

PEEL & STICK[®]
APPLY-R
Service Manual

BEDFORD INDUSTRIES, INC

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Introduction

Principle of Operation:

The Peel & Stick® Apply-R, from Bedford Industries, is a tabletop machine designed to apply a Peel & Stick® tin-tie to the top of a bag. The machine is electronically controlled by a PLC that allows the operator to run various tin-tie lengths, adjust clamp time, as well as count the number of bags to which the tie has been applied. After the top of a bag is inserted into the groove in the front of the Apply-R, depress the foot switch. A series of rollers advance the tin-tie off the spool and into the guide block. The release liner of the tie is removed and collected on a spool on the lower front of the machine. The tin-tie is cut to the desired length and applied to the bag. Once this process of cutting and applying the tin-tie is complete the Apply-R is then ready for another bag to be inserted.

Note

Failure to observe and follow procedures
in this manual can cause

PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT

Photos in this manual may show the machine without guards for information only.
Guards are supplied and **must be in place** before operating.

Safety Instructions

- Do not operate the machine until you read and understand the operating instructions and become thoroughly familiar with the machine and its controls.
- The Peel & Stick® Apply-R must be properly grounded.
- Do not operate machine with guards removed or safety switches bypassed.
- Power must be OFF and LOCKED OUT before performing machine maintenance, cleaning, or adjusting.
- Keep hand, hair, and all loose fitting clothing away from moving parts.
- Power must be OFF and LOCKED before clearing jams.
- Never operate any controls while other persons are performing maintenance on the machine.
- Do not start the machine until all other personnel in the area have been warned and have moved outside the operating zone.
- Read and follow all specific machine warning labels and all warnings in the operating instructions.

Installation

- Uncrate machine and examine it carefully for damage. If damaged, notify carrier immediately.
- Remove unit from shipping container.
- Plug machine into a properly grounded 120 volt, AC, 3-wire outlet. Connect it to a compressed air supply of at least 80 psi.
- The total compressed air consumption is .11 cfm.

WARNING

Be sure machine is connected to building electrical safety ground to avoid shock hazard.

- The machine applies Bedford Peel & Stick® tin-tie. For ordering information please refer to page 23.

PLC (Programmable Logic Control)

- The PLC, located on the control box, allows the operator to control the tin-tie length and customize it to fit a particular application. It will keep track of the total number of cycles completed and also has a counter for individual jobs. The PLC allows the operator to adjust the clamp time to help with adhesion. It also allows the operator to set the machine to run different lengths of tin-tie.



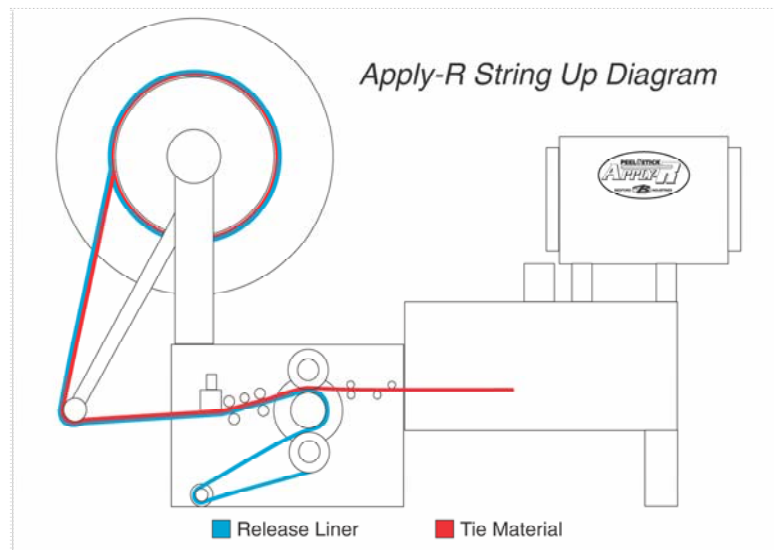
- The PLC has 5 function buttons:
 - Count – Counter for machine life.
 - Count Reset - Resets the counter for the current job
 - Mark ← – Use this button when the machine is cutting the tie to the left of the registration mark. Moves in 0.1” increments.
 - Mark → – Use this button when the machine is cutting the tie to the right of the registration mark. Moves in 0.1” increments.
 - Jog - Spools tie out for making adjustments and string up

- The PLC also has 4 control buttons (blue buttons):
 - Esc - Exit from current PLC operation, light on LCD display indicates when the PLC is in a PLC message mode
 - ▲ - Select up, increase
 - ▼ - Select down, decrease
 - Enter – Making a change, selection, or applying changes

- Hitting the Esc button will bring you to the main list of operations. Exits out of PLC message mode. Use ↑ or ↓ to scroll through the available features:
 - Total Count provides the total number of cycles the machine has performed in its life. This cannot be reset. This operation can also be accessed by the Count function button.
 - Cycle Count provides the number of cycles the machine has performed during a particular run since the last reset. This operation can also be accessed by the Count function button and reset by the Count Reset function button.
 - Tie Length can be adjusted by pushing the ‘mark ←’ and ‘mark →’ buttons until the tie is cut on the registration mark. Each press of the button moves the tie in 0.1” increments to the left or right, in relation to the cut and black registration mark.
 - Clamp Time is the amount of time that pressure is applied to the tin-tie on a bag. This may need to be changed for different film make-ups to achieve the desired adhesion. To change clamp time push the enter button while the cursor is in the row labeled ‘clamp time’ and increase or decrease the clamp time using the arrows. Hit the ‘enter’ button again to apply the new clamp time.

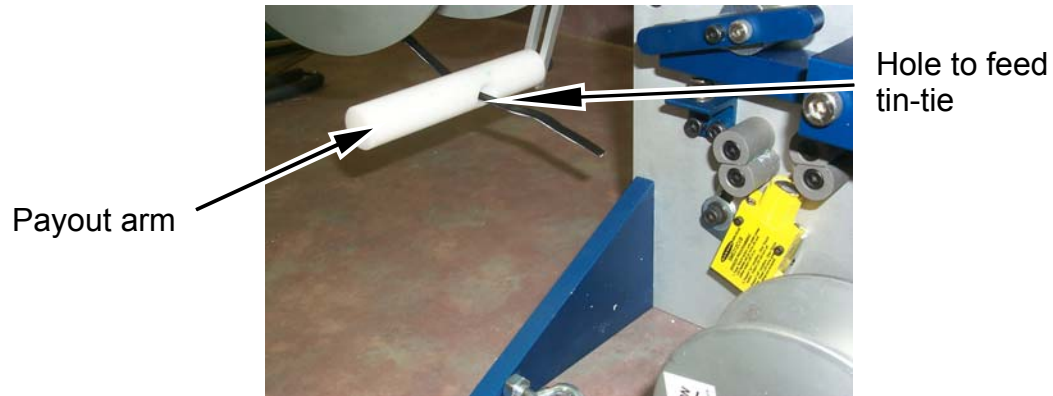
Set Up Procedure for Length of Tie

- The machine requires Bedford Peel & Stick® tin-tie material with release liner loaded on it to ensure proper cut registration of the Apply-R. The release liner should be left attached to the tie to properly adjust the machine to cut the specified length.
- A diagram of the correct string-up is located on the safety cover. An example of the string-up diagram is shown below. When setting up to set the length the release liner must be left on the tie. Do not follow bottom loop.



- Turn the power off and place a spool of Peel & Stick® tin-tie on the hub.
 - Orientate the tin-tie so that it pulls off the top left side.
 - Pull approximately 12" of tin-tie off the spool
 - Cut the material on the glued portion of the tin-tie (between the black marks).

- Feed the tie through the hole on the payout arm.

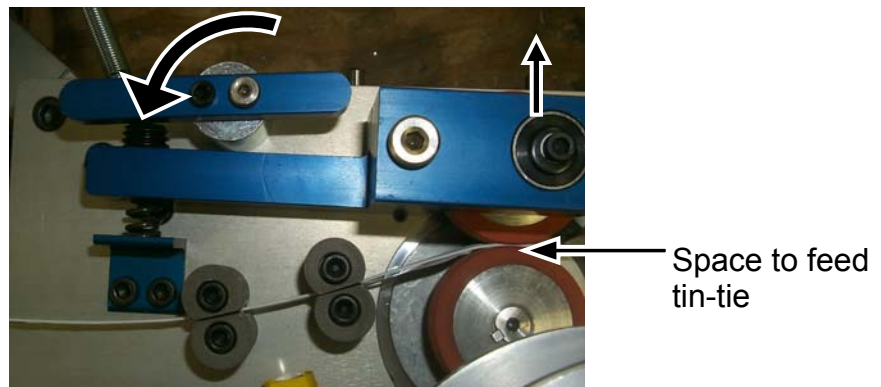


- Remove the safety cover so that the rollers are visible.

WARNING

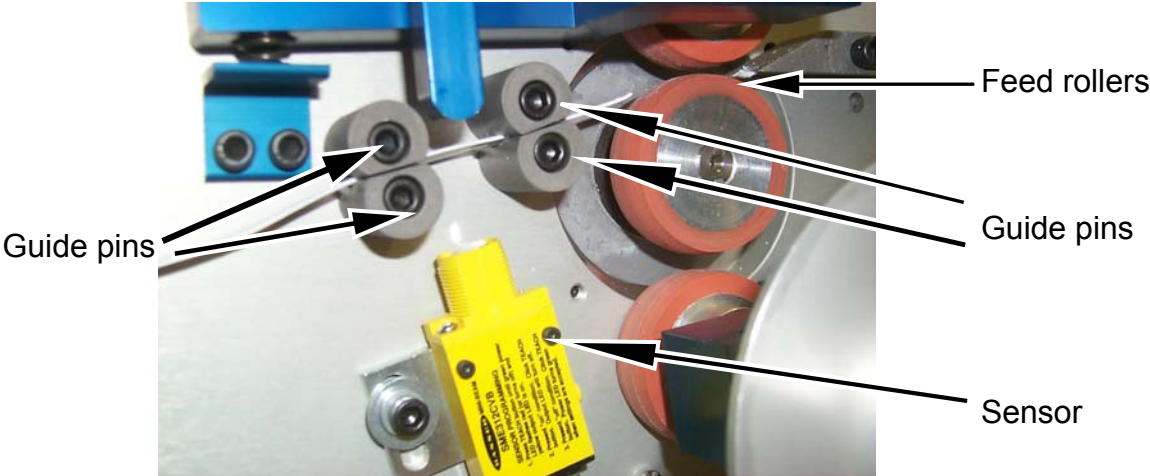
The safety cover must be back in place before operating the machine.

- Turn the upper lever to open the feed rollers.
- Turning the lever counterclockwise will move the cam lever downward and open the feed rollers. This provides space in which to feed the tin-tie through.

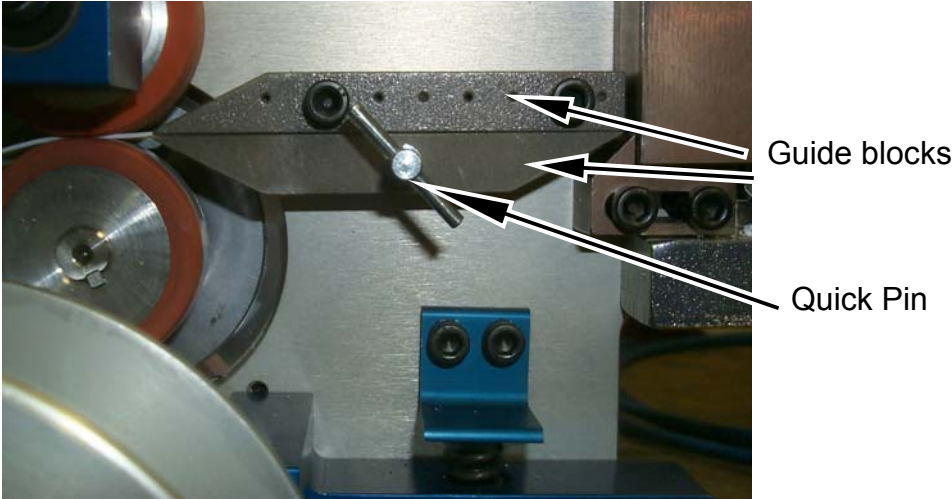


- Push the tie between the two sets of guide pins and push it into the feed rollers.

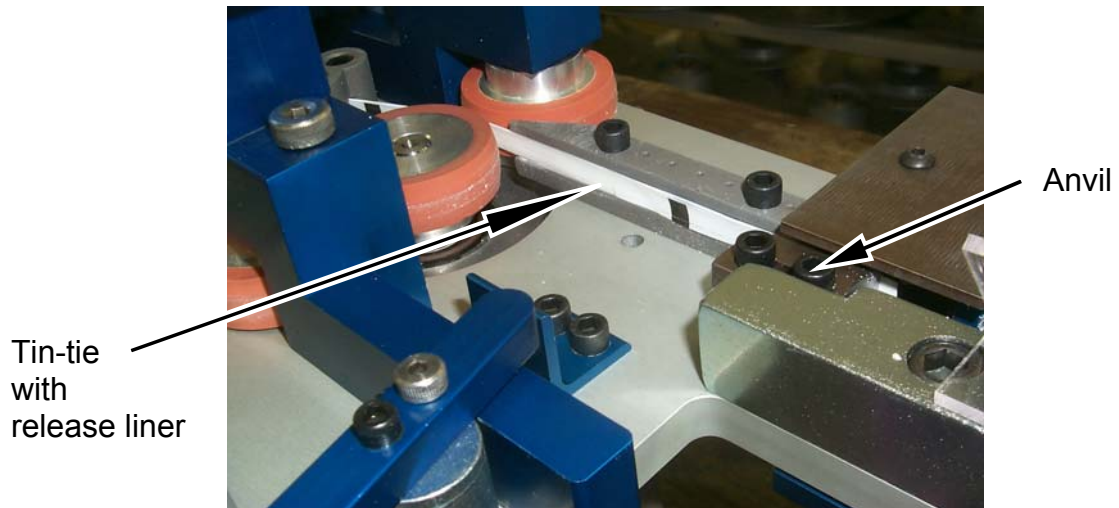
- It may be helpful to put a slight downward bend on the tip of the tin-tie so that it lines up with the guides easier; this is by preference of the operator. Put the bend in the tin-tie after it is through the first two sets of guides.



- Pull the quick pin to release the lower portion of the guide block. If the pin comes out, but the lower guide block does not, grab the block and it will slide out easily.



- Pull on the tin-tie material so that more material is presented. Push the leading edge into the slot above the anvil.

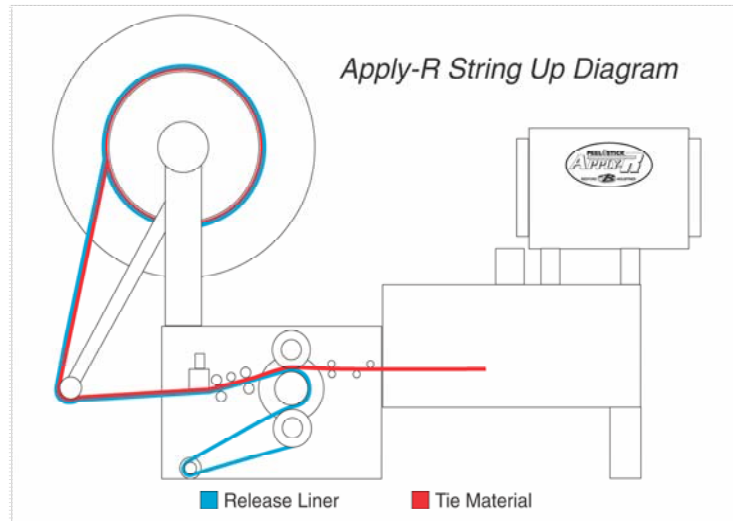


- Replace the lower guide block with the quick pin. Make sure that the tin-tie is in the groove between the two guide blocks.
- Push and hold the Jog button on the PLC so that more tin-tie is made available. Refer to the PLC section for more detailed instruction on operating the PLC.
- Cycle the machine three times by depressing the foot switch. Three cycles allow for the sensor to adapt with the changes that have been made.
- Check where the tin-tie is being cut in proportion to the registration marks. The arrows on the PLC screen allow the operator to control where the tin-tie is cut. The Mark Adjust should be set so that the cut is centered on the black registration mark. If the black registration mark is to the right of the cut, push the mark adjust button which would move the mark correctly, according to the arrows. Each press of the button will move the mark 0.1" in the direction of the arrow. For trouble-free application, it is necessary to have the tin-tie cut on the black registration mark.

- Cycle the machine three more times and check the cut again. More minor adjustments may need to be made until the tin-tie is cut on the black registration mark. Each time a PLC adjustment is made the machine needs to be cycled three times to calibrate to the sensor.
- If tin-tie length cannot be set, it may be necessary to set the sensor. This is done by following the directions located on the sensor. The 'on' condition is the black mark and the 'off' condition is the white portion of the release liner.

String Up For Operation

- The machine needs to be strung with Peel & Stick® tin-tie material prior to operation of the Apply-R. A diagram of the String-up, like the one shown below, is located on the safety cover.



- Turn the power off and place a spool of Peel & Stick® tin-tie on the hub. Orientate the tin-tie so that it pulls off the top left side. Pull approximately 12" of tin-tie off the spool. Cut the tie on the black mark printed on the release liner.



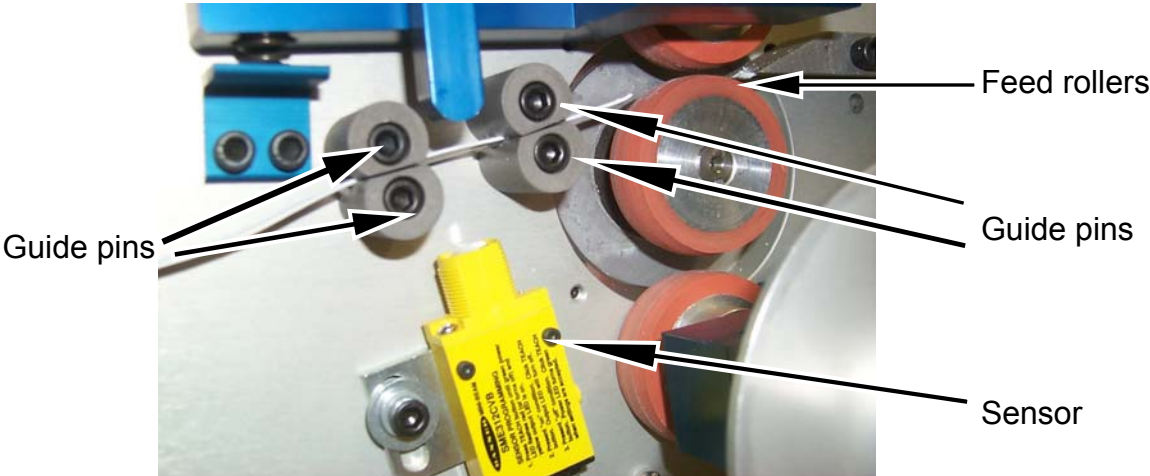
- Remove the safety cover so that the rollers are visible.

WARNING
The safety cover must be back in place before operating the machine.

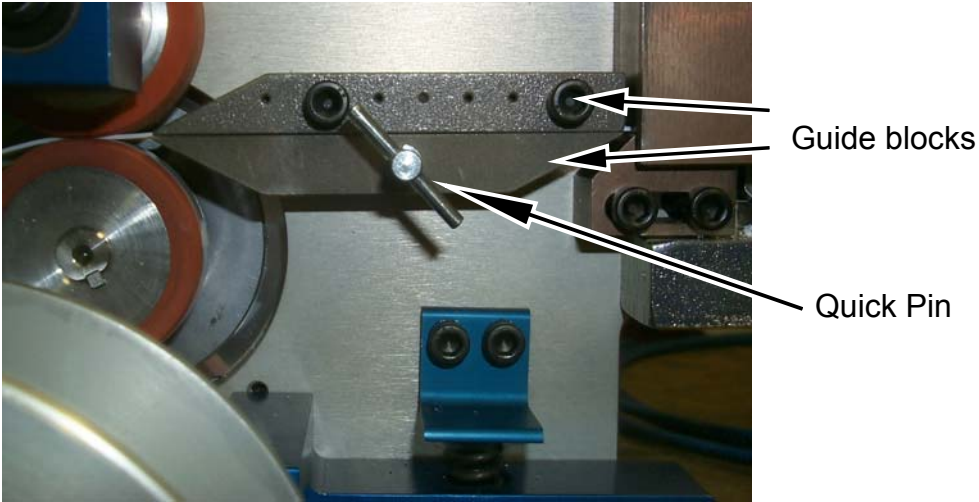
- Turn the upper lever to open the feed rollers.
- Turning the lever counterclockwise will move the cam lever downward and open the feed rollers. This provides space in which to feed the tin-tie through.



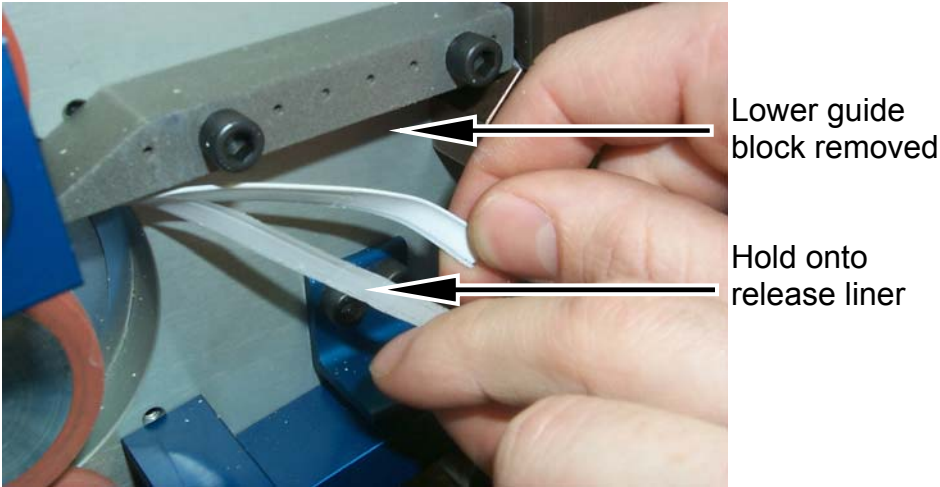
- Push the tin-tie between the two sets of guide pins and push it into the feed rollers. It may be helpful to put a slight downward bend on the tip of the tin-tie so that it lines up with the guides easier; this is by preference of the operator. Put the bend in the tin-tie after it is through the first two sets of guides.



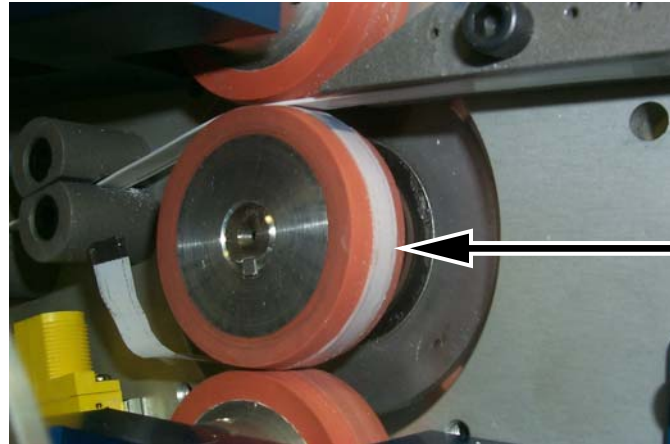
- Pull the quick pin to release the lower portion of the guide block. If the pin comes out, but the lower guide block does not, grab the block and it will slide out easily.



- Pull on the tie material to present more tie. Peel the release liner from the tie. Insert tie into slot located above the anvil.

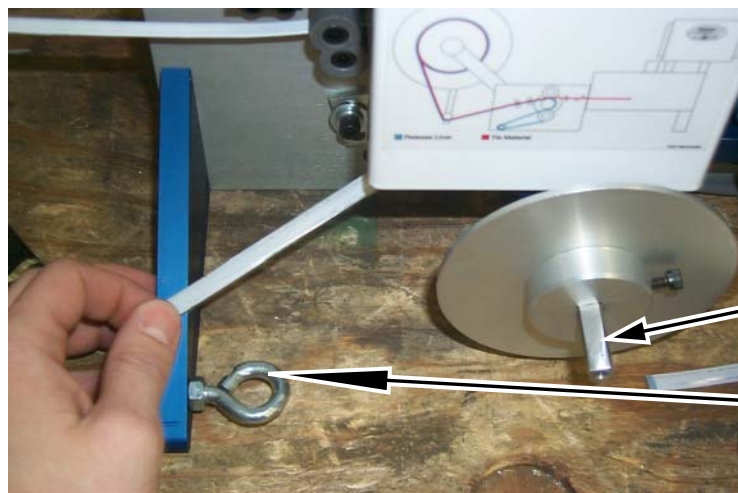


- Move the lower lever counterclockwise to open the release liner feed roller. Insert the release liner into the release liner feed roller. Pull the release liner tightly around the middle roller and move the lever back clockwise to close the feed roller.



Release liner tight against middle roller

- Replace the safety cover and turn the power on. Press and hold the jog button on the PLC while holding onto release liner. A longer length of release liner will be available past the feed rollers.
- Thread the release liner through the eyebolt.
- Unscrew the knob on the front of the release liner spooler and remove the front flange.



Front flange removed

Eyebolt

- Place the liner in the slot on the removed flange.



- Replace the flange, pinching the release liner between the two flanges.
- Replace knob to hold into place.
- Turn the spool counterclockwise (the direction of arrow) until the release liner is tight.
- Replace the safety cover and the machine will now be ready to operate.

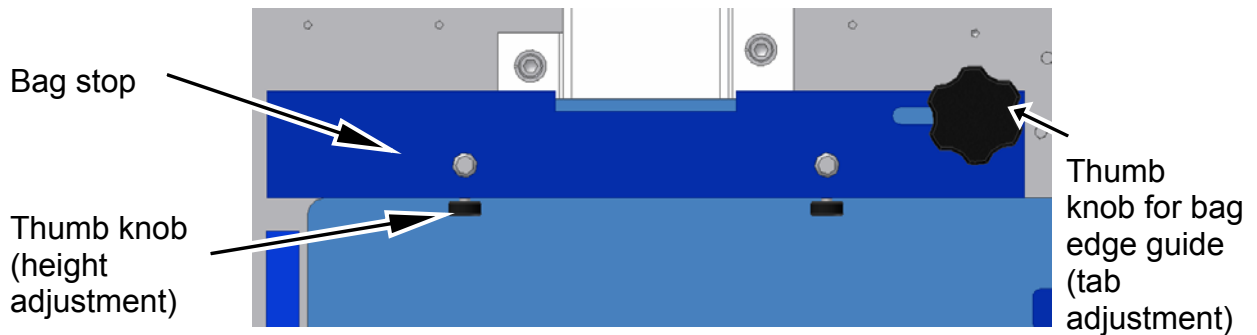


Adjustments For Varying Bag Widths and Placement of Tin-Tie on Bag

- If you are changing the length of tie to accommodate a different bag width the following adjustments will need to be made to the machine.

With a new length of tie it is suggested to run the tie through the machine with the release liner on it to set registration accurately. Each spool of Bedford Peel & Stick ® tin-tie is manufactured to a specific length. If a different length of tie is required, a different spool of material will need to be ordered. See the section called **Set-Up Procedure for Length of Tie** for more detailed directions.
- With a new length of tin-tie it may be necessary to adjust the tab length at the edges of the bag to ensure that the tin-tie is centered on the bag.

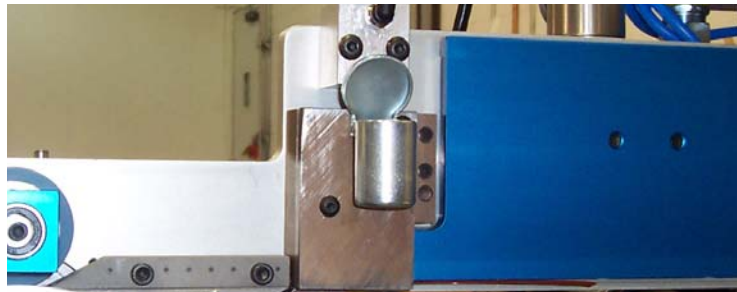
To center the tin-tie on the bag adjust the bag edge-guide. Loosen the thumb knob to move the bag edge-guide. Be sure the thumb knobs are tight when finished.



- When switching to a new bag it may be desirable to adjust the distance the tin-tie is placed from the top of the bag.
 - Adjust the height of the tin-tie by moving the tin-tie height adjustment knobs evenly.
 - This is accomplished by loosening the two thumb knobs on the bottom of the guide and moving it according to your needs. Tighten the knobs when finished.
 - Be certain that the bag stop is square with the machine. This will ensure that the tie is applied square to the bag.

Operation

- Make sure the machine string up has been done correctly.
- Make sure the machine is connected to the proper air and power supply. Turn the machine on with switch located on the control box.
- Set-up machine to run the size of tin-tie mounted on the machine.
- Make sure the oil wicker reservoir on the knife plate in the front has a supply of light mineral oil for lubrication.



- Slide a bag into the slot on the front of the machine. The bag should be inserted horizontally, towards the right side, and slid tight up against the backstop. After the bag is inserted, it should be moved to the left until the bag comes in contact with the edge guide. Depress the foot switch to cycle the machine. If this is a new spool, the first one or two cycles may not be lined up on the bag correctly because the sensor needs to calibrate. After the first two cycles the machine should be calibrated correctly.
- Once the cycle is completed, slide the bag out of the machine. The Apply-R is now ready for another bag.
- Clean the feed rollers, all tie guides, and the knife assembly regularly with 3M Adhesive Remover. Before installing each new spool of material evaluate the glue build-up in these areas and clean if necessary. Glue build-up can cause jamming and cutting problems.

MINI-BEAM *Expert*™ Series

Using the MINI-BEAM *Expert*

RUN Mode

Normal operation of the MINI-BEAM *Expert* is called RUN mode. The two LED indicators (bi-color Green/Red and Yellow) operate as follows in RUN Mode:

- Green (RUN Mode):** ON steady whenever power is applied
Flashes as received light level approaches the switching threshold (stability indicator). (The stability indicator signals when maintenance, realignment, or reprogramming is needed during RUN mode.)
- Yellow (Output):** ON when the outputs are energized (conducting)
OFF when the outputs are de-energized (not conducting)

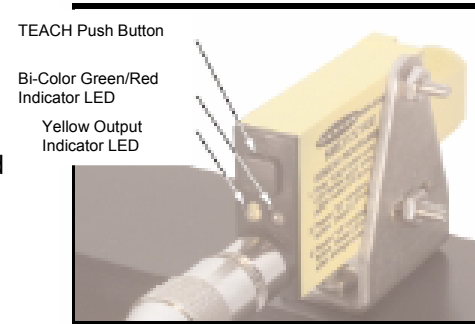


Fig. 1 – MINI-BEAM *Expert* Series Indicators

If contrast is marginal, the bi-color indicator will flash green (to indicate instability). Reprogramming or realigning the sensor, or cleaning the sensor or fiber lenses may solve a problem with stability.

TEACH Mode

Programming of the MINI-BEAM *Expert* – setting the sensitivity and selecting output ON and OFF conditions – is performed in TEACH mode.

Determining the Output ON and OFF Conditions

The two sensing conditions may be presented in either order. The condition presented first is the condition for which the output will energize (the “Output ON” target).

Setting Sensitivity

Sensitivity is automatically set (and optimized) when teaching the sensor the ON and OFF conditions. When the push button is clicked, the sensor samples each sensing condition and registers it into memory. After the second sensing condition is registered, the MINI-BEAM *Expert* automatically sets the sensitivity to the optimum value for the application, and then returns to RUN mode.




The two LED indicators (bi-color Green/Red and Yellow) operate as follows in TEACH Mode:

Red (TEACH Mode): Lights when the sensor “sees” its modulated light source; pulse rate is proportional to the received light signal strength during TEACH programming

Yellow (Output): ON to indicate TEACH output ON condition OFF to indicate TEACH output OFF condition

The Signal Strength indicator is Banner’s exclusive AID™ (Alignment Indicating Device). Its pulse rate increases as the received light signal strength increases (during programming). This feature simplifies accurate alignment during TEACH mode, and gives a relative indication of sensing contrast between the light and dark conditions.

MINI-BEAM *Expert*™ Series

Push Button		Resulting Indicator Status
Press and hold until the bi-color (green/red) indicator begins to flash red, or turns OFF.	Push and Hold = 2 Seconds 	Yellow: ON Red: Pulses to indicate relative received signal strength.
TEACH Condition #1 (Output ON state) Present the first sensing condition to the sensor and single-click.†	Single-Click  Sensing Condition #1 (Output ON Status)	Yellow: OFF Red: Pulses to indicate relative received signal strength.
TEACH Condition #2 (Output OFF state) Present the second sensing condition to the sensor and single-click.	Single-Click  Sensing Condition #2 (Output OFF Status)	If contrast is acceptable, the sensor returns to RUN mode, otherwise it will return to TEACH Condition #1. Green: ON (or flashes if signal is close to the switching threshold). Yellow: OFF, until the sensing condition changes.

†NOTE: The sensor will return to RUN mode if the first TEACH condition is not registered within 90 seconds. TEACH mode may be cancelled before either condition #1 or #2 by holding the push button depressed for = 2 seconds.

A Note About the “Clicks”: Clicks are meant to be pressed firmly, then quickly released. Indicators go ON or OFF after a brief delay; do not wait until LEDs change status before releasing push button. (If push button is pressed for 2 seconds or longer, sensor will automatically return to RUN mode.)

Troubleshooting

The MINI-BEAM *Expert*'s Power LED may begin to alternate flashing red/green; this indicates a microprocessor memory error. If it occurs, try reteaching the sensor, or try cycling power ON and OFF, then reteach the sensor. If this does not solve the problem, or if it occurs frequently, replace the sensor.

Troubleshooting

- *Motor does not run*
 - No power – check circuit
 - Check air source
 - Motor overload tripped – reset
 - Amperage overload – check fuse

- *Peel & Stick® tin-tie does not feed*
 - Feed roller levers have not been closed.

- *Release liner breaks*
 - The feed rollers are gummed-up—clean them with 3M Adhesive Remover
 - Clean guides before and after feed rollers with 3M Adhesive Remover.
 - Too much pressure on bottom nip – loosen 5/8” set screw on nip arm.
 - Too little pressure on bottom nip – tighten 5/8” set screw on nip arm.

- *Tin-tie does not stick to bag*
 - Increase clamp time by adjusting on the PLC.
 - Turn air pressure up by adjusting regulator.

- *Machine does not cut*
 - Clean the knife assembly with 3M Adhesive Remover.
 - The pressure regulator on the air valve may not be open enough.
 - Adjust anvil.

- *Machine does not cut on registration*
 - If the black registration mark is to the right of the cut—decrease the Mark to Cut on the PLC.

- If the black registration mark is to the left of the cut—increase the Mark to Cut on the PLC.
- May need to clean the lens on the sensor.
- If tie length cannot be set, it may be necessary to set the sensor. This is done by following the directions located on the sensor. The 'on' condition is the black mark and the 'off' condition is the white portion of the release liner.

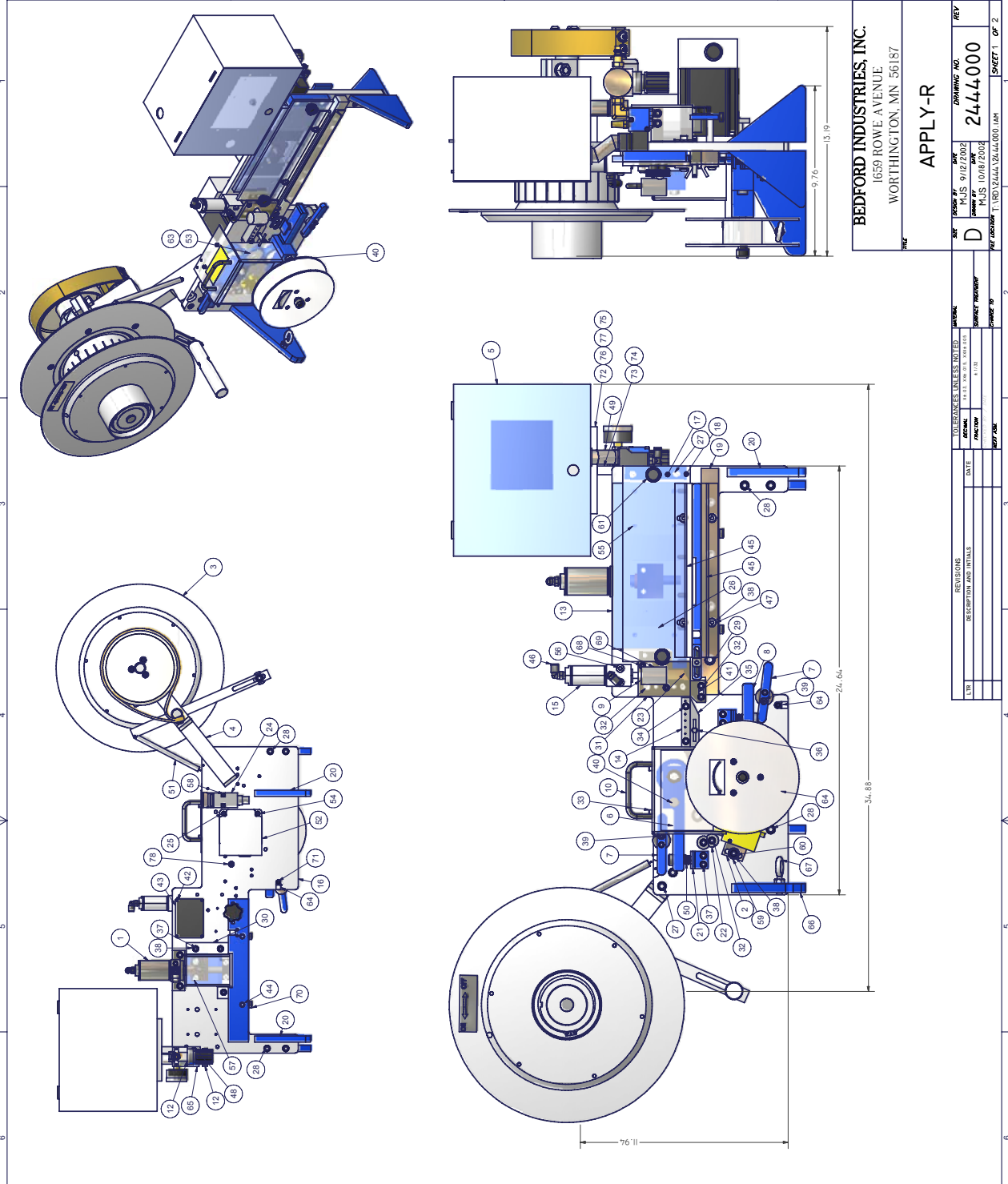
Manufacturer’s recommended part replacement schedule based on cycle count:

Cycles	Maintenance Parts
1,000,000	Replace Knife, Anvil & Relays
2,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
3,000,000	Replace Knife, Anvil, Relays & Plasma Guides
4,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
5,000,000	Replace Knife, Anvil & Relays
6,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
7,000,000	Replace Knife, Anvil, Relays & Plasma Guides
8,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
9,000,000	Replace Knife, Anvil & Relays
10,000,000	Replace Knife, Anvil, Relays, Silicone Rollers, Air Valves & Bearings
11,000,000	Replace Knife, Anvil, Relays & Plasma Guides
12,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
13,000,000	Replace Knife, Anvil & Relays
14,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
15,000,000	Replace Knife, Anvil, Relays & Plasma Guides
16,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
17,000,000	Replace Knife, Anvil & Relays
18,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
19,000,000	Replace Knife, Anvil, Relays & Plasma Guides
20,000,000	Replace Knife, Anvil, Relays, Silicone Rollers, Air Valves, Bearings & Clutch
21,000,000	Replace Knife, Anvil & Relays
22,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
23,000,000	Replace Knife, Anvil, Relays & Plasma Guides
24,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
25,000,000	Replace Knife, Anvil & Relays
26,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
27,000,000	Replace Knife, Anvil, Relays & Plasma Guides
28,000,000	Replace Knife, Anvil, Relays & Silicone Rollers
29,000,000	Replace Knife, Anvil & Relays
30,000,000	Replace Knife, Anvil, Relays, Silicone Rollers, Air Valves & Bearings

***To order tin-tie material or replacement parts for the Peel & Stick®
Apply-R machine, please contact Bedford Industries at:***

**Bedford Industries, Inc.
1659 Rowe Avenue
PO Box 39
Worthington, MN 56187-0039**

**Toll Free: 877-BEDFORD (233-3673)
507-376-4136
Fax: 507-376-6742
www.bedfordind.com
Email: bedford@bedfordind.com**



ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	52-2444202 (SEE ATTACHED ASSEMBLY DRAWING)	CYLINDER SLIDE ASSEMBLY
2	1	52-2444200 (SEE ATTACHED ASSEMBLY DRAWING)	SENSOR ASSEMBLY
3	1	52-3000000	APPLY TO ADAPTER
4	1	52-2444180 (SEE ATTACHED ASSEMBLY DRAWING)	ELECTRICAL BOX ASSEMBLY
5	1	52-2444205 (SEE ATTACHED ASSEMBLY DRAWING)	TOP ARM ASSEMBLY, PS APPLY
6	2	52-2444217 (SEE ATTACHED ASSEMBLY DRAWING)	CAM ASSEMBLY, PS APPLY
7	1	52-2444219 (SEE ATTACHED ASSEMBLY DRAWING)	BOTTOM ARM ASSEMBLY, PS APPLY
8	1	52-2444290 (SEE ATTACHED ASSEMBLY DRAWING)	KNIFE GUIDE, PS APPLY
9	1	52-2444293 (SEE ATTACHED ASSEMBLY DRAWING)	KNIFE ASSEMBLY, PS APPLY
10	1	52-2444288 (SEE ATTACHED ASSEMBLY DRAWING)	KNIFE GUIDE, PS APPLY
11	1	52-2444289 (SEE ATTACHED ASSEMBLY DRAWING)	KNIFE ASSEMBLY, PS APPLY
12	1	52-2444112 (SEE ATTACHED ASSEMBLY DRAWING)	REWORK PNEUMATIC CYLINDER
13	1	52-2444280	REWORK PNEUMATIC CYLINDER
14	1	52-2444105	BASE PLATE, PS APPLY
15	1	52-2444221	STAMP HOUSING SPACER, PS APPLY
16	1	52-2444240	TRANSPARENT FRONT PLATE, PS APPLY
17	1	52-2444193	ELEVATED STOP, PS APPLY
18	1	52-2444198	SMALL LEG, PS APPLY
19	1	52-2444194	SMALL LEG, PS APPLY
20	1	52-2444194	SMALL LEG, PS APPLY
21	1	52-2444194	SMALL LEG, PS APPLY
22	1	52-2444194	SMALL LEG, PS APPLY
23	1	52-2444248	SAFETY SWITCH
24	1	23-AZ711ZK	SAFETY SWITCH
25	4	52-101W	HEXAGON SOCKET HEAD CAP SCREW
26	1	52-2444137	LINEAR SLIDE BACK, PS APPLY
27	9	52-5161854CH	HEXAGON SOCKET HEAD CAP SCREW
28	8	52-5161812CH	HEXAGON SOCKET HEAD CAP SCREW
29	4	52-3000000	APPLY TO ADAPTER
30	1	52-2444134	GUIDE BLOCK, PS APPLY
31	1	52-244407	WICKER KNIFE PLATE, PS APPLY
32	10	52-14201GH	HEXAGON SOCKET HEAD CAP SCREW
33	2	52-1434DP	Pin - Unmaintained Ground Dowel
34	2	52-1420114CH	HEXAGON SOCKET HEAD CAP SCREW
35	1	52-2444134	GUIDE BLOCK, PS APPLY
36	1	52-PP0110	QUICK PIN, PS APPLY
37	2	52-14201ZCH	HEXAGON SOCKET HEAD CAP SCREW
38	8	52-90288A546	SHOULDER BOLT, PS APPLY
39	2	52-90288A633	SHOULDER BOLT, PS APPLY
40	2	52-2444241	ANVIL, PS APPLY
41	1	52-2444241	HAMMER RIVET
42	4	52-3594754605	BEDFORD MANPLATE, PS APPLY
43	1	52-138915	BAG STOP GUIDE, PS APPLY
44	2	52-2444199	BAG LEAD-IN, PS APPLY
45	2	52-2444194	HEXAGON SOCKET HEAD CAP SCREW
46	2	52-2444194	HEXAGON SOCKET HEAD CAP SCREW
47	4	52-14203BH4	HEXAGON SOCKET HEAD CAP SCREW
48	2	52-142078CH	HEXAGON SOCKET HEAD CAP SCREW
49	1	NHP120F	1/2" STANDOFF
50	2	52-51830	COMPRESSION SPRING, PS APPLY
51	1	52-ES1406	EXTENSION SPRING
52	1	23-SN242HLYLNKNSD1	AG SYNCHRONOUS MOTOR
53	1	52-2444295	SILICONE ROLLER, PS APPLY
54	1	52-2444295	SILICONE ROLLER, PS APPLY
55	6	52-83214CH	HEXAGON SOCKET HEAD CAP SCREW
56	2	52-1420134BH	HEXAGON SOCKET HEAD CAP SCREW
57	2	52-51618112CH	HEXAGON SOCKET HEAD CAP SCREW
58	2	52-83061CH	HEXAGON SOCKET HEAD CAP SCREW
59	1	52-14FW	Washer A
60	1	52-142034CH	HEXAGON SOCKET HEAD CAP SCREW
61	2	52-JCL315	THUMB KNOB - Set Screw - Flat Point
62	3	23-7626K60S	1/4" CABLE CLAMPS
63	3	23-7626K60S	1/4" CABLE CLAMPS
64	2	52-440112CH	HEXAGON SOCKET HEAD CAP SCREW
65	2	52-440112CH	HEXAGON SOCKET HEAD CAP SCREW
66	1	52-2444323	LEFT FRONT LEG, PS APPLY
67	1	52-2444293	EYELET BOLT
68	2	52-102412BH	HEXAGON SOCKET HEAD CAP SCREW
69	1	52-1223K2	WICKED OILER, PS APPLY
70	1	52-2444287	BAG STOP, PS APPLY
71	3	52-2444290	KNIFE ASSEMBLY, PS APPLY
72	1	52-2444290	KNIFE ASSEMBLY, PS APPLY
73	1	52-2444290	KNIFE ASSEMBLY, PS APPLY
74	2	142034CH	HEXAGON SOCKET HEAD CAP SCREW
75	2	142012HH	Hex Cap Screw
76	2	14FW	Washer A
77	2	14LW	Helical Spring Lock Washer
78	1	52-9491A232	DRILL BUSHING

BEDFORD INDUSTRIES, INC.
 1659 ROWE AVENUE
 WORTHINGTON, MN 56187

APPLY-R

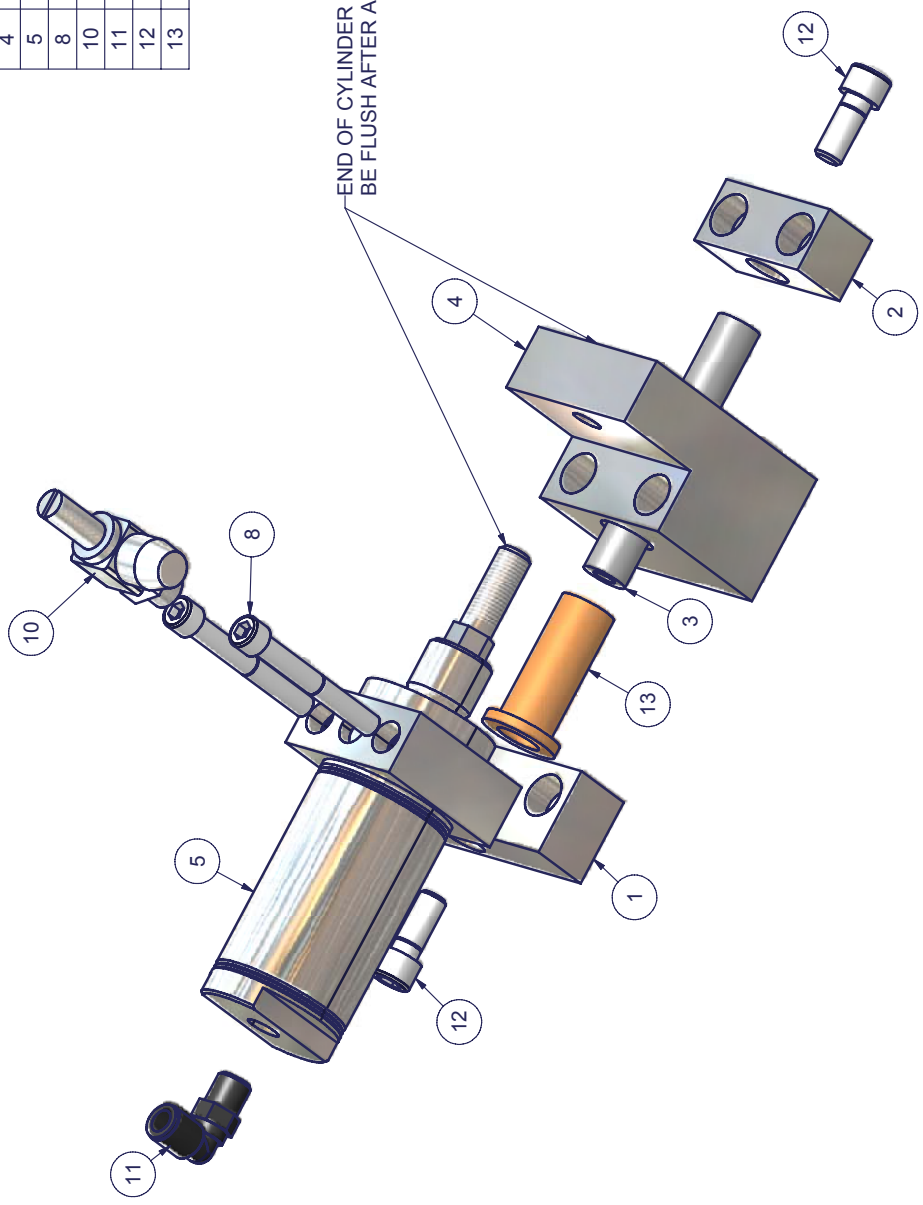
REV: 10/16/2008
 M.J.S.
 2444000
 9/12/2002
 M.A.S.
 2444000

REV: 10/16/2008
 M.J.S.
 2444000
 9/12/2002
 M.A.S.
 2444000

REV: 10/16/2008
 M.J.S.
 2444000
 9/12/2002
 M.A.S.
 2444000

1 2 3 4

Parts List			
ITEM	QT	PART NUMBER	DESCRIPTION
1	1	52-2444123	SLIDE-ROD SUPPORT, PS APPLY
2	1	52-2444129	SLIDE-ROD BAS SUPPORT, PS APPLY
3	1	52-2444124	GUIDE ROD, PS APPLY
4	1	52-2444148	SLIDING BLOCK, PS APPLY
5	1	52-D90345A1	PNEUMATIC CYLINDER, PS APPLY
8	2	52-14202CH	Hexagon Socket Head Cap Screw
10	1	52-FQP2K	FLOW CONTROL, PS APPLY
11	1	52-5779K151	FITTING
12	2	52-5161834CH	Hexagon Socket Head Cap Screw
13	1	52-FB81012	BUSHING, PS APPLY1



END OF CYLINDER ROD AND BOTTOM OF BLOCK SHOULD BE FLUSH AFTER ASSEMBLY. (TWO SURFACES NOTED)

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CYLINDER SLIDE ASSEMBLY

DESIGN BY: MJS DATE: 8/3/200
 DRAWN BY: MJS DATE: 8/6/200

SIZE: B

REV: 2444202

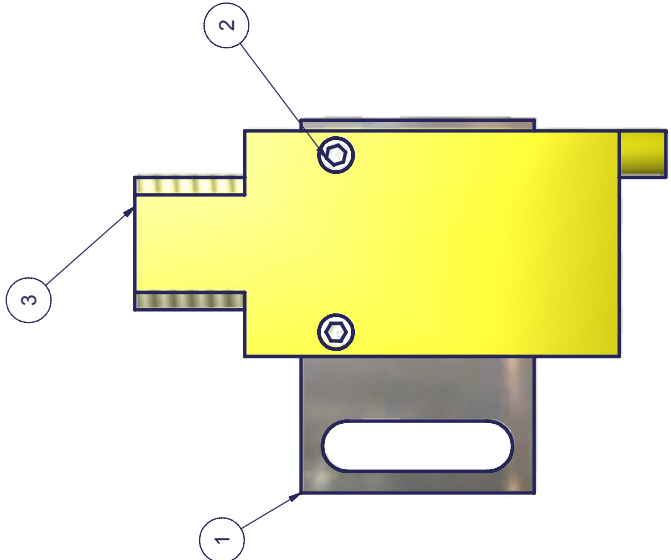
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SHEET 1 OF 1

REVISIONS		TOLERANCES UNLESS NOTED		MATERIAL	
L/TR	DESCRIPTION AND INITIALS	DECIMAL	FRACTION	SHOWN	SHOWN
		XX.03, .XXE-015, .XXXE-005	±1/32		
		CHECKED BY / DATE			
		NEXT ASM	2444000		

1 2 3 4

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	52-2444143	SENSOR BRACKET
2	2	52-44058CH	Hexagon Socket Head Cap Screw
3	1	23-SME312CVB	SELF TEACH SENSOR



B A

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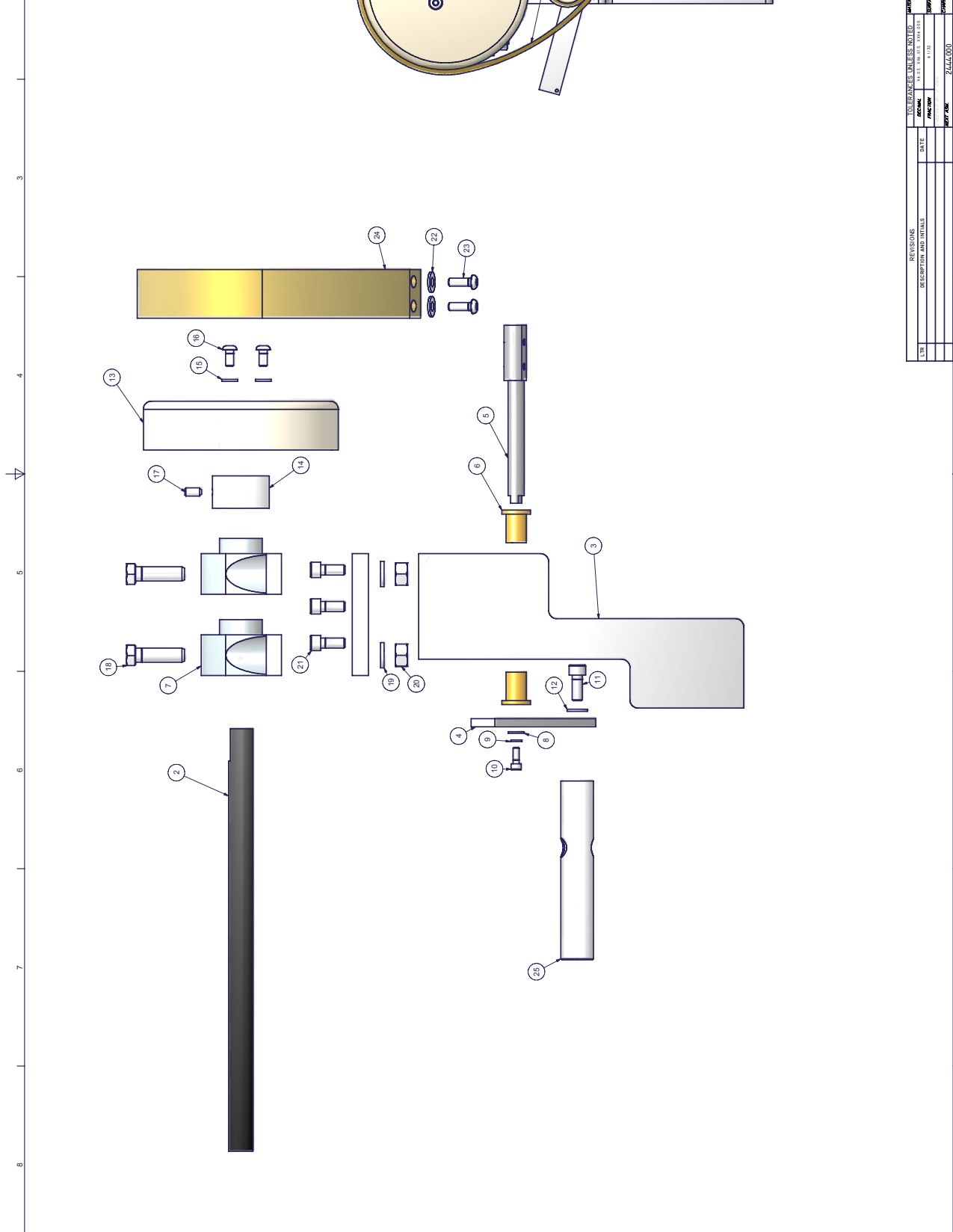
SENSOR ASSEMBLY

SIZE	DESIGN BY	DATE	DRAWING NO.	REV
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	DRAWN BY	DATE		
	MJS	10/18/2002		
FILE LOCATION T:\RD\24444\2444200.IAM				SHEET 1 OF 1

L/TR	REVISIONS DESCRIPTION AND INITIALS	DATE	TOLERANCES UNLESS NOTED		MATERIAL	SHOWN
			DECIMAL	FRACTION		
			XX.03, .XXE-015, .XXXE-005			
				±1/32		
			CHECKED BY / DATE			
			NEXT ASM	2444000		

1 2 3 4

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	52-2444164	SPOOL BEARING PLATE, PS APPLY
2	1	52-2444163	SPOOL SHAFT, PS APPLY
3	1	52-2444257	PAVOT RIBBER, PS APPLY
4	1	52-2444177	BRASS CAM, PS APPLY
5	1	52-2444177	BRASS CAM, PS APPLY
6	2	52-FB8108	BRASS BUSHING, PS APPLY
7	2	52-RAK34	PILLOW BLOCK BEARING, PS APPLY
8	1	52-10RW	Washer A
9	1	52-10LW	Helical Spring Lock Washer
10	1	52-10M12CH	Hexagon Socket Head Cap Screw
11	1	52-10M20CH	Hexagon Socket Head Cap Screw
12	1	52-142034BH	Hex Nut
13	1	52-2444261	HEAVY DUTY BRACKET
14	1	52-2444260	HUB, PS APPLY
15	3	52-14LW	Helical Spring Lock Washer
16	3	52-142012BH	Hexagon Socket Button Head Cap Screw
17	1	52-1420516SS	Hexagon Socket Set Screw - Flat Point
18	4	52-71614134HH	Hex Cap Screw
19	4	52-718LW	Helical Spring Lock Washer
20	4	52-142034BH	Hex Nut
21	2	52-142034BH	Hexagon Socket Button Head Cap Screw
22	2	52-142034BH	Hexagon Socket Button Head Cap Screw
23	1	52-2444279	LEATHER BRAKE
24	1	52-2444289	DANGER GUIDE, PS APPLY 980121



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APPLY

REVISED BY: M.J.S. 11/29/2001
 DRAWING NO.: 2444180
 CHECKED BY: M.J.S. 01/02/2002
 REVISED BY: T. (863)2444124/44180 (1M)

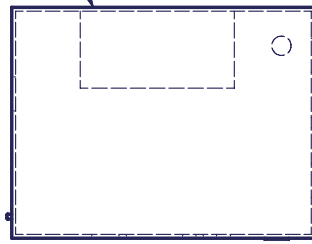
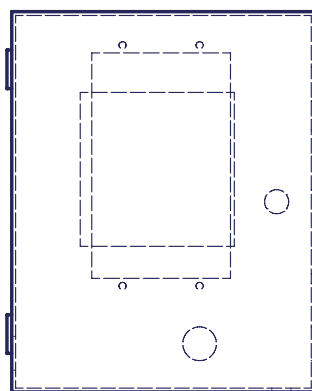
REVISIONS	DATE	DESCRIPTION AND INITIALS

DESIGNER	DATE	SCALE
CHECKED	DATE	SCALE
APPROVED	DATE	SCALE

1 2 3 4

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	52-2444276	ELECTRICAL BOX ASSEMBLY
2	1	52-2444266	COVER LABEL, PS APPLY

B B



2
 1
 PRESSURE SENSITIVE ADHESIVE
 WIPE SURFACE OF PANEL THOROUGHLY WITH RUBBING ALCOHOL BEFORE APPLYING LABEL

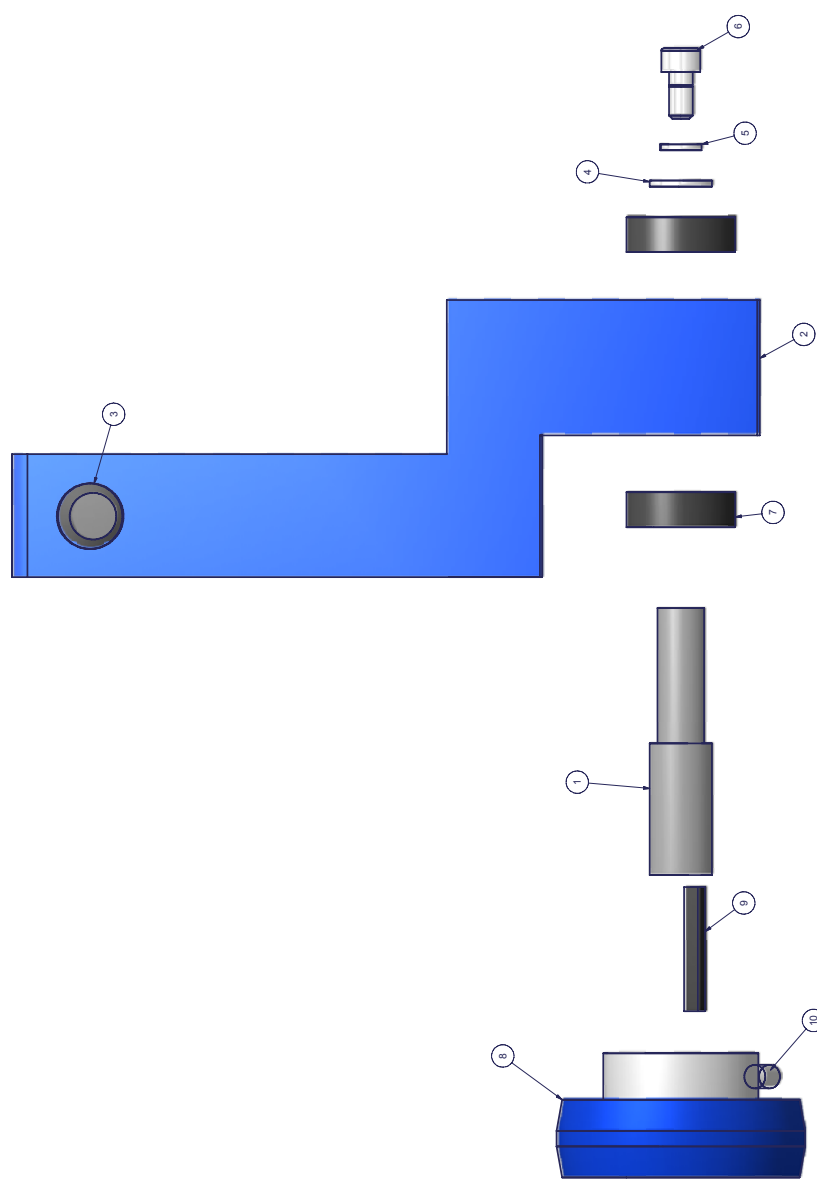
BEDFORD INDUSTRIES, INC.
 1659 ROWE AVENUE
 WORTHINGTON, MN 56187

TITLE		DRAWING NO.		REV
ELECTRICAL BOX ASSEMBLY		2444190		
DESIGN BY	DATE	DRAWN BY	DATE	
MJS	12/12/2001	MJS	12/17/2001	
SIZE	B	FILE LOCATION	T:\RD\24444\2444190.IAM	
SHEET 1			OF 1	

REVISIONS		TOLERANCES UNLESS NOTED		MATERIAL	
LTR	DESCRIPTION AND INITIALS	DECIMAL	FRACTION	SHOWN	SHOWN
		XE 03, XE 015, XXXE 005	± 1/32	SHOWN	SHOWN
				CHARGE TO	
				2444000	

A A

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	52-2444204	NIP SHAFT, PS APPLY
2	1	52-2444213	TOP ARM, PS APPLY
3	1	52-561168SS	HEXAGON SOCKET HEAD CAP SCREW - 1/8" X 1.0" KEY, PS APPLY
4	1	52-1011W	HEXAGON SOCKET HEAD CAP SCREW - 1/8" X 1.0" KEY, PS APPLY
5	1	52-102438CH	HEXAGON SOCKET HEAD CAP SCREW - 1/8" X 1.0" KEY, PS APPLY
6	1	52-593PP	SILICONE ROLLER, PS APPLY
7	2	52-2444255	SILICONE ROLLER, PS APPLY
8	1	52-2444256	SILICONE ROLLER, PS APPLY
9	1	52-2444255	SILICONE ROLLER, PS APPLY
10	1	52-1032516SS	HEXAGON SOCKET SHW SCREW - Flat Point



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TOP ARM ASSEMBLY, PS

APPLY

DATE: M.J.S. 10/12/02
 DRAWING NO.: 2444205
 REV: D
 M.J.S. 1/22/2002
 DATE: T.06012444244205.LAM
 SHEET 1 OF 1

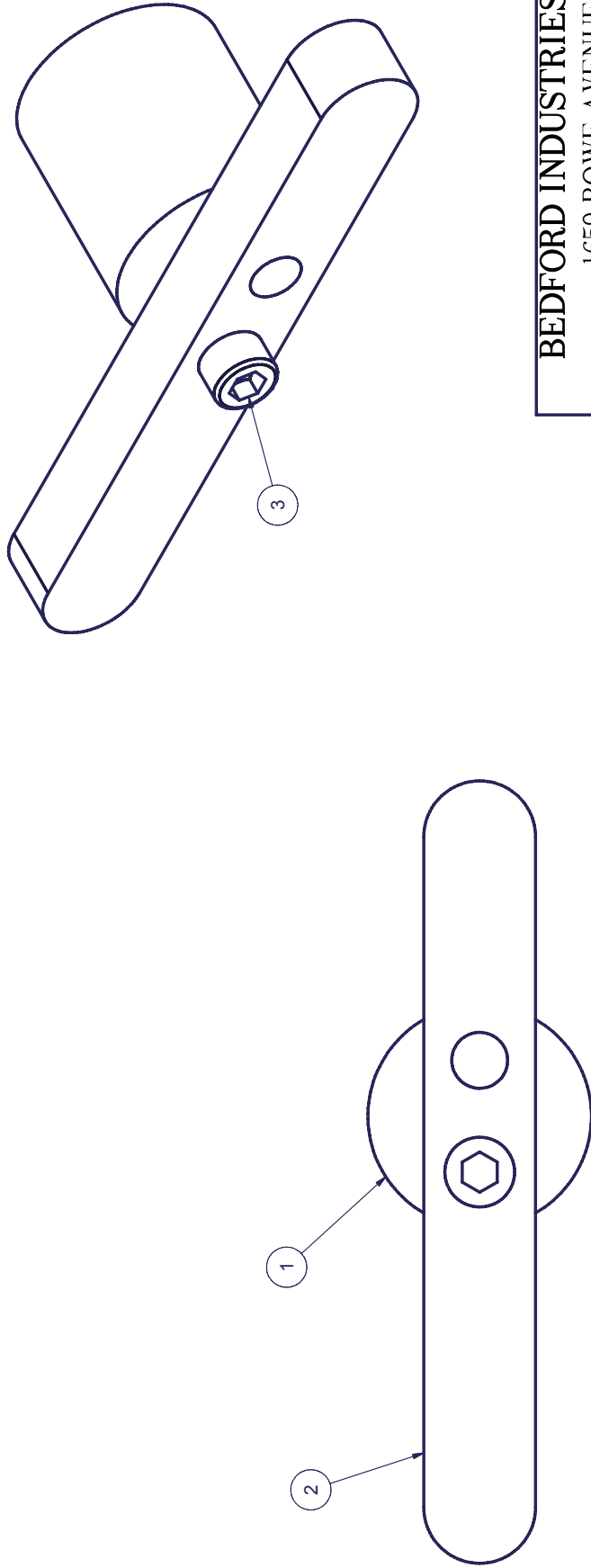
REVISIONS	DATE	DESCRIPTION AND INITIALS

TOLERANCES UNLESS NOTED:
 DIMENSIONS IN PARENTHESIS ARE PREFERRED
 FINISHES: UNLESS NOTED OTHERWISE

DATE: 10/12/02
 DRAWING NO.: 2444205
 REV: D
 M.J.S. 1/22/2002
 DATE: T.06012444244205.LAM
 SHEET 1 OF 1

1 2 3 4

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	52-2444215	CAM, PS APPLY
2	1	52-2444216	CAM LEVER, PS APPLY
3	1	52-102478CH	Hexagon Socket Head Cap Screw



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CAM ASSEMBLY, PS APPLY

DESIGN BY: MJS DATE: 1/18/2002
 DRAWN BY: MJS DATE: 1/21/2002

SIZE: B DRAWING NO.: 2444217

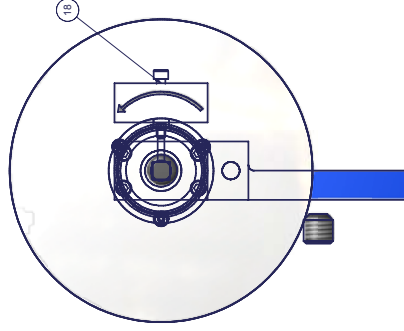
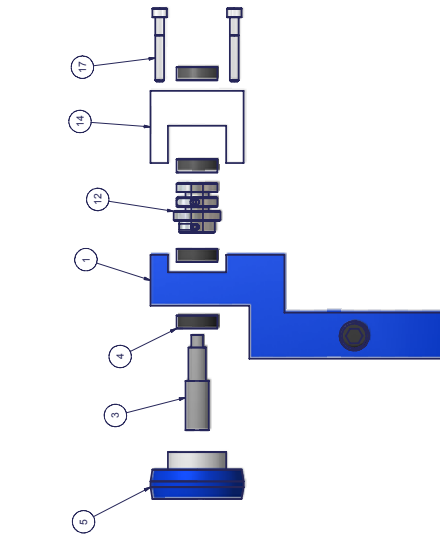
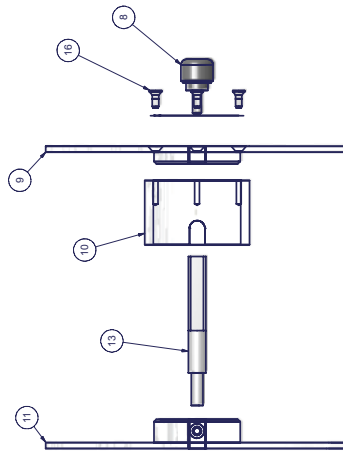
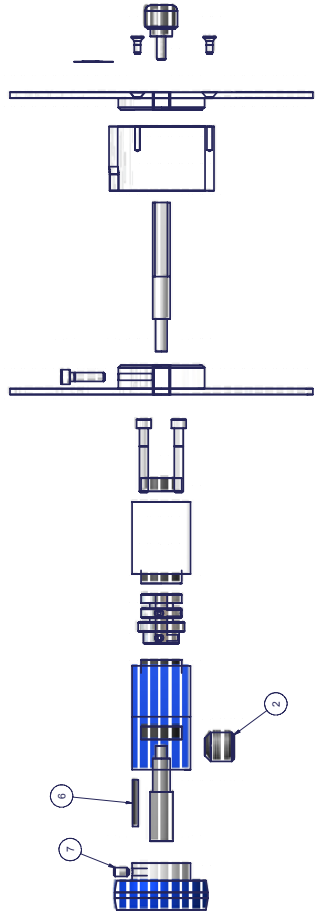
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FILE LOCATION: T:\RD\24444\2444217.1AM

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		CHECKED BY / DATE			
		NEXT ASM	2444100		

1 2 3 4

Parts List		
ITEM	QTY	PART NUMBER DESCRIPTION
1	1	92-2444218 BOTTOM LINER ARM, PS APPLY
2	1	92-2444219 BOTTOM LINER ARM, PS APPLY
3	1	92-2444220 NIP SHACT, PS APPLY
4	4	92-2444224 NIP SHACT, PS APPLY
5	1	92-2444225 SILICONE ROLLER, PS APPLY
6	1	92-2444256 1/8" X 1.0" KEY, PS APPLY
7	1	92-1024187 Hexagon Socket SHt Screw - Flat Point
8	1	92-1024188 THUMB KNOB
9	1	92-2444238 OUTSIDE SPOOLER PLATE, PS APPLY
10	1	92-2444227 SPOOLER CORE, PS APPLY
11	1	92-2444226 CLUTCH SHAFT, PS APPLY
12	1	92-2444225 SILICONE ROLLER, PS APPLY
13	1	92-2444224 NIP SHACT, PS APPLY
14	1	92-2444262 CLUTCH SUPPORT, PS APPLY
15	1	92-102434CH Hexagon Socket Head Cap Screw
16	3	92-63238FH Hexagon Socket Flat Countersunk Head Cap Screw
17	4	92-1024188CH Hexagon Socket Head Cap Screw
18	1	92-2444278 SPOOL DIRECTION LABEL

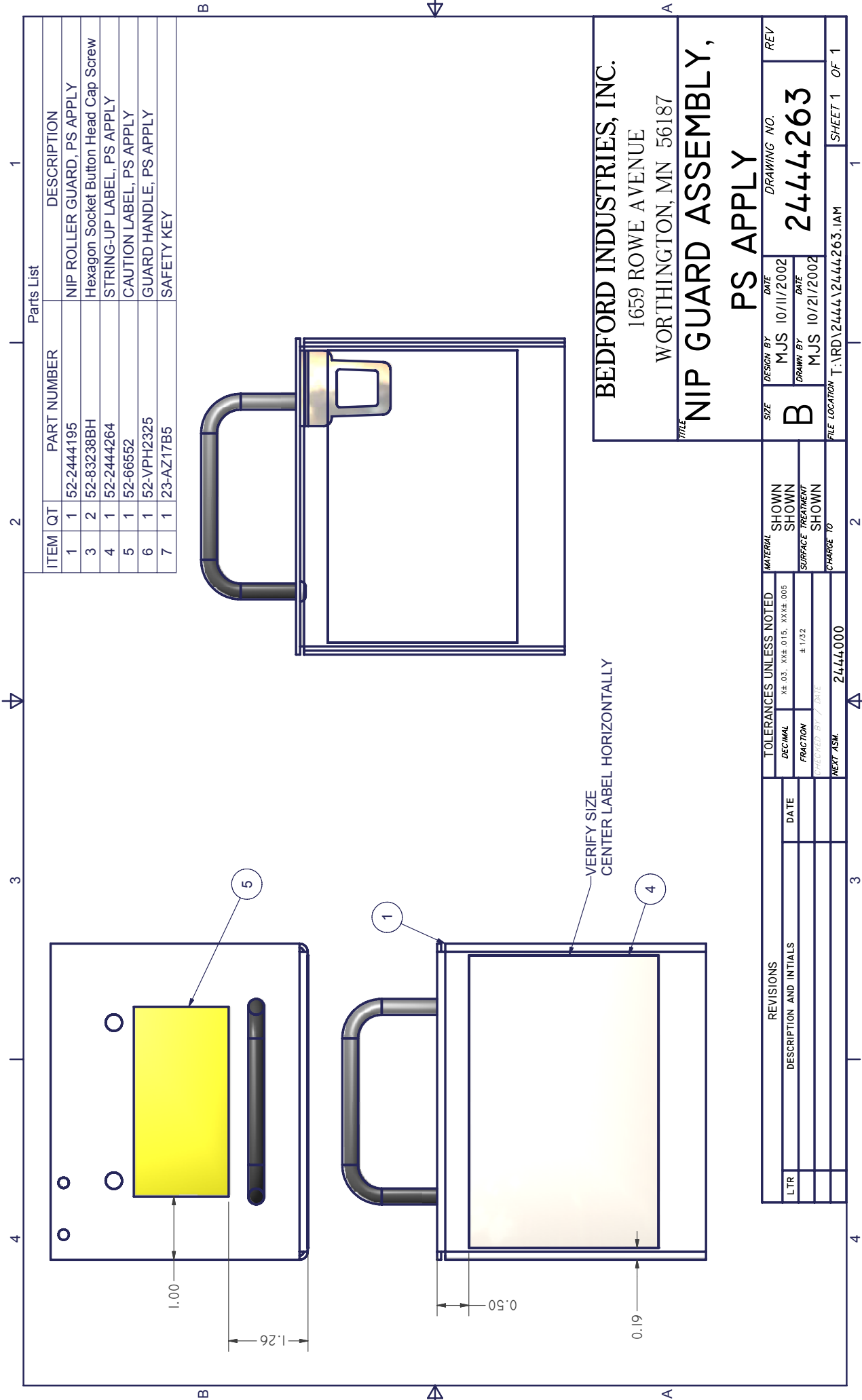


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 WORTHINGTON, MN 56187

BOTTOM ARM ASSEMBLY, PS APPLY

REV	DATE	BY	CHKD	DRWING NO.
D	MJS 11/21/2002	MJS	MJS	2444219

REV	DATE	BY	CHKD	DRWING NO.
D	MJS 11/21/2002	MJS	MJS	2444219



Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	52-2444195	NIP ROLLER GUARD, PS APPLY
3	2	52-83238BH	Hexagon Socket Button Head Cap Screw
4	1	52-2444264	STRING-UP LABEL, PS APPLY
5	1	52-66552	CAUTION LABEL, PS APPLY
6	1	52-VPH2325	GUARD HANDLE, PS APPLY
7	1	23-AZ17B5	SAFETY KEY

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NIP GUARD ASSEMBLY,

PS APPLY

SIZE	DESIGN BY	DATE	DRAWING NO.	REV
B	MJS	10/11/2002	2444263	
	DRAWN BY	DATE		
	MJS	10/21/2002		
FILE LOCATION			T:\RD\24444\2444263.IAM	SHEET 1 OF 1

REVISIONS		TOLERANCES UNLESS NOTED		MATERIAL	
LTR	DESCRIPTION AND INITIALS	DECIMAL	FRACTION	SHOWN	SHOWN
		XX.03, .XXE-0.15, .XXXE-0.05		SHOWN	SHOWN
			±1/32		SURFACE TREATMENT
					SHOWN
		CHECKED BY / DATE		CHARGE TO	
				2444000	

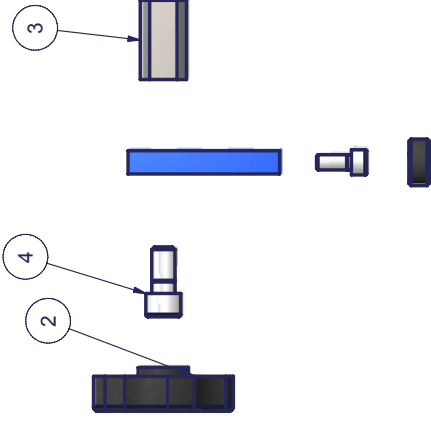
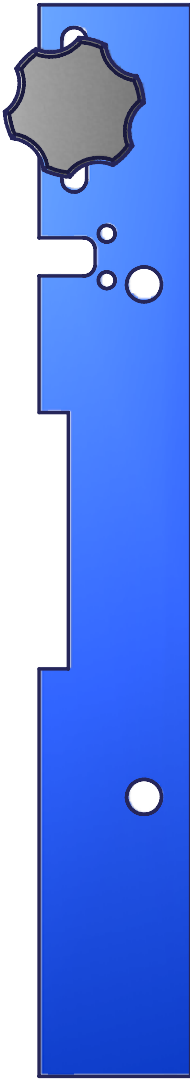
4 3 2 1

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
2	1	52-94052A041	KNOB, PS APPLY
3	1	52-2444189	EDGE STOP, PS APPLY
4	1	52-142012CH	Hexagon Socket Head Cap Screw
5	2	52-94052A025	THUMB KNOB, PS APPLY
6	2	52-83638CH	Hexagon Socket Head Cap Screw
6	1	52-2444011	BAG STOP, SWITCH, PS APPLY

NOTES:

1. ITEMS 5 AND 6 ARE PRESS FIT.
2. ITEMS 2 AND 4 ARE PRESS FIT.



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WORTHINGTON, MN 56187

FILE

BAG STOP, PS APPLY

REVISIONS		TOLERANCES UNLESS NOTED		MATERIAL		SIZE		DESIGN BY		DRAWING NO.		REV	
DESCRIPTION AND INITIALS	DATE	DECIMAL	FRACTION	XX-03, XX-015, XXX-005	±1/32	SHOWN	SHOWN	B	MJS	10/16/2002	2444267	DATE	REV
						SURFACE TREATMENT	CHARGE TO		MJS <td>10/21/2002 <td></td> <td></td> <td></td> </td>	10/21/2002 <td></td> <td></td> <td></td>			
									MJS <td>10/21/2002 <td></td> <td></td> <td></td> </td>	10/21/2002 <td></td> <td></td> <td></td>			
NEXT ASM										2444000		FILE LOCATION T:\RD\2444\2444267.IAM	
												SHEET 1 OF 1	

4

3

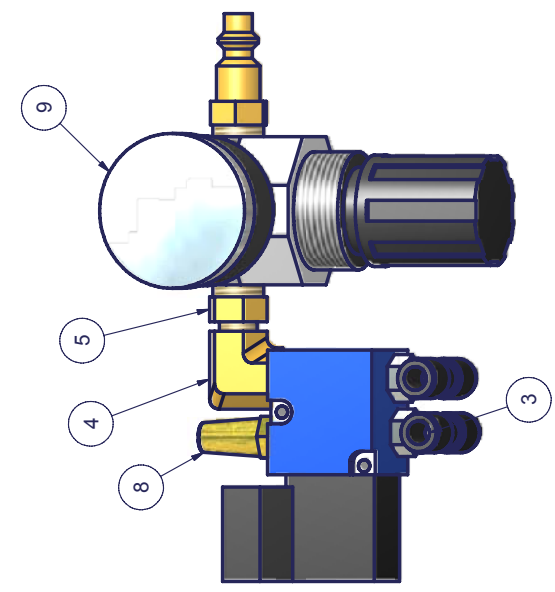
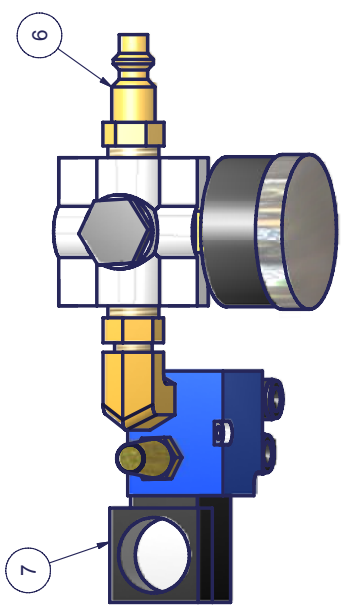
2

1

1 2 3 4

Parts List

ITEM	QTY	PART NUMBER	DESCRIPTION
3	2	52-5779K174	1/4" Hose Tee 1/8" Pipe
4	1	52-128B02	90 ELBOW
5	1	52-123B0402	REDUCING NIPPLE
6	1	52-6534K46	QUICK CONNECT
7	1	52-45AAA2DDAA1BA	VALVE
9	1	52-UPR200002G	REGULATOR AND GAUGE
8	1	52-46020002	Bronze Exhaust Muffler 1/8" Thd.



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PNEUMATIC ASSEMBLY,
PS APPLY

SIZE	DESIGN BY	DATE	DRAWING NO.	REV
B	MJS	10/16/2002	2444268	
	DRAWN BY	DATE		
	MJS	10/21/2002		
FILE LOCATION T:\RD\2444\2444268.IAM			SHEET 1	OF 1

REVISIONS		TOLERANCES UNLESS NOTED		MATERIAL	
LTR	DESCRIPTION AND INITIALS	DECIMAL	FRACTION	SHOWN	CHARGE TO
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				SURFACE TREATMENT	
		CHECKED BY / DATE			
		NEXT ASM	2444000		

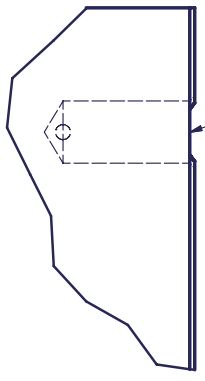
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Parts List

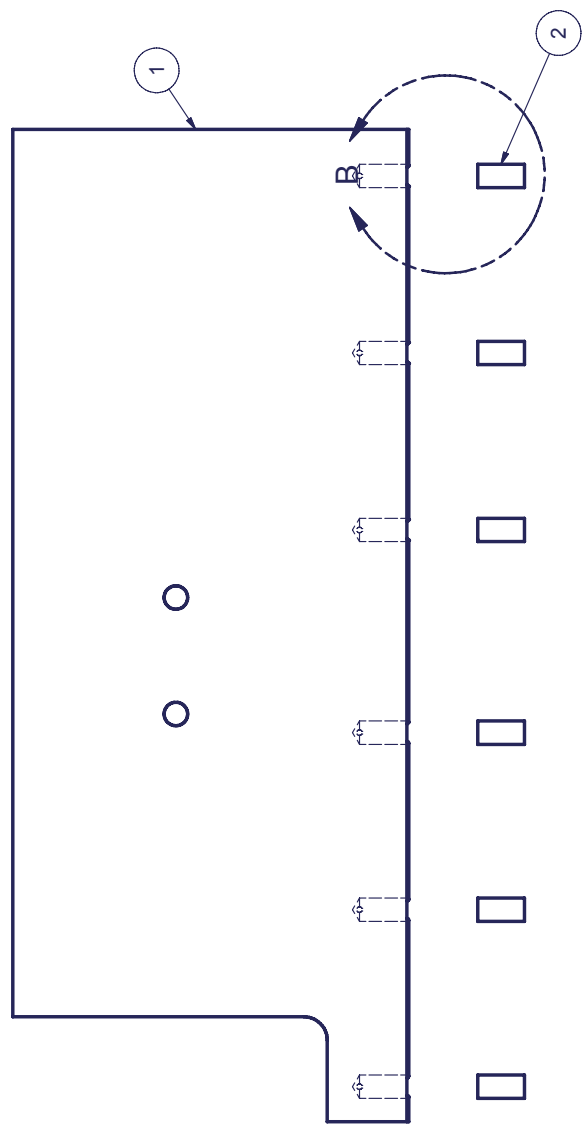
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	52-2444104	STAMPING BLOCK, PS APPLY
2	6	52-N60430	NEODYMIUM MAGNETS

NOTES:

1. APPLY GENEROUS AMOUNTS OF TWO-PART EPOXY TO MAGNETS BEFORE PRESSING INTO 2444104. USE A SLOW-SETTING EPOXY. A FAST-SETTING EPOXY MAY BECOME BRITTLE.
2. WIPE OFF EXCESS EPOXY AFTER ASSEMBLY.



DETAIL B
SCALE 2 : 1



BEDFORD INDUSTRIES, INC.
1659 ROWE AVENUE
WORTHINGTON, MN 56187

STAMPER ASSEMBLY, PS

APPLY

SIZE	DESIGN BY	DATE	DRAWING NO.	REV
B	MJS	10/17/2002	2444111	
	DRAWN BY	DATE		
	MJS	10/21/2002		

FILE LOCATION T:\RD\2444\2444111.IAM SHEET 1 OF 1

REVISIONS		TOLERANCES UNLESS NOTED		MATERIAL	
DESCRIPTION AND INITIALS	DATE	DECIMAL	FRACTION	SHOWN	SHOWN
		XE 03, XEE 015, XXXE 005	±1/32	SHOWN	SHOWN
				SURFACE TREATMENT	SHOWN
		CHECKED BY / DATE		CHARGE TO	
		NEXT ASM	2444000		

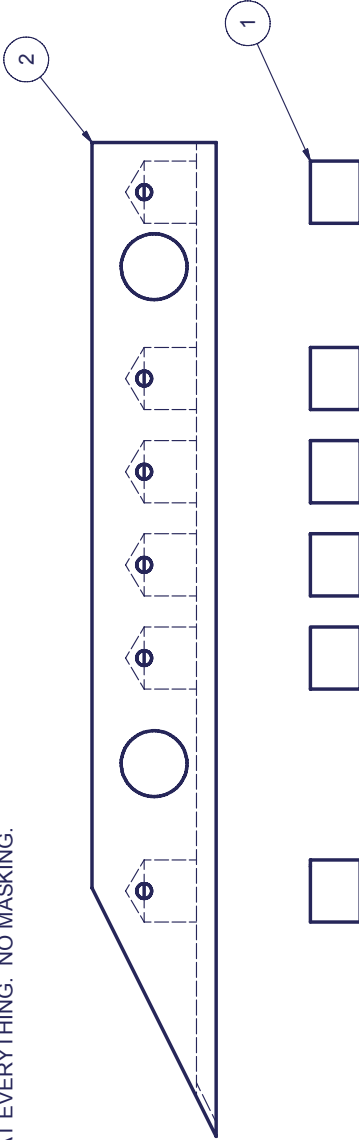
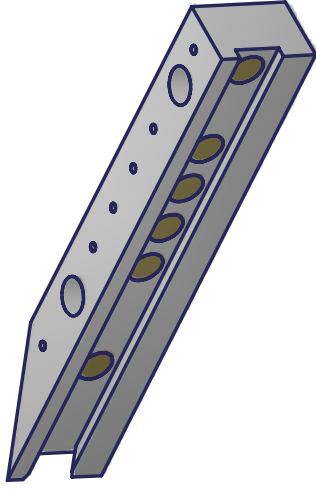
1 2 3 4

4 3 2 1

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	6	52-N603527	NEODYMIUM MAGNETS
2	1	52-2444133	SLOTTED GUIDE BLOCK, PS APPLY

NOTES:

1. APPLY GENEROUS AMOUNTS OF TWO-PART EPOXY TO MAGNETS BEFORE PRESSING INTO 2444133. USE A SLOW-SETTING EPOXY. A FAST-SETTING EPOXY MAY BECOME BRITTLE.
2. WIPE OFF EXCESS EPOXY AFTER ASSEMBLY.
3. ASSEMBLY SHOULD BE COATED AFTER ASSEMBLED.
4. COAT EVERYTHING. NO MASKING.



BEDFORD INDUSTRIES, INC.
 1659 ROWE AVENUE
 WORTHINGTON, MN 56187

TIE GUIDE, PS APPLY

L/TR	REVISIONS DESCRIPTION AND INITIALS	DATE	TOLERANCES UNLESS NOTED		MATERIAL	SHOWN SHOWN	DESIGN BY MJS 10/17/2002	DATE 10/17/2002	DRAWN BY MJS 10/21/2002	DATE 10/21/2002	SIZE B	DRAWING NO. 2444112	REV
			DECIMAL	FRACTION									
			XX.03, .XXE-015, .XXXE-005	±1/32	PLASMA PC-915D								
			CHECKED BY / DATE		CHARGE TO								
			NEXT ASM	2444000									

Bedford Peel & Stick® Apply-R Warranty

The machinery manufactured by seller is warranted to be free from defects in material and workmanship for a six (6) month period (one shift of eight hours per day, five days per week) from the date the equipment is shipped. This warranty extends to the original purchaser for a period of 6 months from the date of purchase and applies only when the equipment is installed and operated in accordance with written factory recommendations. This warranty does not cover damage or wear which arises from misuse, abrasion, corrosion, negligence, accident, substitution parts not made or approved by Seller, faulty installation or tampering. This warranty also does not cover damage, which in the reasonable judgment of Seller, is caused by buyer using the machine purchased hereunder to install ties manufactured by a party other than the Seller.

EQUIPMENT NOT COVERED BY SELLER WARRANTY. Accessories or components of the equipment sold by the Seller that are not manufactured by Seller are subject to the warranty, if any, of their manufacturer and not to this warranty. Seller will provide purchaser with reasonable assistance in making such claims. This warranty also does not extend to the replacement of expendable items.

This warranty is conditioned upon the return of the machine or component claimed to be defective for examination by Seller to verify the claimed defect. If the claimed defect is verified, Seller will repair or replace free of charge, any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in workmanship or material, repairs will be made at a reasonable charge and return transportation will be charged.

Seller will not provide any service at buyer's premises and will not pay any labor costs incurred by buyer in replacing a defective machine or part thereof covered by this warranty.

THIS LIMITED WARRANTY IS EXCLUSIVE, AND IS IN LIEU OF ANY OTHER WARRANTIES (EXPRESS OR IMPLIED) INCLUDING WARRANTY OF MERCHANTABILITY OR WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND OF ANY NON-CONTRACTUAL LIABILITIES INCLUDING PRODUCT LIABILITY BASED ON NEGLIGENCE OR STRICT LIABILITY. EVERY FORM OF LIABILITY FOR DIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR LOSS IS EXPRESSLY EXCLUDED AND DENIED.