



OPERATOR'S MANUAL



INDEX TABLE MODEL: IDX-10, 15, OR 20

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THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial. We hope that you find it productive and useful to you for a long time to come.

Inspection & Acceptance. Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any goods to Seller. Goods returned without a RGA will be refused. Seller will not be responsible for any freight costs, damages to goods, or any other costs or liabilities pertaining to goods returned without a RGA. Seller shall have the right to substitute a conforming tender. Buyer will be responsible for all freight costs to and from Buyer and repackaging costs, if any, if Buyer refuses to accept shipment. If Goods are returned in unsalable condition, Buyer shall be responsible for full value of the Goods. Buyer may not return any special order Goods. Any Goods returned hereunder shall be subject to a restocking fee equal to 30% of the invoice price.

Specifications. Seller may, at its option, make changes in the designs, specifications or components of the Goods to improve the safety of such Goods, or if in Seller's judgment, such changes will be beneficial to their operation or use. Buyer may not make any changes in the specifications for the Goods unless Seller approves of such changes in writing, in which event Seller may impose additional charges to implement such changes.

Limited Warranty. Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain a RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without a RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 30 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (e) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

EXCLUSION OF OTHER WARRANTIES. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY AND ALL OTHER EXPRESS, STATUTORY OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN.

Limitation of Liability. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR DOWN TIME) ARISING FROM OR IN MANNER CONNECTED WITH THE GOODS, ANY BREACH BY SELLER OR ITS AGENTS OF THIS AGREEMENT, OR ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY. BUYER'S REMEDY WITH RESPECT TO ANY CLAIM ARISING UNDER THIS AGREEMENT IS STRICTLY LIMITED TO NO MORE THAN THE AMOUNT PAID BY THE BUYER FOR THE GOODS.



Force Majeure. Seller shall not be responsible for any delay in the delivery of, or failure to deliver, Goods due to causes beyond Seller's reasonable control including, without limitation, acts of God, acts of war or terrorism, enemy actions, hostilities, strikes, labor difficulties, embargoes, non-delivery or late delivery of materials, parts and equipment or transportation delays not caused by the fault of Seller, delays caused by civil authorities, governmental regulations or orders, fire, lightening, natural disasters or any other cause beyond Seller's reasonable control. In the event of any such delay, performance will be postponed by such length of time as may be reasonably necessary to compensate for the delay.

Installation. If Buyer purchases any Goods that require installation, Buyer shall, at its expense, make all arrangements and connections necessary to install and operate the Goods. Buyer shall install the Goods in accordance with any Seller instructions and shall indemnify Seller against any and all damages, demands, suits, causes of action, claims and expenses (including actual attorneys' fees and costs) arising directly or indirectly out of Buyer's failure to properly install the Goods.

Work By Others; Safety Devices. Unless agreed to in writing by Seller, Seller has no responsibility for labor or work performed by Buyer or others, of any nature, relating to design, manufacture, fabrication, use, installation or provision of Goods. Buyer is solely responsible for furnishing, and requiring its employees and customers to use all safety devices, guards and safe operating procedures required by law and/or as set forth in manuals and instruction sheets furnished by Seller. Buyer is responsible for consulting all operator's manuals, ANSI or comparable safety standards, OSHA regulations and other sources of safety standards and regulations applicable to the use and operation of the Goods.

Remedies. Each of the rights and remedies of Seller under this Agreement is cumulative and in addition to any other or further remedies provided under this Agreement or at law or equity.

Attorney's Fees. In the event legal action is necessary to recover monies due from Buyer or to enforce any provision of this Agreement, Buyer shall be liable to Seller for all costs and expenses associated therewith, including Seller's actual attorneys' fees and costs.

Governing Law/Venue. This Agreement shall be construed and governed under the laws of the State of Wisconsin, without application of conflict of law principles. Each party agrees that all actions or proceedings arising out of or in connection with this Agreement shall be commenced, tried, and litigated only in the state courts sitting in Manitowoc County, Wisconsin or the U.S. Federal Court for the Eastern District of Wisconsin. Each party waives any right it may have to assert the doctrine of "forum non conveniens" or to object to venue to the extent that any proceeding is brought in accordance with this section. Each party consents to and waives any objection to the exercise of personal jurisdiction over it by courts described in this section. Each party waives to the fullest extent permitted by applicable law the right to a trial by jury.

Summary of Return Policy.

- 10 Day acceptance period from date of delivery. Damage claims and order discrepancies will not be accepted after this time.
- You must obtain a Baileigh issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh in new condition and in original packaging.
- Altered items are not eligible for return.
- Buyer is responsible for all shipping charges.
- A 30% re-stocking fee applies to all returns.

Baileigh Industrial makes every effort to ensure that our posted specifications, images, pricing and product availability are as correct and timely as possible. We apologize for any discrepancies that may occur. Baileigh Industrial reserves the right to make any and all changes deemed necessary in the course of business including but not limited to pricing, product specifications, quantities, and product availability.

For Customer Service & Technical Support:

Please contact one of our knowledgeable Sales and Service team members at: (920) 684-4990 or e-mail us at sales@baileighindustrial.com



INTRODUCTION

The quality and reliability of the components assembled on a Baileigh Industrial machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.

Our technical staff will do their best to help you get your machine back in working order.

In this manual you will find: (when applicable)

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Set-up and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

GENERAL NOTES

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any unauthorized modifications.



Note: *This symbol refers to useful information throughout the manual.*



IMPORTANT **PLEASE READ THIS OPERATORS MANUAL CAREFULLY**

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.



SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** is used with the safety alert symbol. **DANGER** identifies a hazard or unsafe practice that will result in severe **Injury or Death.**

Safety signs with signal word **DANGER** or **WARNING** are typically near specific hazards.

General precautions are listed on **CAUTION** safety signs. **CAUTION** also calls attention to safety messages in this manual.



DANGER



WARNING



CAUTION

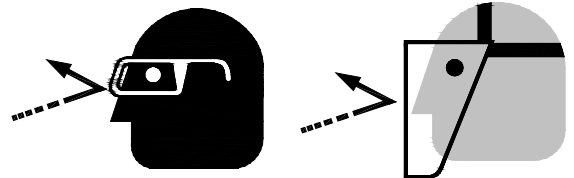


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



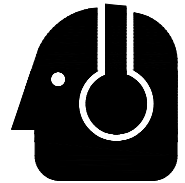
PROTECT EYES

Wear safety glasses or suitable eye protection when working on or around machinery.



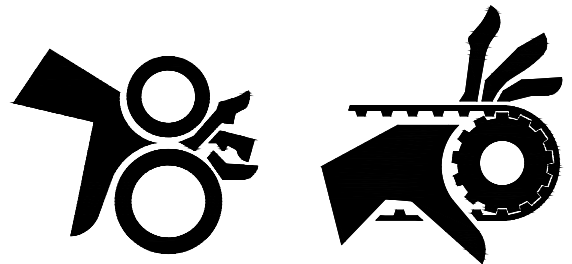
PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.



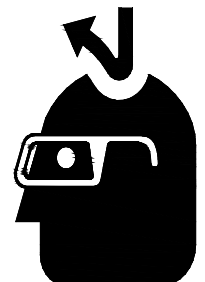
BEWARE OF PINCH POINTS

Keep hands and fingers away from the drive mechanisms, cylinders, ratchets, and other moving linkage while the machine is in operation.



KEEP CLEAR OF MOVING OBJECTS

Always be aware of the position of the material and the swing area in which the material will travel. The material will swing with significant force. This swing area will create pinch points and the force of the material movement may cause serious bodily injuries.





SAFETY PRECAUTIONS



Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.

Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. **Always use common sense** and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.

REMEMBER: Your personal safety is your responsibility.



WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

1. **Only trained and qualified personnel can operate this machine.**
2. **Make sure guards are in place and in proper working order before operating machinery.**
3. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
4. **Keep work area clean.** Cluttered areas invite injuries.
5. **Overloading machine.** By overloading the machine you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
6. **Dressing material edges.** Always chamfer and deburr all sharp edges.
7. **Do not force tool.** Your machine will do a better and safer job if used as intended. **DO NOT** use inappropriate attachments in an attempt to exceed the machines rated capacity.
8. **Use the right tool for the job. DO NOT** attempt to force a small tool or attachment to do the work of a large industrial tool. **DO NOT** use a tool for a purpose for which it was not intended.
9. **Dress appropriate. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
10. **Use eye and ear protection.** Always wear ISO approved impact safety goggles. Wear a full-face shield if you are producing metal filings.



11. **Do not overreach.** Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
12. **Stay alert.** Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
13. **Check for damaged parts.** Before using any tool or machine, carefully check any part that appears damaged. Check for alignment and binding of moving parts that may affect proper machine operation.
14. **Observe work area conditions.** **DO NOT** use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted.
15. **Keep children away.** Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
16. **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep them out of reach of children.
17. **DO NOT operate machine if under the influence of alcohol or drugs.** Read warning labels on prescriptions. If there is any doubt, **DO NOT** operate the machine.
18. Keep visitors a safe distance from the work area.

TECHNICAL SUPPORT

Our technical support department can be reached at 920.684.4990, and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs: (other than die sets and blades).

For specific application needs or future machine purchases contact the Sales Department at: sales@baileighindustrial.com, Phone: 920.684.4990, or Fax: 920.684.3944.



Note: *The photos illustrations used in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.*



Note: *The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.*



UNPACKING AND CHECKING CONTENTS

Your Baileigh machine is shipped in several packages. Separate all parts from the packing material and check each item carefully. Make certain all items are accounted for before discarding any packing material.

⚠ WARNING: SUFFOCATION HAZARD! Immediately discard any plastic bags and packing materials to eliminate choking and suffocation hazards to children and animals.

If any parts are missing, do not plug in the power cable, or turn the power switch on until the missing parts are obtained and installed correctly.

Cleaning

Your machine may be shipped with a rustproof waxy oil coating and grease on the exposed unpainted metal surfaces. To remove this protective coating, use a degreaser or solvent cleaner. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.

Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.

⚠ WARNING: DO NOT USE gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.

⚠ CAUTION: When using cleaning solvents work in a well-ventilated area. Many cleaning solvents are toxic if inhaled.





TRANSPORTING AND LIFTING



IMPORTANT: *Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced.*

Follow these guidelines when lifting:

- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a fork lift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine.
- Remove the securing bolts that attach the machine to the pallet.
- Approaching the machine from the side, lift the machine on the frame taking care that there are no cables or pipes in the area of the forks.
- Move the machine to the required position and lower gently to the floor.
- Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.

INSTALLATION

IMPORTANT:

Consider the following when looking for a suitable location to place the machine:

- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.



- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.
- **LEVELING:** The machine should be sited on a level, concrete floor. For stationary machines, provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.
- **FLOOR:** This tool distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
- **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.



INDEX TABLE ATTACHMENT (OPTIONAL EQUIPMENT)

Introduction

The IDX-10, 15, or 20 Indexing table is designed to allow you too accurately and repeatedly position distances between bends, by using the adjustable stops. Additionally, the Index table can be used to hold the material being bent perfectly level while bending, or altering the angles between bends.

Connection to Your Machine

Use the parts drawings near the end of the manual as an additional assembly reference.

1. Mount the hanger bracket to the bender plate.
2. Assembly the short dogleg bracket assembly onto the slide shaft and into the main tube.



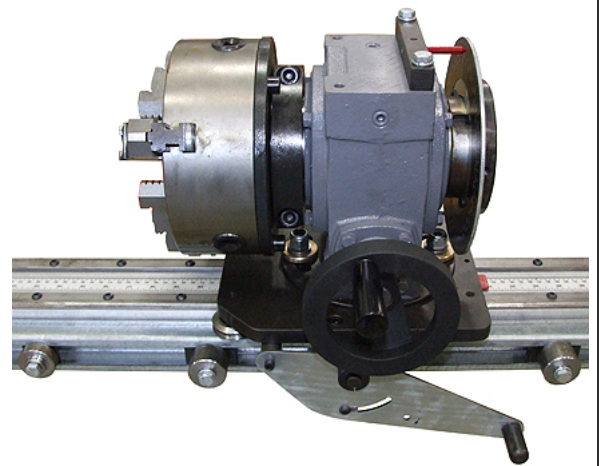
RDB-250 Shown. Other Models Similar.



3. Assemble the stand components.
4. With the front of the main track tube attached, lift up the rear and support it with a sturdy saw horse or equal.
5. Attach the rear leg adjuster to the underside of the main tube.



6. From the stand end of the main tube, slide the chuck head onto the main tube with the chuck toward the bender and the rotational scale toward the stand.

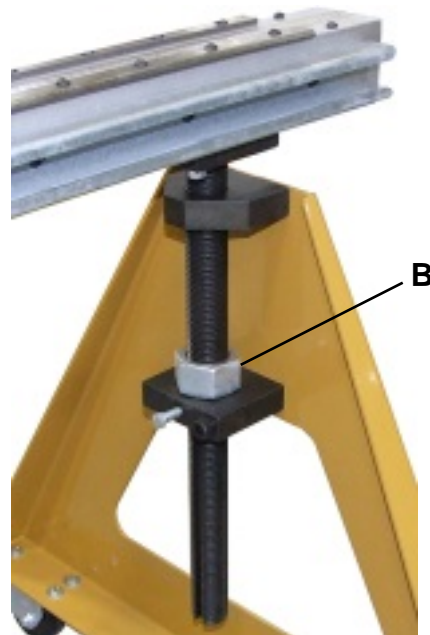
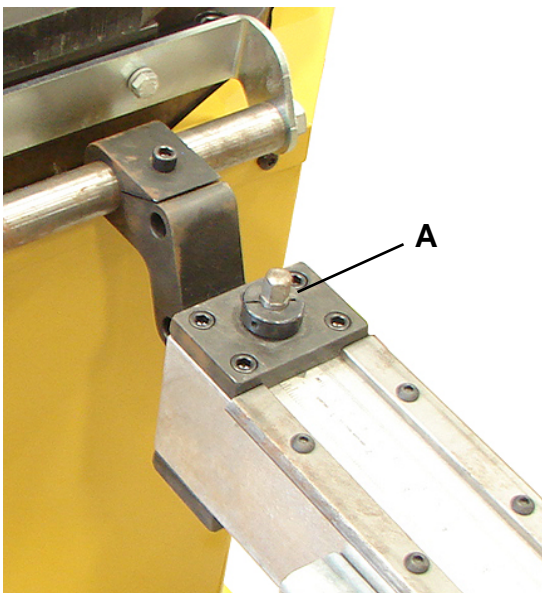




Height Adjustment and Leveling

1. Level your machine on a flat hard surface. The draw bender comes standard with wheels and casters. It may be necessary to fasten or lock the machine in place to keep the machine from rotating instead of the index table. The index table must be allowed to pivot and rotate with its wheels during operation.
2. With the machine level, choose the desired die set.
3. The thickness of the die determines the height of the index table. Using the table to find the correct number of turns required for your die.
4. Rotate the height adjustment screw (A) clockwise until it stops. This is the lowest the table will go. (EXAMPLE 1-1/2 die)
5. Rotate the adjustment screw (A) counter clockwise the exact number of turns that were chosen from the chart.
6. Using a 2 ft. level placed on the main track tube, rotate the large nut (B) on the stand until the main track tube is level.
7. Slide the front of the main track tube forward or aft as needed so the center line of the track tube matches the center (radius) line of the die.
8. The Chuck/Gearbox assembly is designed to pivot on its mount, tension is adjusted with spring washers beneath the (2) 1/2-13 mounting bolts. For small light weight material, the swivel will need to be loosened so it pivots easily, for heavy material, the swivel should be tightened to increase resistance.

Height Adjustment	
Counter-Clock Wise To Raise	
Turns CCW	Die Thickness
0.0	1.50
2.5	2.00
5.0	2.50
7.5	3.00
10.0	3.50





Material Layout

Before you can use the IDX table, the bend positions of your first piece of material needs to be laid out. Using Diagram1 and Table1 you can determine all of the bend start points, these points should be transferred to the material using a fine point sharpie marker. This diagram is a generic two bend scenario, for more complex parts the steps are generally the same. Use the next section for further reference.

Material Layout

In order to create accurate parts, you will have to layout the material in flat form. First you will need to determine how much material is used per degree of bend. Use the multiplier table on Table #3 to determine the arc lengths for the die in use. Or use the following formula:

Alternate arc length formula:

Example: $6.0 \text{ clr} \times 2 = 12$ $12 \times 3.14 = 37.699$ $37.699 / 360 = 0.1047$ " per degree
 $0.1047 \times 90 \text{ degrees} = 9.425$ " of material used for a 90 degree bend.

Once the arc lengths are determined you can begin layout of the material using Diagram #1 as a reference.


- Diagram #1 shows a simple part bent on the same plane in the same direction.
- Diagram #2 shows bending based off of a centerline in two directions.
- For symmetrical bends, centerline bending is easiest.
- For non-symmetrical bends, continuous one direction bending is best.

- Another way to layout material is to draw them in a 2D computer software program like Auto Cad. There are many free programs on the internet. In a 2D program you will draw the parts centerline only with corresponding clr's. Then you will be able to list individual segments of the bent part. This data can be directly entered into the control.
- Another program available is BEND-TECH which is a program specifically designed for tube bending and will give you all of the required data to make a part. This software is available from Baileigh Industrial.
- Bending with a rotary draw bender requires determining the start of bend point which will line up with the "0" mark on the die. The portion of the tube toward the hook arm will be locked to the die, the portion toward the counter die is the draw side and will slide along the counter die and conform to the dies shape/radius.



Operation

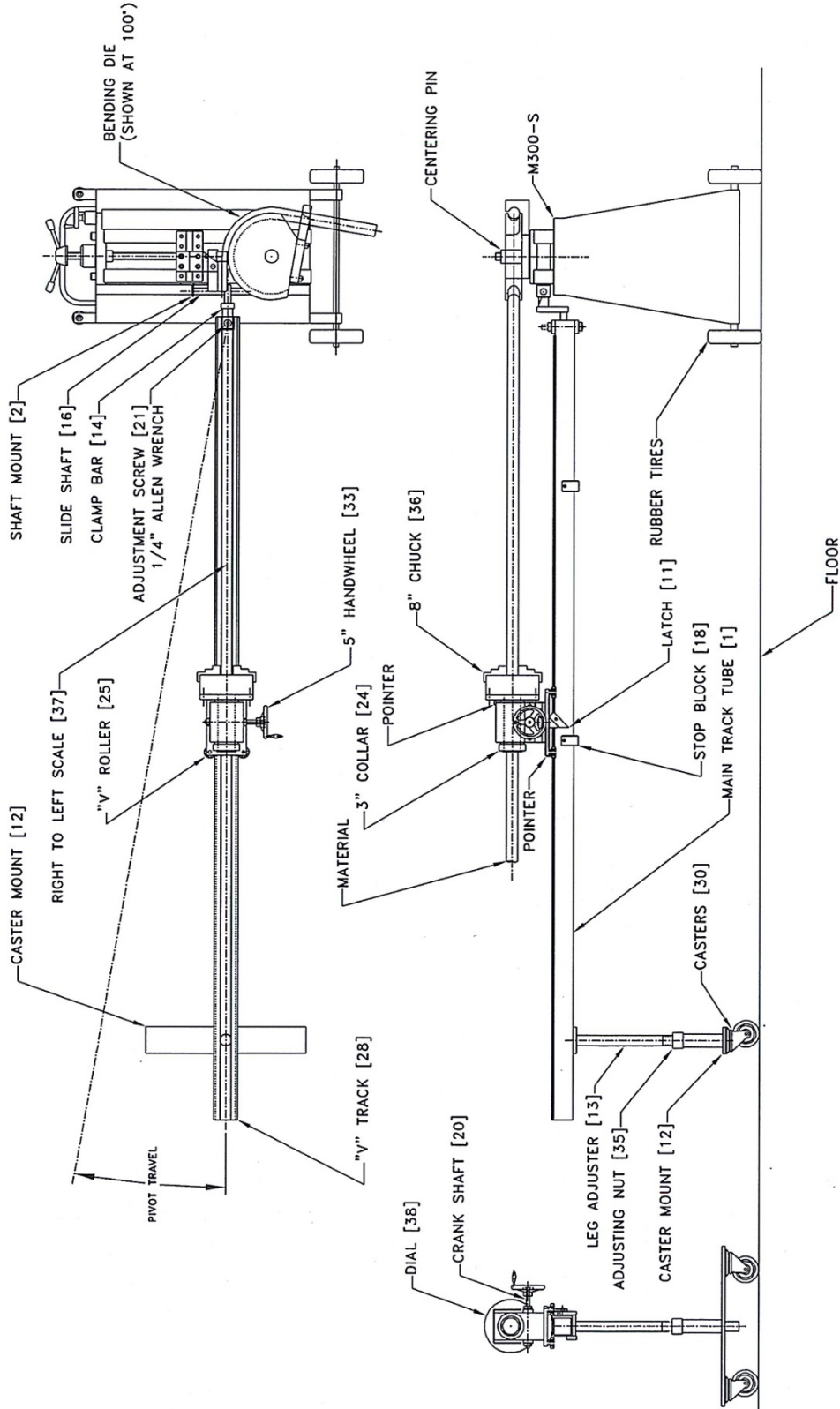
1. After the connection to your machine is complete, and the height and center line positions are verified, the Index table can be used.
2. Your first part should now be clearly marked. These marks will be used to position the tubing perfectly with the "0" mark on the die, and to set your IDX stops. Only your first part needs to be marked, after that the IDX stops will be used.
3. Insert a piece of material through the hook arm of the die being used and insert through the chuck. (note: If multiple parts are being produced, the material should be marked so the linear chuck position can be repeated) position the material so the start of bend mark lines up with the "0" mark on the die, now set your first stop on the index table and produce the first bend. NOTE: The complete table will swing, be sure not to interfere with the motion.
4. After the bend is complete, the die must return to home. Once the die is home, the material can be advanced and rotated (if required) to the next "0" mark. The next stop can now be set. Repeat as required, your IDX table comes standard with (4) stops.

 **IMPORTANT:** Make sure the hook arm of the die does not catch the tubing when returning to home position.

5. The previous steps are just examples how to set stops and produce various bends; it is up to the user to define exactly how their IDX will be set up. BAILEIGH INDUSTRIAL will be glad to offer any suggestions for your application.



INDEX TABLE LAYOUT DIAGRAM





TABLES, CHARTS, & DIAGRAMS

Table 1 Standard Pipe Sizes and Schedules

PIPE SIZES	O.D.	Pipe Schedules and Wall Thickness					
		5	10	40	80	160	XX STRONG
1/8	0.405	0.400	0.050	0.068	0.095		
1/4	0.540	0.500	0.070	0.088	0.119		
3/8	0.675	0.500	0.070	0.091	0.126		
1/2	0.840	0.700	0.080	0.109	0.147	0.188	0.294
3/4	1.050	0.700	0.080	0.113	0.154	0.219	0.308
1	1.315	0.700	0.110	0.133	0.179	0.250	0.358
1-1/4	1.660	0.700	0.110	0.140	0.191	0.250	0.382
1-1/2	1.900	0.700	0.110	0.145	0.200	0.281	0.400
2	2.375	0.700	0.110	0.154	0.218	0.344	0.436
2-1/2	2.875	0.800	0.120	0.203	0.276	0.375	0.552

Table 2 Die Color Code Chart

Material	Color
Pipe	Green
Tube	Blue
Metric	Red
Square or Rectangle	Gray



Table 3 ARC LENGTH TABLE

EXAMPLE: Arc Length = Constant x Bend Radius. Example: 90deg bend with 6" clr

EXAMPLE: 1.575 (from table) x 6" (clr) = 9.45" (Arc Length)

For bends more than 90deg, Constants can be added together.

Degrees	Constant	Degrees	Constant	Degrees	Constant
1	0.0175	31	0.5410	61	1.0645
2	0.0349	32	0.5584	62	1.0819
3	0.0524	33	0.5759	63	1.0994
4	0.0698	34	0.5933	64	1.1168
5	0.0873	35	0.6108	65	1.1343
6	0.1047	36	0.6282	66	1.1517
7	0.1222	37	0.6457	67	1.1692
8	0.1396	38	0.6631	68	1.1866
9	0.1571	39	0.6806	69	1.2041
10	0.1745	40	0.6980	70	1.2215
11	0.1920	41	0.7155	71	1.2390
12	0.2094	42	0.7329	72	1.2564
13	0.2269	43	0.7504	73	1.2739
14	0.2443	44	0.7678	74	1.2913
15	0.2618	45	0.7853	75	1.3088
16	0.2792	46	0.8027	76	1.3262
17	0.2967	47	0.8202	77	1.3437
18	0.3141	48	0.8376	78	1.3611
19	0.3316	49	0.8551	79	1.3786
20	0.3490	50	0.8725	80	1.3960
21	0.3665	51	0.8900	81	1.4135
22	0.3839	52	0.9074	82	1.4309
23	0.4014	53	0.9249	83	1.4484
24	0.4188	54	0.9423	84	1.4658
25	0.4363	55	0.9598	85	1.4833
26	0.4537	56	0.9772	86	1.5007
27	0.4712	57	0.9947	87	1.5182
28	0.4886	58	1.0121	88	1.5356
29	0.5061	59	1.0296	89	1.5531
30	0.5235	60	1.0470	90	1.5705



Diagram 1

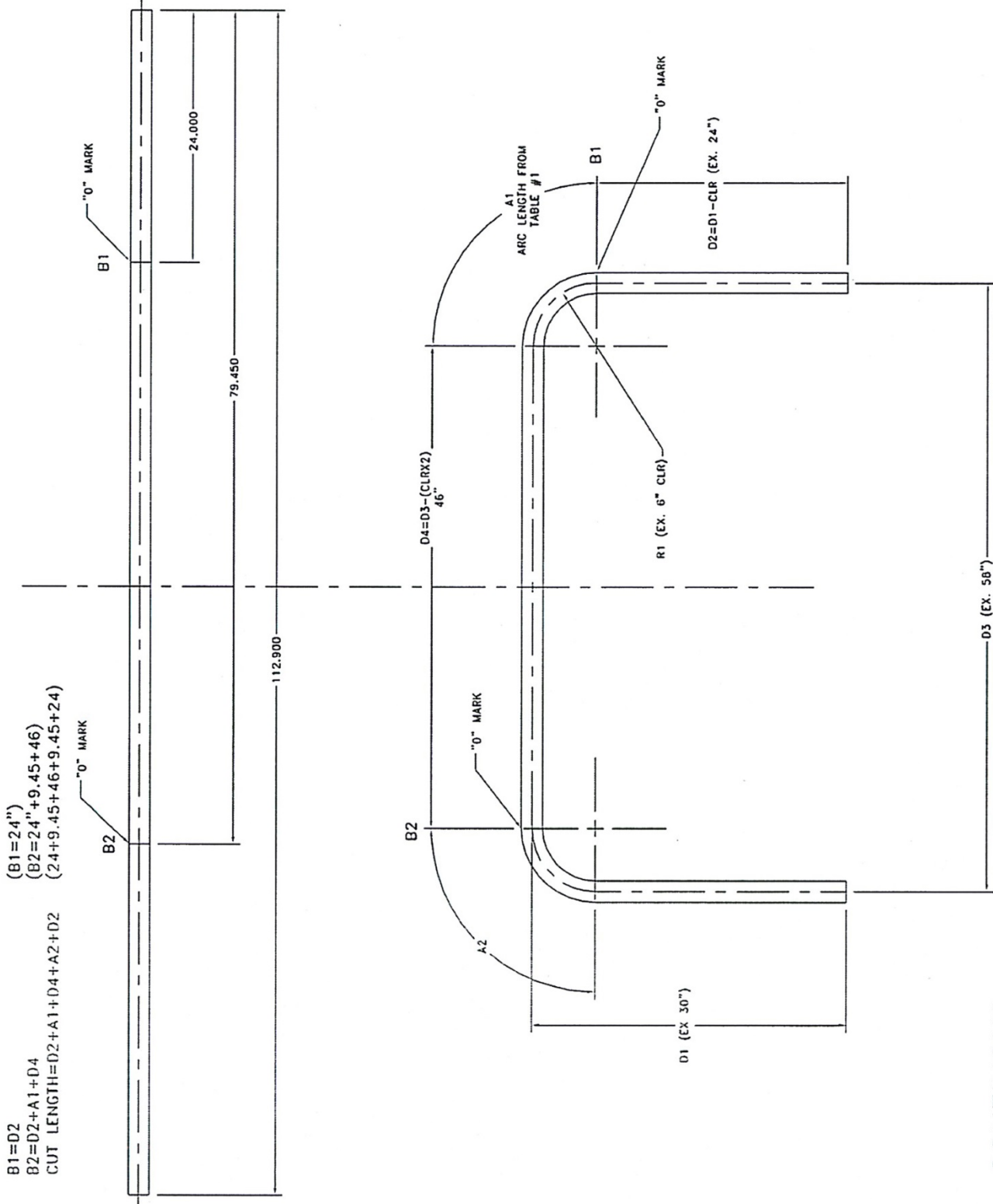


DIAGRAM #1

CONTINUOUS LAYOUT



Diagram 2

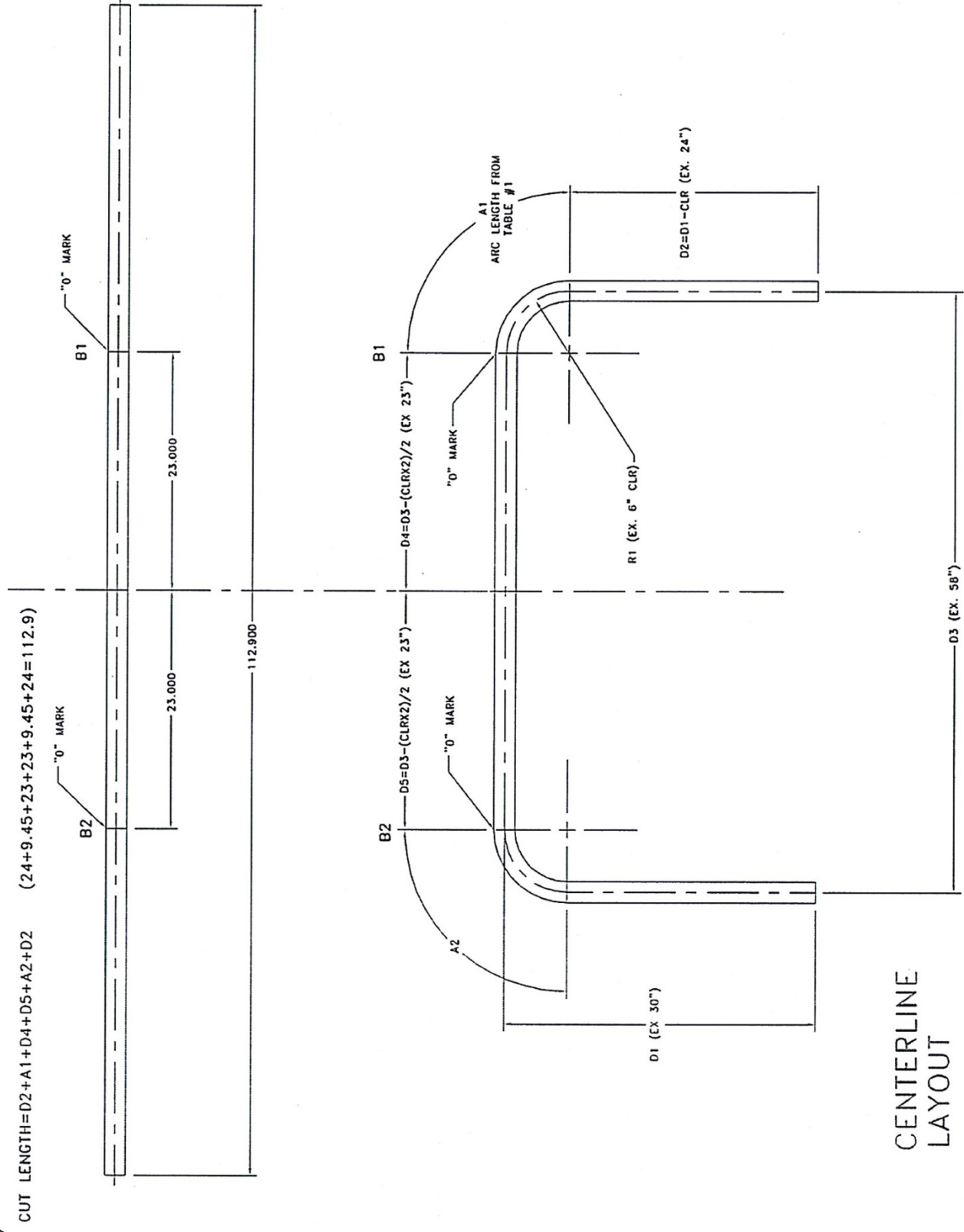
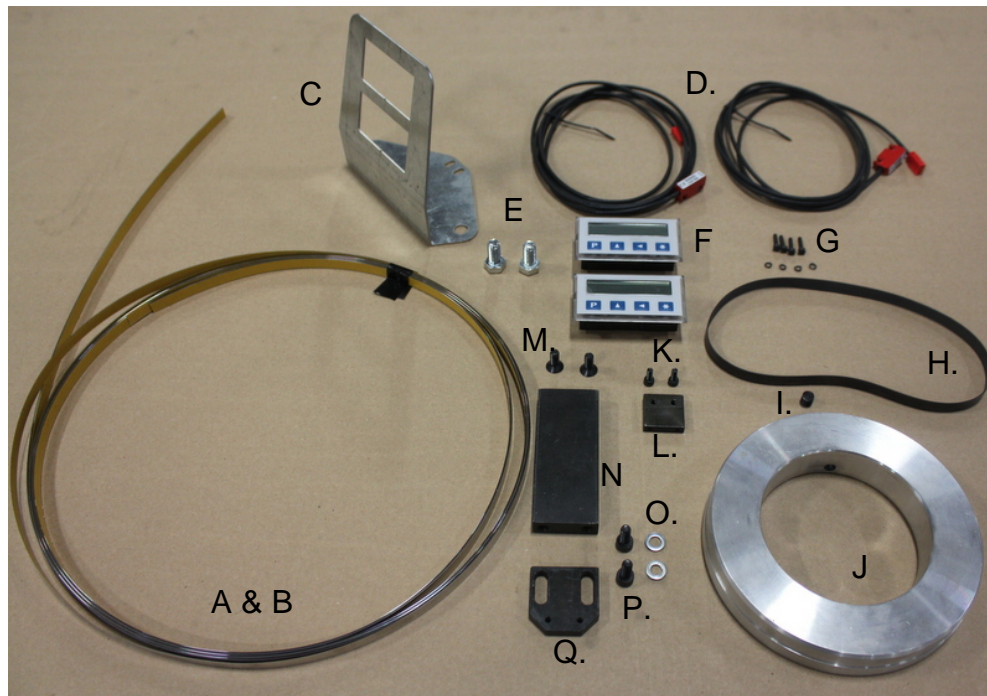


DIAGRAM #2



INDEX TABLE DIGITAL UPGRADE KIT COMPONENTS – OPTIONAL



Item	Description	Qty.	Part No.
A & B	Magnetic Strip and Cover Strip	1 of each	PP-1553
C	Digital Readout Bracket	1	IDX-6A065
D	Magnetic Sensors	2	PP-1551
E	3/8-16 x .75 HHCS	2	
F	Digital Counter	2	PP-1550
G	M3 x 0.5 x 14 SHCS w/ M3 Lock Washers	4 of each	
H	Magnetic Band	1	PP-1552
I	5/16-18 x .25 Set Screw	1	
J	Magnetic Band Hub	1	IDX-7A026
K	M4 x 0.7 x 10 SHCS w/ M4 Flat Washers	2 of each	
L	Sensor Mount	1	IDX-6A066
M	M6 x 1.0 x 16 FHCS	2	
N	Sensor Bracket	1	IDX-6A058
O	M6 Flat Washers	2	
P	M6 x 1.0 x 15 SHCS	2	
Q	Slotted Sensor Mount	1	IDX-6A059
Not Shown	6" Zip Ties	3	



Assembly Instructions

1. Carefully put the magnetic band (H) around the magnetic band hub (J). Make sure that the serial number tag is facing out and visible. Insert the set screw (I) into the hub. (Fig. 1)
2. Insert the digital counters (F) into the digital readout bracket (C). Some filing may have to be done on the rectangular cutouts of the bracket to ensure a proper fit of the counters. Remember which readout is linear and which readout is radial. (Fig. 1)

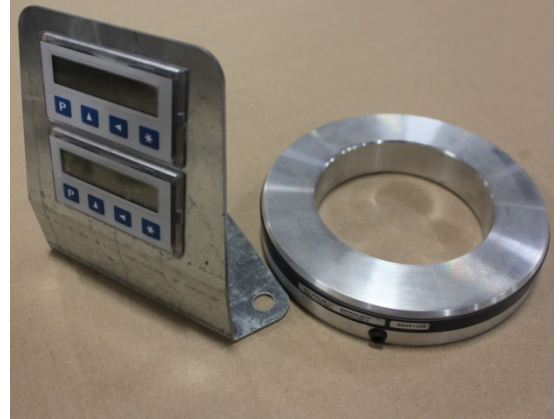


Fig. 1

3. Loosen the (2) hex head bolts that attach the hex V-roller to the chuck assembly. Then adjust the (2) hex V-rollers so that the chuck assembly is loose. Remove the assembly from the index table. CAUTION: The chuck assembly is heavy and cumbersome to carry. (Fig. 2)

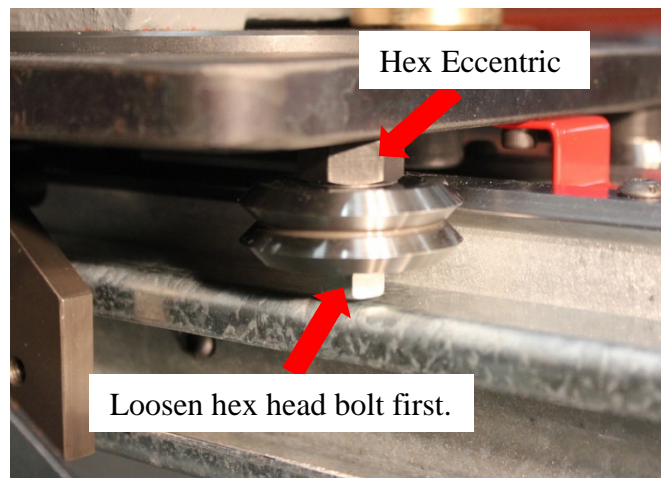
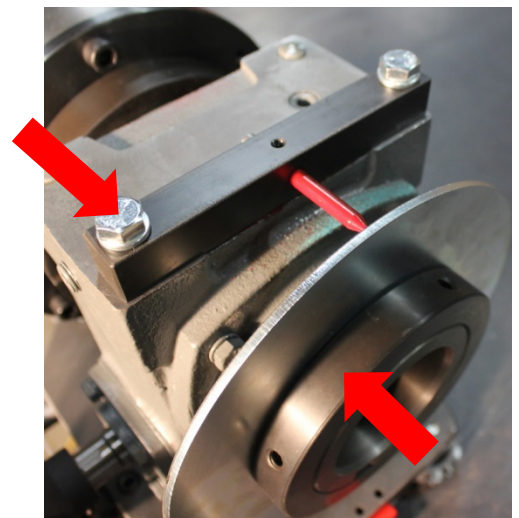


Fig. 2

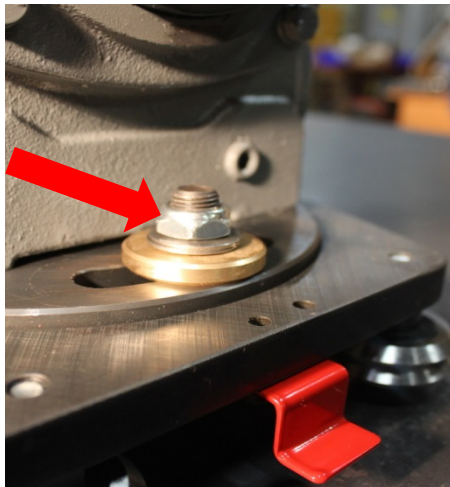
4. Next, remove the degree dial and the pointer mount from the chuck assembly. Keep the 3/8" lock washers from the pointer mount as they are reused. (Fig. 3)



(Fig. 3)



5. The gearbox is attached to the roller base by (2) ½-20 nylon lock nuts on the front and back of the gearbox. Remove the locking nuts along with the spring washers (4) and the brass washer (2). (Fig. 4) Remove the gearbox assembly from the roller base assembly. (Fig. 5)

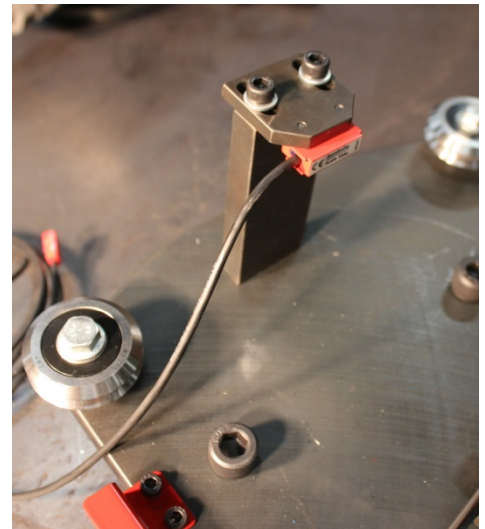


(Fig. 4)



(Fig. 5)

6. Next, attach the sensor bracket (N) to the bottom of the roller base using the (2) M6 flat head cap screws (M). Attach the slotted sensor mount (Q) to the bottom of the sensor bracket using the M6 SHCS (P) and the coordinating flat washers (O). The magnetic sensor (D) can then be attached to the slotted sensor mount using the M3 SHCS and the coordinating lock washers (G). Be sure that the sensor wire faces toward the rear of the assembly, as seen in Fig. 6.

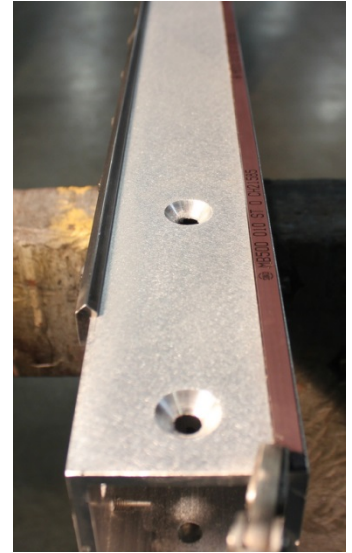


(Fig. 6)

7. The magnetic strip (A & B) needs to be attached to the index table. It is recommended, but not necessary, that the index table be detached from the bender and from the stand for this step as it is easier to accurately stick the magnet to the side of the table. Saw bucks work nicely to hold the table for the following steps.
8. With the index table detached from the bender, turn the table so the side rail of the table is facing down and that the blank side of the table is facing up. Make sure this side of the table is wiped clean of debris, grease, and oil. If the table is dirty the magnetic strip may not stick to the table properly.

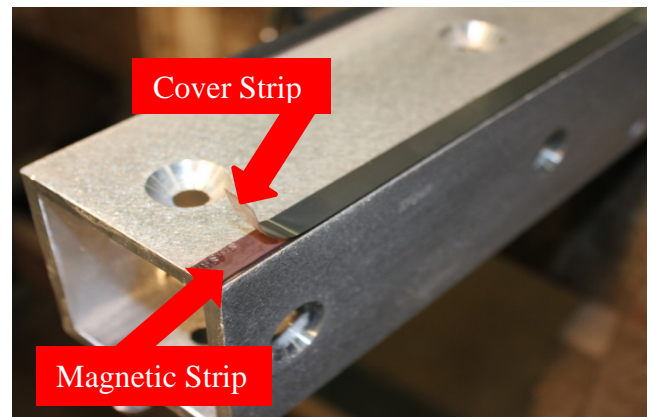


9. Next, starting at the rear of the table, peel back the covering of the magnetic strip (thick dark colored strip) and carefully begin to stick to the side of the table. Stay flush to the bottom of the table as seen in Fig. 7. Another person may be necessary to help hold the end of the magnetic strip.



(Fig. 7)

10. With the magnetic strip securely stuck to the side of the table, it is time to stick the protective cover strip on the top of the magnetic strip. Again, starting at the rear of the table, stick the cover strip directly on top of the magnetic strip. (Fig. 8) Trim off the extra material after the magnetic strip has been covered. CAUTION: The cover strip is very fragile and will bend very easily. Use extra caution during application.

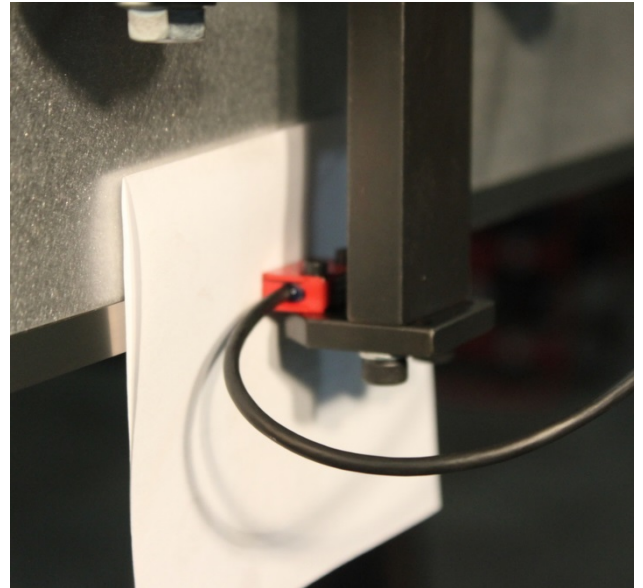


(Fig. 8)

11. Reattach the table back to the bender and the adjustment leg.
12. Put the roller base back onto the table, make sure that the eccentric V-rollers are still loose and that the V-rollers attach to the track on the table properly.
13. Adjust the eccentric V-rollers so they become tight on the track. Hold the eccentric in place and tighten the HHCS. There should be no wiggle between the V-rollers and the track on the table.
14. Notice the sensor should be in the middle of the magnetic strip.

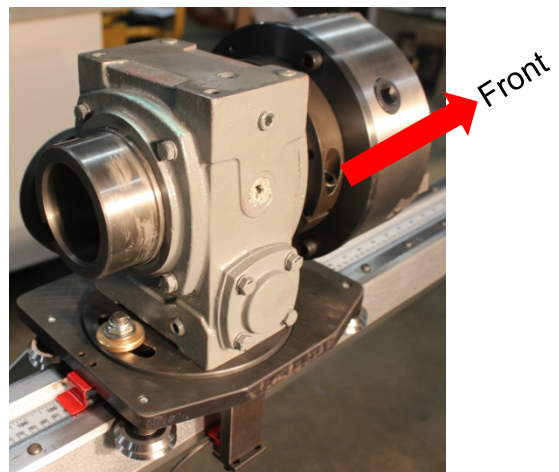


15. To set the sensor, fold a piece of paper in half and stick it in between the magnetic strip and the sensor. Adjust the sensor so it holds the piece of paper. Tighten the M6 SHCS, remove the piece of paper. (Fig. 9)



(Fig. 9)

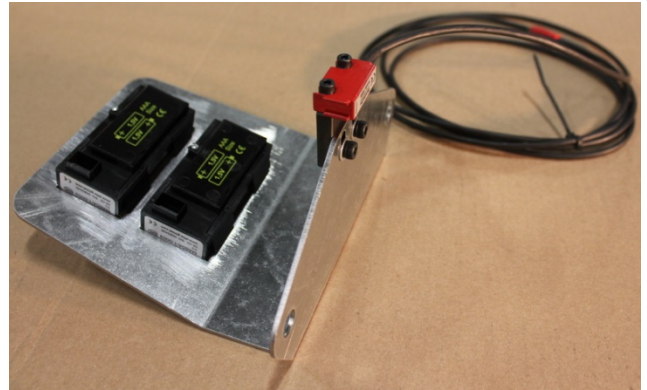
16. Place the gearbox assembly back onto the roller base assembly with the chuck facing opposite direction of the red indicator on the roller base.
17. Install the bronze washer and the (2) spring washers. The spring washers need to be opposing each other. The first washer must have the concave facing up, and then place the next washer on top, concave facing down.
18. Put on the nylon locking nuts and tighten just enough to put pressure on the spring washers. The gearbox assembly should easily swivel on the roller base. (Fig. 10)



(Fig. 10)

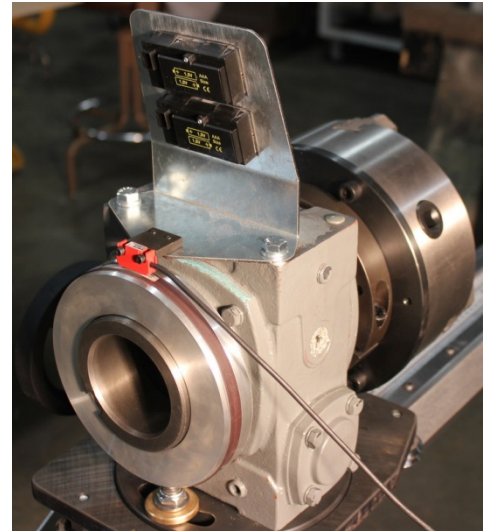


19. Attach the magnetic band hub (J), with the magnetic strip, to the gearbox, but do not tighten yet. The thicker part of the hub should face forward on the gearbox. (Fig. 12)
20. Attach the magnetic sensor (D) to the sensor mount (L). Then attach the sensor mount to the digital readout mount (C). (Fig. 11)



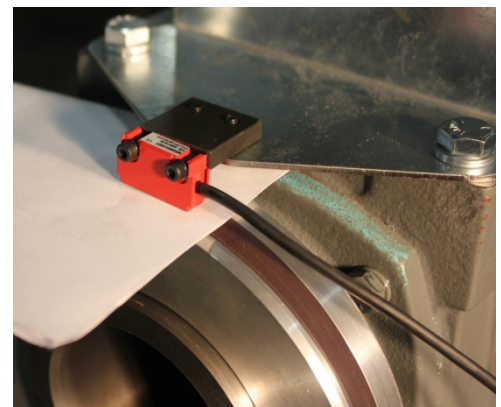
(Fig. 11)

21. Attach the digital readout mount (C) to the gearbox using the (2) 3/8-16 HHCS (E) and the (2) 3/8 lock washers from the pointer mount.
22. With the readout mount and the sensor mount tight, adjust the magnetic band hub so that the sensor is centered on the magnetic band. Now the hub can be tightened onto the gearbox. (Fig. 12)



(Fig. 12)

23. Again, using the folded piece of paper, set the distance of the sensor by placing the piece of paper between the sensor and the magnetic strip. Tighten down the sensor and remove the piece of paper. (Fig. 13)



(Fig. 13)



24. Now, the sensors can be connected to the digital readouts. The radial sensor needs to be connected to the radial digital readout, and the linear sensor needs to be connected to the linear digital readout. Batteries can also be installed if not already done so.

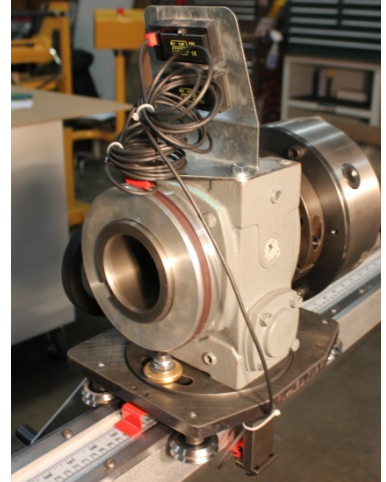
25. The excess wire can be coiled and zip tied. The linear sensor wire should be secured to the sensor block to avoid getting caught in the V-roller.

26. The digital readouts are preprogrammed from our factory. Notice how the radial readout displays 360 degrees, and the linear readout will display the position linearly up to the length of the index table.

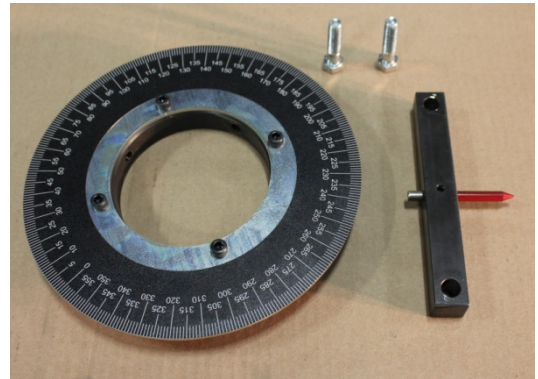
27. The buttons are as follows:

- a. P – navigate between parameters
- b. Left & Right arrows – choose within parameters
- c. Star (*) – Select

28. The parts taken off are shown in Fig. 15.



(Fig. 14)

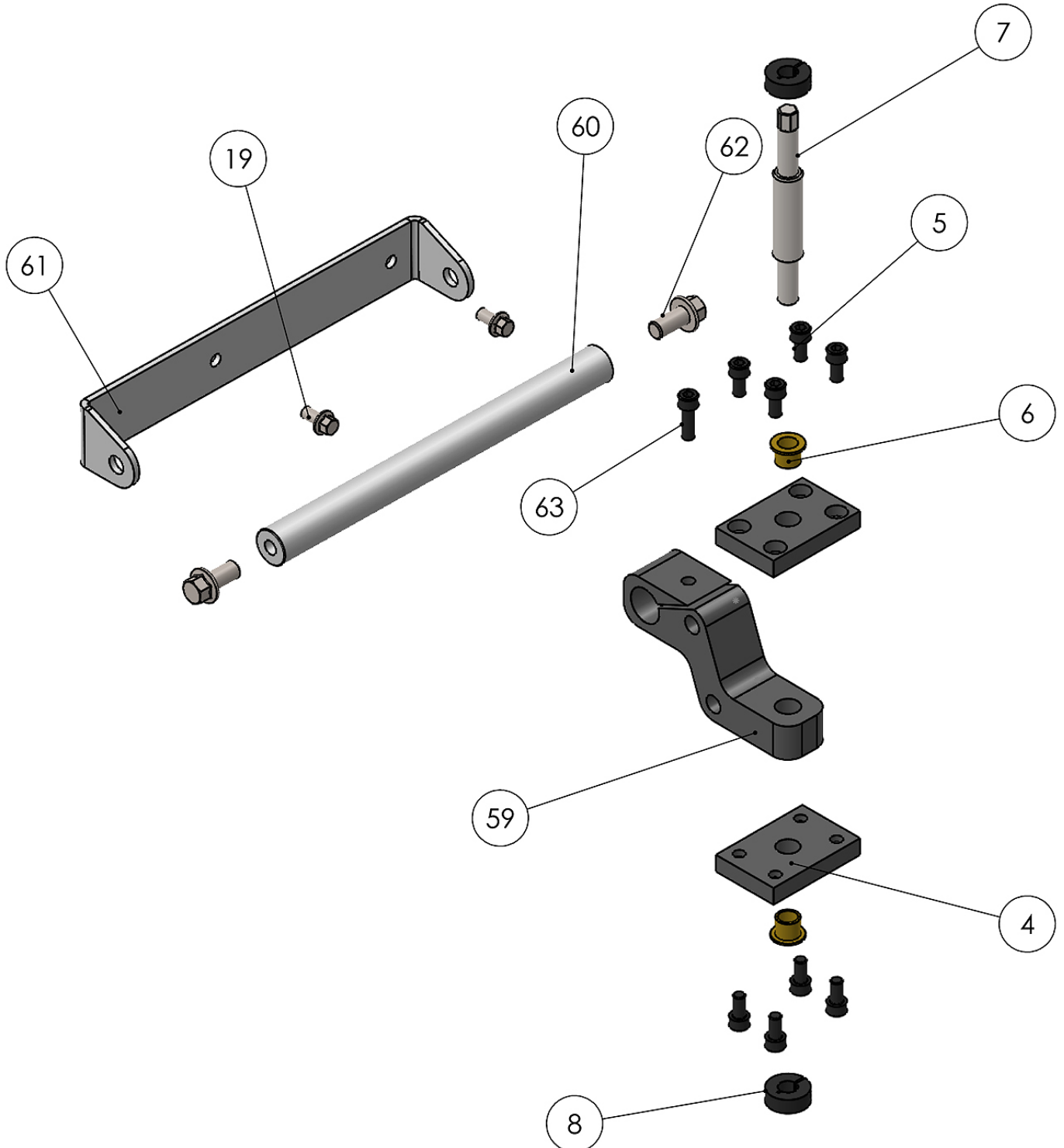


(Fig. 15)



PARTS DIAGRAM

Dog Leg Assembly Parts Diagram





Stand Assembly Parts Diagram

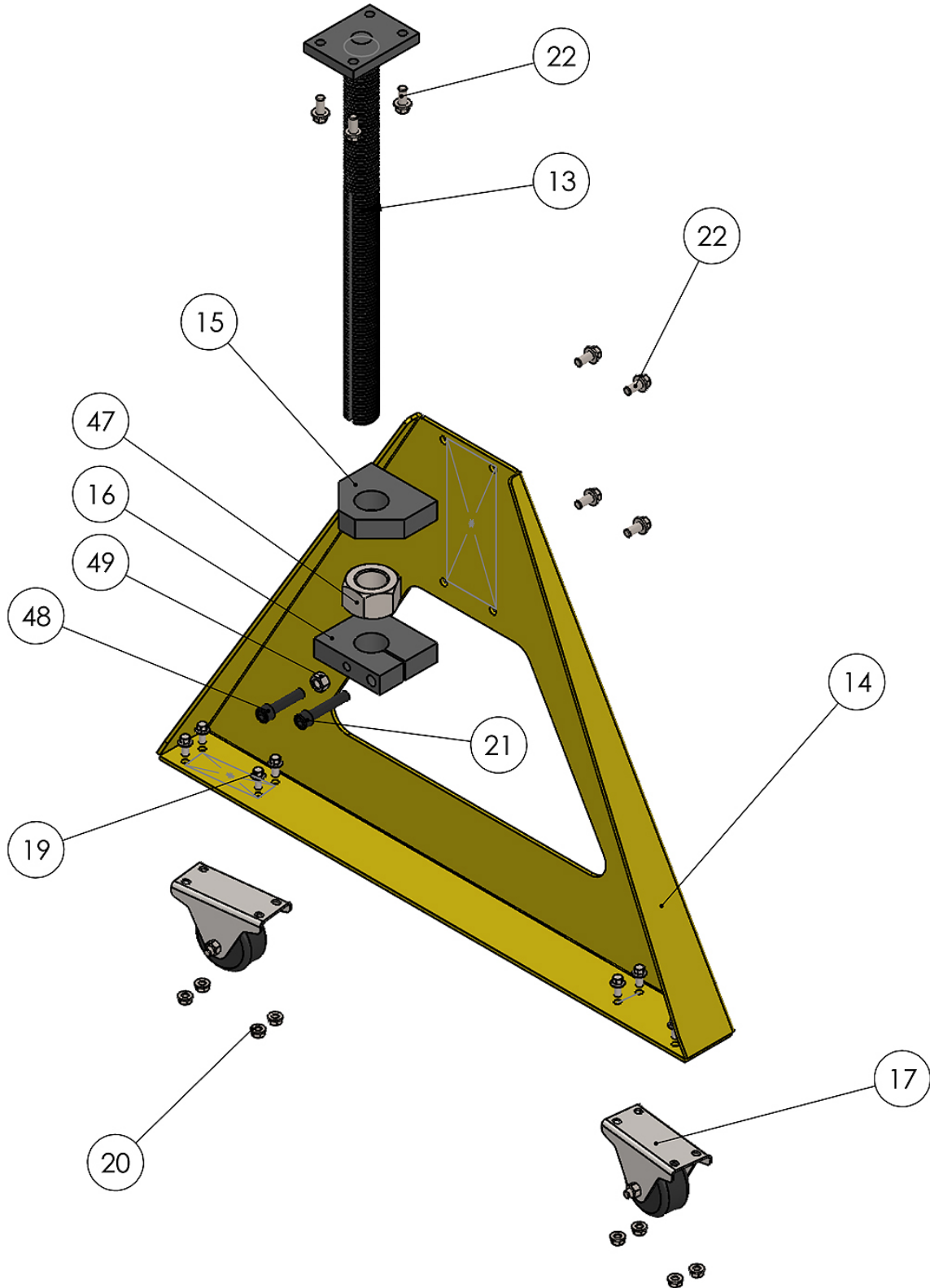
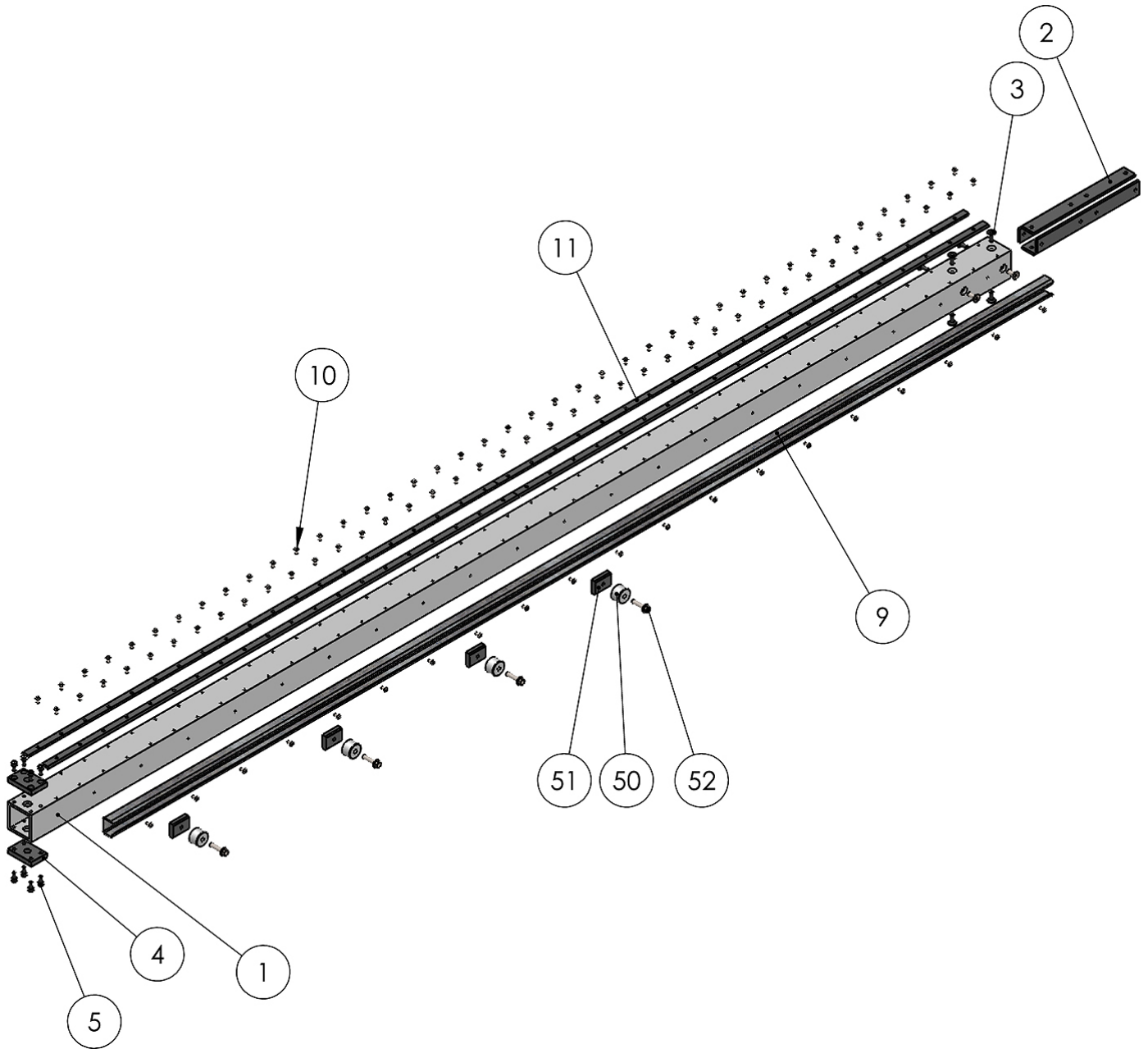


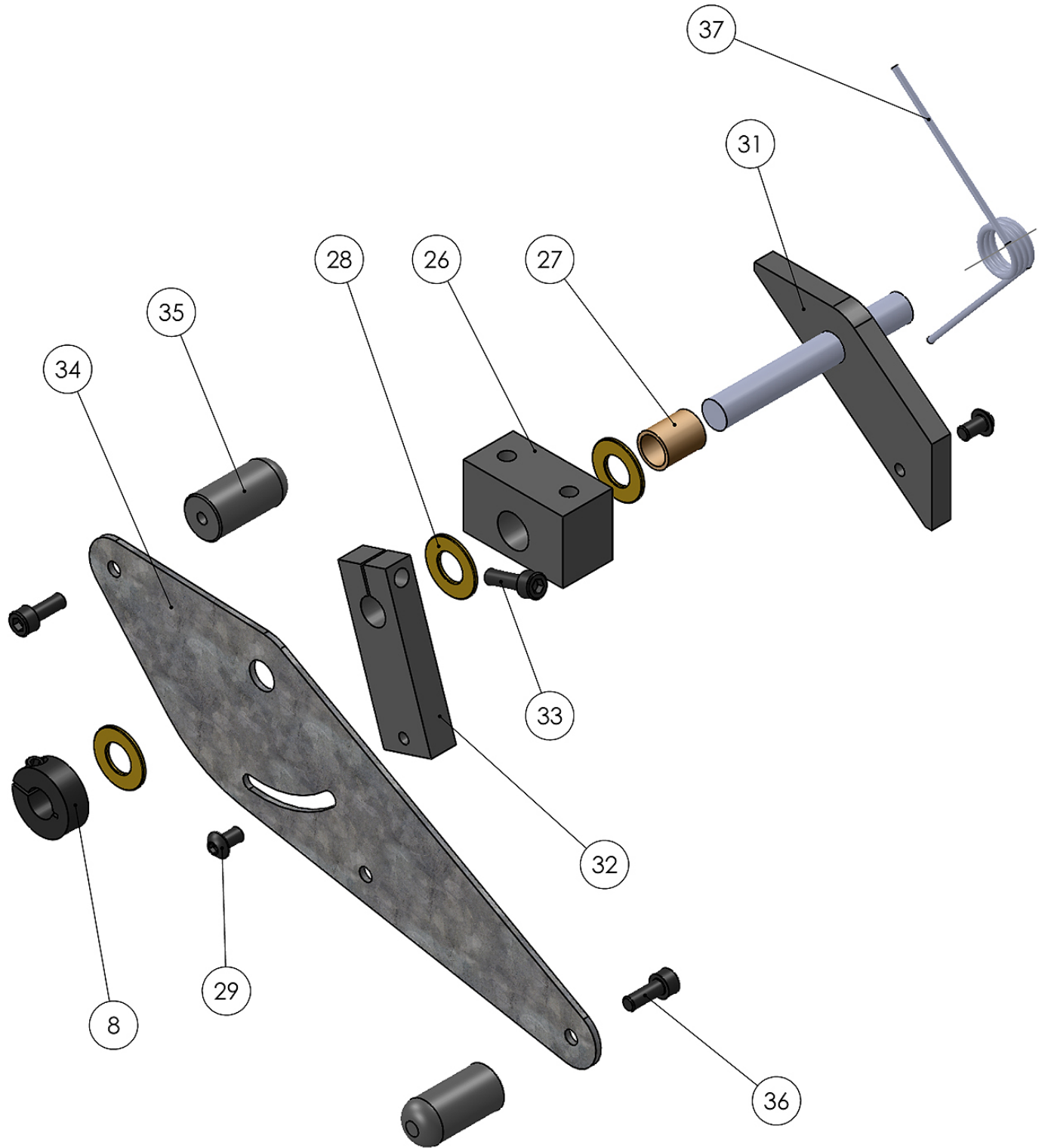


Table Assembly Parts Diagram



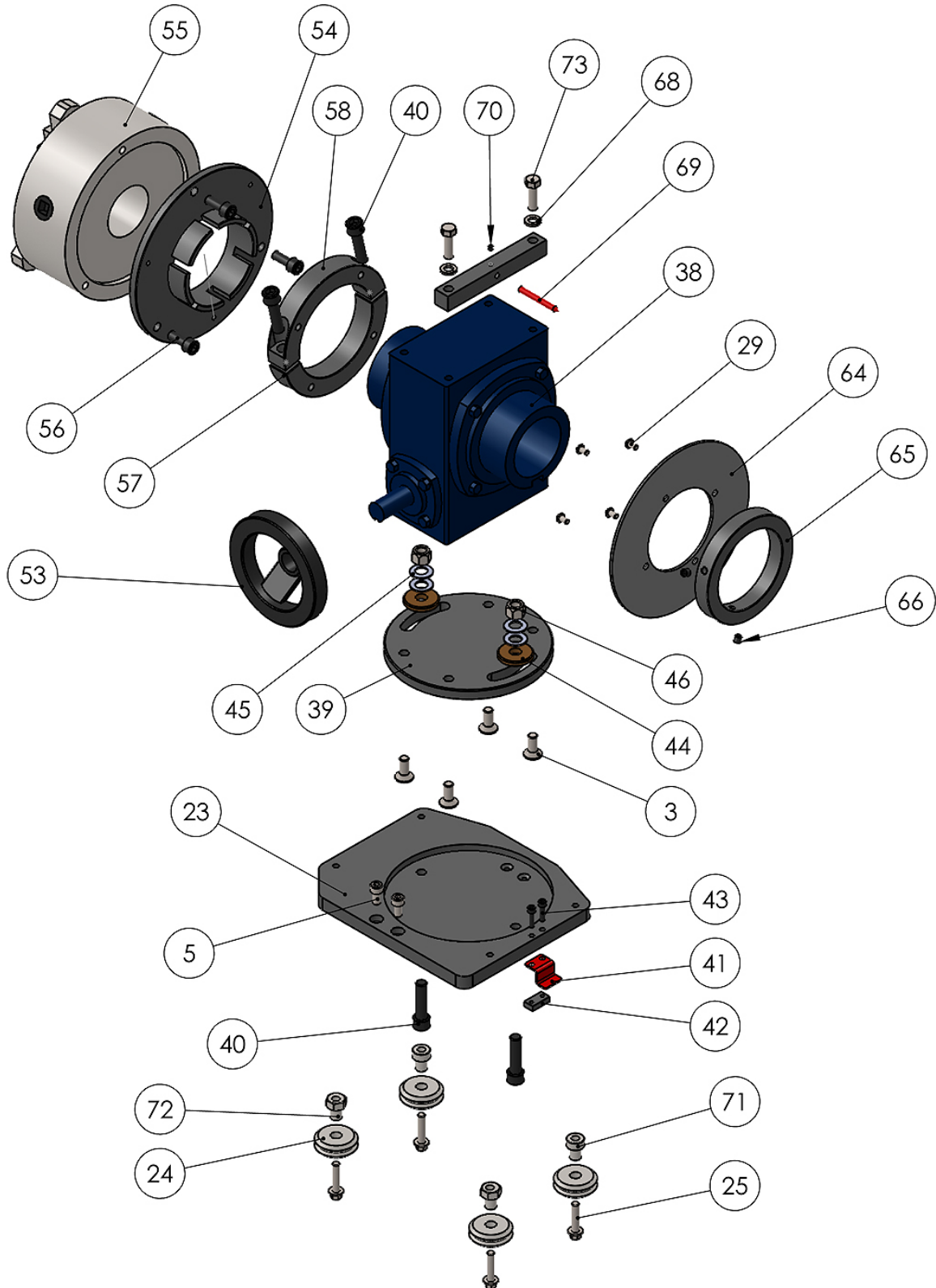


Stop Pin Lever Assembly Parts Diagram





Chuck Assembly Parts Diagram





Parts List

Item	Part Number	Description	Qty.
1	3 SQ x .250 Wall x 120	10 Ft IDX Tube (Model B)	1
2	ME-IDX-6A055	Connection Strap	4
3	M10 X 1.5 X 25	FHCS	12
4	ME-IDX-6A022	Adjusting Mtg. Plate	2
5	M8 X 1.25 X 16	SHCS	10
6	PP-0196	0.5 Id X 0.625 Od X 0.562 LG	2
7	IDX-7A006	Adjusting Screw	1
8	PP-0037	1/2" Clamp Collar	3
9	IDX-6A035	Formed Track	1
10	M6 X 1.0 X 12	Button Head	98
11	PP-1255	5 Ft. V-Track	4
12	ME-IDX-6A034	Top Plate	1
13	IDX-7A023	Threaded Extension	1
14	IDX-6A046	Tail Bracket	1
15	ME-IDX-6A049	Guide Block	1
16	ME-IDX-6A047	Clamp Block	1
17	PP-1194	3.0 Straight Caster	2
18	Imperial	3/8-16 Nut	2
19	M8 X 1.25 X 14	Hex Flange	10
20	Imperial	M8 X 1.25 Hex Flange Nut	8
21	M12 X 1.75 X 60	SHCS	1
22	M10 X 1.5 X 20	Hex Flange	8
23	ME-IDX-6A036	Shuttle Plate	1
24	PP-0201	#3 V-Roller Guide Wheel	4
25	M8 x 1.25 x 35	Hex Flange	4
26	ME-IDX-6A037	Pivot Block	1
27	PP-0051	0.5 Id X 0.625 Od X 0.75 LG	1
28	PP-0055	0.5 Id X 1.0 Od X .0625 THK	3
29	M6 X 1.0 X 10	Button Head	8
31	ME-IDX-6A038	Stop Catch	1
32	ME-IDX-6A051	Latch Driver	1
33	M6 X 1.0 X 20	SHCS	1
34	IDX-6A053	Latch Activator	1



Item	Part Number	Description	Qty.
35	ME-IDX-7A024	Stop Pin	2
36	M6 X 1.0 X 14	SHCS	2
37	PP-1282	Torsion Spring	1
38	PP-0452	Gearbox	1
39	ME-IDX-7A020	Gear Box Disc	1
40	M12 X 1.75 X 45	SHCS	4
41	ME-IDX-6A061	Indicator	1
42	ME-IDX-6A062	Capture Plate	1
43	M5 X 0.8 X 20	SHCS	2
44	IDX-7A021	Slide Washer	2
45	PP-0481	Spring Washer	4
46	Imperial	M12 X 1.75 Lock Nut	2
47	Imperial	1.50-6-D-C Hex Nut	1
48	M12 X 1.75 X 50	SHCS	1
49	Imperial	M12 X 1.75 Hex Nut	1
50	ME-IDX-7A022	Stop Pin	4
51	ME-IDX-6A050	Slide Block	4
52	M10 X 1.5 X 40	Hex Flange	4
53	PP-1033	5" Handwheel	1
54	IDX-7A013	Chuck Mtg. Disc (3 Jaw)	1
55	PP-0207	3-Jaw Chuck	1
56	M10 X 1.5 X 25	SHCS	3
57	ME-IDX-6A031	Clamp Disc Bottom	1
58	ME-IDX-6A032	Disc Clamp Top	1
59	ME-IDX-5A003	Short Support Bracket	1
60	ME-IDX-7A001	Slide Shaft	1
61	ME-IDX-6A030	M325 IDX Mount (Short Bracket)	1
62	M12 X 1.75 X 25	Hex Flange	2
63	M8 X 1.25 X 25	SHCS	1
64	M350-7A018	Degree Disk	1
65	ME-M350-7A021	Disc Mount	1
66	M8 X 1.25 X 8	Set Screw	2
67	ME-IDX-6A016	Pointer Mount	1
68	Imperial	3/8 Lock Washer	2
69	IDX-6A021	Pointer	1



Item	Part Number	Description	Qty.
70	M5 X 0.8 X 5	Set Screw	1
71	PP-0203-ME	Non Adjusting Bushing W3	2
72	PP-0202-ME	Adjusting Bushing Wx3	2
73	Imperial	3/8-16 X 1.25 HHCS	2
74	Imperial	3/8-16 X 2.75 HHCS	2



NOTES



NOTES



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