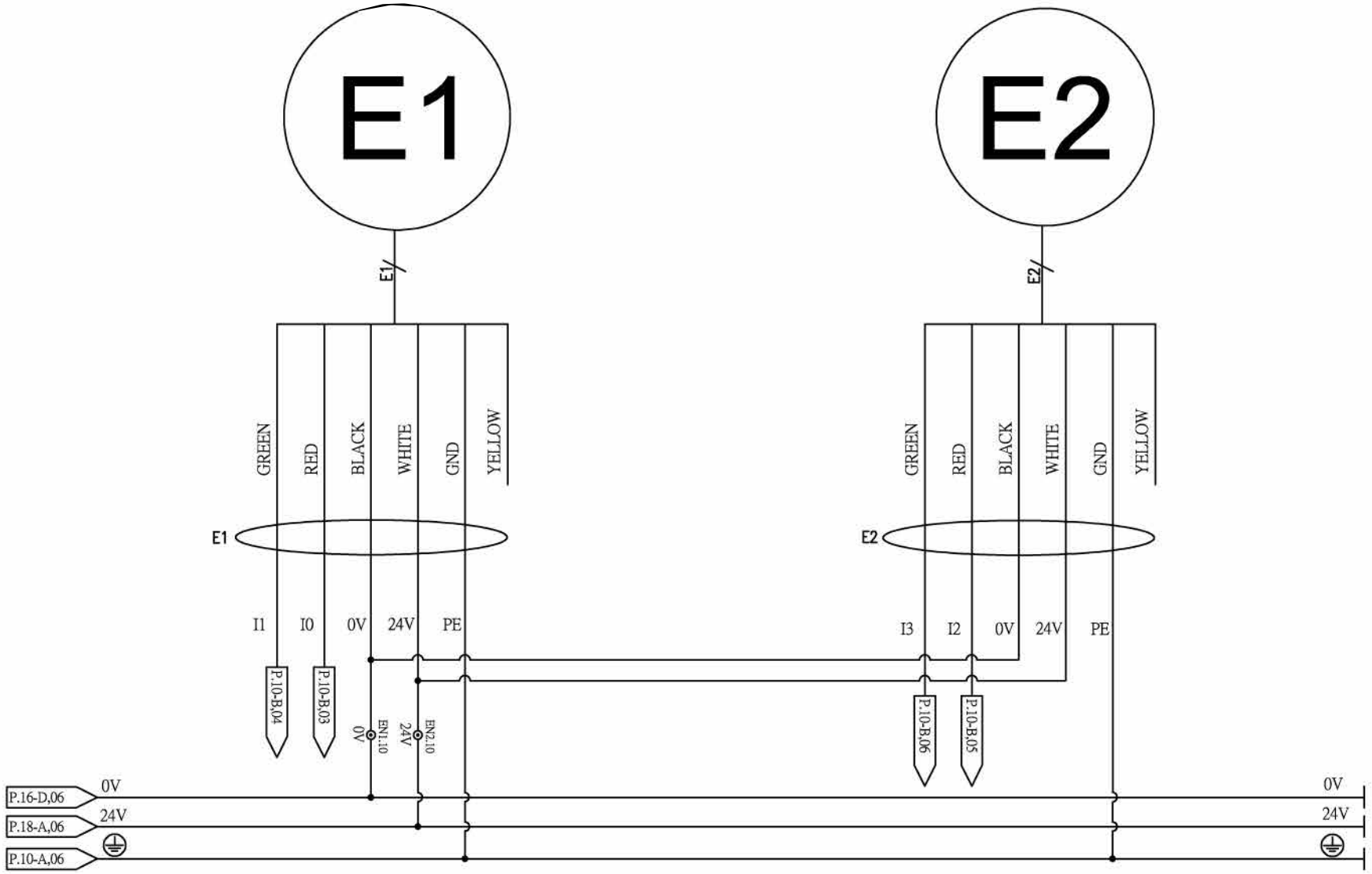
Finger Actuator



BAR FEEDER TYPE: REBEL	EDGE TECHNOLOGIES		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 22
LATHE NAME: CE			DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: Electric cylinder		
LATHE TYPE:					DRAWING NO.: JVRE-776010-EG		VERSION: D0

A4

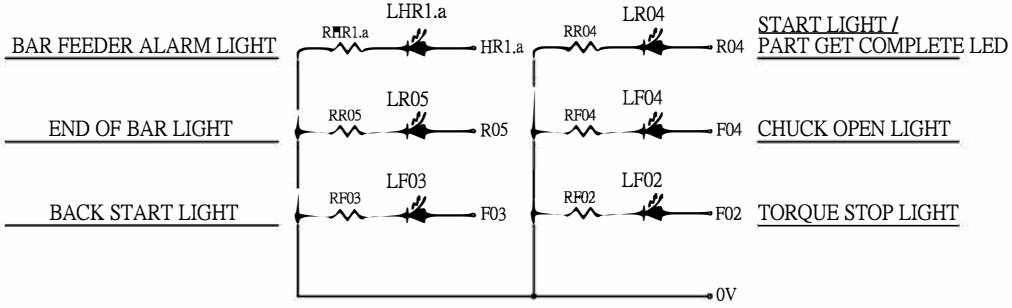
V-Tray rope encoder



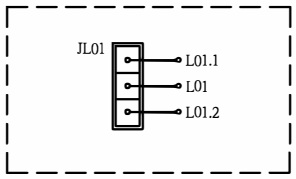
Finger rope encoder

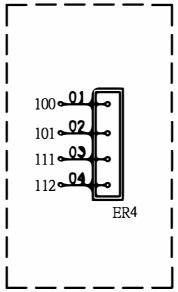
BAR FEEDER TYPE: REBEL	EDGE TECHNOLOGIES		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 23
LATHE NAME: CE			DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: ROPE ENCODER		
LATHE TYPE:					DRAWING NO.: JVRE-776010-EG		VERSION: D0

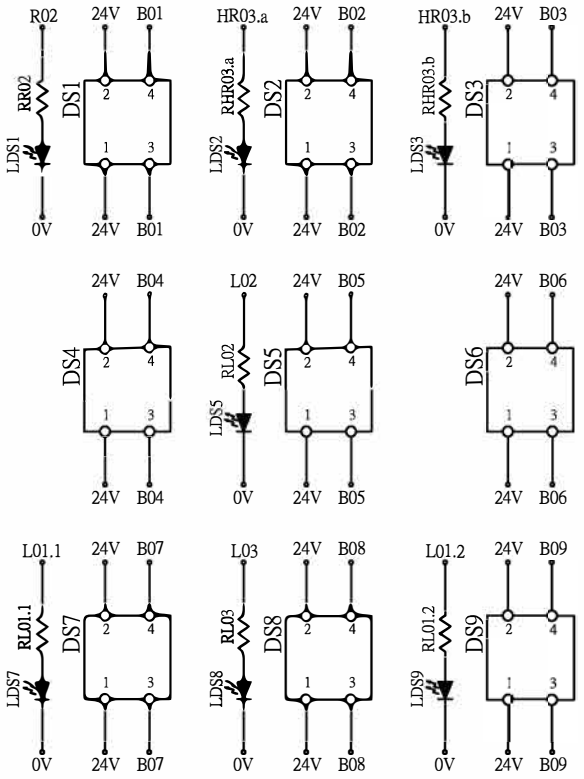
A4

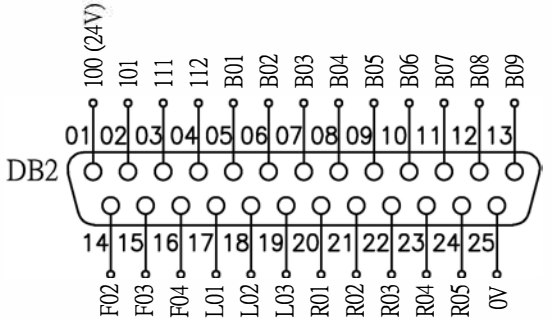


PGE 0502 KEY BOARD

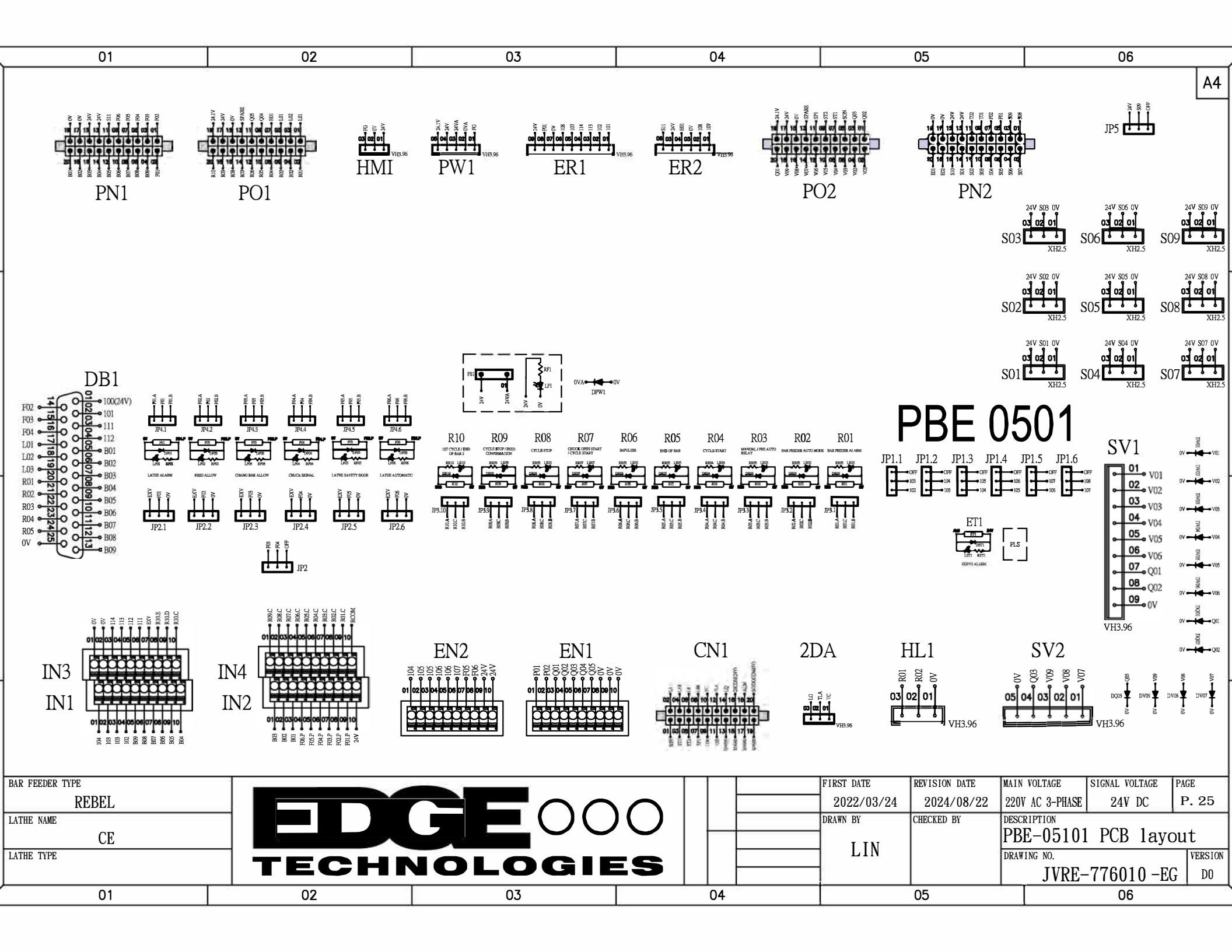






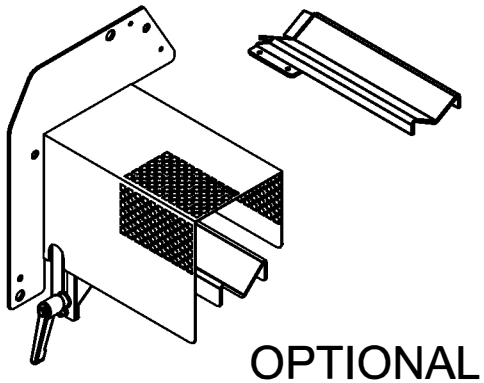


BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC	PAGE: P. 24
LATHE NAME: CE		DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PGE-0502 PCB layout		
LATHE TYPE:				DRAWING NO.: JVRE-776010-EG		VERSION: D0

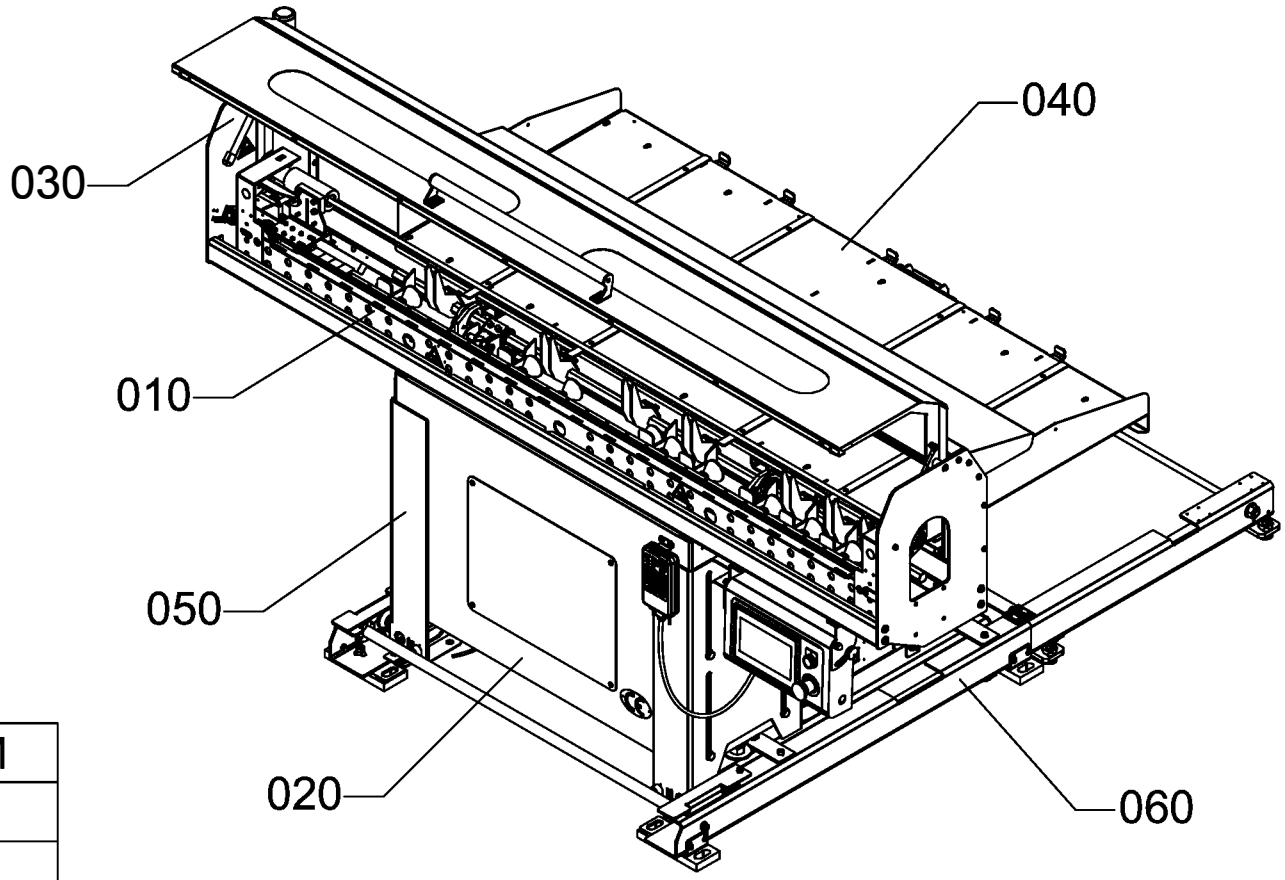


BAR FEEDER TYPE: REBEL		FIRST DATE: 2022/03/24	REVISION DATE: 2024/08/22	MAIN VOLTAGE: 220V AC 3-PHASE	SIGNAL VOLTAGE: 24V DC / PAGE: P. 25
LATHE NAME: CE	EDGE TECHNOLOGIES	DRAWN BY: LIN	CHECKED BY:	DESCRIPTION: PBE-05101 PCB layout	
LATHE TYPE:				DRAWING NO.: JVRE-776010 -EG	VERSION: D0

070

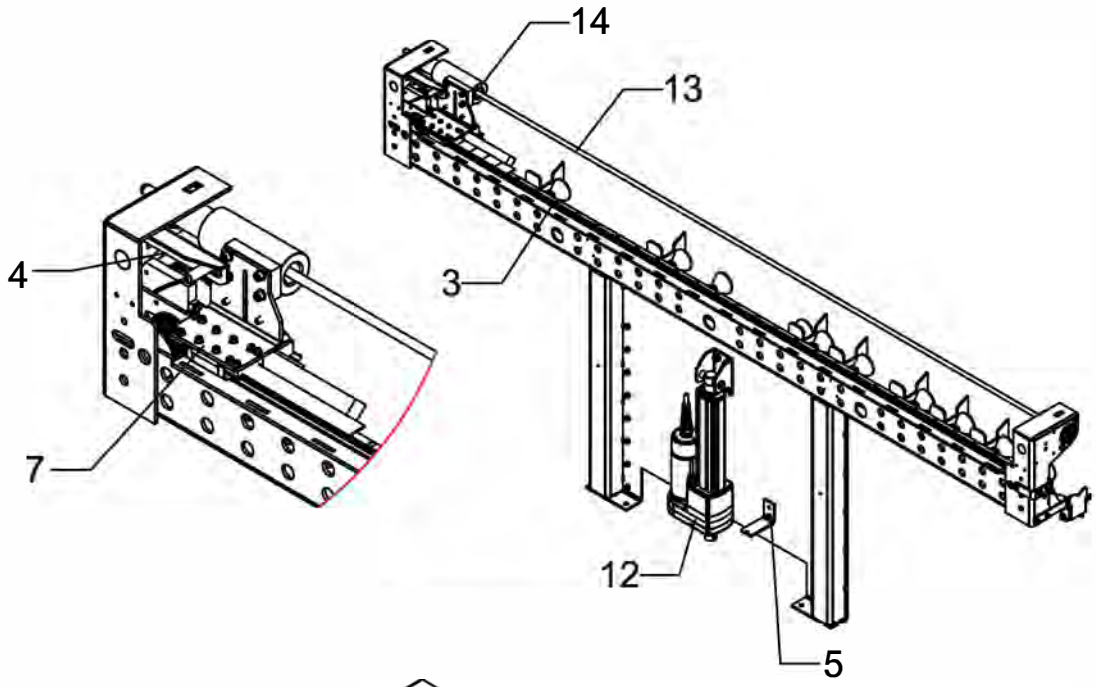


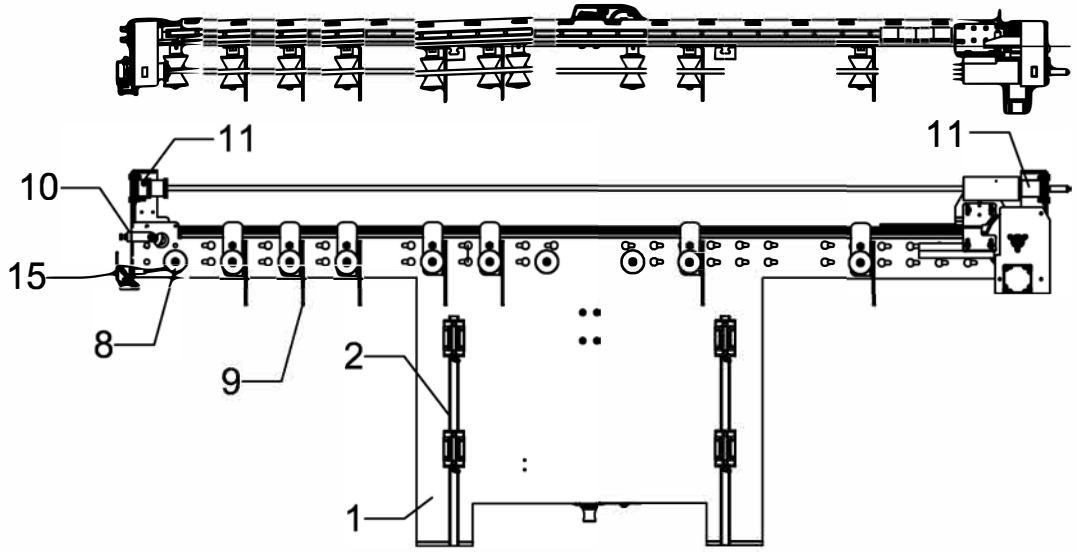
OPTIONAL

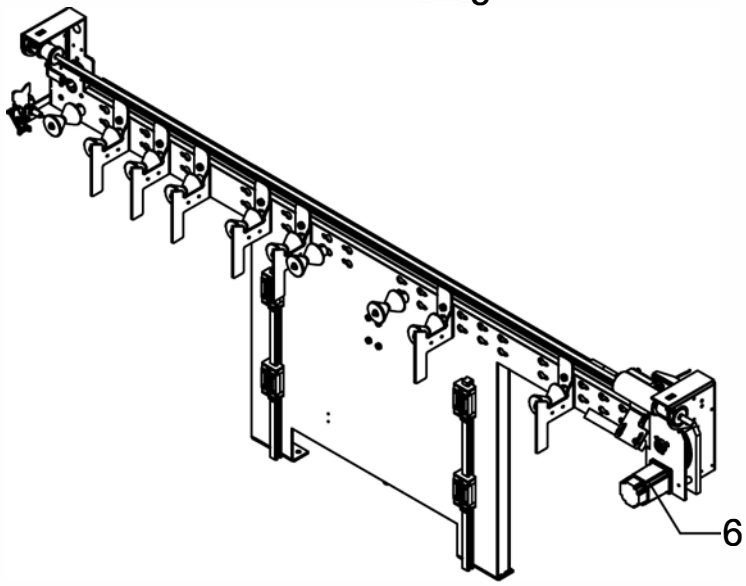


010	V-TRAY MACHANISM
020	MAIN CABINET
030	MACHINE COVER
040	MAGAZINE
050	STAND
060	AXIAL TRACK
070	V-TRAY EXTENSION KIT

ITEM	PART NO.	QTY		DESCRIPTION
		1.2M	1.6M	
1	RE80CH0320	1		Extended T-Structure
	MEK21333		1	
2	ZS1920AST04902050	1		20 x 490 mm Linear Guide
3	ZS1915ASR13852045	1		15 x1385 MM RAIL With Block
	ZS1915ASR17850540		1	15 x1785 MM RAIL With Block
4	RE80DR0610	1		Proximity Sensor Bracket - A
5	MEP213150	1		Draw Wire Bracket
6	Tab.011	1		DRIVE MOTOR UNIT
7	Tab.012	1		PUSHER TRUCK(REVERSED)
8	Tab.013-1	3	3	V Roller Assy-1
9	Tab.013-2	6	7	V Roller Assy-2
10	Tab.014	1		PULLEY ASSY
11	Tab.015	1		PUSHER LOCKING BALL SET
12	Tab.016	1		LINEAR ACTUATOR V-Tray
13	Tab.017	1		BAR PUSHER -ø6.ø10.ø19
14	Tab.018	1		PREFABRICATED LOCK PUSHER
15	Tab.019	1		INDUCTION DOOR SET

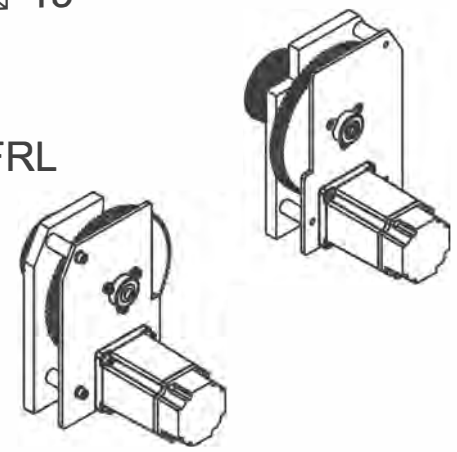


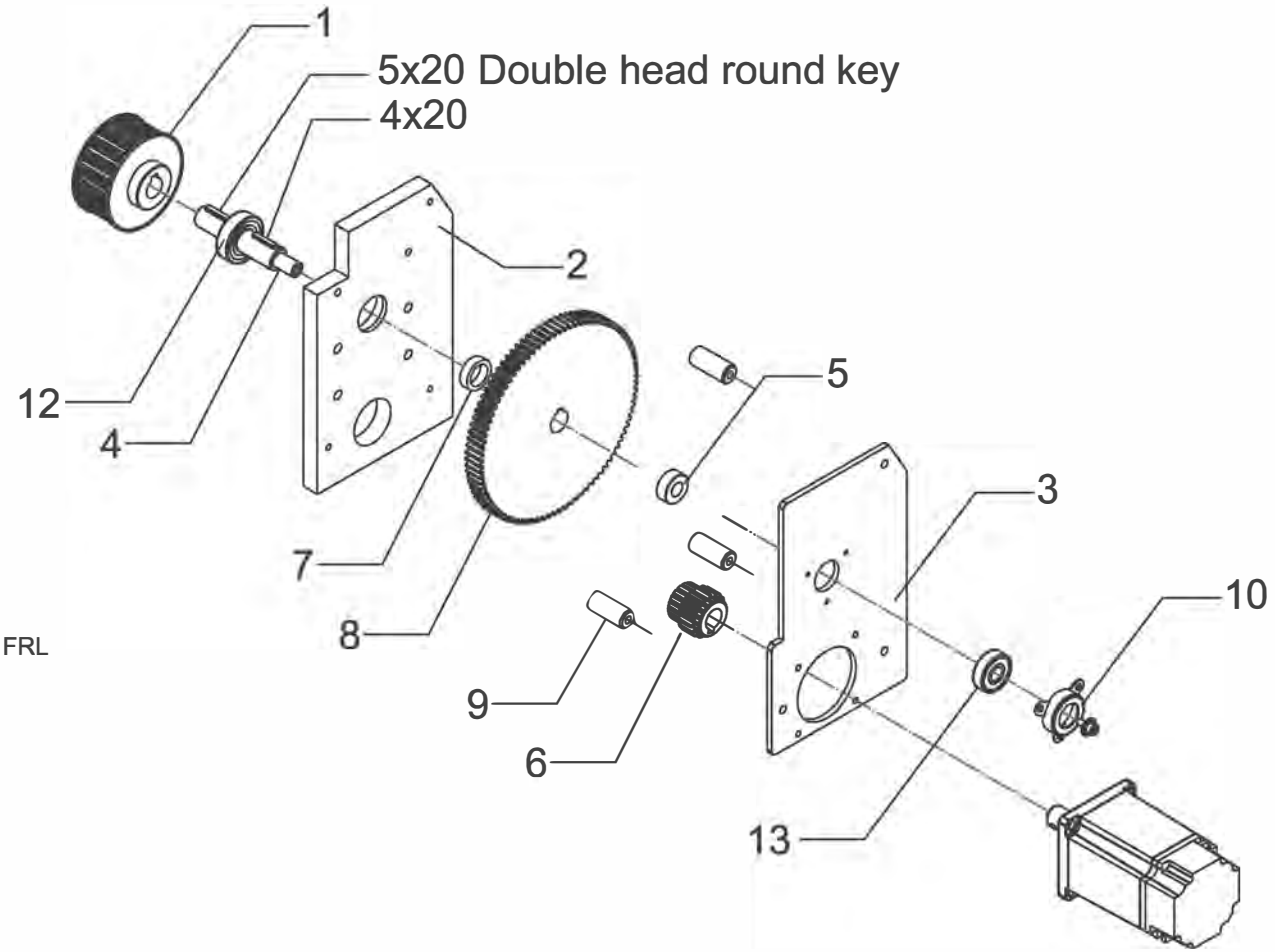




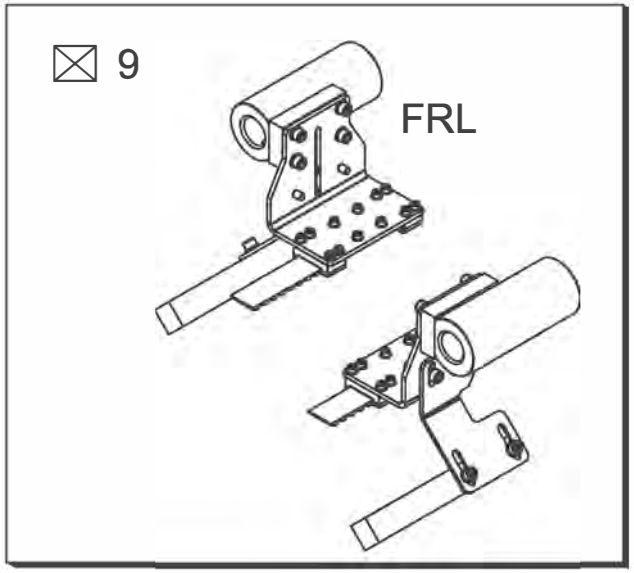
☒ 13

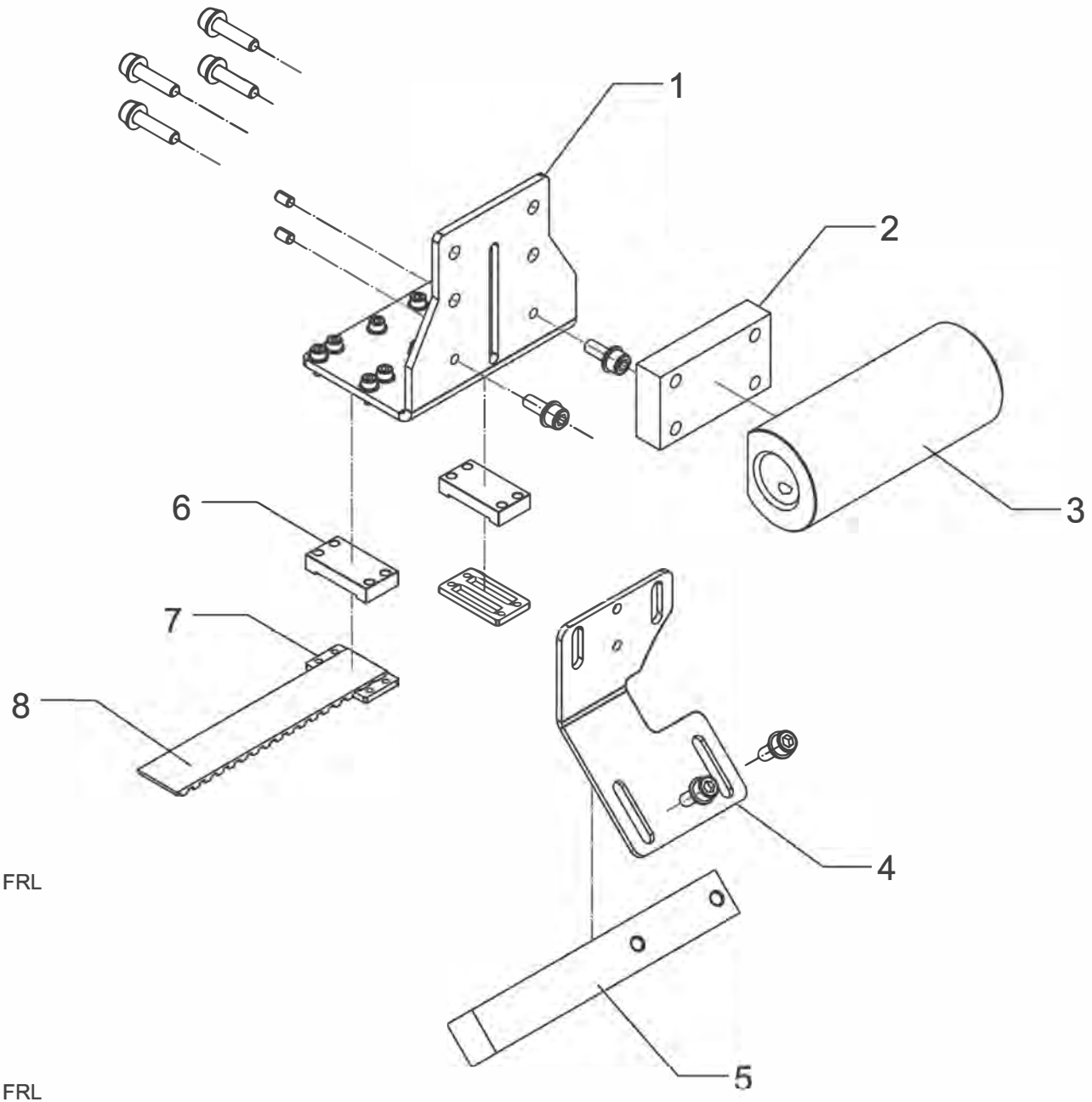
FRL





ITEM	PART NO.	QTY	DESCRIPTION	
1	MEP21387	1	Sproket	
2	RE80DR0100	1	Motor Mountign Bracket	
	RE80DR0110	1	Motor Mountign Bracket	FRL
3	RE80DR0200	1	Motor Mountign Plate	
4	RE80DR0300	1	ARBOR	
5	RE80DR0400	1	BUSHING	
6	ME80DR0200	1	PINION 18T	
7	TM1-XXX-200-004	1	RING	
8	TM1-XXX-200-207	1	PINION	
9	ADP14A722020302	3	BUSHING	
10	S41150200	1	BUSHING Bracket	
11	B6002ZZ	1	Bearing 6002ZZ	
12	B6000ZZ	1	Bearing 6000ZZ	
13	RE80DR000B	1	DRIVE MOTOR UNIT	
	RE80DR001B	1	DRIVE MOTOR UNIT	FRL

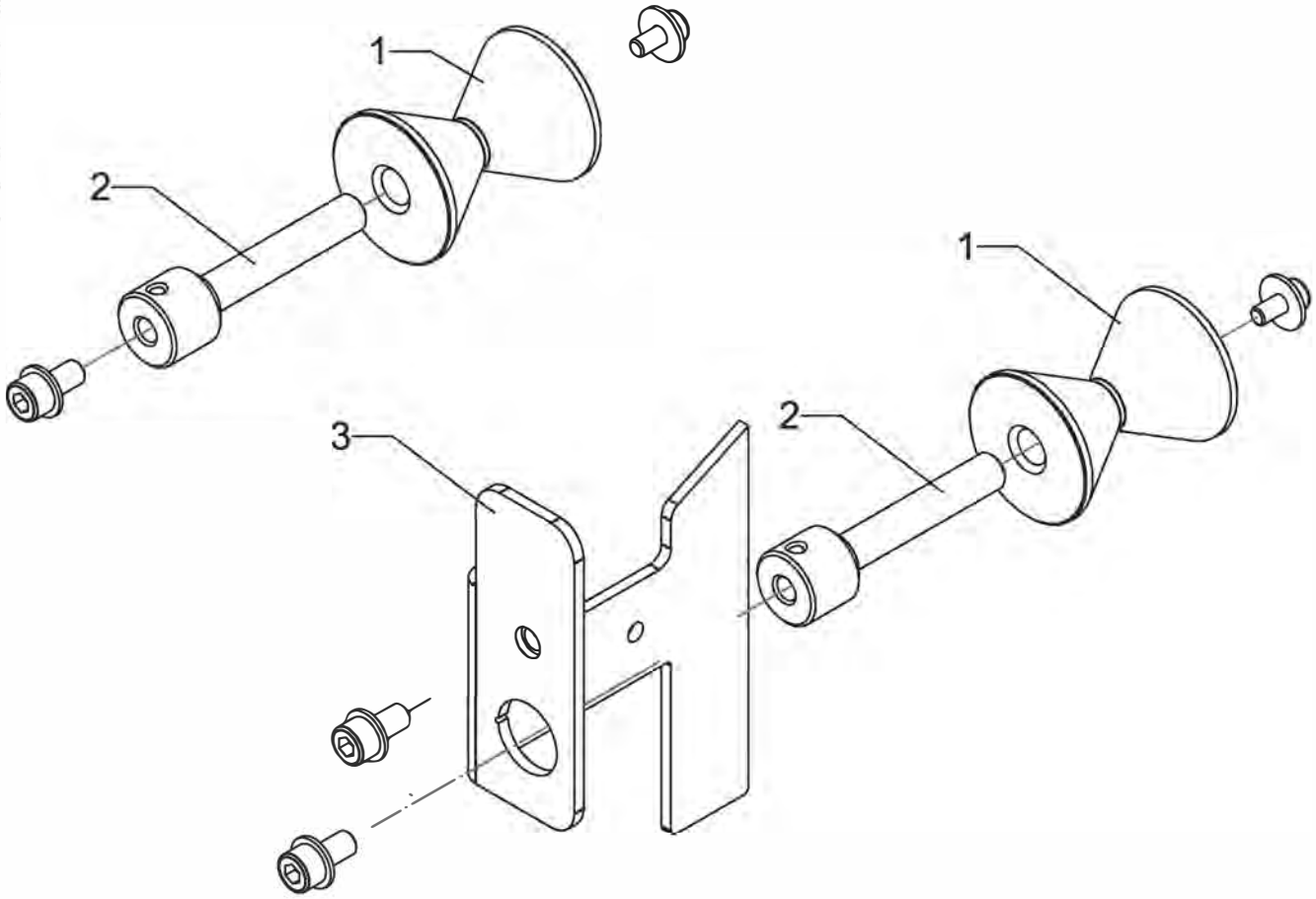


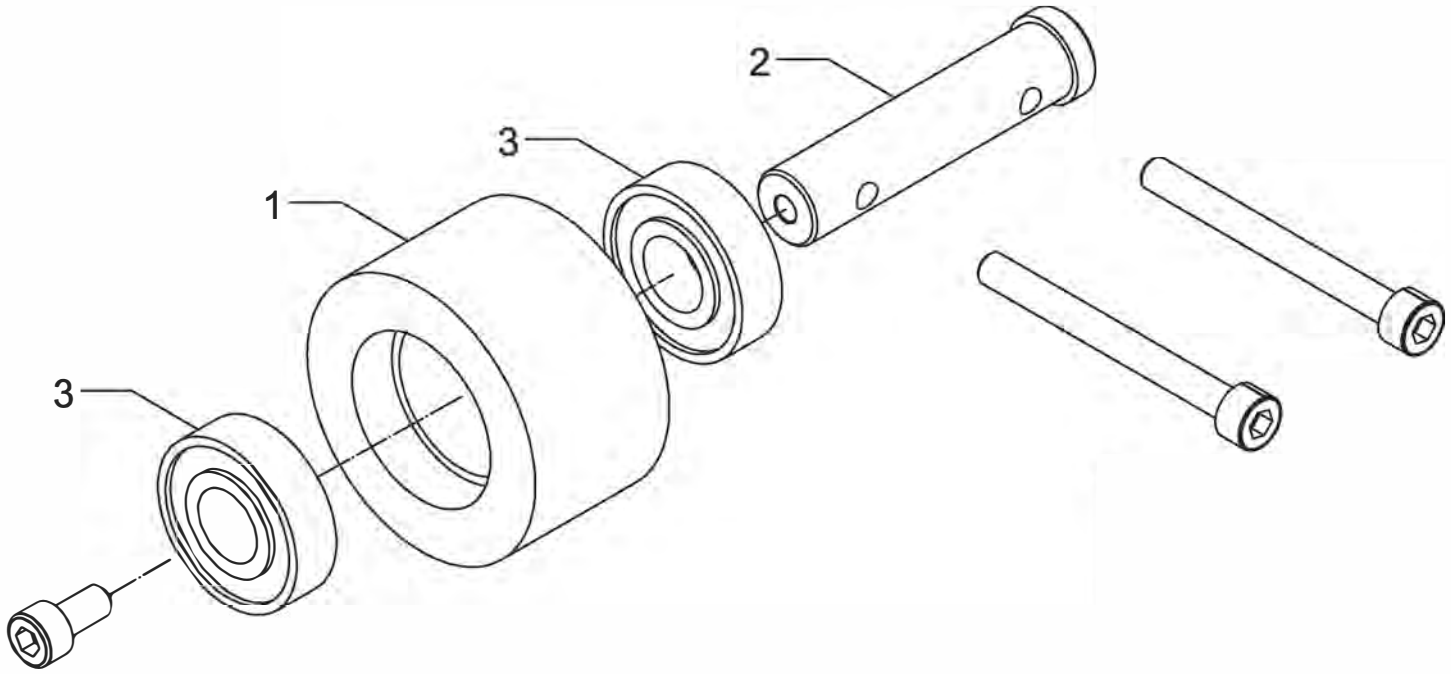


ITEM	PART NO.	QTY 1.2M	QTY 1.6M	DESCRIPTION	
1	MEP21390	1		Pusher Sleeve Bracket	
2	MEP21381	1		Sleeve Mounting Bolock	
3	MEP21389	1		Pusher Sleeve	
4	RE80DR0500	1		Short Pusher Bracket	
	RE80DR0510	1		Short Pusher Bracket	FRL
5	MEP21383	1		Prefeed Pusher	
6	MEP21421	2		Pulley Belt Locking Block	
7	MEP21417	2		Pulley Belt Locking Pad	
8	RE80DR0900	1		Driving Belt (OPEN)3030 2-100	
	MEP21416		1	Driving Belt (OPEN)3830 2-100	
9	RE80DR001E	1		PUSHER TRUCK (REVERSED)	
	RE80DR004E	1		PUSHER TRUCK (REVERSED)	FRL

V Roller Assy-1			
ITEM	PART NO.	QTY	DESCRIPTION
1	MEP21391	1	Roller 120°
	MEP213912	1	Roller 90°
2	MEP21392	1	Roller Shaft

V Roller Assy-2			
ITEM	PART NO.	QTY	DESCRIPTION
1	MEP21391	1	Roller 120°
	MEP213912	1	Roller 90°
2	MEP21392	1	Roller Shaft
3	MEK21331	1	Roller Bracket



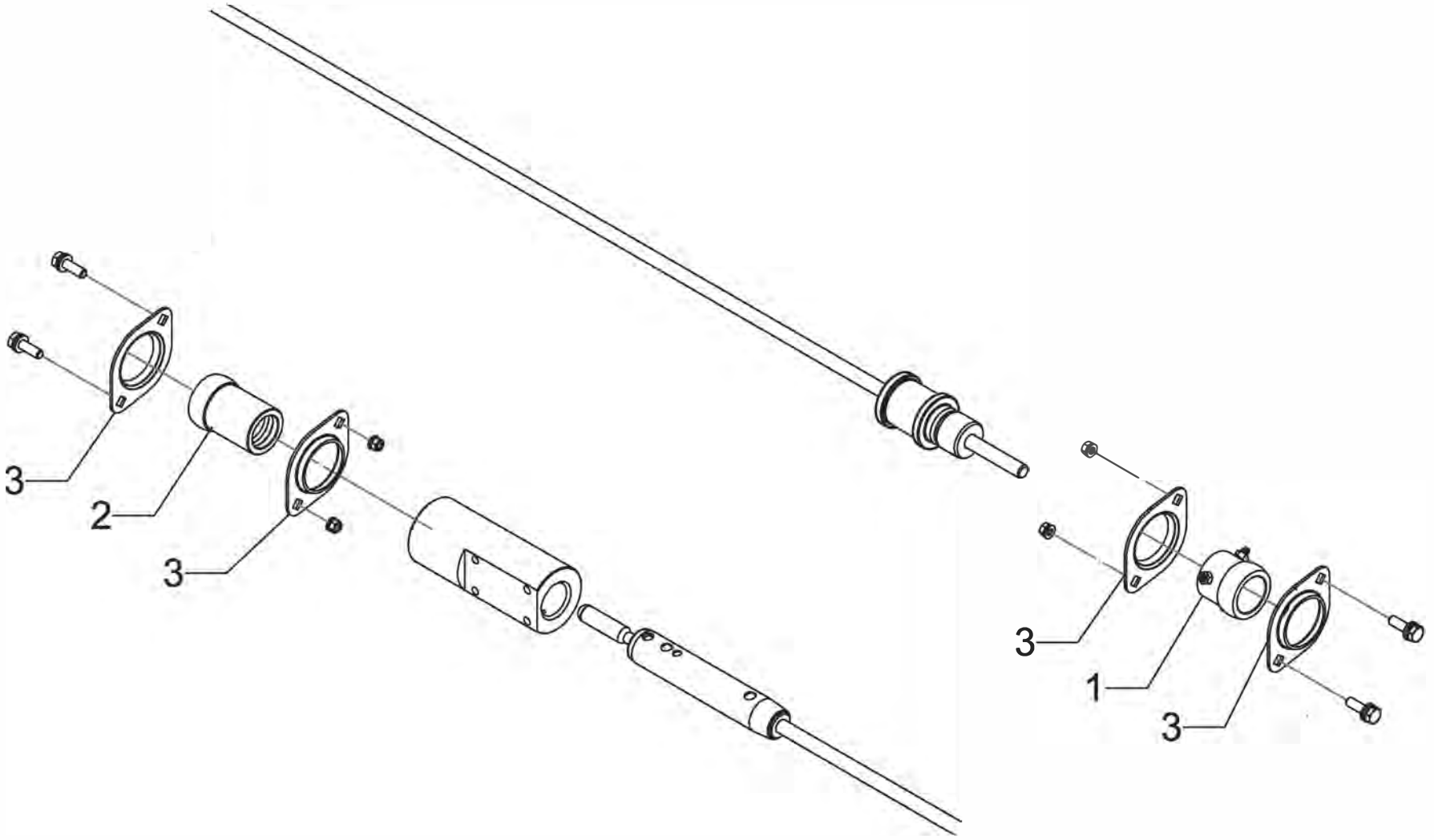


ITEM	PART NO.	QTY	DESCRIPTION
1	MEP21386	1	Pulley
2	RE80DR1100	1	Pulley Shaft
3	B6001ZZ	2	Bearing

REBEL

PULLEY ASSY

Tab. 014 2

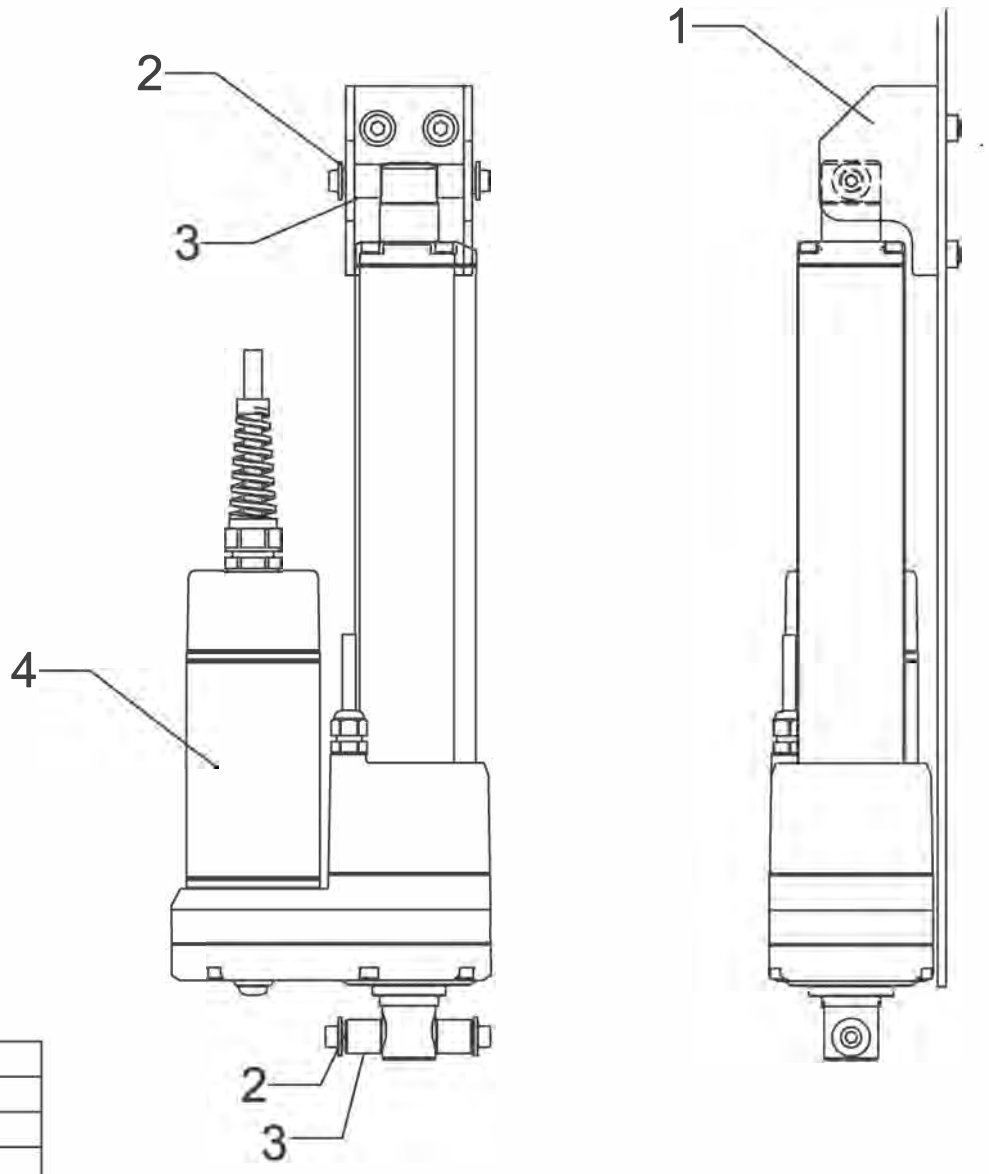


ITEM	PART NO.	QTY	DESCRIPTION
1	MEP21395	1	Flange - A
2	MEP21396	1	Flange - B
3	MEP21409	2	Pusher Sleeve Housing

REBEL

PUSHER LOCKING BALL SET

Tab. 015 2



ITEM	PART NO.	QTY	DESCRIPTION
1	MEP21394	1	V-Tray Supporting Bracket
2	RE80DR1000	2	Pin
3	MEP21399	4	Bushing
4	PJ10795	1	LINEAR ACTUATOR MA1

REBEL

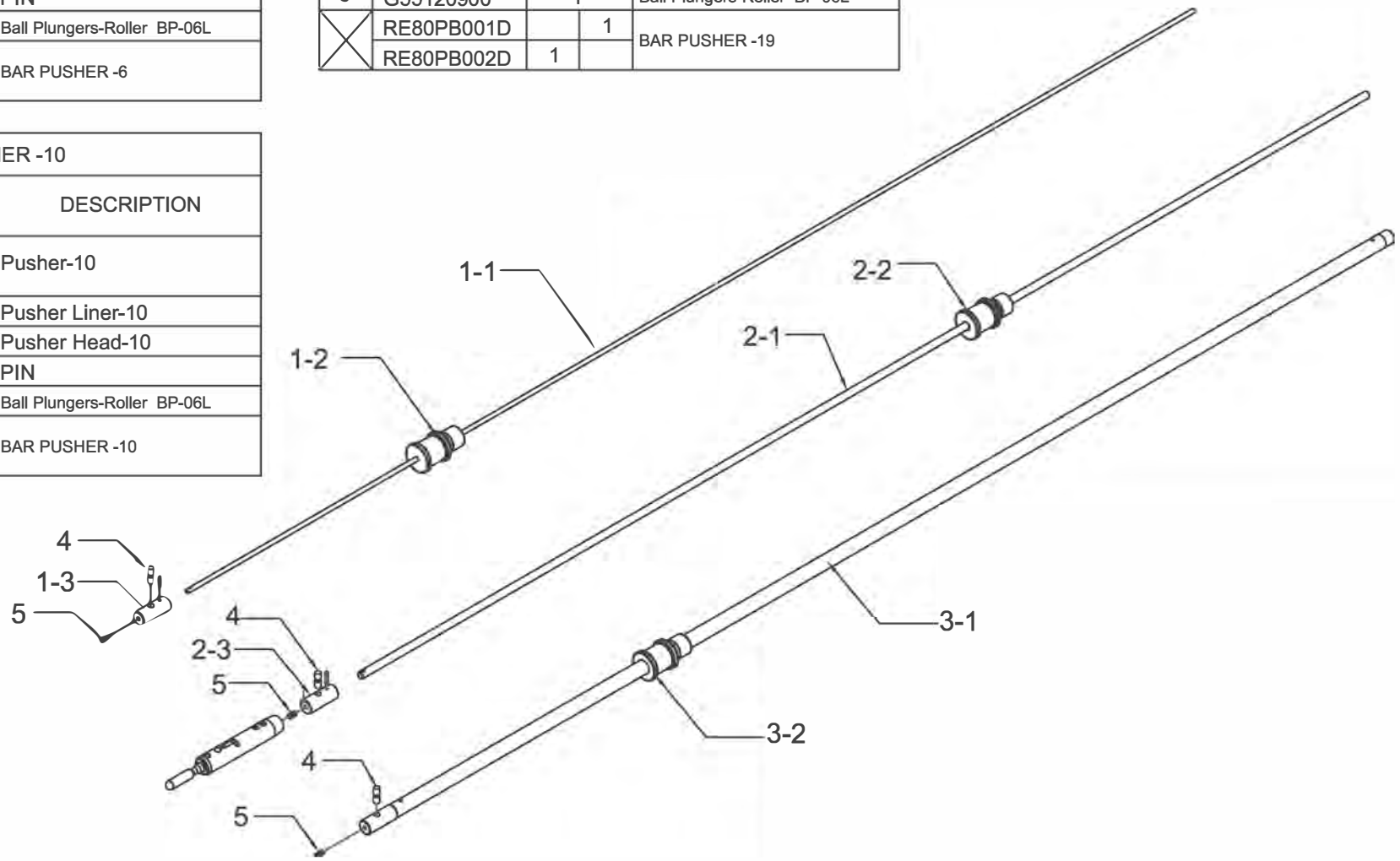
LINEAR ACTUATOR V-Tray

Tab. 016 1

BAR PUSHER -6				
ITEM	PART NO.	QTY		DESCRIPTION
		1.2M	1.6M	
1-1	MEP21403-1		1	Pusher-6
	RE80PB0110	1		
1-2	MEP21397-1	1		Pusher Liner-6
1-3	MEP21404-1	1		Pusher Head-6
4	MEP21414	1		PIN
5	G55120900	1		Ball Plungers-Roller BP-06L
X	RE80PB001B		1	BAR PUSHER -6
X	RE80PB002B	1		

BAR PUSHER -10				
ITEM	PART NO.	QTY		DESCRIPTION
		1.2M	1.6M	
2-1	MEP21403		1	Pusher-10
	RE80PB0100	1		
2-2	MEP21397	1		Pusher Liner-10
2-3	MEP21404	1		Pusher Head-10
4	MEP21414	1		PIN
5	G55120900	1		Ball Plungers-Roller BP-06L
X	RE80PB001C		1	BAR PUSHER -10
X	RE80PB002C	1		

BAR PUSHER -19				
ITEM	PART NO.	QTY		DESCRIPTION
		1.2M	1.6M	
3-1	MEP21403-2		1	Pusher-19
	RE80PB0120	1		
3-2	MEP21397-2	1		Pusher Liner-19
4	MEP21414	1		PIN
5	G55120900	1		Ball Plungers-Roller BP-06L
X	RE80PB001D		1	BAR PUSHER -19
X	RE80PB002D	1		



REBEL

BAR PUSHER -ø6 / ø10 / ø19

Tab. 017 1

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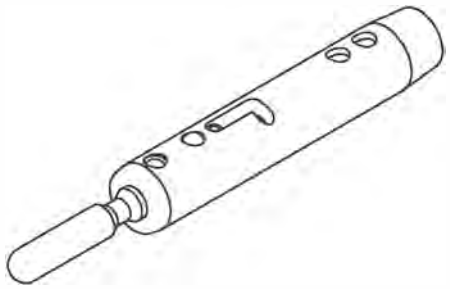
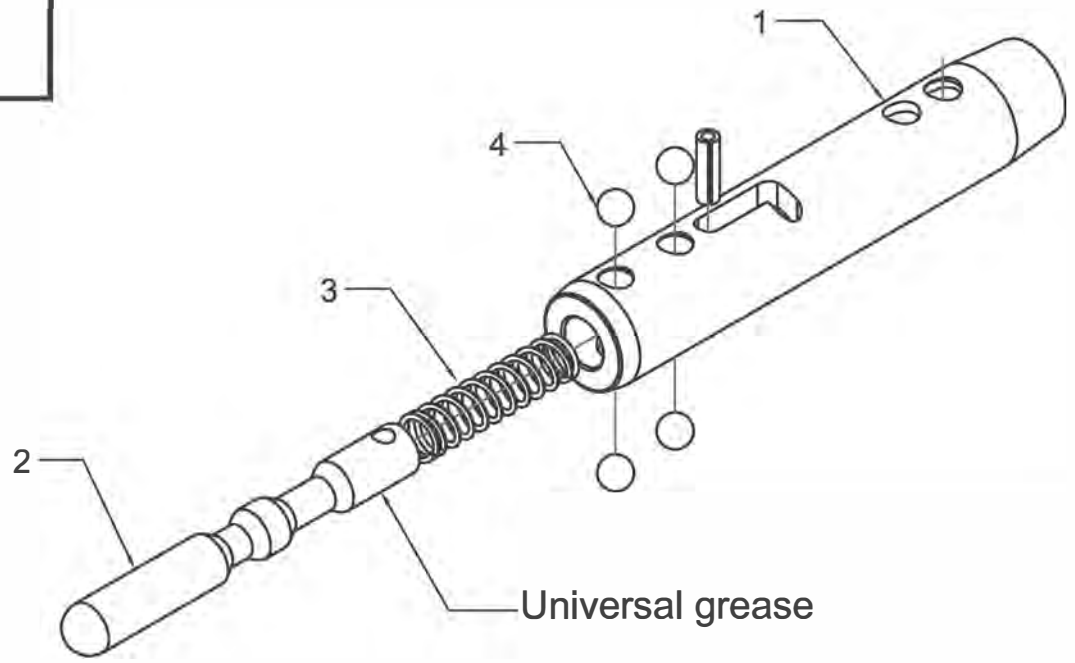
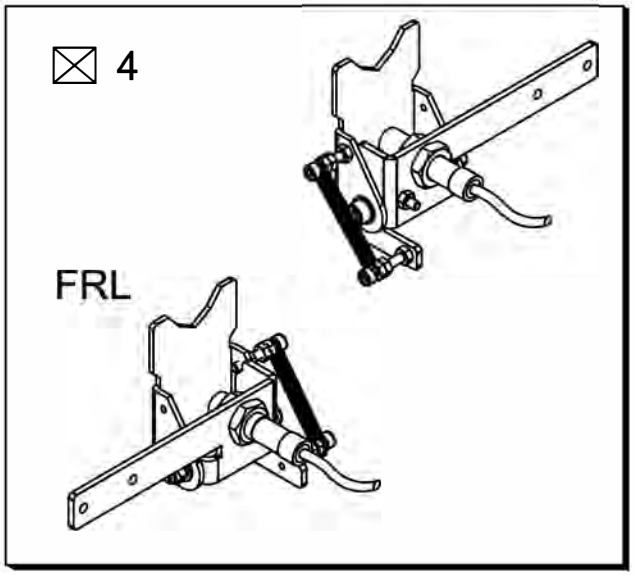


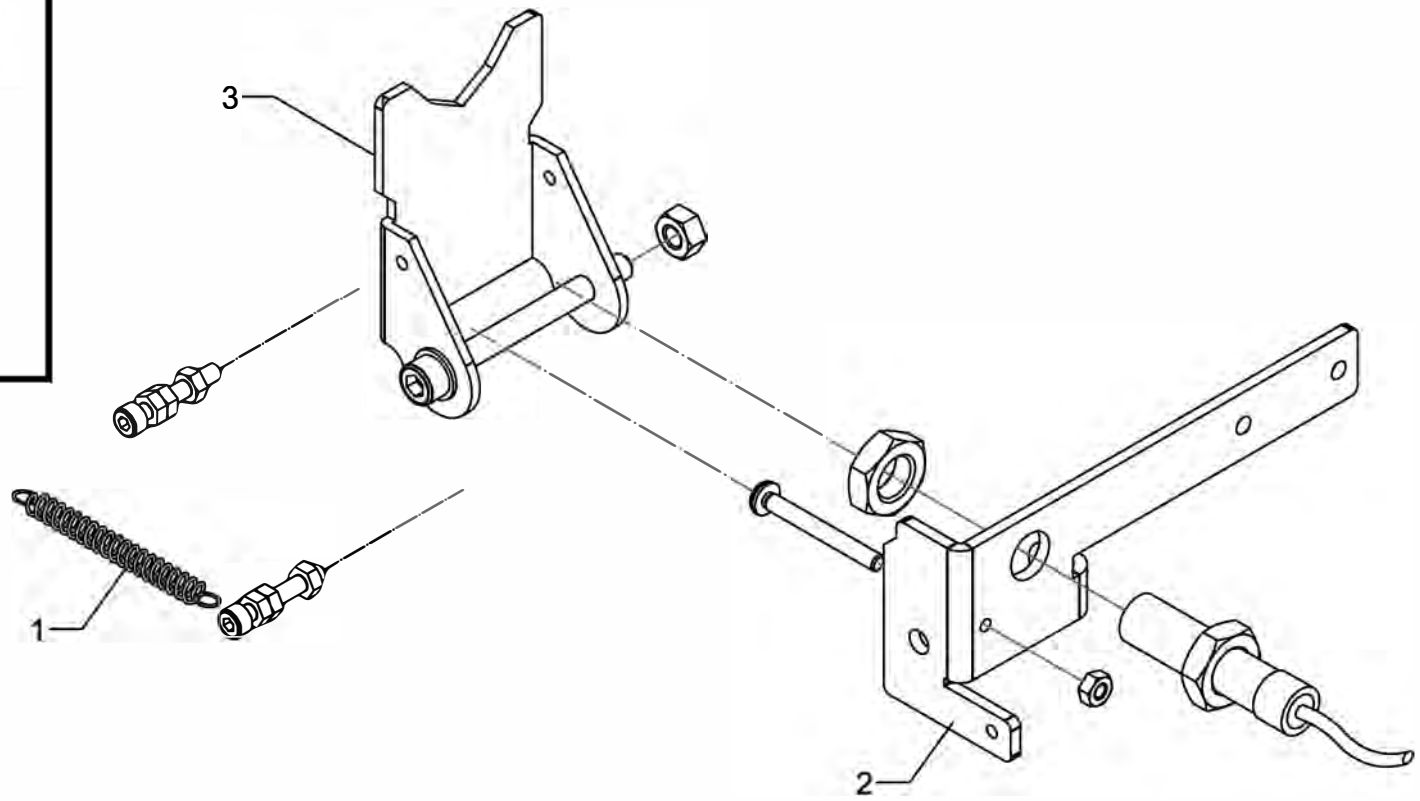


ITEM	PART NO.	QTY	DESCRIPTION
1	MEP21405	1	LOCKER BODY
2	MEP213343	1	KEY SHAFT
3	MEP214152	1	SPRING
4	ZT5WEE8M08	4	STEEL BALL 8mm
5	RE80PB001A	1	Prefabricated lock pusher

REBEL

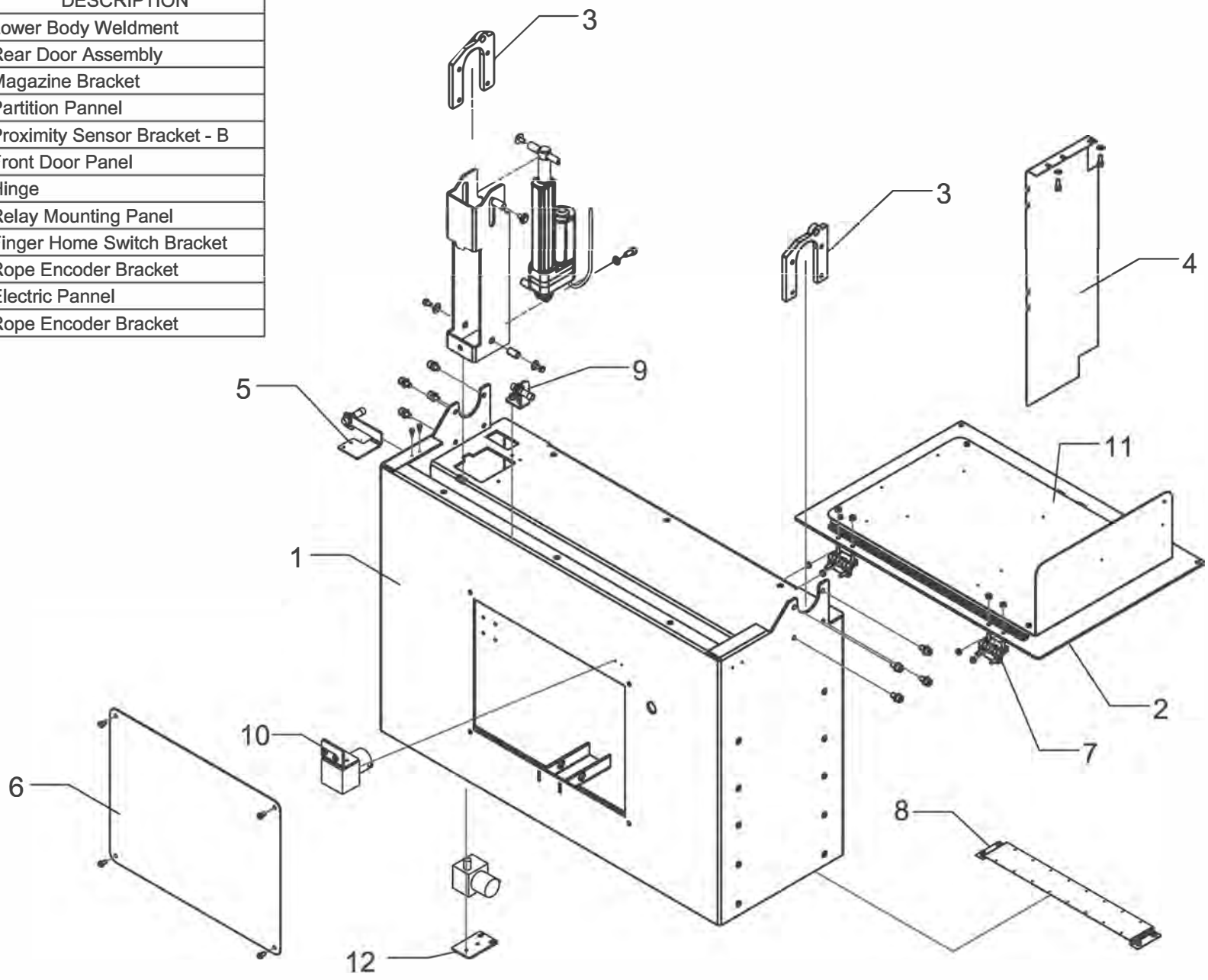
PREFABRICATED LOCK PUSHER



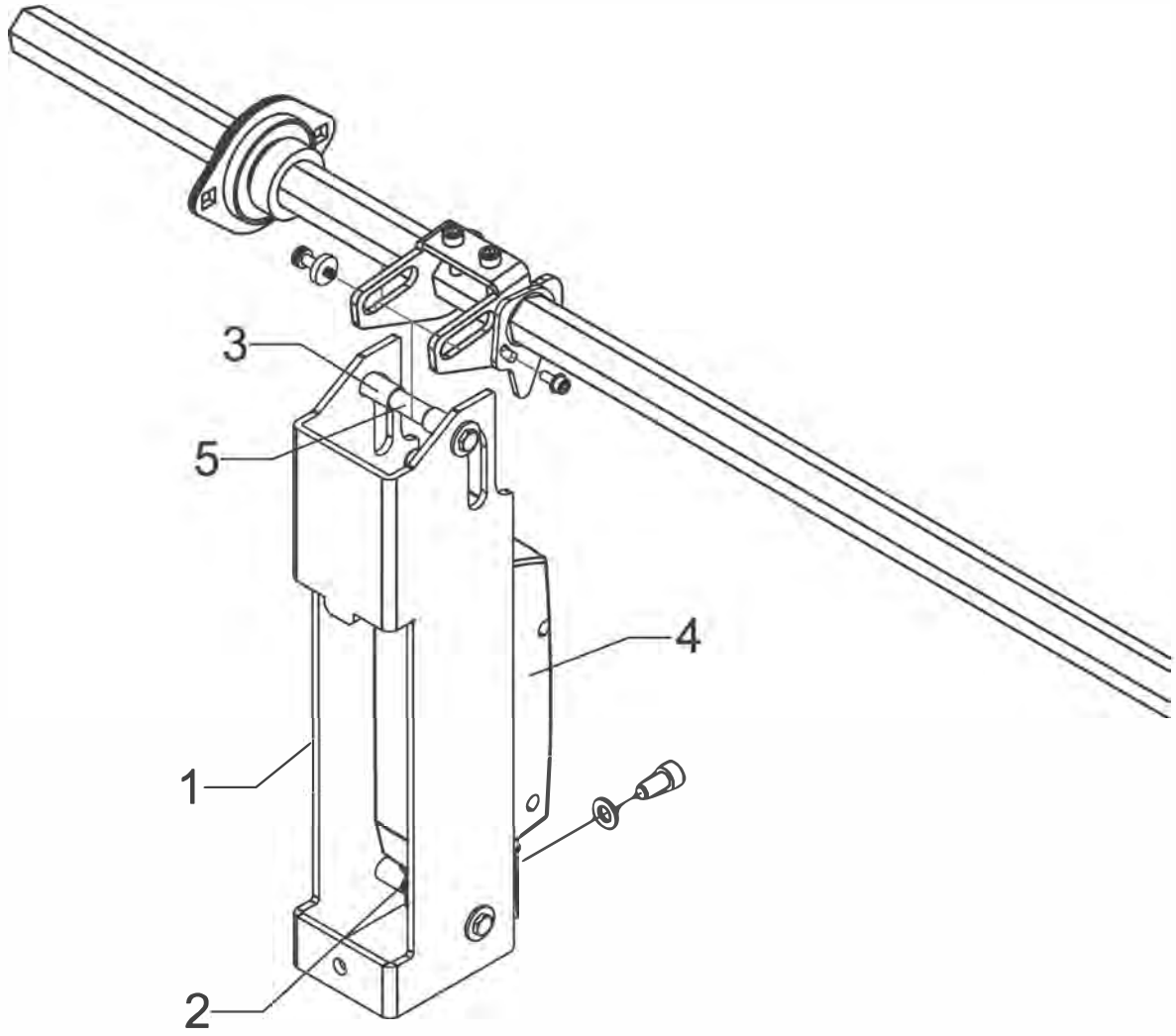


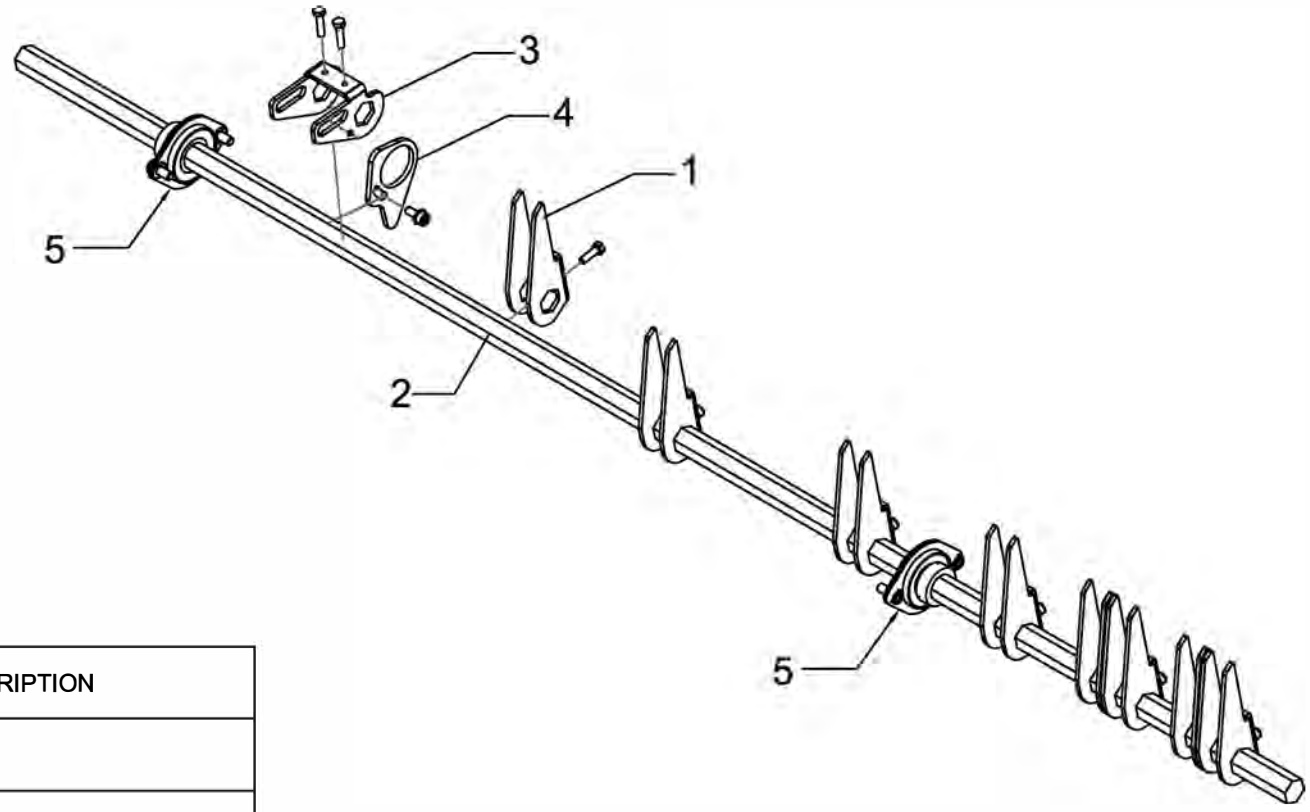
ITEM	PART NO.	QTY	DESCRIPTION	
1	G92120600	1	SPRING	
2	MEP21422	1	SENSOR FLAG BRACKET	
	RE80FA0100	1	SENSOR FLAG BRACKET	FRL
3	RE80FA0200	1	TOUCH FILM	
4	RE80FA000A	1	INDUCTION DOOR SET	
	RE80FA001A	1	INDUCTION DOOR SET	FRL

ITEM	PART NO.	QTY	DESCRIPTION
1	MEK21315	1	Lower Body Weldment
2	MEK21316	1	Rear Door Assembly
3	MEP21326	2	Magazine Bracket
4	MEP21302	1	Partition Pannel
5	MEP21331	1	Proximity Sensor Bracket - B
6	RE80BA0251	1	Front Door Panel
7	T16311100	2	Hinge
8	MEP213121	1	Relay Mounting Panel
9	MEP213123	1	Finger Home Switch Bracket
10	MEP213151	1	Rope Encoder Bracket
11	RE80BA0110	1	Electric Pannel
12	RE80BA0200	1	Rope Encoder Bracket



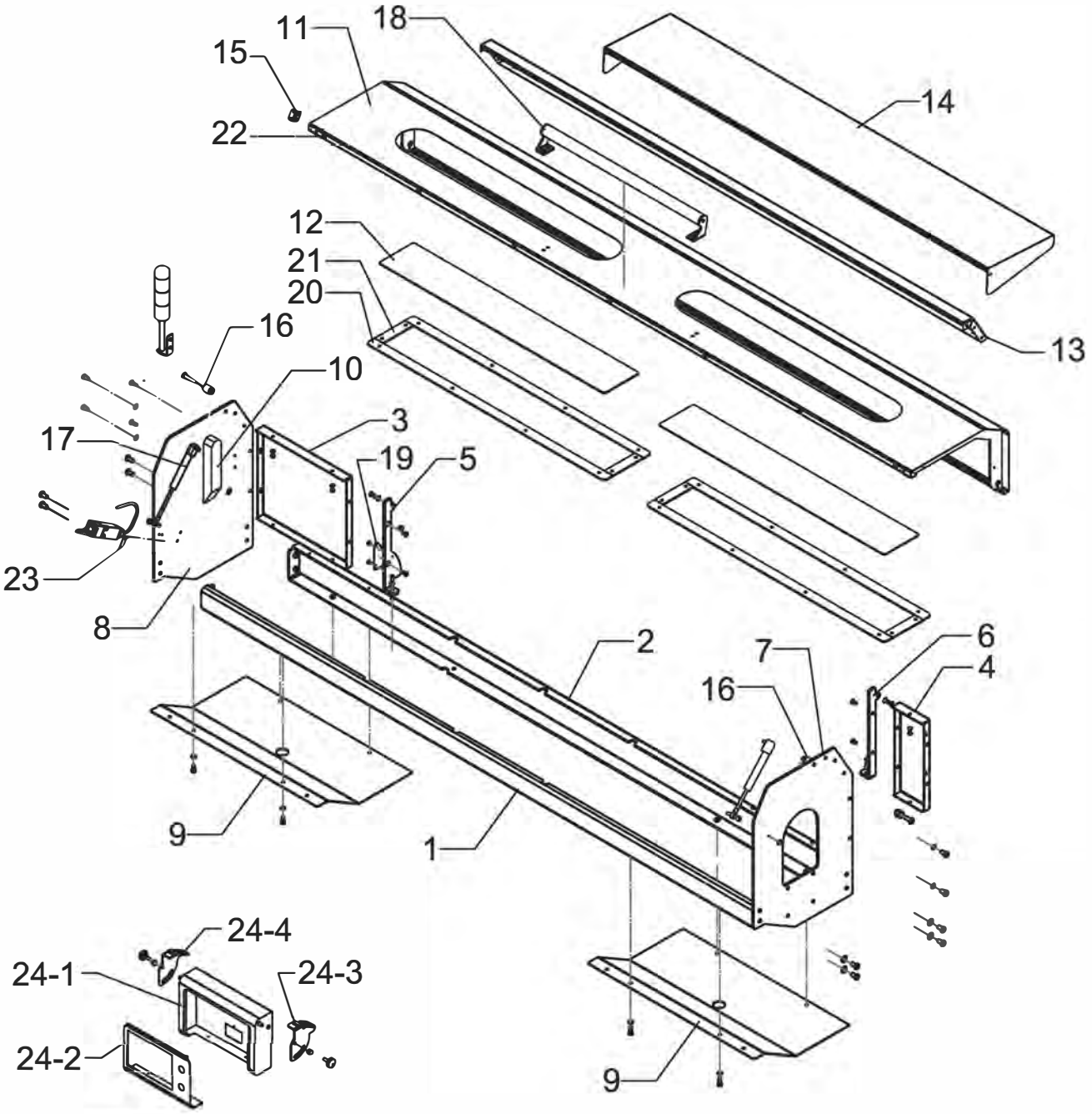
ITEM	PART NO.	QTY	DESCRIPTION
1	MEP21327	1	Actuator Bracket
2	MEP21328	1	PIN
3	MEP21329	2	Bushing
4	PJ11105	1	TA16 Actuator
5	MEP213152	1	Rebel V3 Rope Encoder Driving Pin





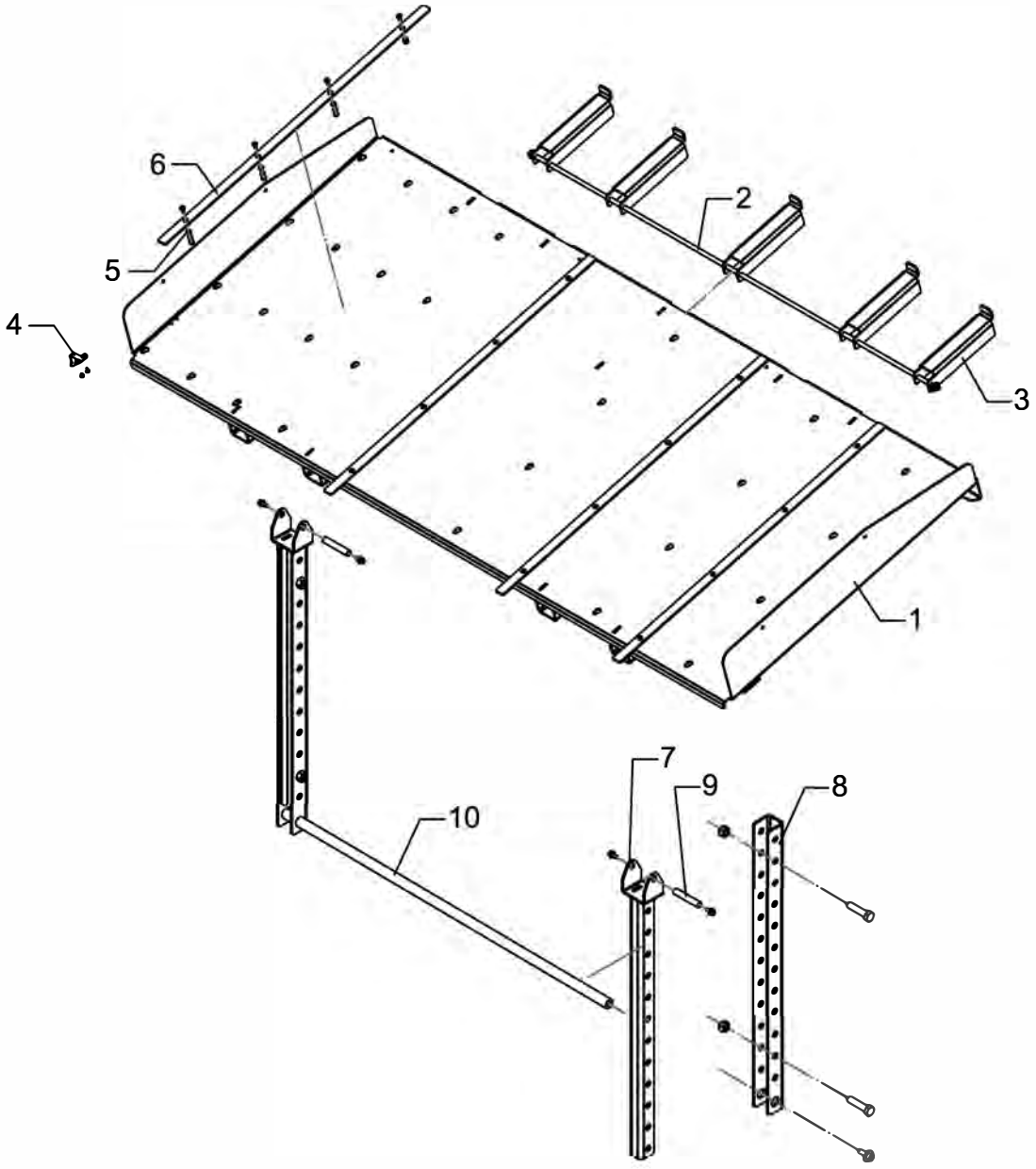
ITEM	PART NO.	QTY 1.2M	QTY 1.6M	DESCRIPTION
1	MEP21340	8		Finger
			6	
2	MEP21341		1	Hex Rod
	RE80FG0300	1		
3	MEP21342	1		Finger Driving Rod
4	MEP213122	1		Finger Angle Indicator
5	BSBPFL205	2		
	RE80FG000A		1	Feeding-Extraction Control Device
	RE80FG002A	1		

ITEM	PART NO.	QTY		DESCRIPTION
		1.2M	1.6M	
1	MEK21325		1	Front Beam
	RE80HD0220	1		
2	MEK21328		1	Rear Beam
	RE80HD0320	1		
3	MEK21322	1		Back Pannel Weldment - A
4	MEK21323	1		Back Pannel Weldment - B
5	MEP21376	1		Frame - A
6	MEP21377	1		Frame - B
7	MEP21372	1		End Plate - A
8	MEP21373	1		End Plate - B
9	MEP21371		2	Bottom Pannel
	RE80HD1000	2		
10	MEP213342	1		Pushing Blockl
11	RE80HD1900		1	Hood
	RE80HD1910	1		
12	RE80HD1200		2	Hood Window Glass
	RE80HD0500	2		
13	MEP21351		1	Rear Cover Panel
	RE80HD0420	1		
14	MEP21327		1	Magazine Cover
	RE80HD0110	1		
15	RE80HD1700	1		Hood Safety Lever
16	RE80HD1800	2		Bushing
17	RE80BA1200		2	Shock Bar
	RE80BA1000	2		
18	RE80HD000A	1		Hood Handle
19	MEP21379	1		Magazine Angle Dial Plate
20	RE80HD1100		4	Window press plate
	RE80HD0124	4		
21	RE80HD0123	4	4	
22	G81121000	5	7	Anchor
23	G94121000	1		Plate
24	AV51BA2520	1		HMI control box
	AV51BA2830	1		HMI panel
	RE80BA0270	1		Bracke-A
	RE80BA0271	1		Bracke-B

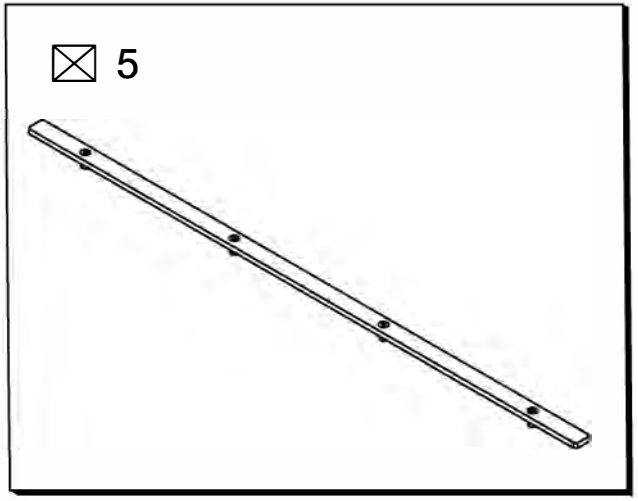


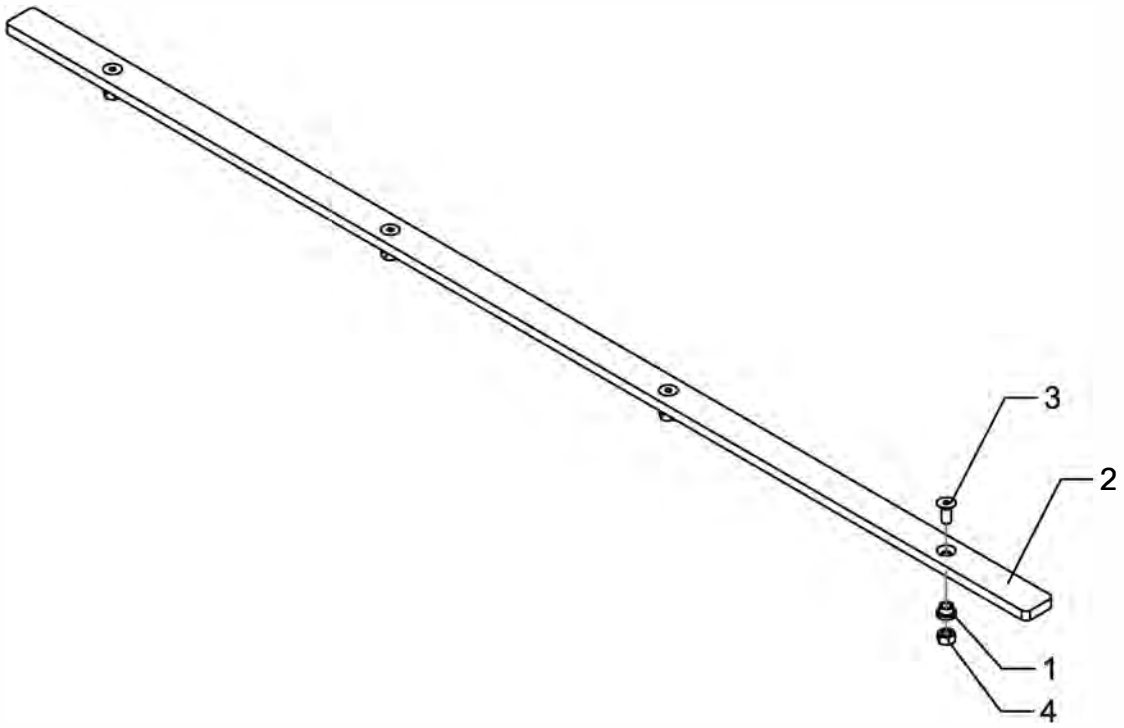
REBEL

MACHINE COVER



ITEM	PART NO.	QTY		DESCRIPTION
		1.2M	1.6M	
1	RE80MA0500		1	Magazien Weldment
	RE80MA0510	1		
2	MEP21345	1		Extension Rack Link Rod
3	MEP21346	5		Magazine Externsion Rack
4	MEP21347	1		Magazine Angle Indicator
5	RE80MA1000	12	16	Bushing
6	RE80MA2100	3	4	Magazine Beam T=6mm
7	RE80MA0600	2		Magazine Support
8	RE80MA0700	2		Magazine Support Sleeve
9	RE80MA0900	2		PIN
10	RE80MA0800	1		Magazine Slot Rod



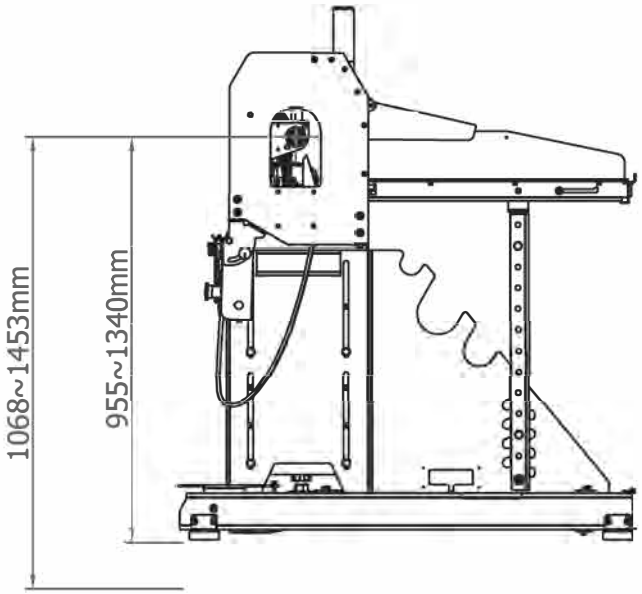


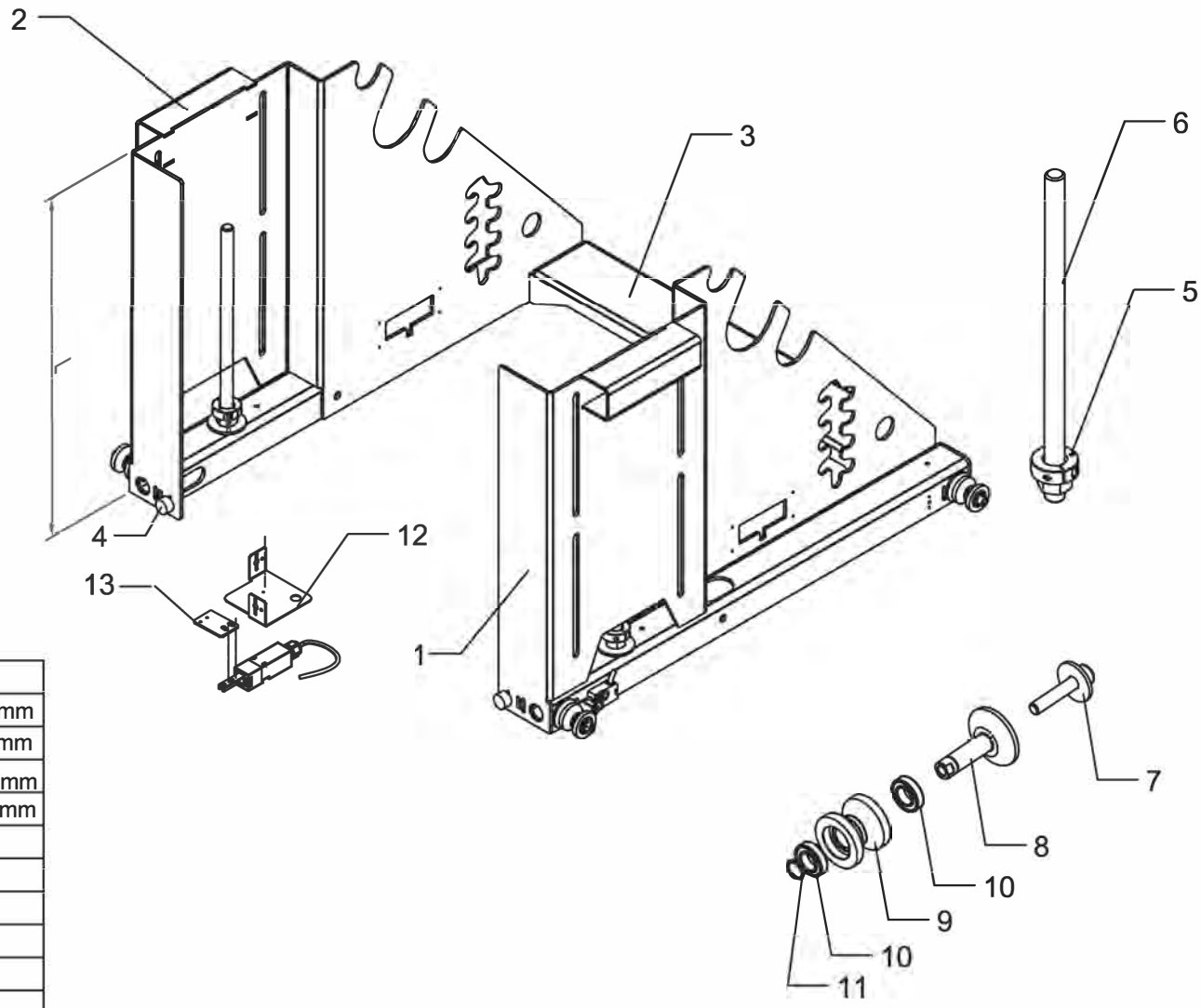
ITEM	PART NO.	QTY	DESCRIPTION
1	RE80MA1000	4	Bushing
2	RE80MA2100	1	Magazine Beam T=6mm
3	ZS100516C	4	Pan head screw-M5x16
4	ZS0305C	4	Nut -M5
5	RE80MA002B	1	MAGAZINE BEAM ASSY T=6mm

REBEL

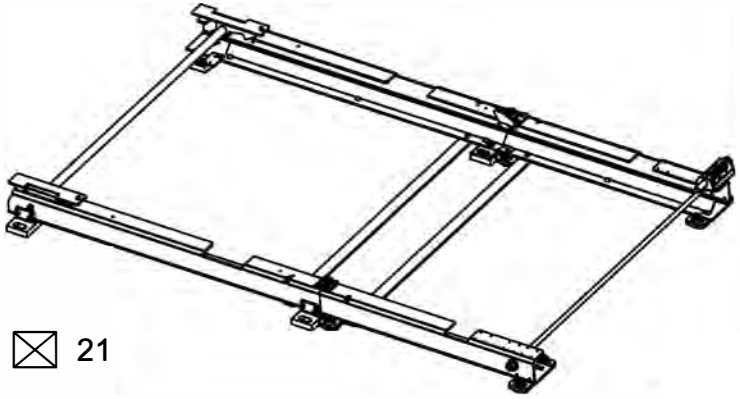
MAGAZINE BEAM ASSY

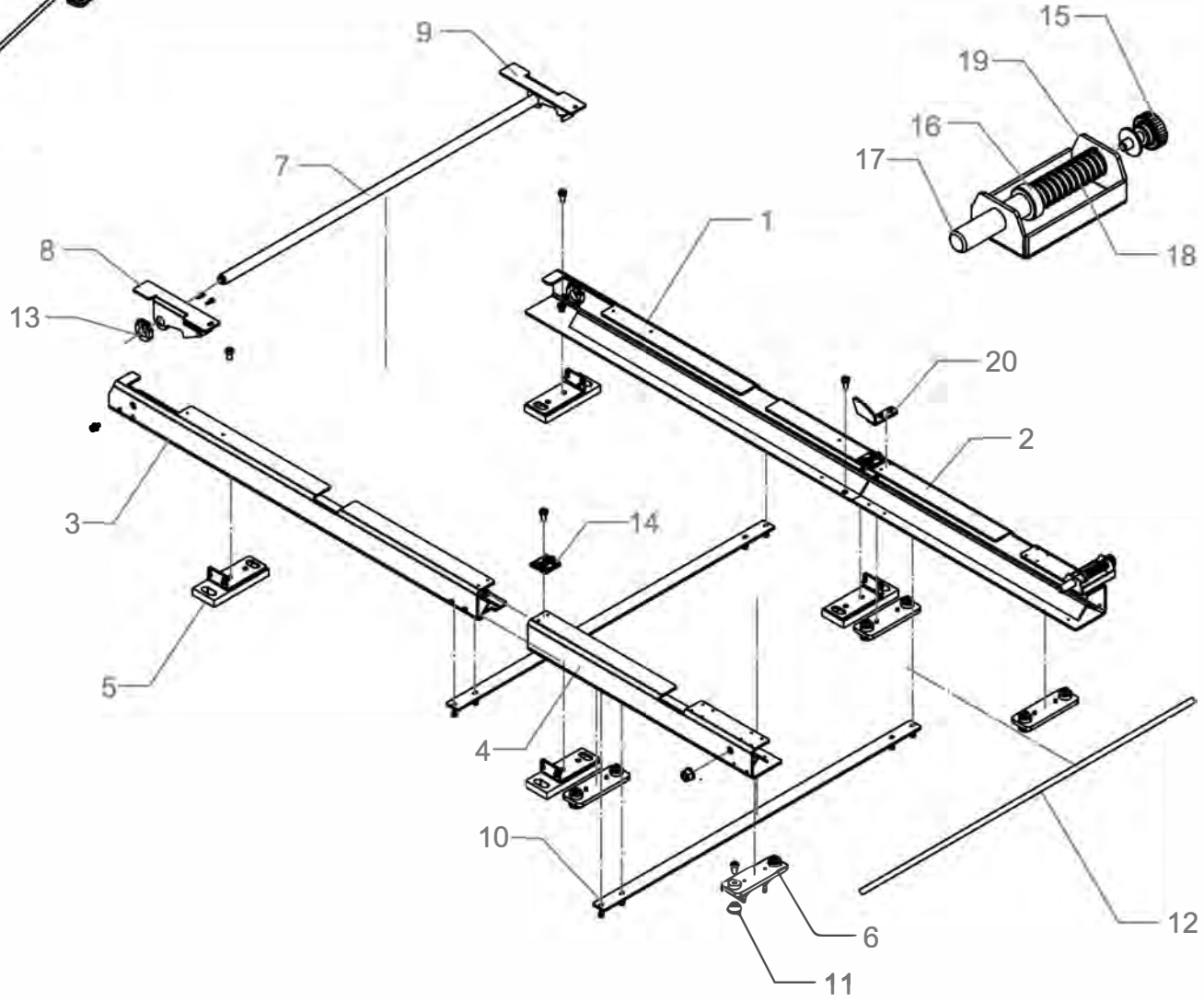
Tab. 042 1



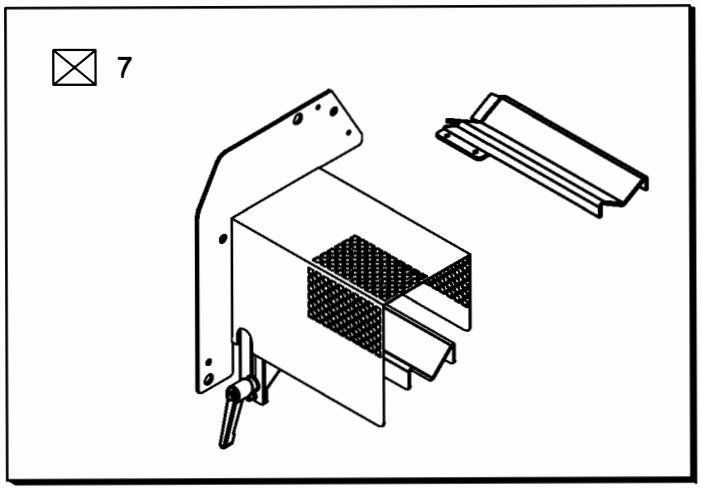


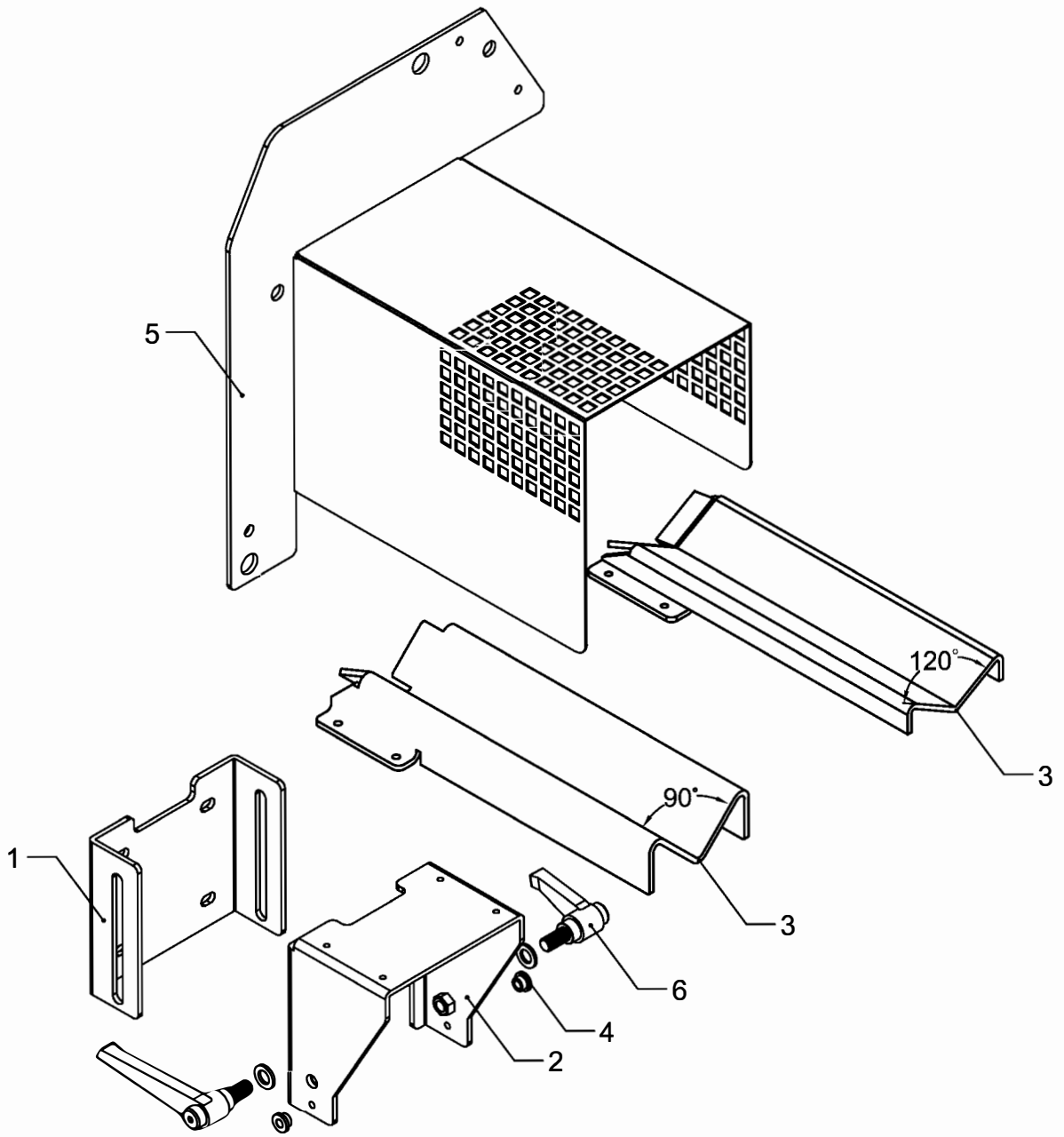
ITEM	PART NO.	QTY	DESCRIPTION
1	RE80BA3200	1	Stand Weldment - L L=637mm
	RE80BA3210		Stand Weldment - L (High) L=750mm
2	RE80BA3300	1	Stand Weldment - R L=637mm
	RE80BA3310		Stand Weldment - R (High) L=750mm
3	RE80BA3400	1	Stand Rear Beam
4	ZS20FVE413091	4	Anti-Vibration Pad
5	MEP21309	2	Thread Collar
6	G62120701	2	Threaded Rod L=500mm
	G62120702		Threaded Rod L=710mm
7	MEP21440	4	Wheel Gasket
8	MEP21354	4	Wheel Shaft
9	ME80MS0300	4	Steel Roller
10	B6902ZZ	8	Bearing 6902ZZ
11	ZS07S015	4	Retaining Ring
12	UL80BA0900	1	Sensor Bracket
13	UL80BA1000	1	Sensor Pad





ITEM	PART NO.	QTY	DESCRIPTION
1	RE80MS0100	1	Track Weldment Piece - 1
2	RE80MS0110	1	Track Weldment Piece - 2
3	RE80MS0200	1	Track Weldment Piece - 3
4	RE80MS0210	1	Track Weldment Piece - 4
5	MEK21313	4	Axial Track Foor Pad
6	MEK21314	4	Leveling Floor Pad
7	MEP21310	1	Axial Rack Front Rod
8	MEP21311	1	Locking Paddle - R
9	MEP21312	1	Locking Paddle - L
10	MEP21324	2	Axial Track Reinforcement
11	MEP21424	8	Adjusting Feet
12	MEP21434	1	Axial Rack Rear Rod
13	MEP21435	2	Locking Block
14	ZS21B2262C	2	SURFACE-MOUNT HINGE
15	ZS1608020	1	Handle
16	S12150500	1	Retaining Ring
17	RE80MS0400	1	Pin
18	TM-150-212-0120	1	Spring
19	RE80MS0300	1	Latch Seat
20	RE80MS0600	1	Baffle
21	RE80MS000C	1	AXIAL TRACK





ITEM	PART NO.	QTY	DESCRIPTION
1	T16230100	1	Anchor
2	T16230200	1	Stand
3	T16230400	1	V Plate-90°
	T16230300	1	V Plate-120°
4	T16230500	1	Bushing
5	RE80BA1600	1	Met cover
6	T16230700	1	Adjustable hendle
7	RE80BA000F	1	V-TRAY EXTENSION KIT