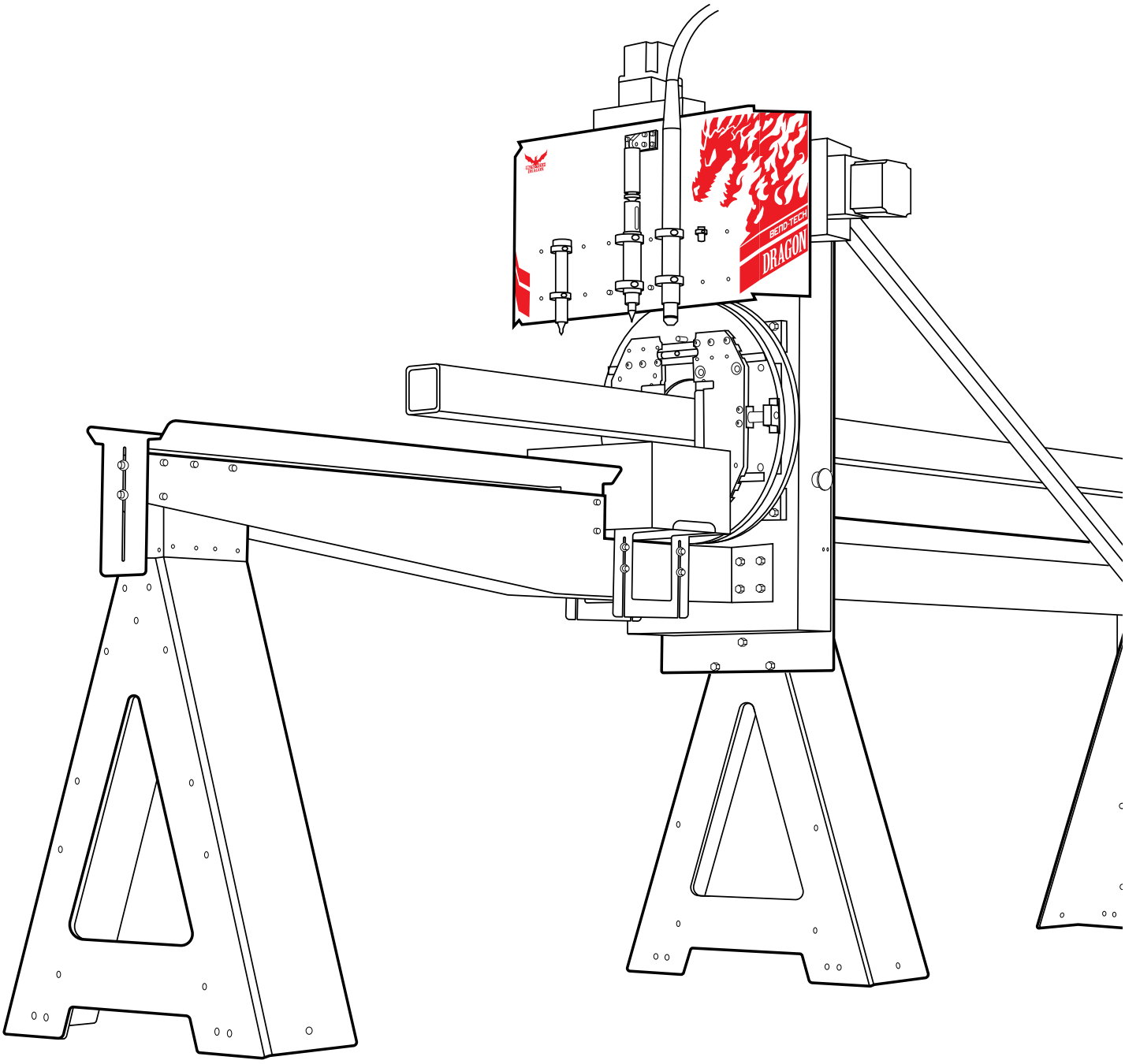
Part 1 of 1

BEND-TECH

DRAGON A400

Assembly Manual



A400 11003 01 | English

Dragon A400

Assembly Manual
Version 11003 01

English
Original Instructions

June 2023

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Contents

Limited Warranty

Covering Bend-Tech Dragon

Bend-Tech LLC provides a limited warranty on all new Dragon machines that are manufactured directly or under license by Bend-Tech LLC, and sold by Bend-Tech LLC or its approved distributors.

Warranty Coverage

Each Bend-Tech Dragon machine is warrantied by the manufacturer against defects in material workmanship for 12-months. The warranty period commences upon delivery of the Dragon machine to the customer's facility.

Repair or Replacement Only

The Manufacturer's sole liability, and the Customer's exclusive remedy under this warranty shall be limited to repairing or replacing the defective part. Repair or replacement of parts is at the sole discretion of the manufacturer. The Customer is responsible for warranty parts installation. Bend-Tech does not provide warranty service labor.

Limits

This warranty does not cover components subject to wear due to normal use of the machine such as belts, lights, tooling etc. This warranty is void if Bend-Tech LLC has determined any failure is the result of mishandling, abuse, misuse, improper installation, improper storage, improper maintenance or unauthorized modification of the machine. The warranty does not cover damage due to natural disasters, fire, flood or other external factors. The warranty may become void or limited in the event that hardware changes or adaptations are made to the machine.

Software

The standard 2-year software maintenance plan is included with the purchase of a Dragon. Before the 2-year maintenance plan has expired, the customer may purchase an extended maintenance plan. The maintenance plan and extended maintenance plans will ensure the customer always has the newest version of Dragon Software. The maintenance plan is critical to keeping Dragon software updated with the newest capabilities possible, and is critical to the servicing of the machine. Bend-Tech LLC will contact the Customer regarding updates to the maintenance plan within 1-month of expiration. Contact Bend-Tech Support to ensure software is up to date: support@bend-tech.com.

Customer Satisfaction Commitment

Congratulations on your purchase of the world's best CNC plasma tube and pipe cutting machine, the Bend-Tech Dragon. Bend-Tech LLC places great pride in customer satisfaction and it is our promise to offer you the best support available for your Dragon. We recognize that our support is a key factor in your success.

Contact Us

Bend-Tech's hours of operation are Monday - Friday, 8:00 am - 5:00 pm EST. The Bend-Tech support team and sales team are always available during our hours of operation.

Phone: 651-257-8715

Email: Sales team: sales@bend-tech.com
Support team: support@bend-tech.com

Address: Bend-Tech, 729 Prospect Ave., Osceola, WI 54020, U.S.A..

Customer Service

Comments, questions, or concerns regarding the Dragon Machine, this manual, or the Bend-Tech Software can be directed to Bend-Tech sales and service representatives at the above contact information. Check out the following links for more information regarding Dragon Machines and Bend-Tech Software.

Website, Socials, and Online Resources

- http://www.bend-tech.com
- https://www.facebook.com/2020ssi
- https://www.instagram.com/bend_tech
- https://www.youtube.com/bendtech2020
- http://www.bend-tech.com/wiki7

Alerts

Bend-Tech manuals use specific callouts to highlight important information. Each style of callout pertains to specific types of information being given. The machine operator should familiarize themselves with the following definitions and examples of each type.

Definitions & Examples

Danger

! Danger !

Danger indicates a serious condition that could cause severe injury or death to the operator or bystanders if the instructions are not followed.

Warning

! Warning !

A Warning indicates there is a possibility for minor injury if the instructions are not followed correctly.

Caution

! Caution !

Caution warns the operator that minor injury or machine damage could occur if instructions are not followed. It could also mean that not following directions could affect the overall procedure being performed.

Important Alerts

Important

Important notes give clarification or focuses on information that is critical or unique to an operation.

Notes and Tips

Note or Tip

Notes and tips give additional helpful information for operating the Dragon machine or Dragon software. They are meant for supplemental information and not information that is critical for operating procedures.

Glossary

Axis
A fixed reference line.

Beak
The front assembly that includes the Parts Catcher and Parts Bin/Bucket. The Material Coolant System replaces most of the Beak when installed.

CAD
Computer Aided Design. Modeling or design software for creating parts, components, or whole assemblies. Used for manufacturing or similar industries. Can be 2D or 3D design.

CAM
Computer Aided Manufacturing or Machining. Uses the computer to assist in operating machines by converting CAD models into G-Code that the machine recognizes.

Chuck
Secures and rotates the material. Part of the Trolley. Also referred to as the Y-Axis.

Control Box
Contains the motor drivers and other electrical components that allows the Dragon CAM software to control the Dragon machines.

Deadzone
The space between the Chuck and the Laser Light position when the Chuck is all the way forward.

Emergency Stop
Abbreviated E-STOP. A button which shuts down machine operations. Four are located on the machine and one is part of Machine Control.

Gate
The adjustable mechanism that holds the material in place at the Head of the Machine.

Head
The machine assembly that makes up the front end of the machine.

Limit Switch
The switch that operates as an automatic control to prevent a mechanism or process from going beyond a prescribed limit.

Load Position
The position the machine enters after clicking START on machine control the first time after starting a cutting project. This allows the operator to easily load the designated material into the machine.

Mach3
The driving software behind Machine Control. Required for the machine to operate.

Machine Control
The computer interface that controls the machine operations. Used by the operator when running projects.

Material Coolant System
The system that transports coolant through the material during cutting operations.

Material Support Lift
The mechanism that supports the material during cutting. Sometimes referred to as the Lifter.

Parts Catcher
The Parts Catcher is placed at the front of the machine to catch parts as they are cut.

Support Beam
Forms the backbone of the machine. Comprised of Aluminum Beams and Steel Rails.

Tail
The machine assembly that makes up the far end of the machine.

Task Menu

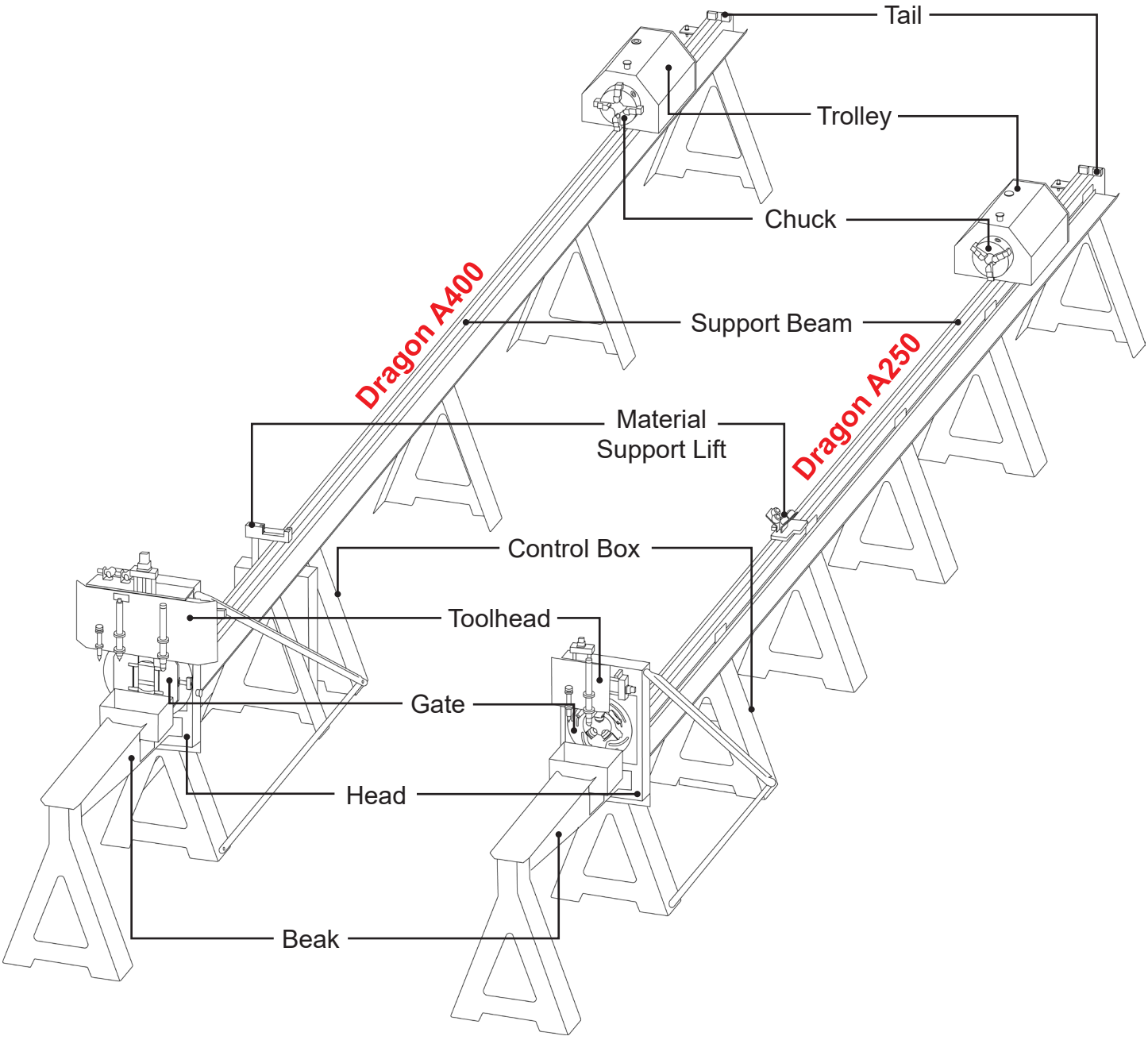
The first menu that opens upon starting the Dragon Software or the Bend-Tech software. From this menu various tasks can be started, such as part designing, importing, library access, etc.

Toolhead

The machine component that the tools are attached too. Maneuvers the tools into position with the A and Z axes.

Trolley

The machine component that includes the Chuck. Travels along the Support Beam on the X-Axis.



01 Safety

1.1 Introduction

Before assembling the Dragon A400, read this manual and ensure that all personnel involved in assembling the machine are properly trained in lifting procedures and tool operation. Ensure all personnel are aware of the dangers and hazards involved in assembling the machine.

Important

Assembling the Dragon A400 requires a moderate level of mechanical skill and experience. Assembly should not be undertaken by personnel without experience in assembling machinery or experience in industrial or machine maintenance.

1.2 Assembly Safety

! Danger !

Certain Dragon A400 parts are heavy. Handling them incorrectly could result in severe injury or possibly death. Always use caution and follow safety procedures for moving heavy equipment when assembling the Dragon A400.

Safety Precautions

- Do not attempt to assemble the Dragon without reading this manual first.
- Have the correct tools listed in the Tool List on hand.
- Enlist help of 1-3 additional personnel trained to install industrial machinery.
- Follow the methods and procedures outlined in this manual.
- Do not attempt to lift heavy materials without assistance.
- Before beginning, ensure the workspace is clean and of appropriate size for Dragon A400 assembly.

! Warning !

Altering the installation methods and procedures outlined in this manual could result in improper installation, machine damage or personal injury.

1.2.1 Safety Equipment

Bend-Tech recommends using the proper safety equipment when installing the Dragon A400. Safety equipment standards for each shop should be outlined in Occupational Safety and Health Administration (OSHA) standards. Also, individual shops may have their own standards. Always consult safety regulations before beginning work. Basic safety equipment may include:

Safety Glasses

Safety Shoes

Work Gloves

Hearing Protection

02 Tools and Equipment

2.1 Tools

The Installer(s) should ensure the proper complement of tools are on hand to assemble the Dragon A400. Bend-Tech does not recommend attempting to assemble the machine without the tools listed in this chapter.

2.1.1 Tool List

The following are the recommended tools needed to perform the complete assembly procedure.

- Forklift
- Cordless drill/driver
- T25 bit
- Support Blocks
- Side cutters
- Tin snips
- 3⁄16 in. Allen wrench
- 1⁄8 in. Allen wrench
- 5⁄16 in. Allen wrench
- 5⁄32 in. Allen wrench
- Level (laser, digital or bubble)
- Ratchet
- 9⁄16 in. socket
- 1⁄2 in. socket
- 9⁄16 in. wrench
- 1⁄2 in. wrench
- 5⁄8 in. wrench
- Rubber mallet or Dead Blow plastic hammer
- Tape measure
- Zip ties
- Clamp
- Magnet Tool (Provided)
- Bridge Rack (Provided)

2.2 Crate Parts List

Standard Length Dragon A400 Assembly

- Machine Head
- Machine Tail
- Support Beam Section (2)
- Rail Support Leg (2)
- Rack (2)
- Beak
- Cable Track Trays (4)
- Cable Track Tray Brackets (10)
- Trolley Housing
- Chuck
- Computer
- Monitor

Miscellaneous Box

- Startup Manual (1)
- Cutoff Drop Tank (1)
- Swivel Levelers (14)
- Wrench (1)
- Magnetic Tool (1)
- ¼ T-Handle Allen Wrench (1)
- Ethernet Cable (1)
- Power Cable (1)
- Torch Cable (1)
- Coiled Wire Harness Tubing (1)
- Hardware Bags (5)
- String (1)
- Bridge Rack (1)

2.3 Optional Parts

Technology Package

- Computer Cabinet
- Battery Backup

- ⅛ T-handle Allen wrench (1)
- 3⁄16 T-handle Allen wrench (1)
- Feeler Gauge Set (1)
- Vernier Caliper (1)
- Torpedo Level (1)
- 26 Piece Radius Gauge Set (1)
- WD40 Gel Lube (1)
- Main Drive Belt 260 XL (1)
- Thomson Sensor (1)

Plasma Unit

2.4 Electrical Requirements

- 220-240v Outlet (for plasma system - see owner's manual for more information)
- 1x - 110-120v 20Amp Outlet (A250 & A400 machine)
- Misc 110-120v Outlets (computer, monitor, etc.)

03 Assembling the Dragon

3.1 Getting Started

The Dragon A400 is shipped from the Bend-Tech manufacturing facility in a custom-fabricated shipping crate. This crate features a steel reinforced floor and is fully-enclosed to ensure the protection of the Dragon A400 during shipping. The Dragon A400 machine is completely secured within the crate. The order in which components are removed from the crate is important in executing proper assembly of the machine. For best results in assembling the Dragon A400, carefully follow the steps outlined in this Assembly Manual.

3.1.1 Dragon A400 Shop Position

Before beginning assembly, ensure there is adequate space to accommodate the machine on the shop floor. Plan on reserving a minimum of 32-feet for the standard length machine, more room will be needed if the material cooling system is installed or a longer machine has been purchased.

3.1.2 Crate Disassembly

! Caution !

Enlist the help of additional personnel when removing components from the crate and assembling the machine. A dropped crate component could cause injury to bystanders or damage the machine. Crate sides are large and heavy and should not be lifted without help.

REQUIRED TOOLS & EQUIPMENT

- Drill
- T25 Bit

Disassemble the crate first. Use a cordless driver and T25 bit to remove the screws that fasten the top of the crate to the sides of the crate. Lift the top off and set it aside. Unfasten the first of the larger crate sides, including the fasteners that secure the 2x4 braces, and set it aside.

! Caution !

When removing the 2x4 braces, ensure someone is holding them to prevent the 2x4s from falling onto the machine or other personnel.

Unfasten and remove the 2x4 braces at the top of the crate. Next, unfasten and remove the crate ends. Set these aside. Remove the remaining large crate side last, and set it aside.

3.2 Unpacking the Crate

Removing the Dragon A400 components from the crate properly, and keeping them in order, is critical to achieving the quickest and most seamless installation possible. As shipped, the components of the machine will be secured to each other and the floor of the crate.

3.2.1 Component Boxes

Remove the component boxes that are packed around the Dragon A400 machine. The Component Boxes are labeled for reference during the assembly process.

3.2.2 Swivel Levelers

Locate the Miscellaneous Box, and remove the 14 Swivel Levelers. These need to be installed on each Support Leg during assembly.

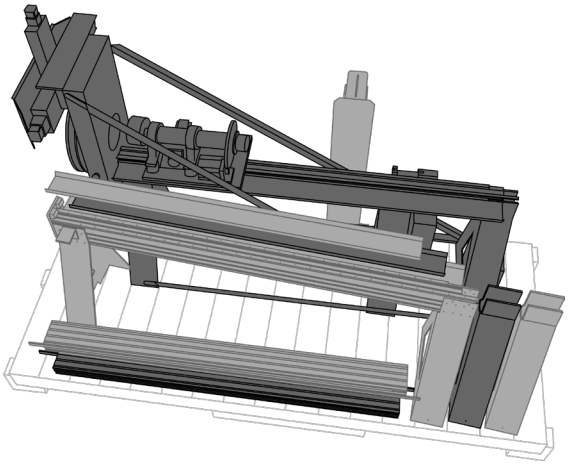
Important

The Dragon A400 Support Legs are mounted to the floor of the shipping crate using the Floor Brackets. When assembling the machine, the Floor Brackets should be left in place. The Installer will use the Swivel Levelers to true the machine, and then bolt it to the shop floor using the Floor Brackets.

3.2.3 Machine Components

REQUIRED TOOLS & EQUIPMENT

- 1/2” socket and ratchet
- Tin Snips
- 3/16” Allen Wrench
- Forklift
- Support Blocks



Take care to keep components of the machine organized when unpacking the crate, so they can be located easily. After removing all of the boxes from around the machine components, use a 1/2” socket and drill to remove the machine components. Tin snips will be required to remove the Support Beams. The middle three racks are secured to the beams, use a 3/16” Allen wrench to remove the racks. Only loosen the racks enough to slide them out. Take care not to damage the racks or lose the T-nuts when moving them.

Leave the head of the machine for last. The head of the Dragon A400 will need to be removed and set in place using a forklift.

Important

Do not remove any strapping or shrink wrap from the head of the Dragon A400. It is important to keep components secure while the head is being removed from the crate.

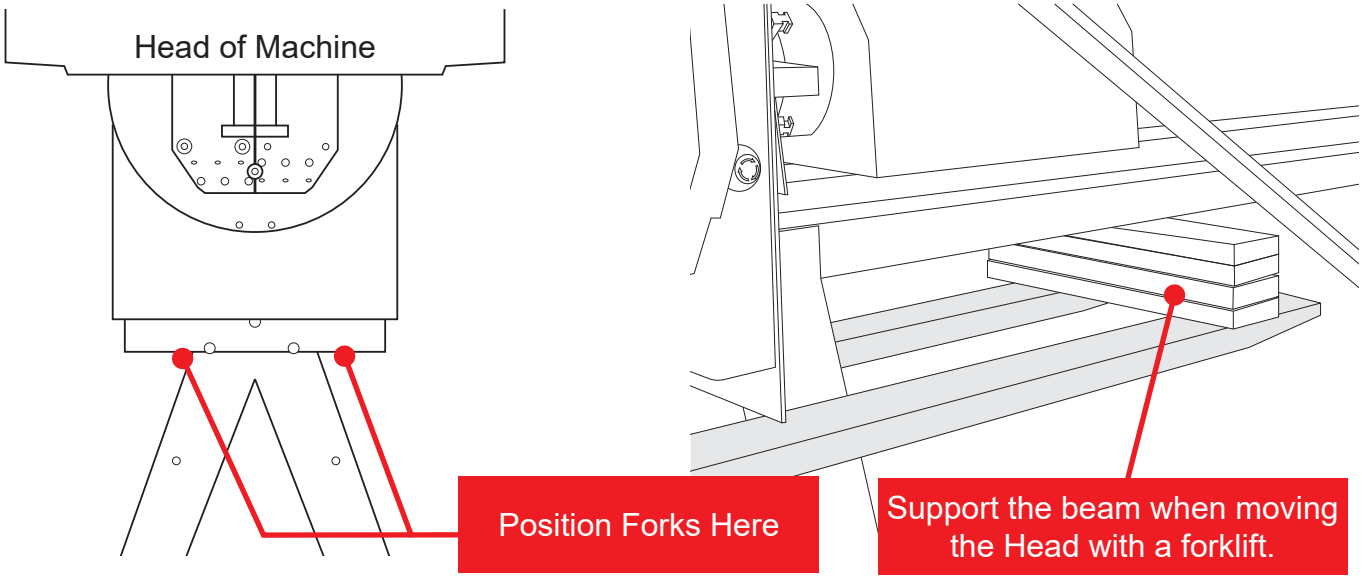
3.3 Moving the Head into Position

The head of the machine is extremely heavy. Great care should be taken not to damage any machine's components during moving and installation.

Important

Remove all other contents of the crate before attempting to move the Head of the machine.

Use a ½ in. socket and drill to remove the lag bolts securing the head of the machine to the floor of the crate.



Approach the head of the machine from the front with the forklift. Position the forks under the head in the indicated position. It is recommended that the installer use fork extensions and lay blocks of wood across the forks to support the beam of the machine.

! Danger !

The head of the machine is heavy. Bend-Tech does not recommend moving the head of the machine manually. If the head falls or tips over it could cause severe injury or death.

Carefully lift the head of the machine off the crate floor and slowly move it into position. Do not set the head onto the floor at this time. The swivel levelers need to be installed first.

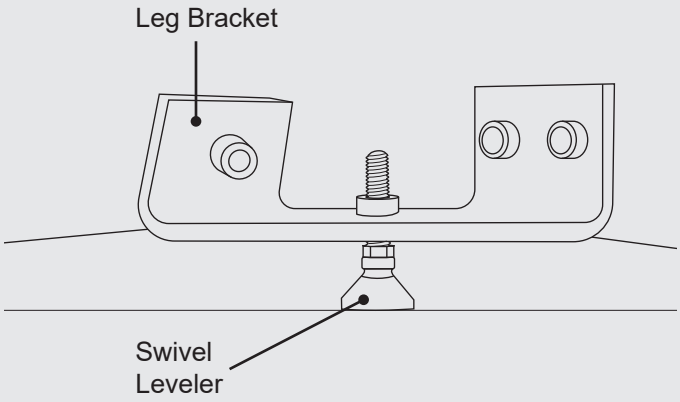
Before placing the head onto the floor, retrieve the Swivel Levelers from the Miscellaneous Box. Install these, as shown in INSTALLING SWIVEL LEVELERS, on the first and third set of legs on the head. Once the Swivel Levelers are installed, set the head of the machine into position. Ensure there is adequate space for the remaining sections of the machine to be put into place. The standard length Dragon A400 requires a minimum of 32 feet of space.

Install the remaining Swivel Levelers on leg #4, the un-numbered leg, and the two legs that make up the tail section of the machine.

Installing Swivel Levelers

TOOLS NEEDED

- 9/16” wrench
- 5/8” wrench



Two Swivel Levelers need to be installed in each Support Leg. Each base of the Support Leg will have a bracket with a threaded hole. Prepare the Swivel Leveler for installation by positioning the jam nut approximately one inch above the adjustment hex at the bottom of the Swivel Leveler.

Thread the Swivel Leveler into the threaded hole in the base of the Support Leg until it bottoms out on the jam nut. This method will place all of the Swivel Levelers at approximately the same distance, providing a baseline for leveling the machine.

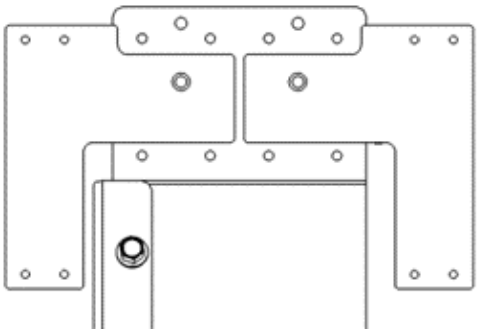
Install Swivel Levelers on each Support Leg as the installation progresses. A 5/8” wrench may be needed to thread the Swivel Levelers into the bottom of the Rail Support Legs. A 9/16” wrench is required to adjust the jam nut.

Important

Do not assemble the Dragon machine alone. Get help for moving and supporting the machine components during assembly.

3.4 Assembling the Machine

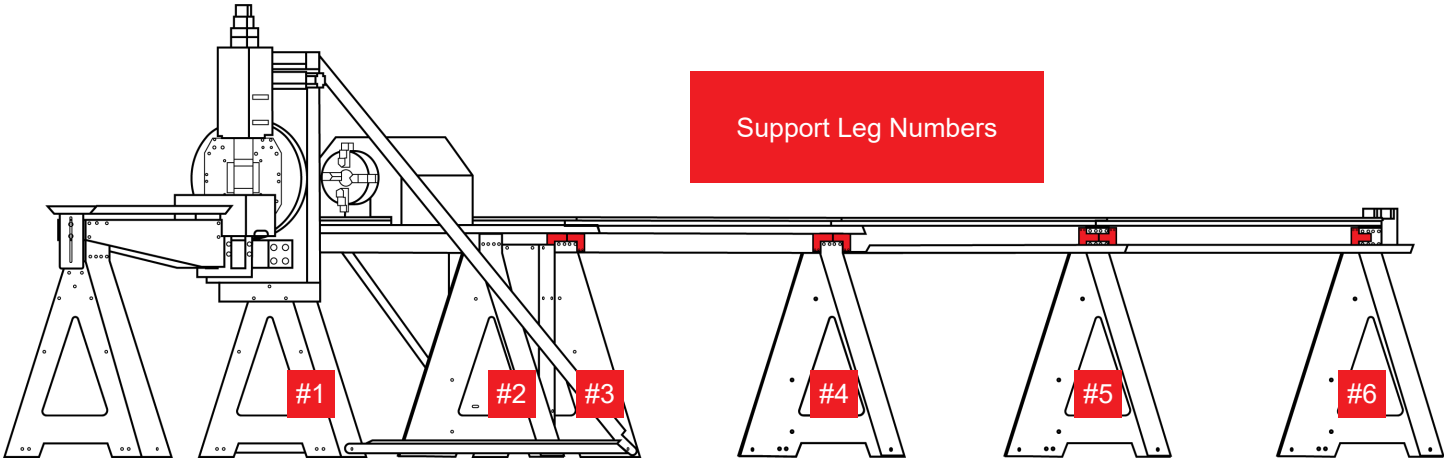
3.4.1 Install the Cable Track Tray Brackets



REQUIRED TOOLS & EQUIPMENT

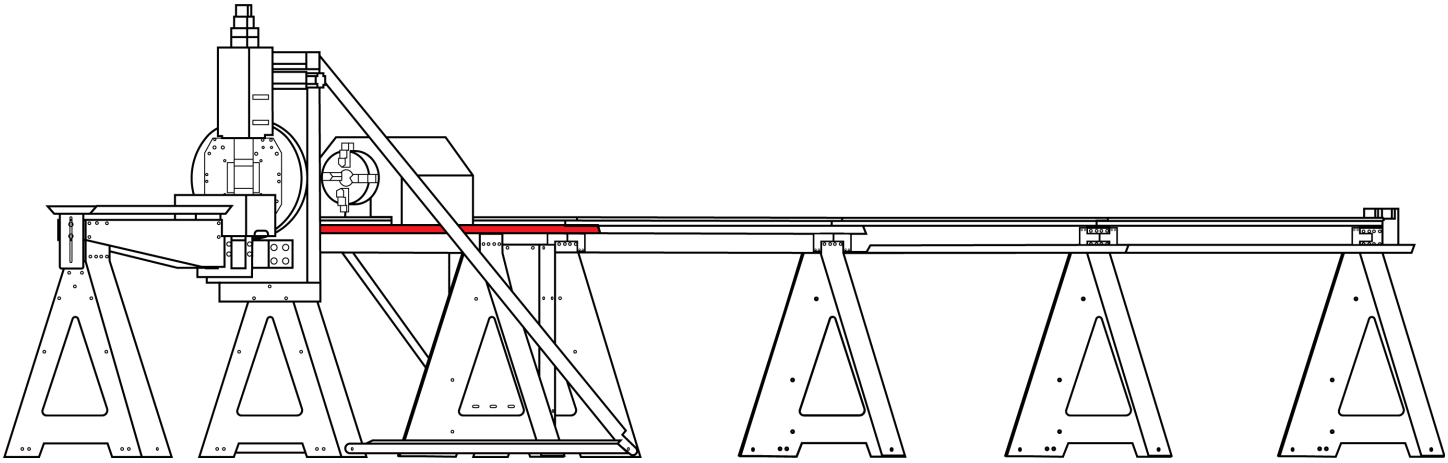
- Rubber mallet
- Magnet tool
- 3/16” Allen wrench
- 5/32” Allen wrench

After the head is placed into position, locate and install two cable track brackets on each of the middle legs except for #2. The first and last leg will only need one bracket each. Install a right bracket on leg #1 and a left bracket on leg #6. Insert two 3/8-16 x 0.375” button head screws in the middle mounting holes of each bracket and use a 5/32” Allen wrench to tighten them. Keep the brackets oriented roughly parallel to the length of the machine.



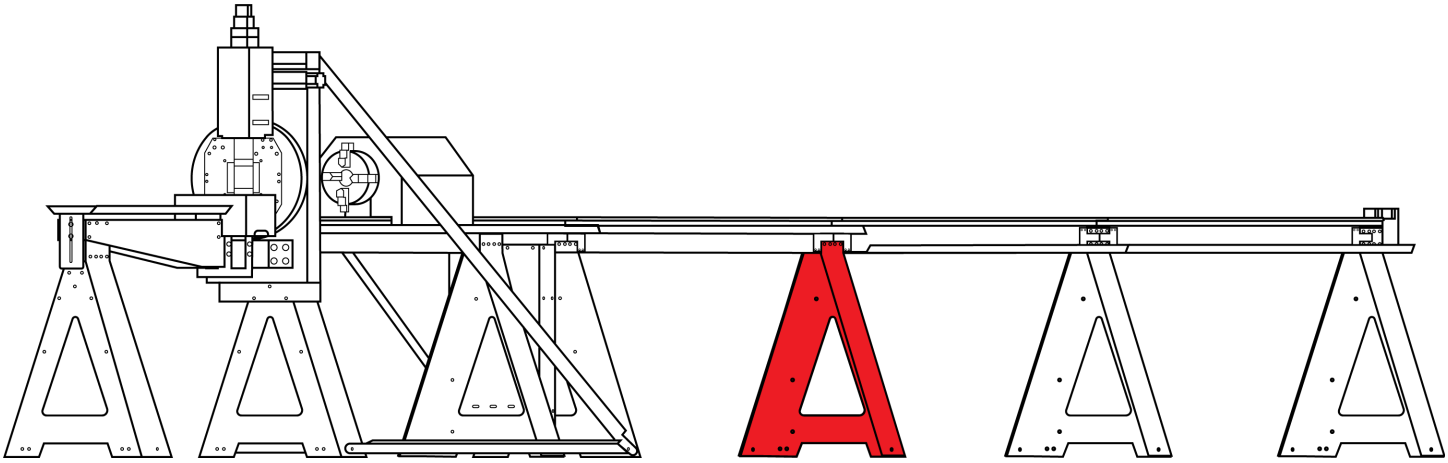
3.4.2 Install Cable Track Tray #1

Locate the Cable Track Tray labeled #1. Align the Cable Track Tray #1 with the top mounting holes in the cable track tray brackets. Insert four 1/4-20 x 0.5” button head screws. Use a 5/32” Allen wrench to tighten. Tray #1 acts as a cover, so the 45-degree flange should be pointed down.



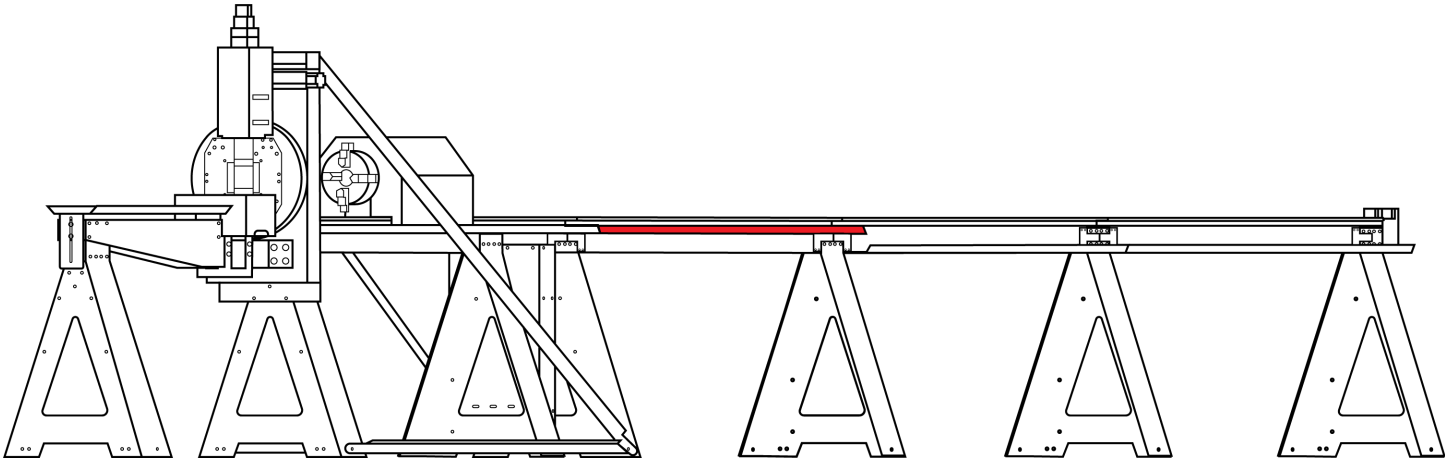
3.4.3 Position Leg #4

Ensure the Swivel Levelers are installed onto Support Leg #4. Place it in the approximate postion in relation to the Head and Tail of the machine. Leg #4 will not stand freely; make sure it is supported until cable track tray #2 is installed.



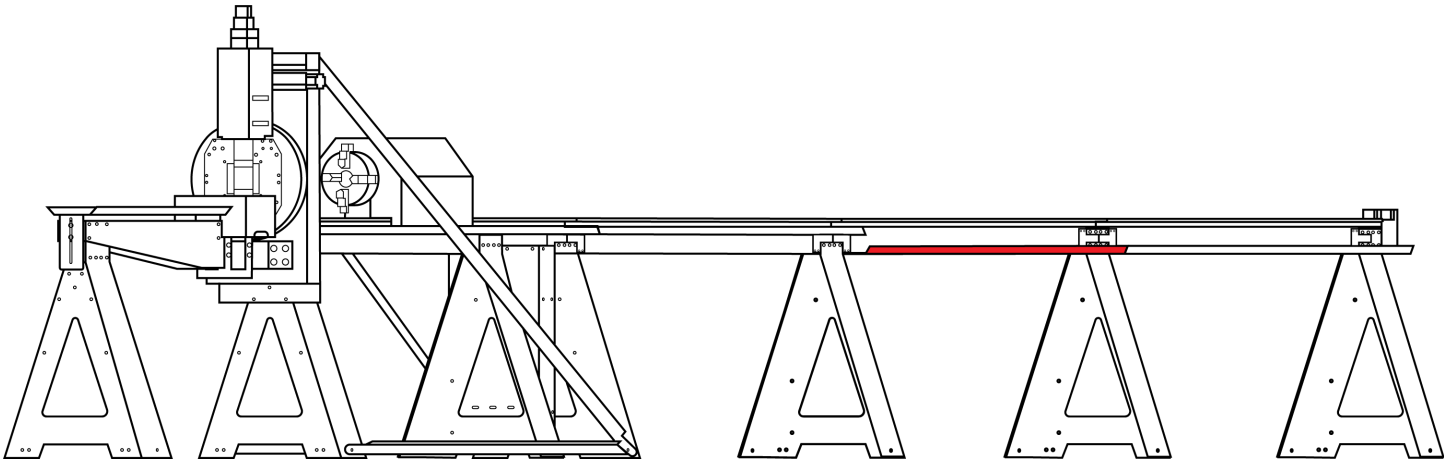
3.4.4 Install Cable Track #2

Locate the Cable Track Tray labeled #2. Align Cable Track Tray #2 with the top mounting holes in the cable track tray brackets. Insert four 1/4-20 x 0.5” button head screws. Use a 5/32” Allen wrench to tighten. Tray #2 acts as a cover, so the 45-degree flange should be pointed down.



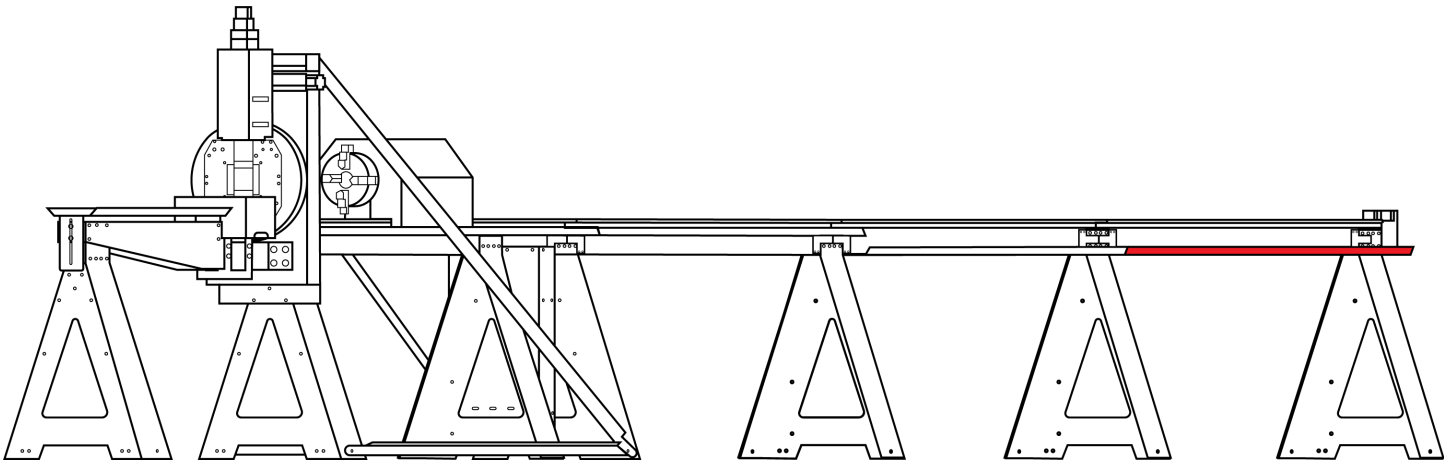
3.4.5 Install Cable Track Tray #3

Set the Tail section of the machine into position. Locate the Cable Track Tray labeled #3 and align it with the bottom mounting holes in the brackets. Install the tray so that the 45-degree flange is pointing up. Insert four 1/4-20 x 0.5” button head screws. Use a 5/32” Allen wrench to tighten.



3.4.6 Install Cable Track Tray #4

Locate the Cable Track Tray labeled #4 and align it with the bottom mounting holes in the brackets. Install the tray so that the 45-degree flange is pointing up. Insert four 1/4-20 x 0.5” button head screws. Use a 5/32” Allen wrench to tighten.

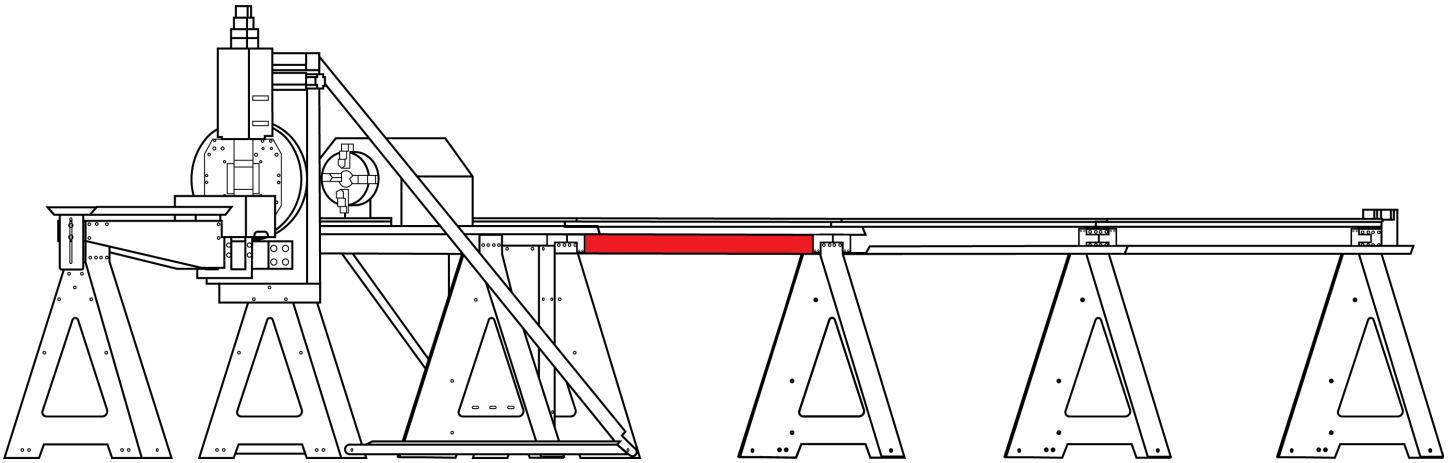


3.4.7 Unfasten the Tail Support Beam

Unfasten the bolts securing the Tail Support Beam to Legs #5 and #6 using a 3/16” Allen wrench. Slide the Support beam back and support it or set it aside. Do not lose the T-Nuts. They will be needed later to resecure the beam.

3.4.8 Install the Support Beams and Racks

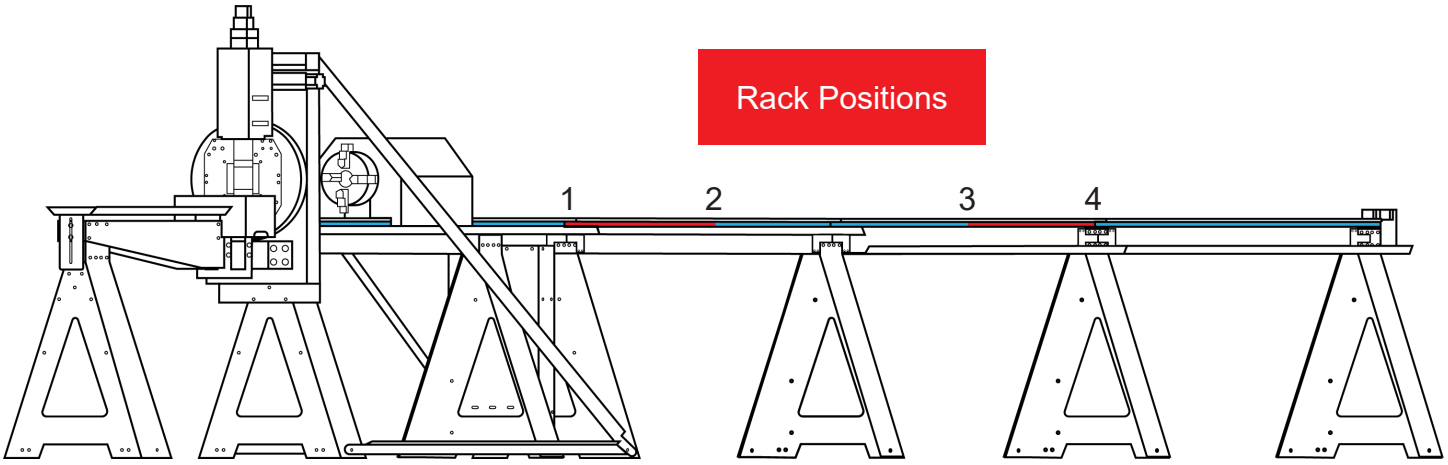
Set Support Beam #2 (labeled 3 on one end and 4 on the other end) into place. Align the end labeled 3 with the support beam section at the head of the machine. This should also align with leg #3.



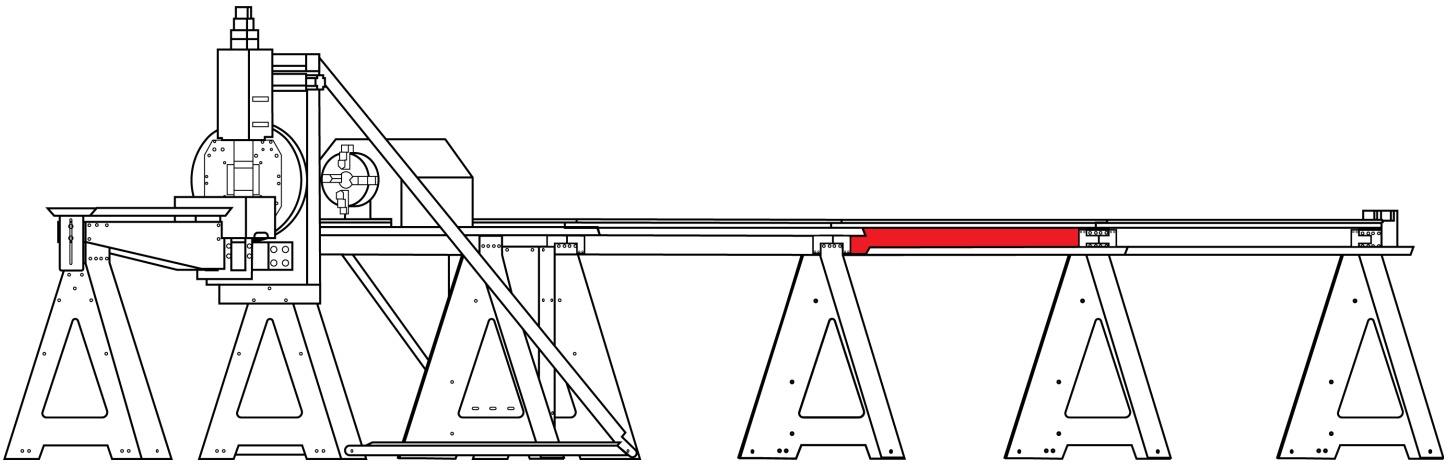
Note

The support beams have alignment pins that need to be aligned correctly. A rubber mallet may be needed to set the beams flush against the previous beam.

Next, slide Rack #2 into place. Butt the end labeled 1 against the rack installed in the head section, with the end labeled 2 positioned towards the tail of the machine.



Locate and set Support Beam #3 (labled 4 on one end and 5 on the other) into place. Align the end labeled 4 against Support Beam #2.



Slide Rack #3 into position. Ensure the end labeled 2 matches up with the end of Rack #2. Next, slide Rack #4 into position. Ensure the end labeled 3 matches up with the end of Rack #3. Refer to the Rack Position image previously for reference.

Re-install the Tail Support Beam.

The 5th rack comes pre-installed on the Tail of the machine. Loosen the bolts fastening it to the support beam. Position it so that the rack butts up against the previous rack. Do not tighten the rack fasteners yet.

Note

During this process ensure that everything remains aligned and that all joints butt up as seamless as possible.

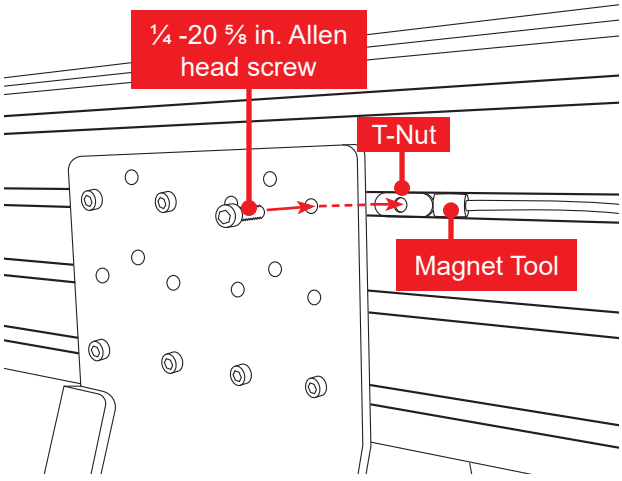
3.5 Securing the Support Beam

3.5.1 Secure the Support Legs

REQUIRED TOOLS & EQUIPMENT

- 3/16” Allen Wrench
- Magnetic Tool

Secure and tighten the Support Legs fasteners. The 1/4 - 20 x 5/8 in Allen head screws and T-nuts are located in Hardware Bag No. 1. Use the magnetic tool provided.



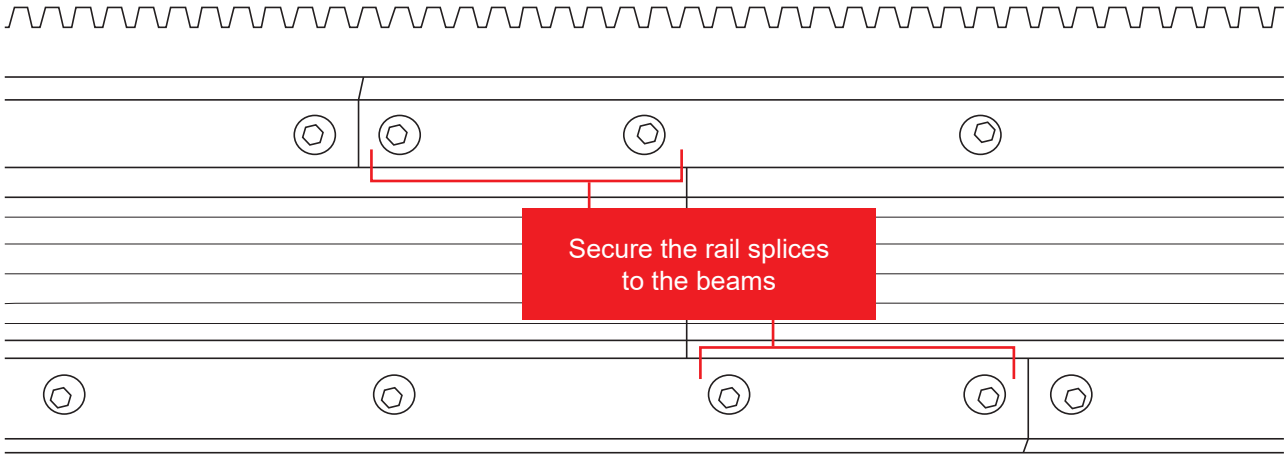
Slide the T-nut behind the Support Leg brace until it aligns with the mounting hole in the Support Leg. Insert the Allen head screw and thread it into the T-nut, using a 3/16” Allen wrench. Repeat this process for all eight fasteners on each side of the Support Legs. Eight screws per side per leg are required. Only use the top and bottom rows of holes. Leave the middle row empty as shown.

3.5.2 Secure the Rails

REQUIRED TOOLS & EQUIPMENT

- 1/8” Allen Wrench

The rail splices should be secured to the beams using the 1/8” Allen fasteners from Hardware Bag No. 3. They only need to be secured at the rail joints. There are four screws needed for each joint.



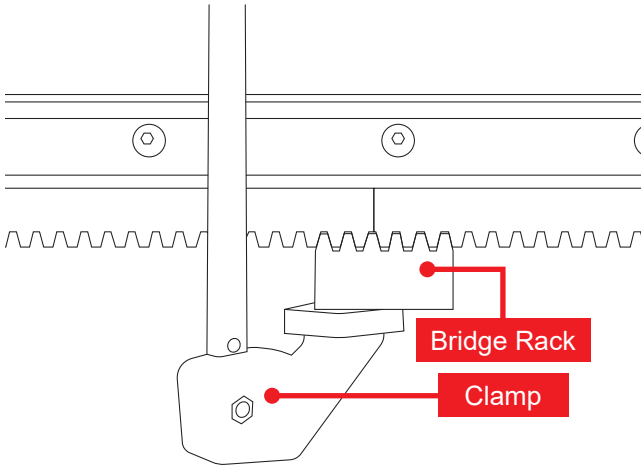
Important

Aligning the Rail Splices and ensuring they are straight is critical to the Dragon A400 setup. Bend-Tech recommends experienced personnel perform the Rail Splice installation.

3.6 Setting the Rack Spacing

REQUIRED TOOLS & EQUIPMENT

- 3/16” Allen Wrench
- Bridge Rack
- Clamp

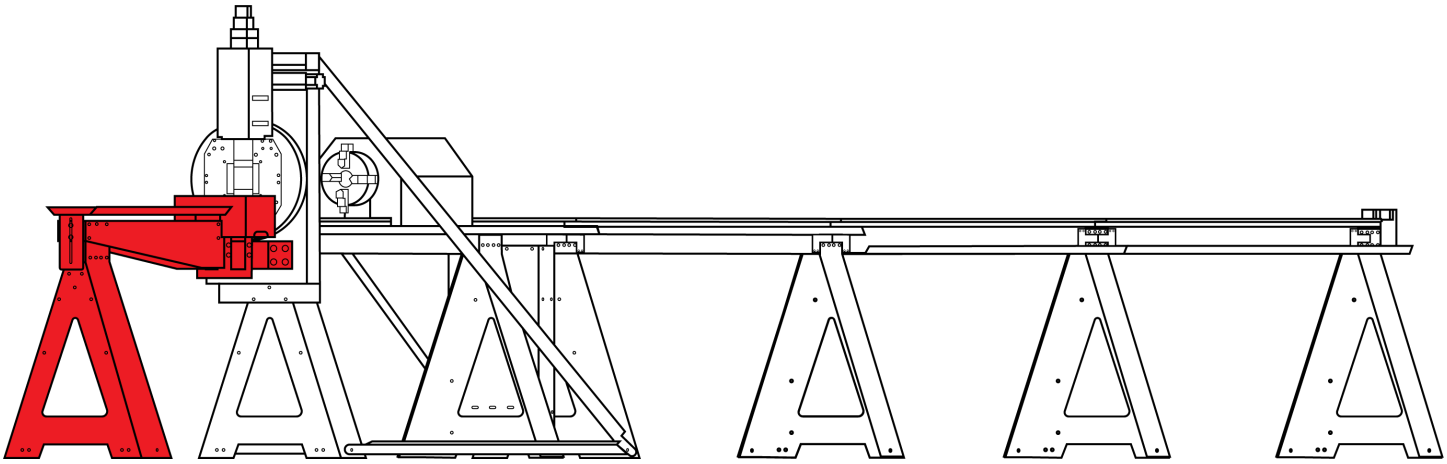


Use the bridge rack, which is located in the miscellaneous box, to set the spacing between the racks. Hold the bridge rack in place with a clamp to ensure proper spacing between racks while tightening the 3/16” Allen bolts. Additional clamps may need to be used to hold the rack in place when aligning it.

3.7 Installing the Parts Catcher

REQUIRED TOOLS & EQUIPMENT

- Drill with 9/16” Socket
- 5/16” Allen Wrench



The Parts Catcher, also called the Beak, prevents parts that have been cut by the machine from falling to the ground, and possibly being damaged or causing injury. It is assembled from three sections, the catcher, leg, and parts bin.

The catcher is placed on end, inside the crate, alongside the head of the machine. This part of the assembly should have been removed from the crate prior to moving the head of the machine. Before installing the catcher ensure the last remaining Support Leg is fitted with Swivel Levelers.

Place the catcher at the front of the machine and attach it to the head using the 1 ½ in. bolts from Hardware Bag No. 2 and tighten with a 9/16” socket. Machines equipped with a standard gate require 4 bolts per side, while machines equipped with a powered gate only require 3 bolts per side. The top bolts nearest the gate are not installed. Once secured to the head, slide the Support Leg under the other end of the catcher. Secure the Support Leg with the 5/8” long Allen head screws from Hardware Bag No. 2, and tighten with a 5/16” Allen wrench.

Place the parts bin just in front of the gate in the provided space. The parts bin can be found in the Miscellaneous Box.

Note

Water can be added to the Parts Bin to help cool drop parts during production.

Important

Shorter machines will have a different configuration of beams and racks. Use the numbers on the beams, racks, and other components to assemble the machine in the correct order.

04 Leveling and Alignment

4.1 Leveling and Alignment Overview

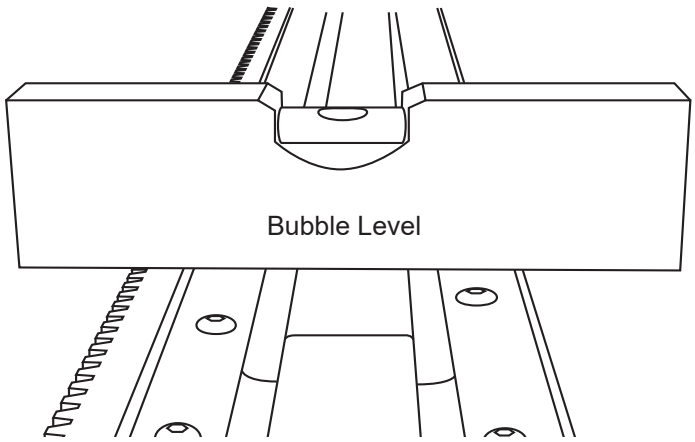
Ensuring the Dragon A400 is straight and level is the most critical part of machine assembly. Many operational difficulties can be traced back to improper machine installation, and the majority of installation issues center around the machine not being true. This process is also covered in the A400 Startup Manual.

Tools Needed

- Level
- 9/16” wrench
- 5/8” wrench

4.1.1 Checking Support Beam Level

Each Support Beam section should be checked for level side-to-side and lengthwise using a bubble level. If the Support Beam needs to be adjusted, use the Swivel Levelers to adjust machine level. The Swivel Levelers should be installed upon assembly.



4.1.2 Adjusting Swivel Levelers

To adjust the Swivel Levelers, use a 9⁄16 in. wrench to loosen the jam nut and ensure it is backed off to the base of the Swivel Leveler. Place a 5⁄8 in. wrench on the hex adjustment at the base of the Swivel Leveler. When viewing from above, turn clockwise to raise the leg, turn counterclockwise to lower the leg.

4.2 Straightening the Dragon A400

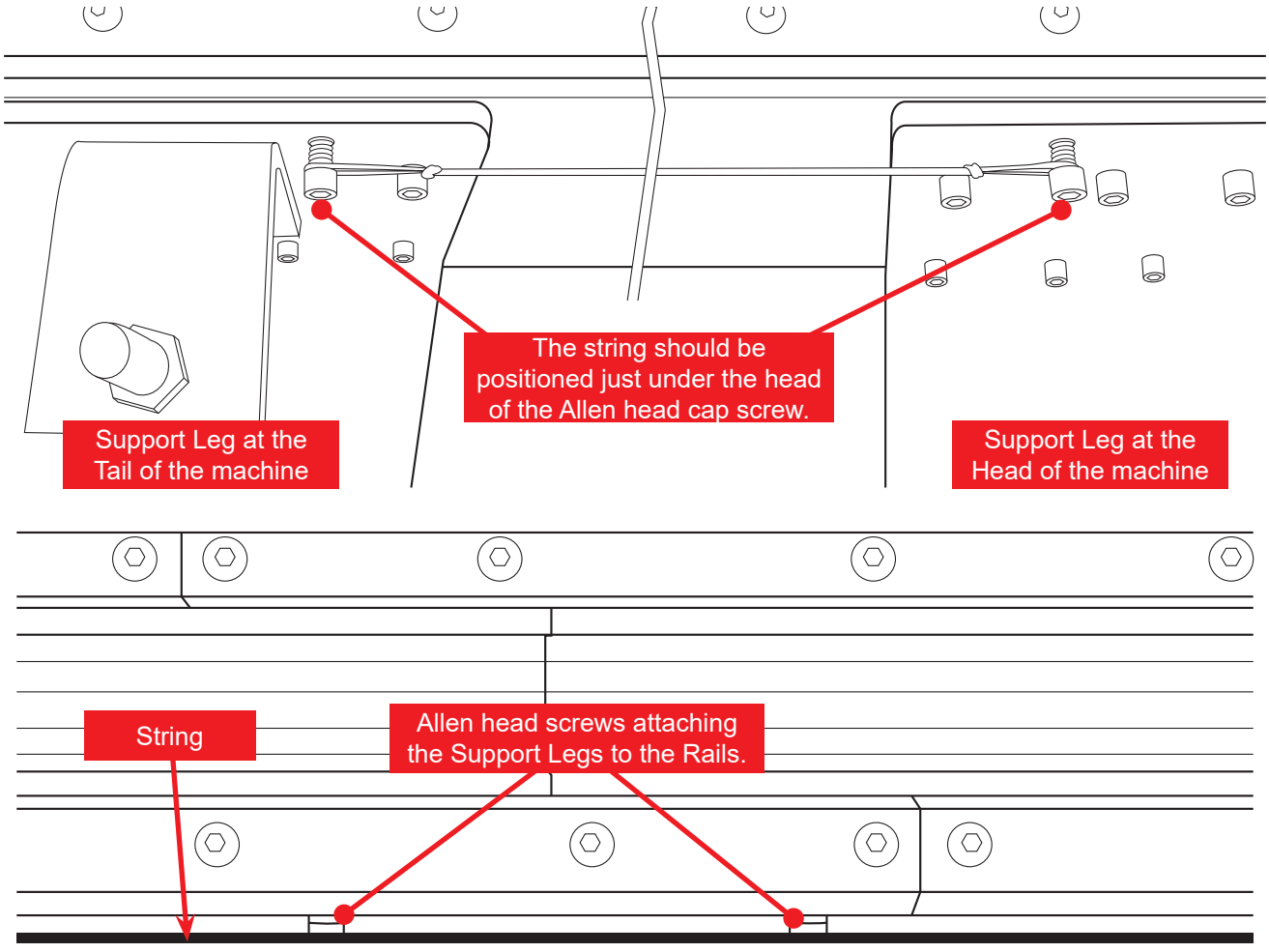
Ensuring the Dragon A400 is straight is one of the most important steps in preparing the machine for operation. Bend-Tech has found the simplest way to determine if the machine is straight, is to use a length of string. The string used during assembly at the Bend-Tech facility has been provided with the machine. Follow the instructions regarding its use to ensure the machine is straight.

The machine will come with an Allen head cap screw pre-installed on the Support Leg at the Head of the machine and on the rearmost Support Leg at the Tail of the machine. The string has been provided in the Misc. Box.

4.2.1 Checking the Straightness

Hook the loops of the string around the Allen head cap screws at the front and rear of the machine. Ensure the string is positioned just under the head of the Allen head cap screw.

With the string installed, verify it is even with the tops of the Allen head cap screws installed in each of the Support Legs. The string should be flush with the top of each fastener along the length of the machine, as pictured.



05 Mounting to the Floor

5.1 Mounting Overview

To maintain long-term precision of the Dragon A400, Bend-Tech recommends mounting the machine to the floor of the shop. A machine not securely mounted to the floor can result in inconsistent operation.

Tools Needed

- 7/16” Concrete Bit
- 3 in. long, 3/8” concrete anchor sleeves (14)
- Hammer Drill
- Hammer
- 1/2” Socket
- Torque Wrench
- Shop Vac or Compressed Air

5.1.1 Concrete Sleeve Anchors

Bend-Tech requires ⅜ in. diameter, 3 in. long concrete sleeve anchors to mount the Dragon A400 to the floor. Installing the concrete sleeve anchors will require a 7⁄16 in. concrete drill bit. One concrete sleeve anchor per Floor Bracket is sufficient for anchoring the Dragon A400. Installing concrete sleeve anchors requires the use of a hammer drill.

5.3 Preparing the Floor Brackets

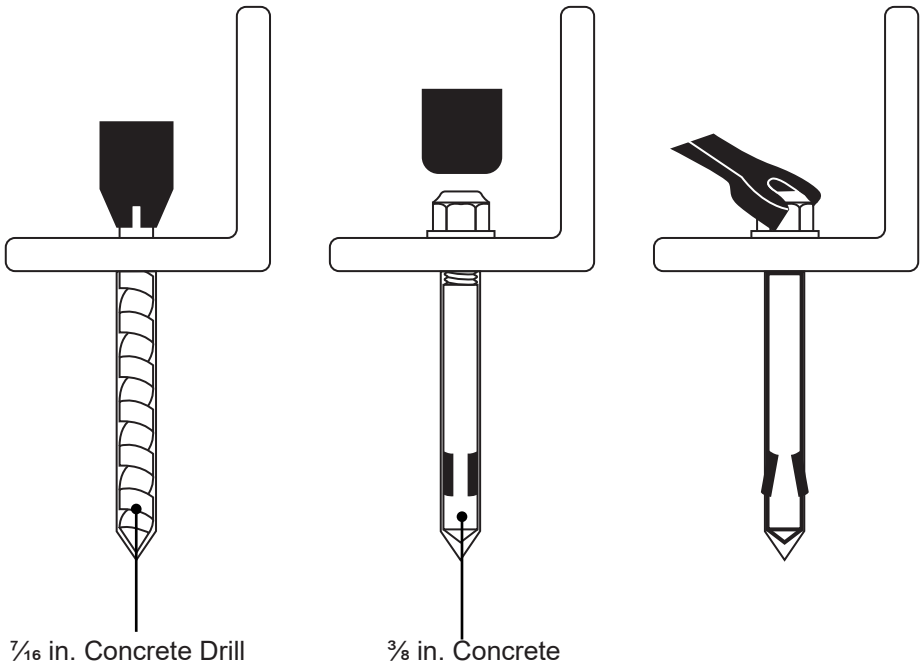
With the machine level and true, loosen the Floor Brackets on the Support Legs so they are snug, but can be lowered to the surface of the floor. Use a marker or pencil to mark the floor where the concrete sleeve anchor will be placed.

Remove the Floor Brackets from the machine. Removing the Floor Brackets makes it easier to drill the holes for the concrete sleeve anchors.

Drill the holes to the depth specified by the concrete sleeve anchor manufacturer. Once holes are drilled, clean the holes out with a vacuum or compressed air. Re-install the Floor Brackets on the machine. Do not tighten the Floor Brackets onto the Support Legs at this time. Ensure the Floor Brackets are snug to the Support Leg, but that they are still able to be adjusted.

5.4 Installing Concrete Sleeve Anchors

With the Floor Bracket snug on the Support Legs but still adjustable, line up the hole in the Floor Bracket with the hole drilled in the concrete. Insert a concrete anchor into the hole. Tap the concrete anchor into place lightly with a hammer, ensuring the Floor Bracket is flush with the floor and the concrete sleeve anchor is snug to the Floor Bracket. Tighten the concrete sleeve anchor nut with fingers. Using a ½ in. socket and torque wrench, torque to manufacturer specs (typically 8 ft. lbs. for ⅜ in. concrete sleeve anchor). Tighten the Floor Bracket to the Support Leg.



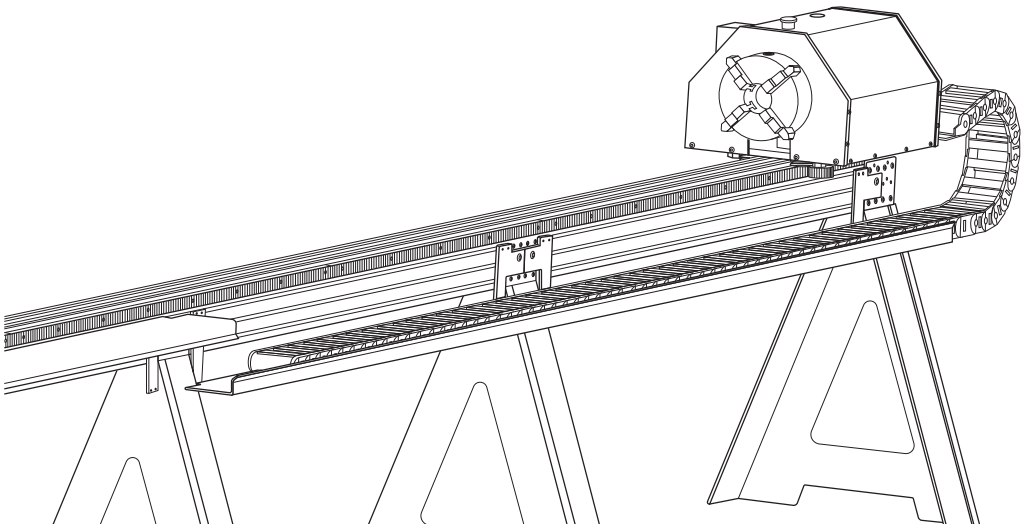
06 Cables and Control Box

6.1 Preparing Cable Track

Note

Only after the Dragon is assembled, leveled, and secured to the floor should the shrink wrap be carefully removed from the Head of the machine and Cable Track.

Remove the shrink wrap and unroll the Cable Track onto the Cable Track Tray.

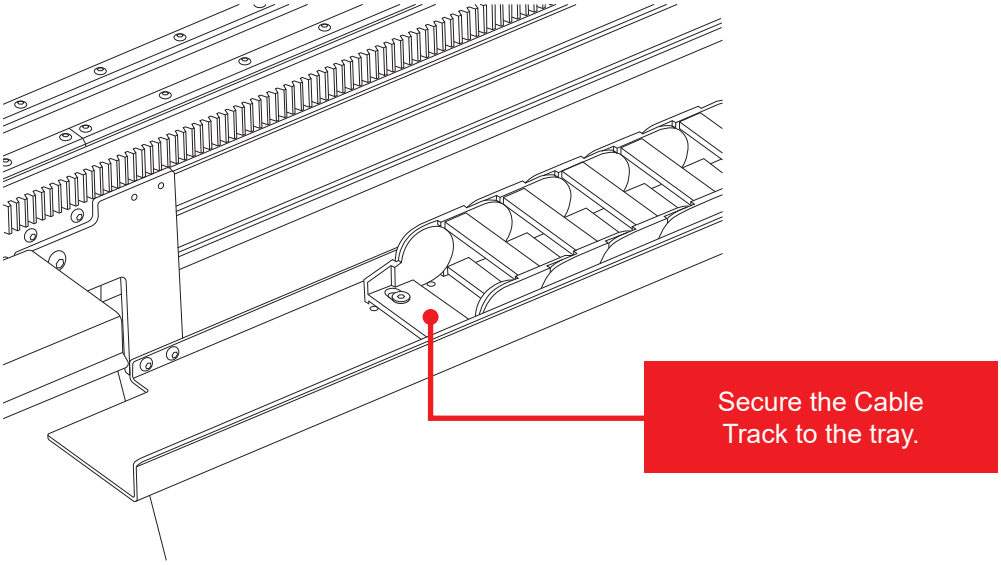


6.2 Installing the Cable Track

Tools Needed

- 5/32” Allen wrench

Align the Cable Track over the slotted holes and secure using two 1/4-20 x 7/8” FHCS and two 1/4-20 Lock Nuts.



Note

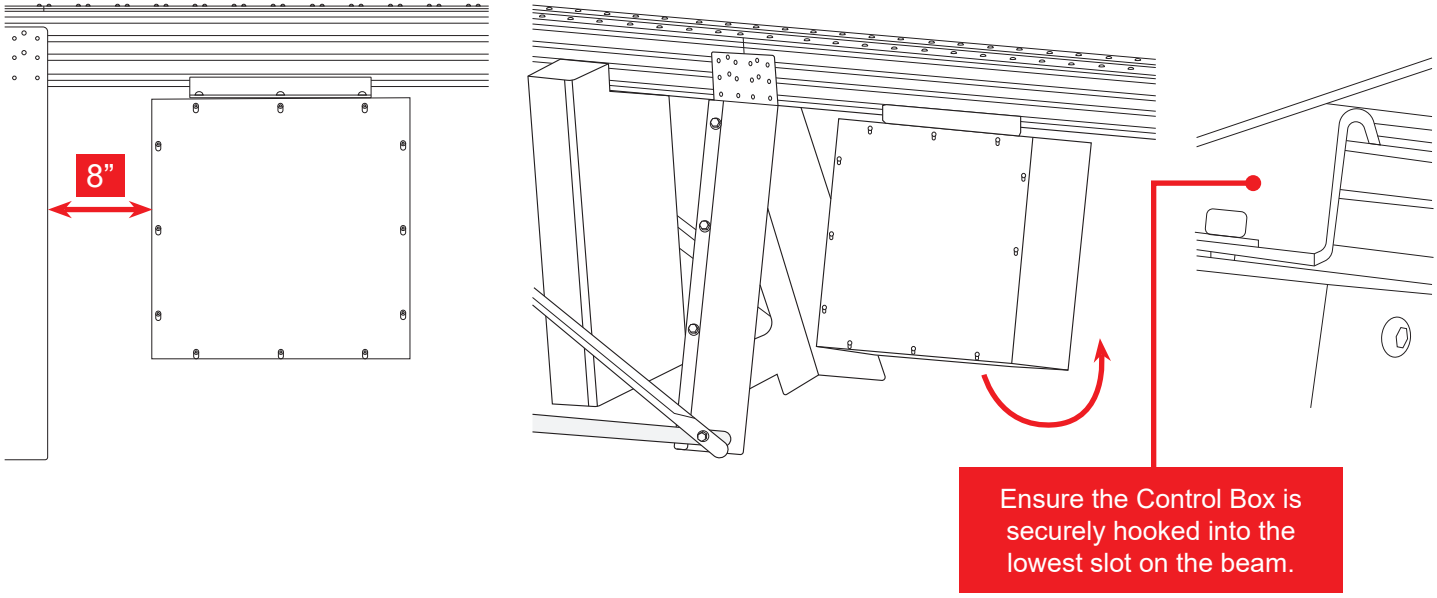
You may need to run the track back and forth a few times and adjust the mounting position for it to track properly.

6.4 Installing the Control Box

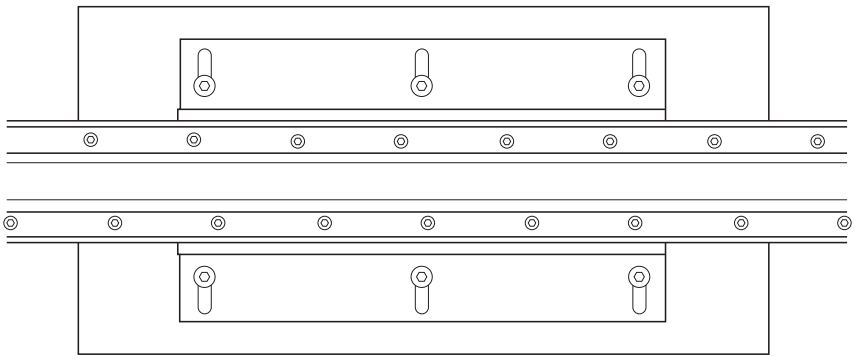
Tools Needed

- 3/16” Allen wrench

Position the Control Box in place by inserting one side of the bracket into the bottom beam slot and then the other side. The Control Box should be positioned 8-inches behind Support Leg #3. Ensure the FRONT of the Control Box is facing the head of the machine.



Push the bracket sides into the beam so they are secure in the lowest slot on the beam. Tighten the six bolts with a 3/16” Allen wrench.

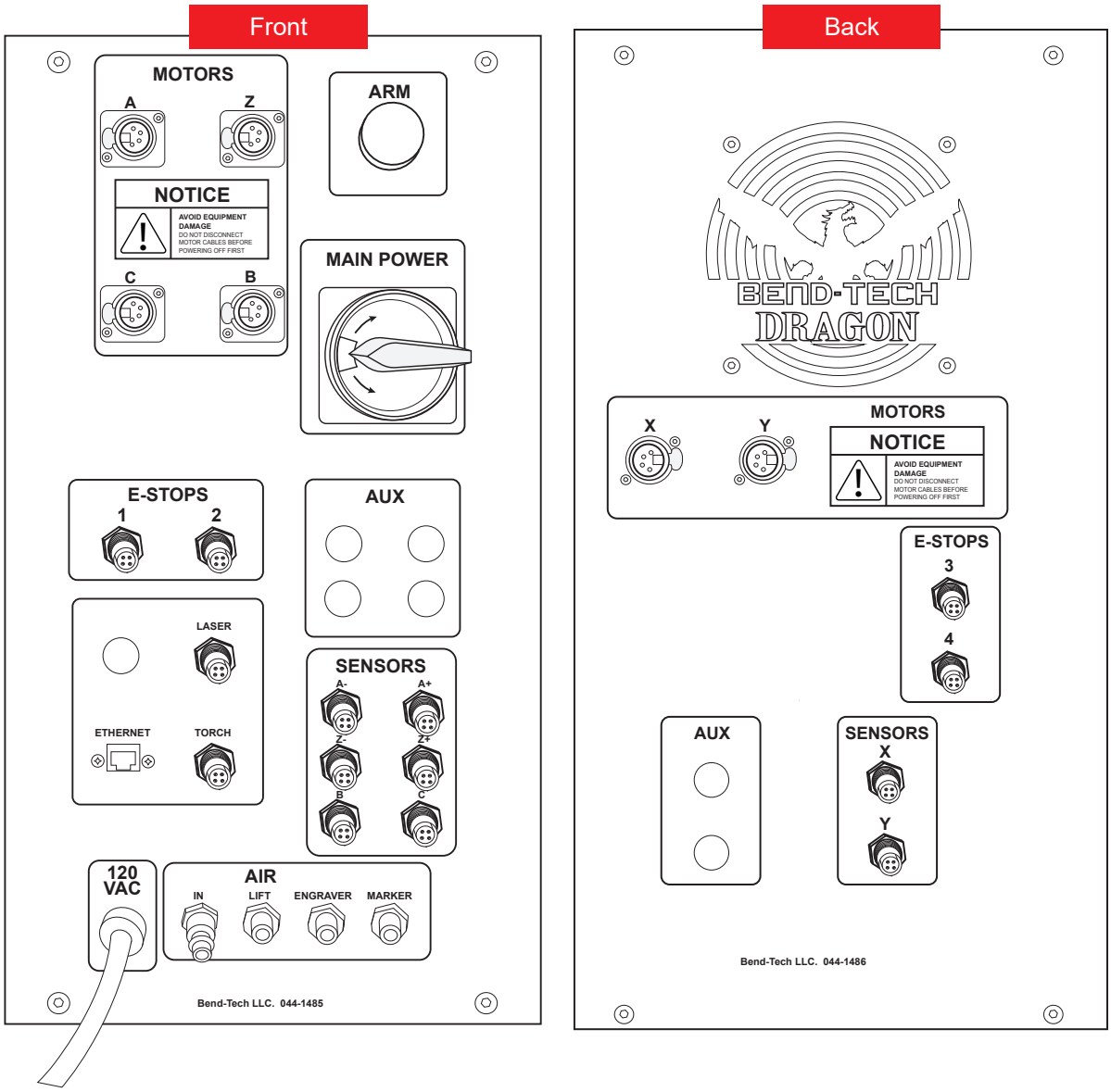


6.5 Connecting the Cables

! Warning !

Ensure the machine is disconnected from power and the Main Power Switch is off before connecting the cables to the Control Box.

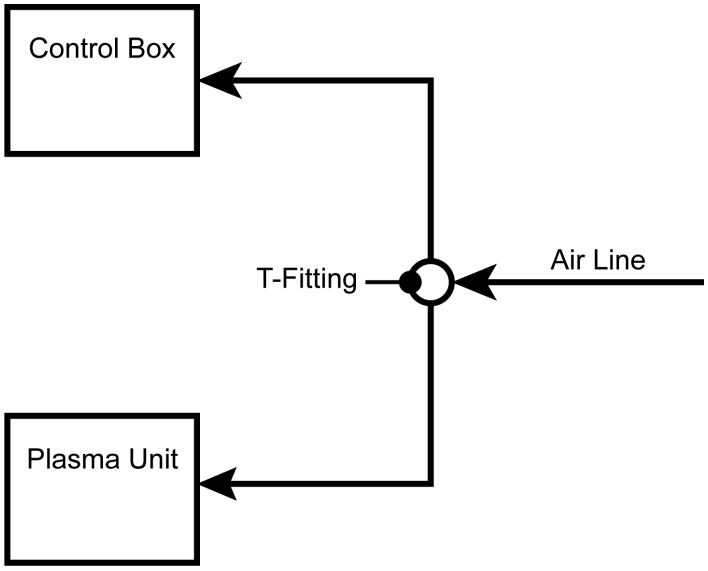
Connect all the cables to the Control Box. The cables are labeled. Ensure that they are connected to the matching label on the Control Box.



07 Air Line

7.1 Air Line Connection Overview

The Dragon A400 requires two air line feeds. One air line is connected to the air inlet on the Control Box. A second air line is connected to the Plasma Unit. It is recommended that the air supply to the Dragon A400 be equipped with an air water separator and filter. If compressed air is used, a single air line split with a T-fitting can be utilized instead of two separate air lines.



Important

A direct air line connection to the Plasma Unit is needed when Nitrogen is used as the operating gas.

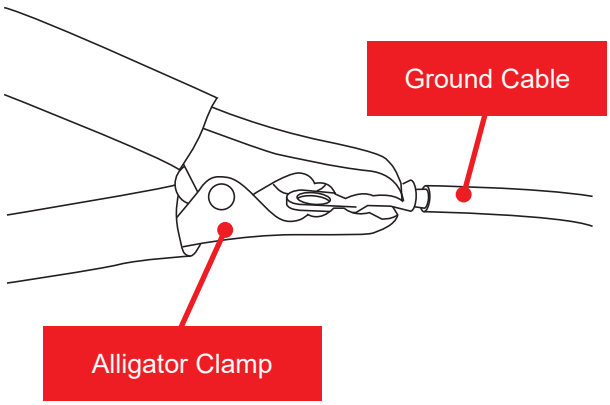
08 Torch

8.1 Torch Cable

The Installer should have attached the Torch Cable to the Control Box as outlined in Chapter 6. Connect the loose end of the Torch Cable to the power cable connection on the Plasma Unit.

8.1.1 Torch Ground

Connect the alligator clamp from the Plasma Unit to the ground cable on the Dragon A400.



Note

Bend-Tech recommends attaching the ground cables together with a bolt.

8.2 Installing the Torch Wand

The Torch is mounted to the Toolhead using two mounting collars. For the initial install, the Torch should only be secured in the top collar until the Torch Mount Procedure can be completed. The Torch Mount Instructions are located in the Dragon A400 Startup Manual.

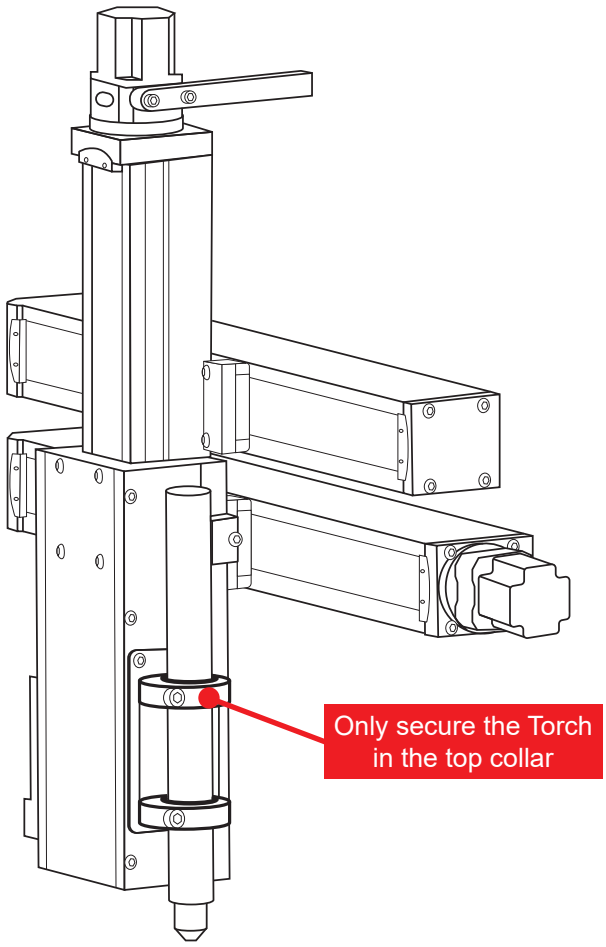
Loosen the adjustment screws in the top collar using a 3⁄16 in. Allen wrench. Slide the Torch into the collar from above, with the tip of the Torch pointing down.

When the ceramic body of the Torch is nearly touching the bottom collar, hold the Torch in place and tighten the top collar securely by hand. Do not install the Torch in the bottom collar at this time.

This is in reference to the Hypertherm Torch Wand, if a different Plasma Unit and Torch are used, this setup may differ. Refer to any documentation provided for the specific plasma unit and torch that came with the machine.

Tools Needed

- 3/16” Allen wrench
- Flathead screwdriver

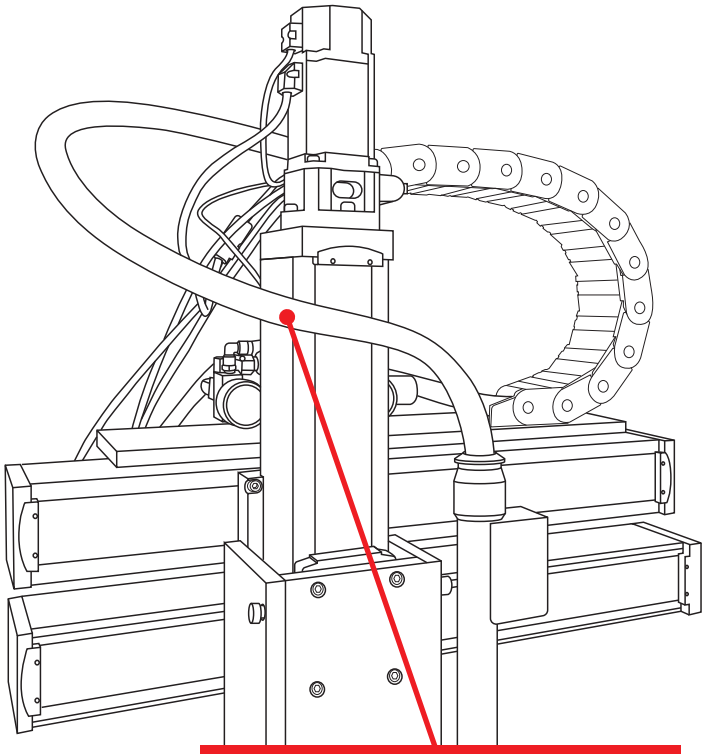


8.3 Routing the Torch Lead

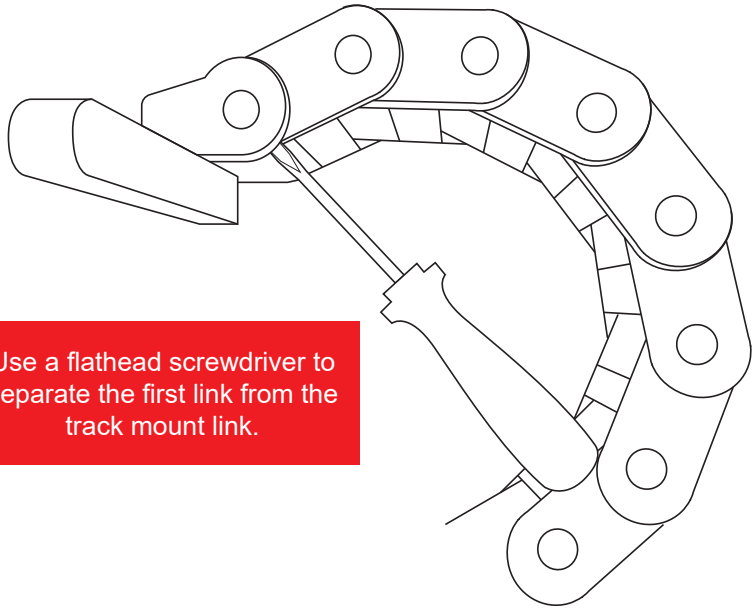
When mounting the Torch Wand on the Toolhead, Bend-Tech reccomends routing the Torch Lead through the toolhead cable track. Routing it into the top opening and out the lower opening as shown.

To do this, find the gap between the mounting piece and the first link of the cable track chain. Insert a flathead screwdriver and carefully twist to separate the links.

Do this on both sides and pull back to fully separate and create enough clearance to route the plasma cable through.



Ensure the Torch Lead is routed into the top of the toolhead cable track and out the bottom section.



Use a flathead screwdriver to separate the first link from the track mount link.

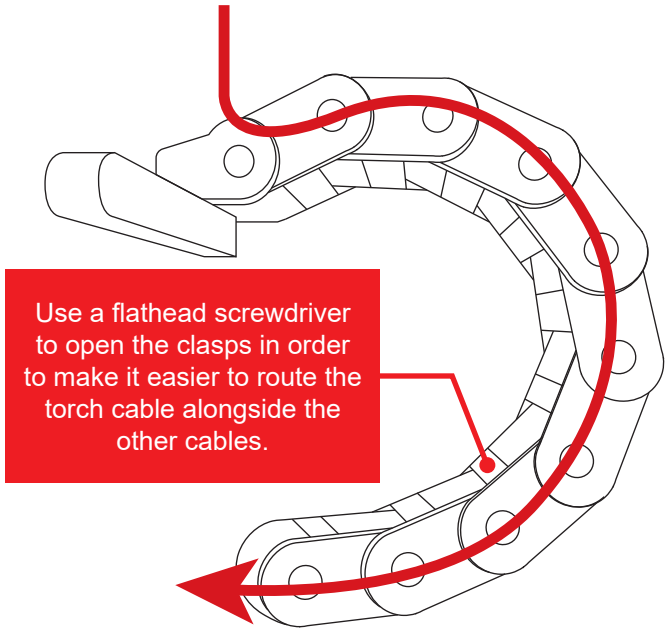
! Caution !

Separating the links can cause damage to the cable track if not done carefully. Take care to separate the links so the cable track is not damaged.

Follow the curve as shown when inserting the cable through the cable track.

Insert the end of the flathead screwdriver into the tab at one end of the clasp. Push down on the handle of the screw driver to free the clasp. This provides access and makes it easier to route the torch cable along side the other cables.

Once the torch cable is routes through the cable track, resecure the clasps and reconnect the upper links that were loosened. Route and secure the torch cable and the remaining cables out of the way of any moving parts.



Important

Running the Torch Mount utility is required before the Dragon Machine is ready for operation. This utility is used to set the torch operating height. The Torch Mount procedure is outlined in the A400 Startup Manual Part 3.

Important

For any questions or concerns regarding the assembly of the Dragon machine or installation of any of the Dragon components, contact Bend-Tech support at 1-651-257-8715 or support@Bend-Tech.com.

Attention

After completing the Dragon A400 assembly, proceed to the Dragon A400 Startup Manual.

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