

# LOVESHAW

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Little David™ Case Sealer

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**LD3SBF**

**Side Belt Drive Uniform Case Sealer**



Version: D

## Operator's Manual

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LITTLE DAVID™ CASE SEALER

# **LD3SBF Operation**

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Friday, January 25, 2013

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## **Introduction**

**T**hank you for purchasing the Little David™ case sealer, the LD3SBF. The LD3SBF is uniform side belt drive case sealer. The LD3SBF is a robust built 24/7 case sealer constructed of quality materials, bearing, and electrical components.. All employees who will be required to operate and maintain the case sealer **must** read this manual to ensure safe operation as well as proper set-up and maintenance throughout the life of the machine . After reading this manual, you will know how to perform the following functions,

- How to operate the machine safely.
- How to set the conveyor height of the machine
- How to set the head height..
- How to adjust the side belt drive width.
- Troubleshooting and replacing of worn or defective parts.

Throughout this manual there are several illustrations designed to help you perform the variety of tasks described.

## **Operating Safety**

Observe the warnings and cautions below when using the Little David LD3SBF case sealer. Within this manual, all safety labels are depicted with location and part number. If a safety label is missing or not legible it must be replaced immediately. Failure to follow safety labels can lead to injury or damage to the machine.

### **Instruction: Requirement to System Operation**

**Instruction:** An electrical receptacle must be located near the machine. The line cord connection to the receptacle is the disconnect means for the machine. The receptacle must be located in an area that is easily accessible to all personnel.

### **Warning: Potential Bodily Injury**

**Warning:** Always disconnect all sources of energy to the machine before performing maintenance. Sources of energy include electrical and pneumatic. Refer to your company's lock out tag out procedures.

**Warning:** Never bypass or remove safety guards from the machine or tape cartridge.

**Warning:** Never override safety devices such as Emergency Stop switches.

**Warning:** Never adjust the machine or tape cartridges when the machine is operating.

**Warning:** Never place hands or body inside confines of the machine unless top head assembly is locked in place and all power sources are locked out.

**Warning:** Never wear jewelry, loose clothing, such as ties, scarves etc and long hair must be pulled back when operating this machine.

**Warning:** Never pull a jammed box out of the machine while it is in operation. Stop machine and raise head with bypass switch.

**Warning:** When feeding a semi automatic case sealer always hold the top flaps down a rear of box, to avoid accidental entrapment in the machine

This manual contains operator information for Little David Application Equipment. It is directed toward the person who operates and maintains the machine. Read through the manual completely before operating the machine. Thereafter, refer to it as necessary.

Take special note of all warnings, cautions, and maintenance instructions. Like any other piece of equipment, the Little David Case Sealer functions best when maintained and used correctly.

### **Caution: Potential Machine Damage:**

**Caution:** Never push or drag machine across the floor with the top head assembly fully raised. Makes sure it is completely lowered.

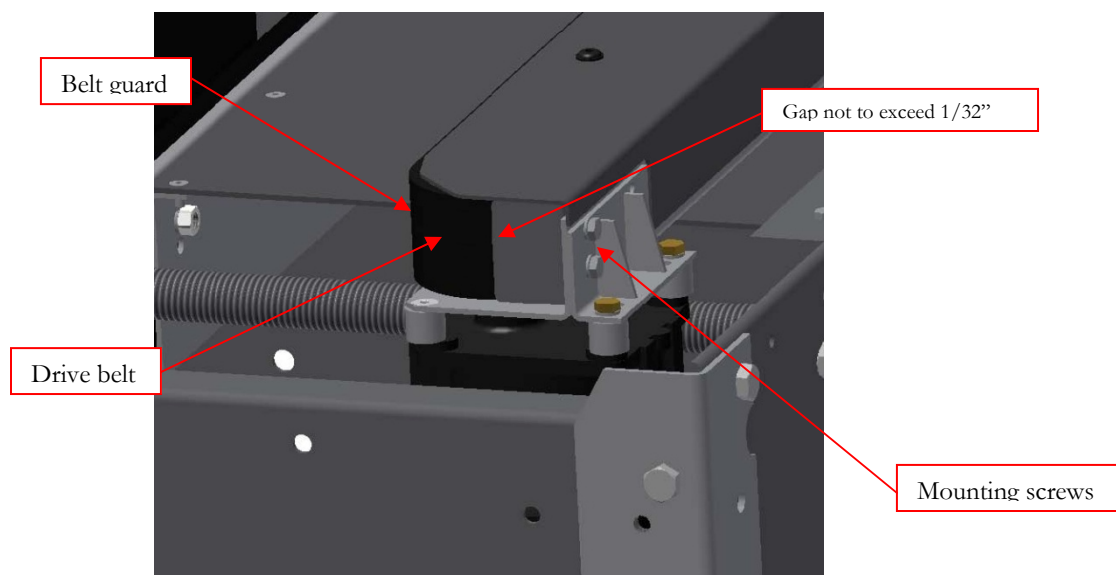
**Caution:** Never pull the machine by its pack table or side rails.

**Caution:** Provide and use proper electrical power.

**Caution:** Do not operate, maintain, or otherwise use this machine, except as described in this manual.

### **Special instruction:**

The side drive assembly incorporates adjustable side belt guard. The guard are made adjustable to maintain 1/32" gap between the top of the belt and the guard itself. This eliminates a pinch point between the guard and the belt. The guards are located at the rear of the machine where the belt wraps around the drive pulleys. The guards must be adjusted inward as the belts wear. It is **mandatory** the gap be adjusted to **no** more than 1/32" clearance between the top of the belt and the guard itself. The guard is simply adjusted by loosening two 6mm panel head machine screws and sliding the guard inward to maintain the 1/32" gap. Failure to adjust the guards may cause injury.



## Safety Devices Functional Testing:

It is necessary to test the functionality of the safety devices at regular time intervals. The safety emergency stop function must be tested daily before each and every shift of operation. The procedure for testing the emergency stop function is as follows:

1. Connect the machine to the main electrical power source.
2. De-press the emergency stop pushbutton the main electrical enclosure.
3. Press the start pushbutton on the main enclosure. If the machine does not start proceed to the next step. If the machine does start unplug it from the main electrical power source and report it to your supervisor. This machine cannot be used until a qualified technician corrects the issue.
4. Reset the estop pushbutton to its extended state. Push the start pushbutton the machine should start. With the machine running de-press the emergency stop pushbutton, the machine should now stop. This confirms that the emergency stop function is working correctly.

The overload motor relay must be tested every three months to confirm its operation. This test can only be performed by a qualify technician since it requires the enclosure door to be opened.

1. Connect the machine to the main electrical power source.
2. Insure that the emergency stop pushbutton is fully extended.
3. De-press the machine start pushbutton. The machine drive motor should start at this time.
4. Open the main electrical enclosure. Use extreme caution not to contact any live conductors.
5. Locate the overload relay and de-press the red test button on the front of the unit. The machine should stop. If the machine does not stop the overloads relay is defective and needs to be changed out. If the machine stops the overload relay passes the functionality test.
6. Close the main enclosure door and lock using the turn latch.

Never operate a machine that does not pass the safety functional testing! Report it to management and have the machine taken out of service until the deficiency is corrected.



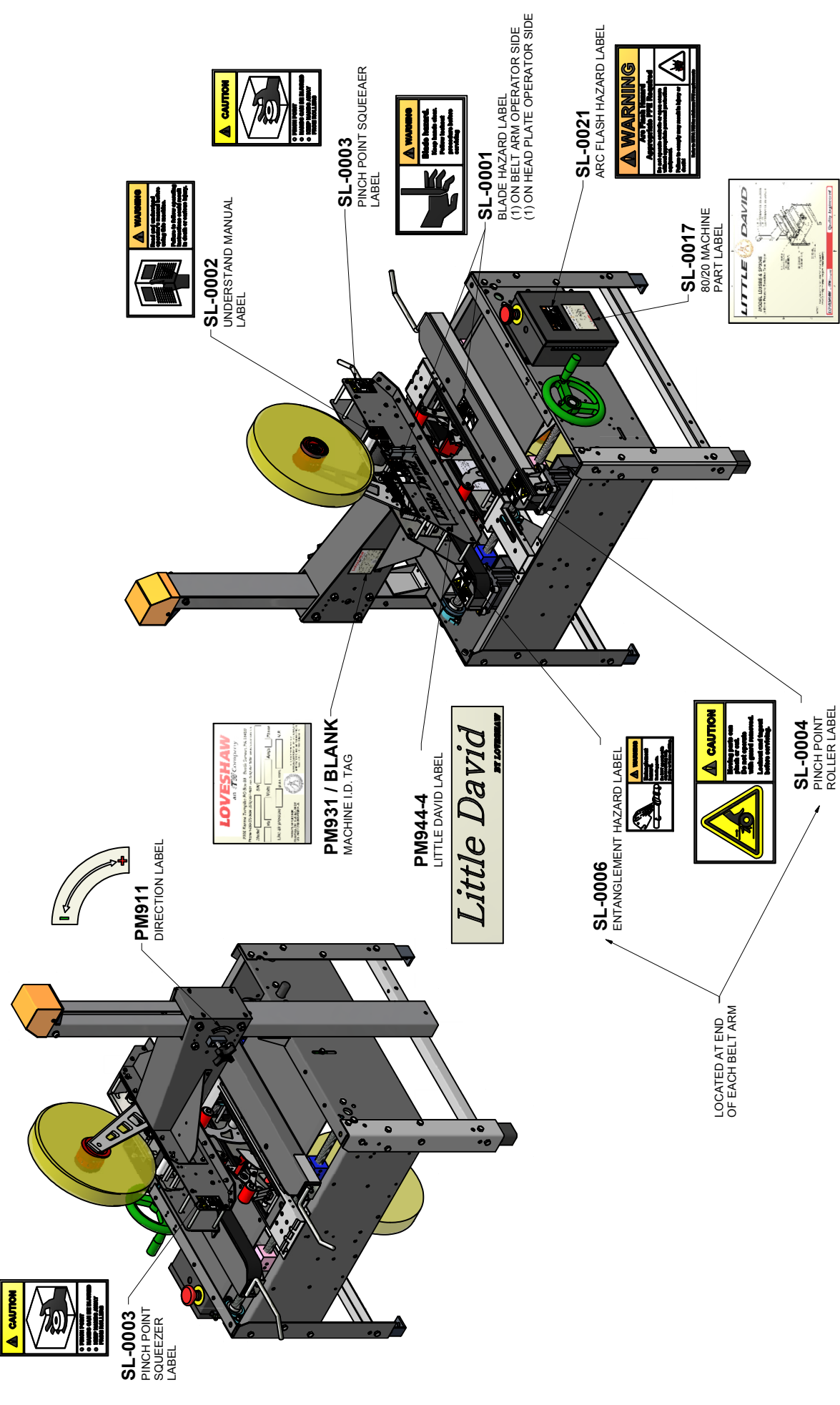
REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	RELEASED	12/12/2013	TONY'S

MATL	PART #	CAD FILE	MAIN ASSY	LD3SFB SL
NOTED	STD	12/12/2013		
ST. ST.	N/A	DRAWN DATE	12/12/2013	DO NOT SCALE PRINT

TOLERANCES UNLESS OTHERWISE NOTED:			
		X = ±0.50	ANGLES ±2
		INCH XX = ±0.15	MACH
		XX = ±0.05	FINISH
		METRIC XX = ±1.0mm	
		XX = ±1.5mm	
		XX = ±1.1mm	

FRACTIONS	1/64
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1 2 3 4



LOVESHAW			
RT. 296, SOUTH CANAAN, PA.			
TITLE			
LD3SFB MACHINE LABELS			
DWG NO			
MAIN ASSY LD3SFB SL			
SCALE			
N/A			
MATERIAL			
NOTED			
CHECKED			
DRAWN			
TONY'S			
APPROVED			
TONY'S			

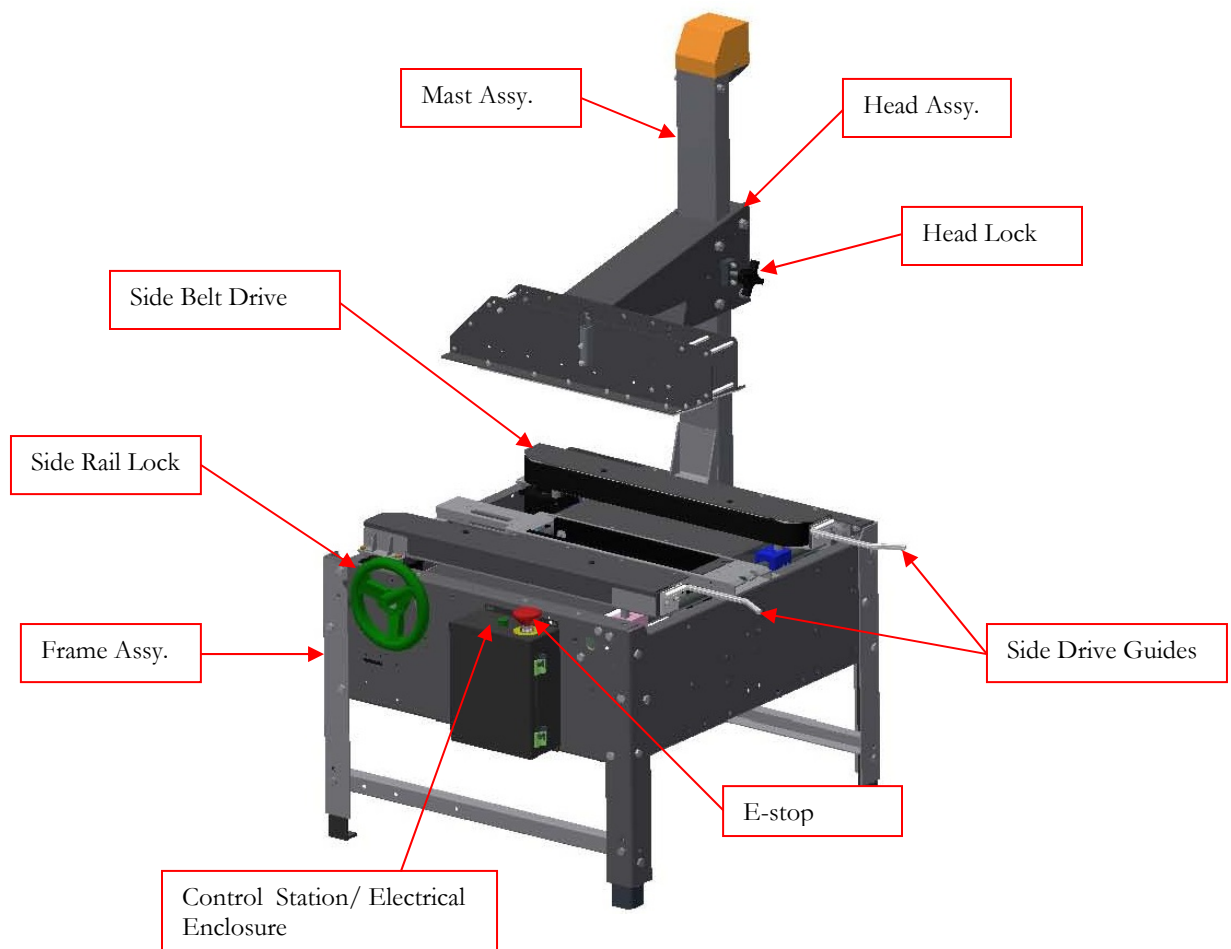
TOLERANCES UNLESS OTHERWISE NOTED:			
		X = ±0.50	ANGLES ±2
		INCH XX = ±0.15	MACH
		XX = ±0.05	FINISH
		METRIC XX = ±1.0mm	
		XX = ±1.5mm	
		XX = ±1.1mm	

FRACTIONS	1/64
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## Case Sealer Sections

### Overview

This manual covers several parts of the machine. The following diagram identifies the key sections of the machine.



## Machine Specifications

### Machine dimensions:

- Height: 60.81" @ 22.25" conveyor height
- Width: 42.08"
- Length: 31.77"
- Conveyor height: 22.25" to 30.25" – Standard

### Electrical Requirements:

- Standard Voltage: 120/1/60 with 15 amp dedicated service.
- Optional voltages are available consult factory.

### Operating speed:

- Standard belt speed: 76 ft/min
-

**Air Requirement:**

- N/A

**Machine box capacity:**

- Length: - 6" to infinite
  - Width: - 4.50" to 21" ( 2" tape cartridge)
  - Width: - 5.50" to 21" ( 3" tape cartridge)
  - Height: 4.50" to 20"
-



## **Installation**

**A**lways check for any signs that the machine may have been damaged before fully removing it from the shipping skid. If machine arrives damaged contact Loveshaw immediately to help in filing a claim with shipping company.

### **Section 1: Placing the Machine**

The case sealer is fully assembled and ready for operation.

**Step One:** Carefully remove the machine from the shipping skid. Remove all fasteners and brackets holding the machine to the skid.

**Step Two:** *Take care removing the machine from the skid as it weighs 230 pounds! Use a forklift or similar device to complete this task*

**Step Three:** Move machine to designate location. It may be necessary to adjust the conveyor height of the machine. The legs on the machine are adjustable by loosening the leg clamping hardware and moving the leg to its proper position. The use of a jack or forklift is required.

## **Theory of Operation**

### **LD3SBF**

The LD3SBF needs to be manually adjusted for the width and height of the box to be sealed.

With the machine off, a box will need to be placed between the side belt arms. Rotate the hand wheel to adjust the side belt drives out. Raise the head assembly by losing the lock knob on the side of the head weldment. With the lock knob loose lift the head assembly till it clears the box then rotate the lock knob to lock the head in place.

**(NOTE: Do not place the box on top or under cartridge while adjusting drives or head assembly. Damage may result.)**

While holding the box in placed between the side belt drives turn the hand wheel till the side belt drives grip the box. Fold all four top flaps of the box, holding them down unlock and then lower the head assembly till it is just resting on top of the box then lock the head in place with head lock knob.

Start machine and the box will be pulled through with the side belt drives and exit the machine. It may be necessary to increase the side belt drive tension if the box stalls. Rotate the hand wheel to increase drive pressure. **(NOTE: Excess pressure will cause box damage and to little will cause box to stall.)**

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## **Key design features:**

The LD3SBF is a uniform manual adjusted side belt case sealer with counter balanced head assembly.

Some of the key features are.

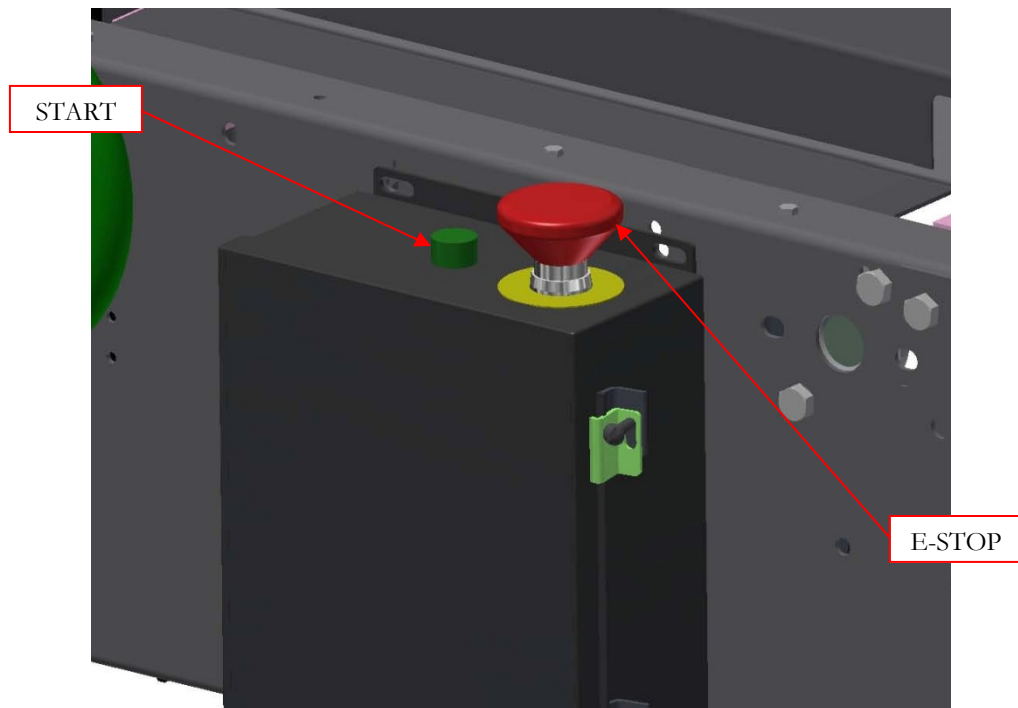
- Self tracking industrial grade endless belts.
  - Easy access internal mounted side belt tensioners.
  - Adjustable rear pinch point guards.
  - 2" to 3" tape cartridge capability ( Fill plates and hardware required for change from 3" to 2" in base. Head assembly requires longer head shafts from 2" to 3").
  - Internal mounted and guarded constant force spring used to balance the weight on head weldment.
  - Roller bearings on mast assembly for long life and smooth vertical movement.
  - Head lock knob designed for quick adjustment of head height and positive locking ability.
-



## Machine Components

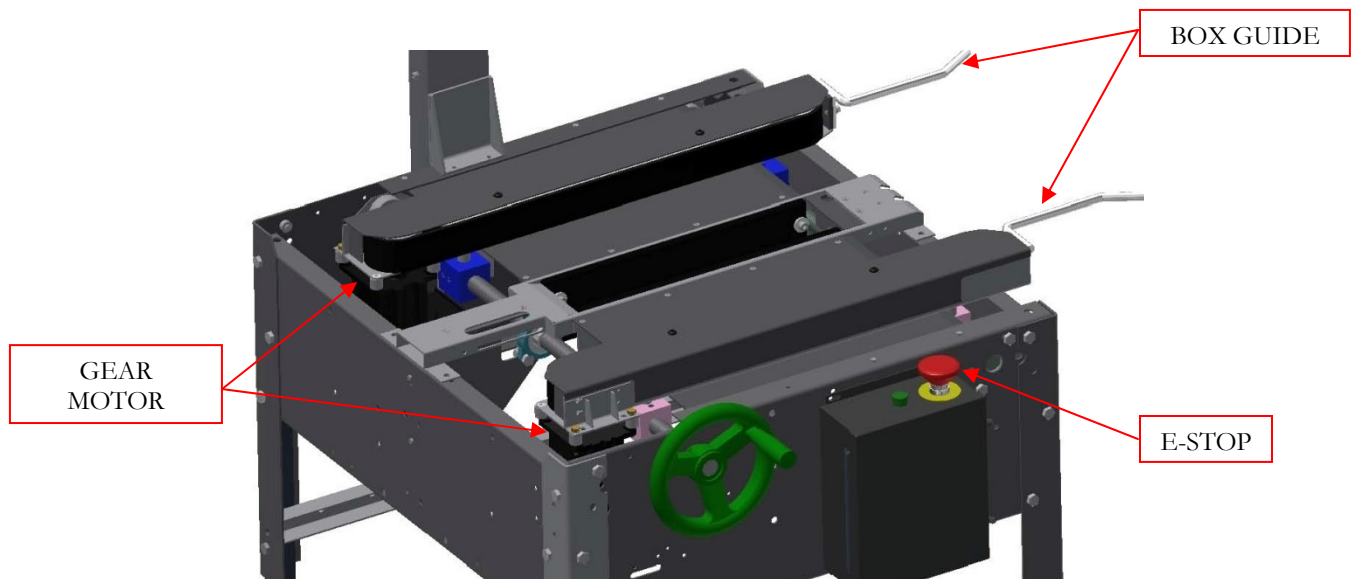
### Control Station / Electrical Enclosure

The control station consist of an electrical enclosure, push pull mushroom head emergency stop switch and a momentary start pushbutton with motor overload relay.



## Side Belt Drive Assembly

The side drive assembly consist of (2) 1/6 hp gear motor, idler, tension assembly, box guides and endless, guided, rough top belting. The side belt drive assembly, assist in conveying the box forward through the machine. The side belt drive assembly insures that tall unstable boxes will not topple over as they process through the machine. The endless rough top belt has an integral guide rib on the back of it. This guide eliminates any sophisticated apparatus to track the belt. The endless belt feature has increased longevity over conventional laced belting. The tensioner when adjusted maintains the tension on the drive roller.

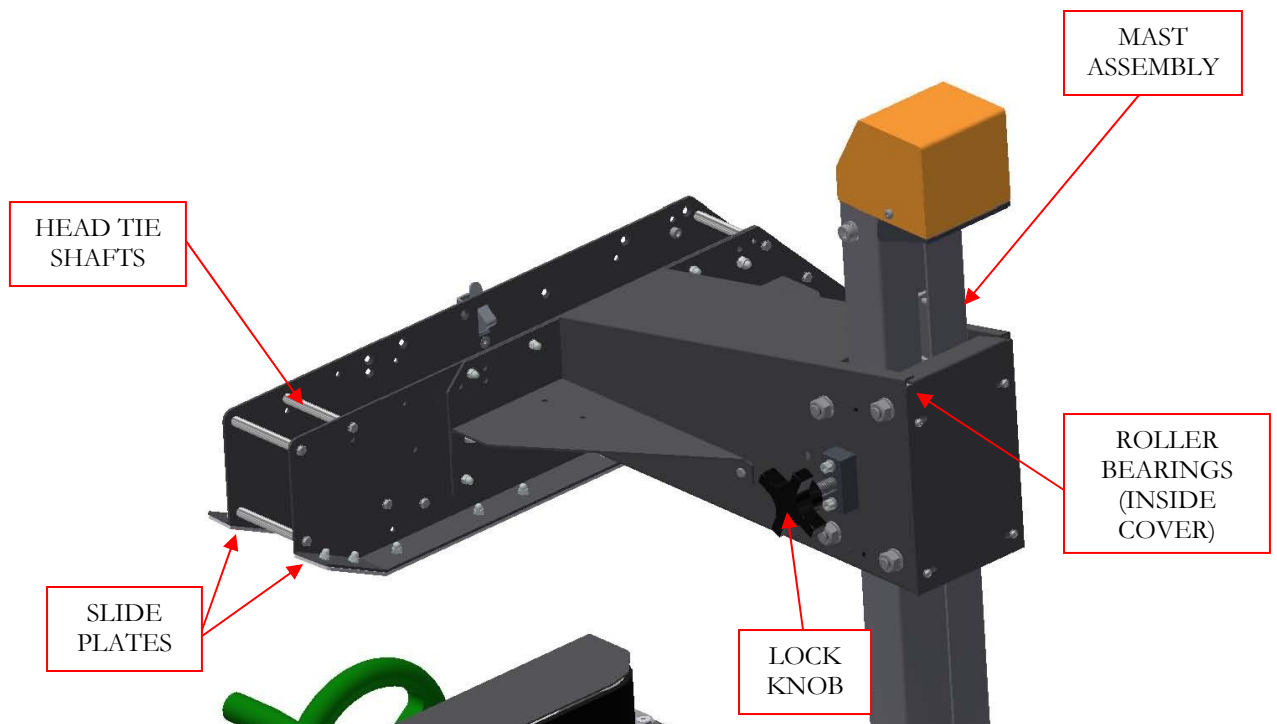


## Head Weldment & Mast Assembly

The head weldment assembly consists of a sheet metal weldment, roller bearings, slide plates and locking knob. The weldment can be converted to a 2" wide or 3" wide cartridge cavity by changing the tie shafts. The horizontal surface that contact the box is made of a low friction plastic that provides a long wear surface.

Internal sealed roller bearings and low friction slide plates provide smooth vertical head weldment travel on the mast assembly.

The mast assembly is made up of a vertical structural tube, constant force spring assembly, spring mount bracket and guard.



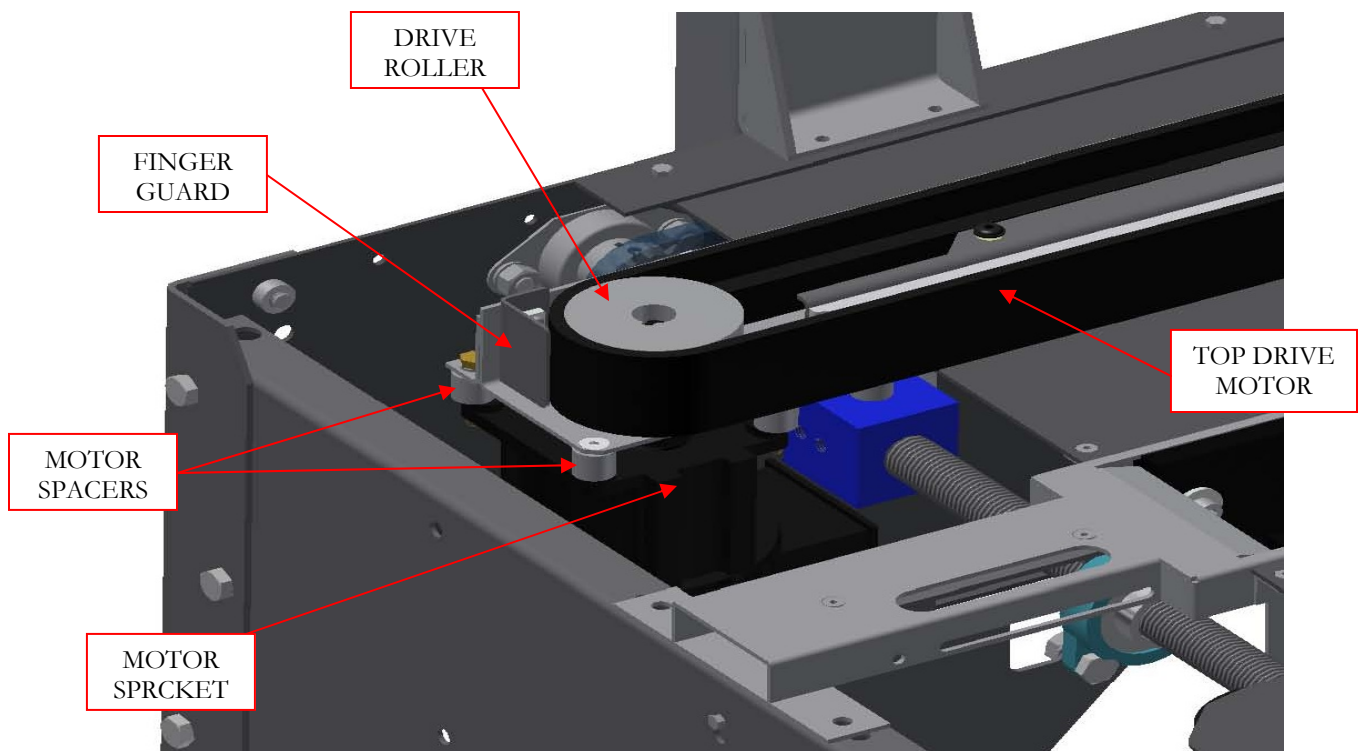
## **Maintenance**

**Safety:** NEVER perform any maintenance on the LD3SBF without first following your company's **LOCK OUT / TAG OUT** procedures.

### **Replacing Side Belt Gear motor**

1. Disconnect electrical or unplug machine.
2. Remove side belt drive guard.
3. Loosen belt by turning locking nut on bottom side of belt arm. When loosen remove tension by loosening lock nut and turning jacking bolt towards the center of belt arm. This will remove tension from belt.
4. Loosen hardware at rear of belt arm for finger guard. This will allow the guard to be moved out of the way and remove the provide clearance to remove the endless belts..
5. Note height of drive roller on drive shaft for reinstall. Turn drive roller to access (2) set screws. Loosen (2) set screws and remove drive roller and key.
6. Locate motor wire. It may be necessary cut a few wire ties to allow some slack in the line when removing the motor. Note there location for replacement later.
7. Remove motor mounting screws completely then remove motor and motor spacers.

8. Rewire replacement motor and replace it with the four mounting
9. Replace wire ties on motor cable. Make sure to leave room for side belt to travel in/out.
10. With height note from removal reinstall drive roller and key.
11. Install endless belt and tighten tensioner. DO NOT over tighten this may cause damage to idler assembly or belt.
12. Adjust finger guard so the belt will not rub it but maintains a 1/32" clearance.
13. Replace top drive guard.
14. Re-connect electrical supply or plug in machine and run as normal.



## **Machine Maintenance:**

**Daily**----- Clean machine ( as required)

Inspect side belt drives.

**Weekly**----- Check / Adjust side belt tensioner

Inspect area around gear motors

Inspect belt idlers

Adjust finger guards for belts (as required)

**Monthly**---- Check / Adjust head wear pads

**Cartridge Maintenance:** Refer to cartridge area of manual

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# Constant force spring removal and installation procedure for internally mounted spring

6/20/06 Rev. 1

1 of 3

The following are step by step instructions for the removal and installation of the internally located constant force spring assembly.

## SPECIAL NOTE:

Follow proper lock out/tag out procedures and use proper PPE (personal protection equipment) Example: safety glasses and protective gloves.

Figure 1:  
Locate spring  
cover  
at top of mast  
assembly



Figure 4:  
Loosen and  
remove spring  
bracket hardware.

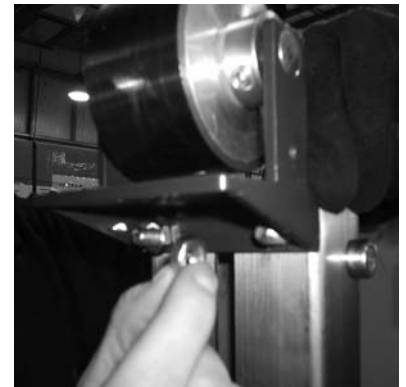


Figure 2:  
Loosen and remove  
hardware holding  
spring cover.  
(1) located near side  
(1) located far side

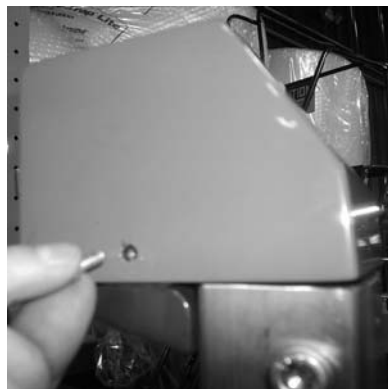


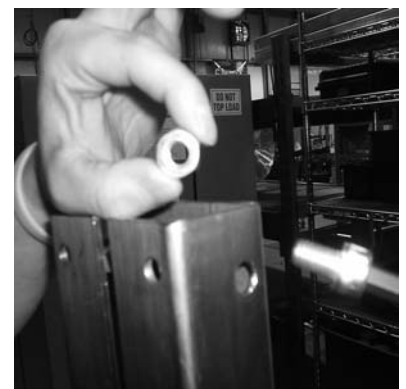
Figure 5:  
Remove spring  
bracket assembly  
from top of mast.



Figure 3:  
Remove spring  
cover from  
mast assembly  
exposing spring.



Figure 6:  
Remove head stop  
hardware from mast.  
(1) located near side  
(1) located far side



# Constant force spring removal and installation procedure for internally mounted spring

6/20/06 Rev. 1

2 of 3

Figure 7:  
Slide head upward until  
spring is forced  
outside of mast.



Figure 11:  
Reassemble new  
constant force  
spring assembly.



Figure 8:  
Slide head up to  
expose spring mount  
hardware. Then lock  
in place using lock  
knob on the side of  
head weldment.



Figure 12:  
Insert spring shaft  
thru spring drum  
and center with  
a set collar on  
each side.

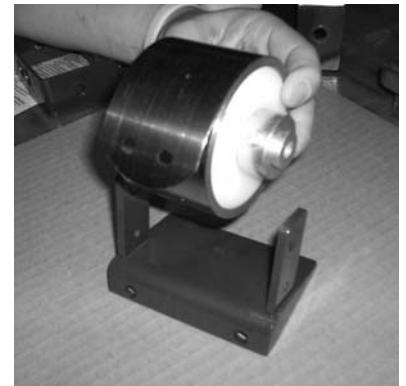


Figure 9:  
Remove hardware  
that holds spring  
in place.

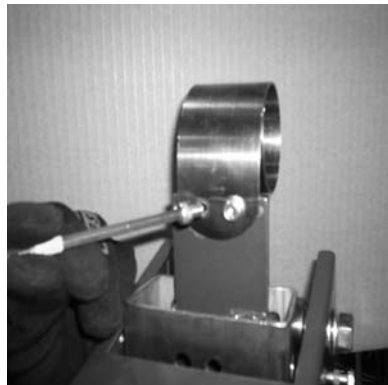


Figure 13:  
Insert constant force  
spring assembly into  
spring bracket.  
The spring should be  
facing the rear of  
the bracket as shown.



Figure 10:  
Remove spring from  
spring/actuator  
bracket.



Figure 14:  
Attach new spring  
bracket assembly to  
top of mast.





## **Constant force spring removal and installation procedure for internally mounted spring**

6/20/06 Rev. 1

3 of 3

**Figure 15:**

Pivot spring in place  
to line up with  
spring/actuator  
bracket and  
reinstall hardware.



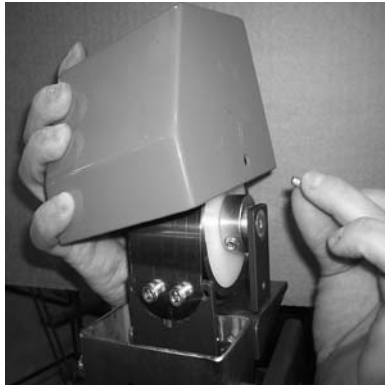
**Figure 16:**

Reinstall head stop  
hardware in mast  
assembly.  
(1) near side  
(1) far side



**Figure 17:**

Reinstall spring  
cover.  
(1) bolt near side  
(1) bolt far side.



**Figure 18:**

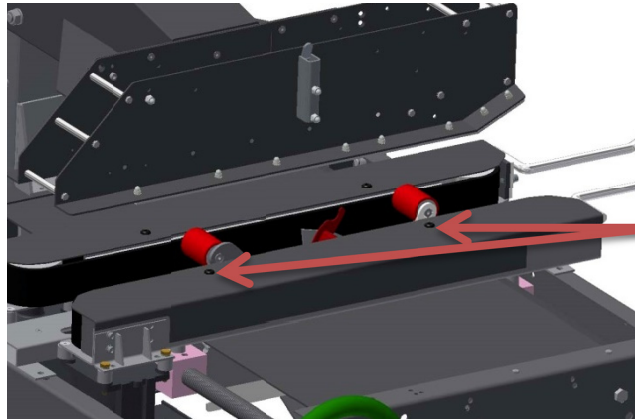
Assembly is complete.  
Adjust head and run  
machine as normal.



# LD3SB & SP304 Side belt removal and installation instruction.

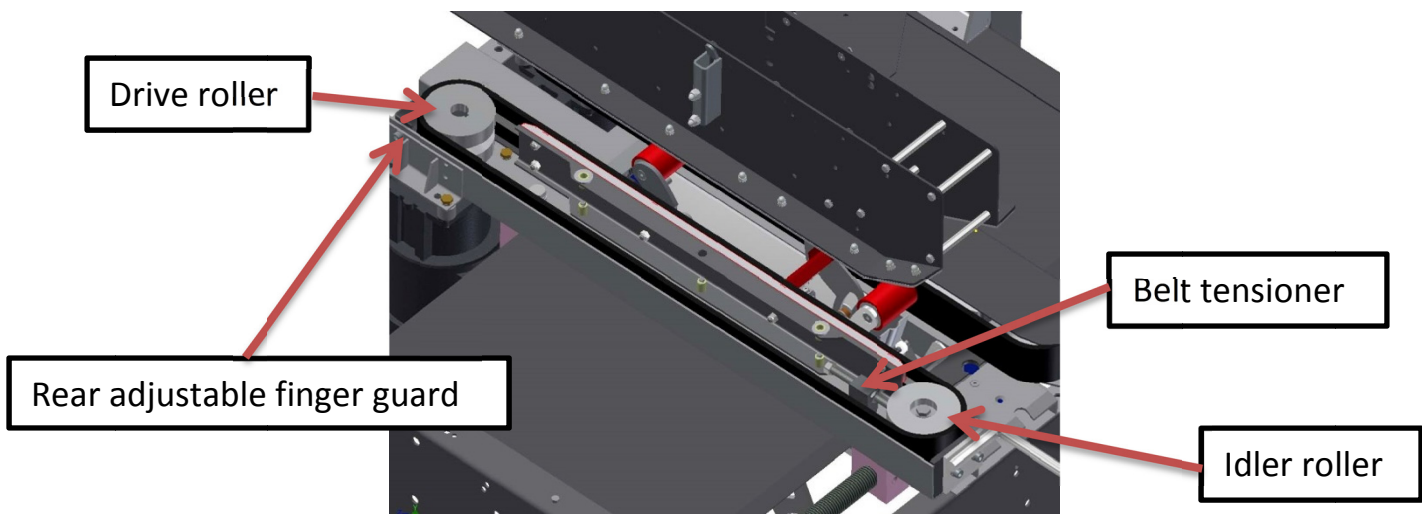
**Step 1:** Preform Lock Out / Tag Out procedure.

**Step 2:** Cover removal.

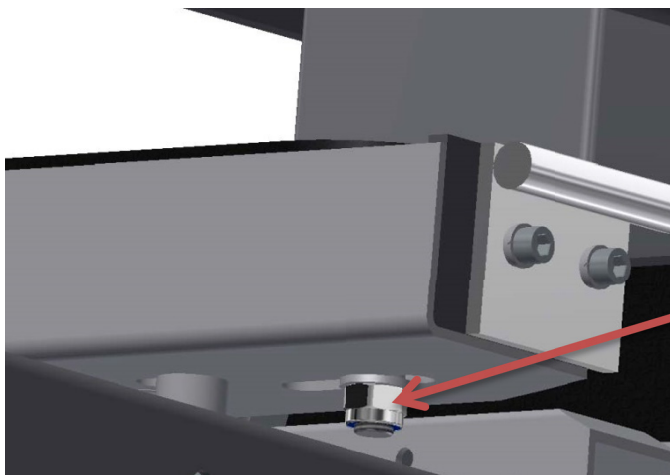


Remove belt arm cover by unscrewing cover hardware.

## INTERNAL PART IDENTIFICATION



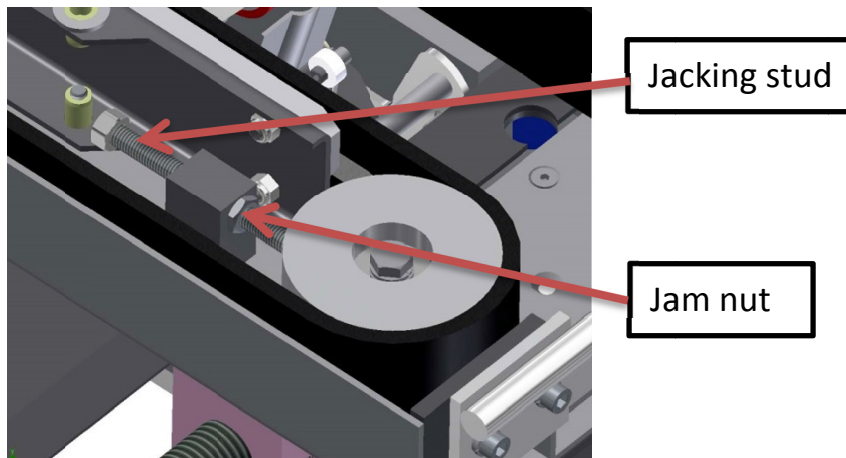
**Step 3:** Slightly loosen locking nut on bottom of idler. This will allow idler slide when reducing tension.



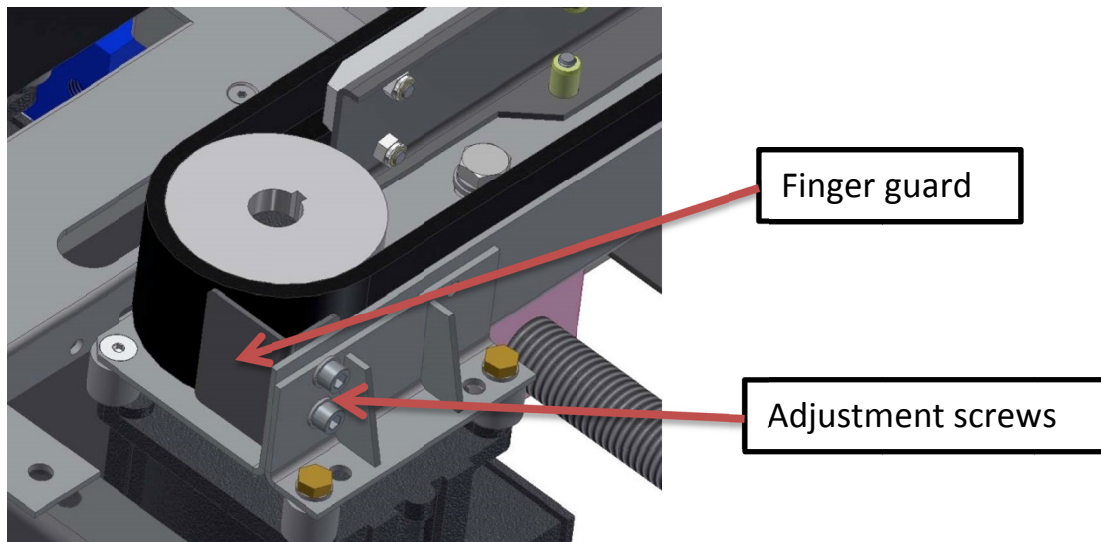
Locking nut

## LD3SB & SP304 Side belt removal and installation instruction.

**Step 4:** Remove belt tension by losing jam nut and turning jack stud out from idler.



**Step 5:** Adjust belt finger guard outward to provide room for belt removal.



**Step 6:** Remove belt and replace with new belt paying close attention to the direction arrow located on the back. Arrow should face in the direction of travel.

**Step 7:** Retighten belt with jacking stud. Tighten until belt is snug approx. 1/8" play off white belt guide when pulled from center. Check to make sure idler is straight. Then tighten jack stud jam nut, bottom lock nut & adjust finger guard at rear to 1/32" clearance. Double check idler is straight.

**Special Note:** If idler is not straight belt damage can occur. (Grinding sound when running) Over tightening can cause increased idler wear and belt damage.

**Step 8:** Reinstall belt arm cover.

**Step 9:** Remove Lock Out / Tag Out items and restart machine.

## Troubleshooting:

PROBLEM	CAUSE	CORRECTIVE ACTION
Machine will not start.	Emergency stop switch(s) activated either control box or top head assembly.  No incoming power.  Defective start pushbutton	Check that both E-stop switches are not engaged.  Check machine fuses and plant receptacle.  Re-place pushbutton.
Box jamming in machine.	Box is out of range of machine.  Box is voided and head is crushing it.  Tape cartridge problems.  Side belt drive belting worn.	Do not run out of spec box.  Adjust head balance regulator.  Check tape cartridge troubleshooting.  Replace drive belts.
Top head assy. won't move.	Lock knob engaged  Guide bearing / wear pad tight..  Head lifting spring failure.	Check that lock knob is not engaged.  Adjust guide bearing / wear pads.  Replace head lifting spring.
Side drive will not move.	Adjustment chain broken.  Side drive screw binding.	Check that chain and adjust.  Grease adjustment screw.
Drive belts are slipping.	Belts are not tensioned.  Belts are worn.	Adjust tensioner until spring is collapsed.  Replace drive belts.

## **Warranty:**

### **CASE SEALER, CUSTOM & SPECIAL APPLICATIONS**

**Little David®** Warranty

**For:** All Standard Little David® Semi-Automatic Case Sealers.  
All Standard LD-16 Series Fully Automatic Case Sealers.

### **All Special Application Case Sealers (Fully & Semi Automatic).**

**2 YEAR WARRANTY ON DRIVE MOTOR**

**2 YEAR WARRANTY ON GEAR MOTOR**

**2 YEAR WARRANTY ON GEAR REDUCER**

**3 YEAR WARRANTY ON TAPE CARTRIDGE**

(EXCEPT FOR MOVING PARTS THAT ARE SUBJECT TO NORMAL WEAR, TEAR AND REPLACEMENT WHICH ARE WARRANTED ONLY TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP.)

**1 YEAR ON PLC**

**1 YEAR ON SERVO DRIVE**

**1 YEAR ALL OTHER PARTS**

Except for wear and moving parts.

\*LIMITED WARRANTY – **LOVESHAW**,

WARRANTS ONLY THAT THE GOODS SOLD BY IT SHALL BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP, UNDER PROPER AND NORMAL USE AND MAINTENANCE,

AS FOLLOWS:

<u>DRIVE MOTOR -</u>	2 YEARS
<u>GEAR REDUCER -</u>	2 YEARS
<u>GEAR MOTOR -</u>	2 YEARS (THIS APPLIES TO SIDE BELTS ONLY)
<u>TAPE CARTRIDGE -</u>	3 YEARS (EXCEPT FOR MOVING PARTS AND PARTS WHICH ARE SUBJECT TO NORMAL WEAR, TEAR AND REPLACEMENT WHICH ARE WARRANTED ONLY TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP);
<u>PLC -</u>	1 YEAR
<u>SERVO DRIVE -</u>	1 YEAR
<u>ALL OTHER PARTS -</u>	1 YEAR (EXCEPT FOR MOVING PARTS AND PARTS, WHICH ARE SUBJECT TO NORMAL WEAR, TEAR AND REPLACEMENT WHICH ARE WARRANTED ONLY TO BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP).

THE WARRANTY PERIOD SHALL COMMENCE AS OF THE DATE OF DELIVERY TO THE PURCHASER. THE

OBLIGATION OF **LOVESHAW** UNDER THIS WARRANTY IS STRICTLY LIMITED TO THE COST OF REPAIRING OR REPLACING, AS **LOVESHAW** MAY ELECT, ANY PART OR PARTS THAT PROVE IN **LOVESHAW'S** JUDGMENT TO HAVE BEEN DEFECTIVE IN MATERIAL OR WORKMANSHIP AT THE TIME THE GOODS WERE SHIPPED FROM **LOVESHAW'S** PLANT. ANY WARRANTY CLAIM NOT MADE IN WRITING TO **LOVESHAW** AT ITS HOME OFFICE WITHIN THE APPLICABLE WARRANTY PERIOD AND WITHIN 10 DAYS OF FAILURE WILL NOT BE VALID. THIS IS THE SOLE AND EXCLUSIVE REMEDY AVAILABLE UNDER THIS WARRANTY. UNDER NO CIRCUMSTANCES WILL **LOVESHAW** BE LIABLE FOR INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES.

IF REQUESTED BY **LOVESHAW**, PURCHASER SHALL RETURN ANY DEFECTIVE PART OR PARTS TO **LOVESHAW'S** PLANT, FREIGHT PREPAID. ALL WARRANTY PART REPLACEMENT AND REPAIRS MUST BE MADE BY **LOVESHAW** OR A **LOVESHAW** DEALER AUTHORIZED TO HANDLE THE GOODS COVERED BY THIS WARRANTY. ANY OUTSIDE WORK OR ALTERATIONS DONE WITHOUT **LOVESHAW'S** PRIOR WRITTEN APPROVAL WILL RENDER THIS WARRANTY VOID. **LOVESHAW** COMPANY WILL NOT ASSUME ANY EXPENSE OR LIABILITY FOR ANY REPAIRS MADE TO ITS GOODS OUTSIDE ITS WORKS WITHOUT ITS PRIOR WRITTEN CONSENT. THIS WARRANTY SHALL NOT APPLY TO ANY ITEM THAT HAS NOT BEEN USED, OPERATED, AND MAINTAINED IN ACCORDANCE WITH **LOVESHAW'S** RECOMMENDED PROCEDURES. **LOVESHAW** SHALL HAVE NO LIABILITY WHATSOEVER WHERE THE GOODS HAVE BEEN ALTERED, MISUSED, ABUSED OR INVOLVED IN AN ACCIDENT.

NO PERSON IS AUTHORIZED TO MAKE ANY WARRANTY OR TO CREATE ANY LIABILITY BINDING UPON **LOVESHAW**, WHICH IS NOT STATED IN THIS WARRANTY. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES OF ANY KIND, EXPRESSED OR IMPLIED, WHICH ARE HEREBY EXCLUDED. IN PARTICULAR, THE IMPLIED WARRANTY OF MERCHANTABILITY, AS WELL AS THE IMPLIED WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY EXCLUDED.

***LOVESHAW***

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570.937.4921 - 800.572.3434 - FAX 570.937.3229

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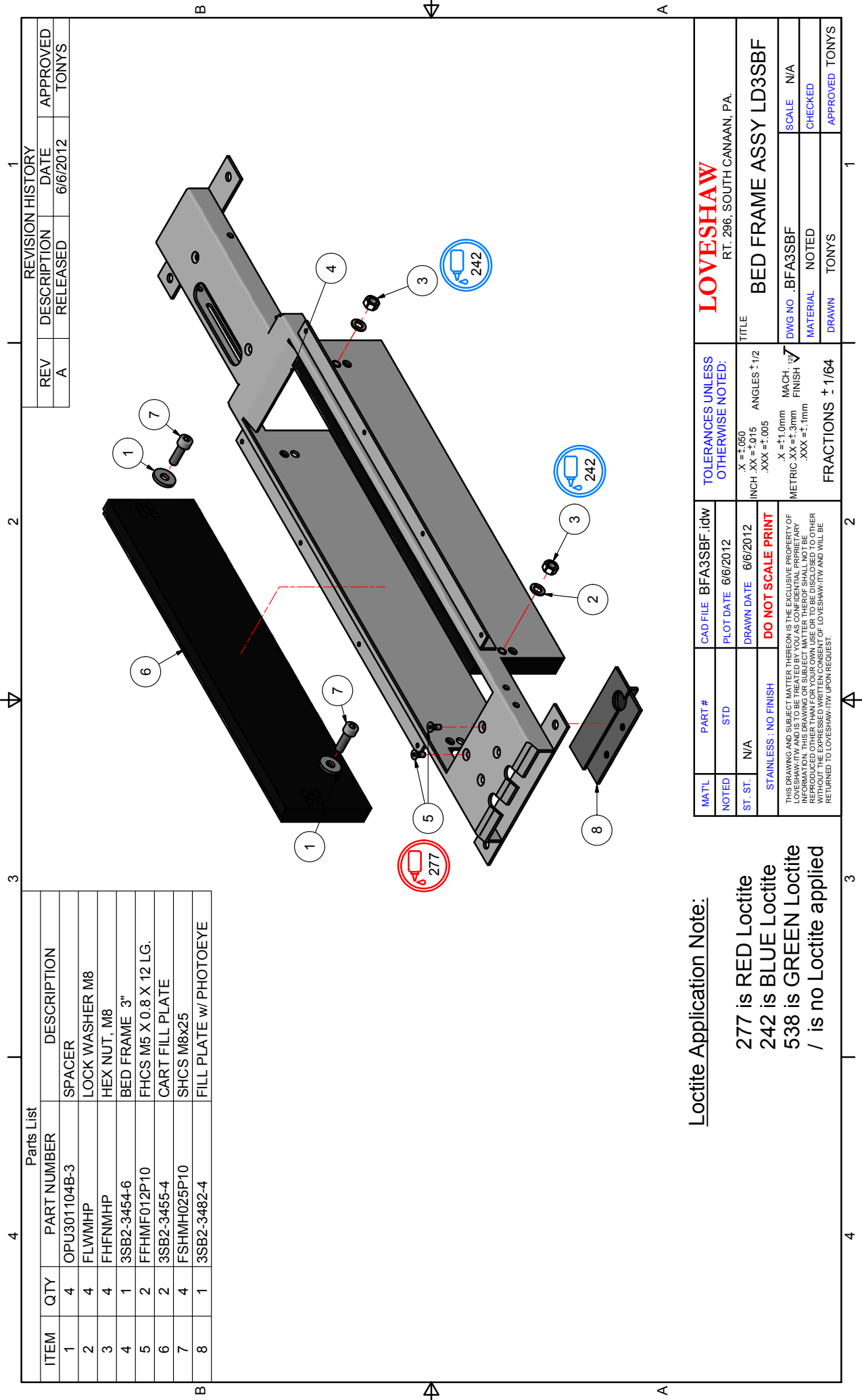
**Chapter**

**10**

# ***ASSEMBLY DRAWINGS AND SCHEMATICS***







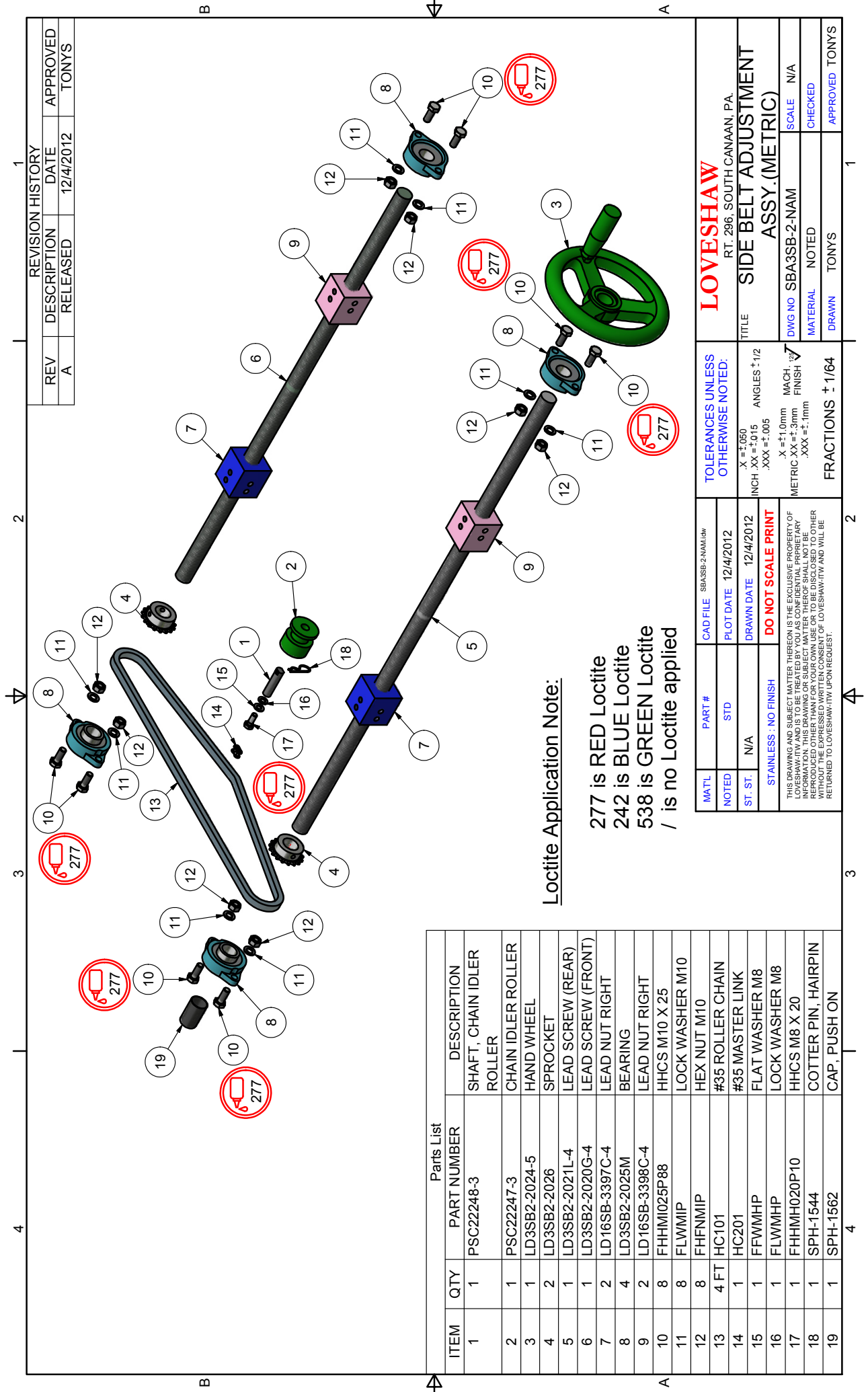
Parts List			REVISION HISTORY		
ITEM	QTY	PART NUMBER	REV	DESCRIPTION	DATE
1	4	OPU301104B-3	A	SPACER	6/6/2012
2	4	FLWMHP		LOCK WASHER M8	
3	4	FHFNMHP		HEX NUT, M8	
4	1	3SB2-3454-6		BED FRAME 3"	
5	2	FFHMF012P10		FHCS M5 X 0.8 X 12 LG.	
6	2	3SB2-3455-4		CART FILL PLATE	
7	4	FSHMH025P10		SHCS M8x25	
8	1	3SB2-3482-4		FILL PLATE w/ PHOTOEYE	

REV	DESCRIPTION	DATE	APPROVED
A	RELEASED	6/6/2012	TONYS

Loctite Application Note:

- 277 is RED Loctite
- 242 is BLUE Loctite
- 538 is GREEN Loctite
- / is no Loctite applied

MATL	PART #	CAD FILE	BFA3SBF.dwg	TOLERANCES UNLESS OTHERWISE NOTED:	LOVESHAW
NOTED	STD	PLOT DATE	6/6/2012	INCH XX = ±.015 ANGLES ± 1/2° XXX = ±.005	RT. 296, SOUTH CANAAN, PA.
ST. ST.	N/A	DRAWN DATE	6/6/2012	XX = ±1.0mm METRIC XX = ±.3mm XXX = ±.1mm	BED FRAME ASSY LD3SBF
STAINLESS : NO FINISH					DWG NO .BFA3SBF
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW-ITW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHER INDIVIDUALS OR COMPANIES WITHOUT THE WRITTEN PERMISSION OF LOVESHAW-ITW UPON REQUEST.					MATERIAL NOTED
FRACTIONS ± 1/64					DRAWN TONY'S



Loctite Application Note:

277 is RED Loctite  
242 is BLUE Loctite  
538 is GREEN Loctite  
/ is no Loctite applied

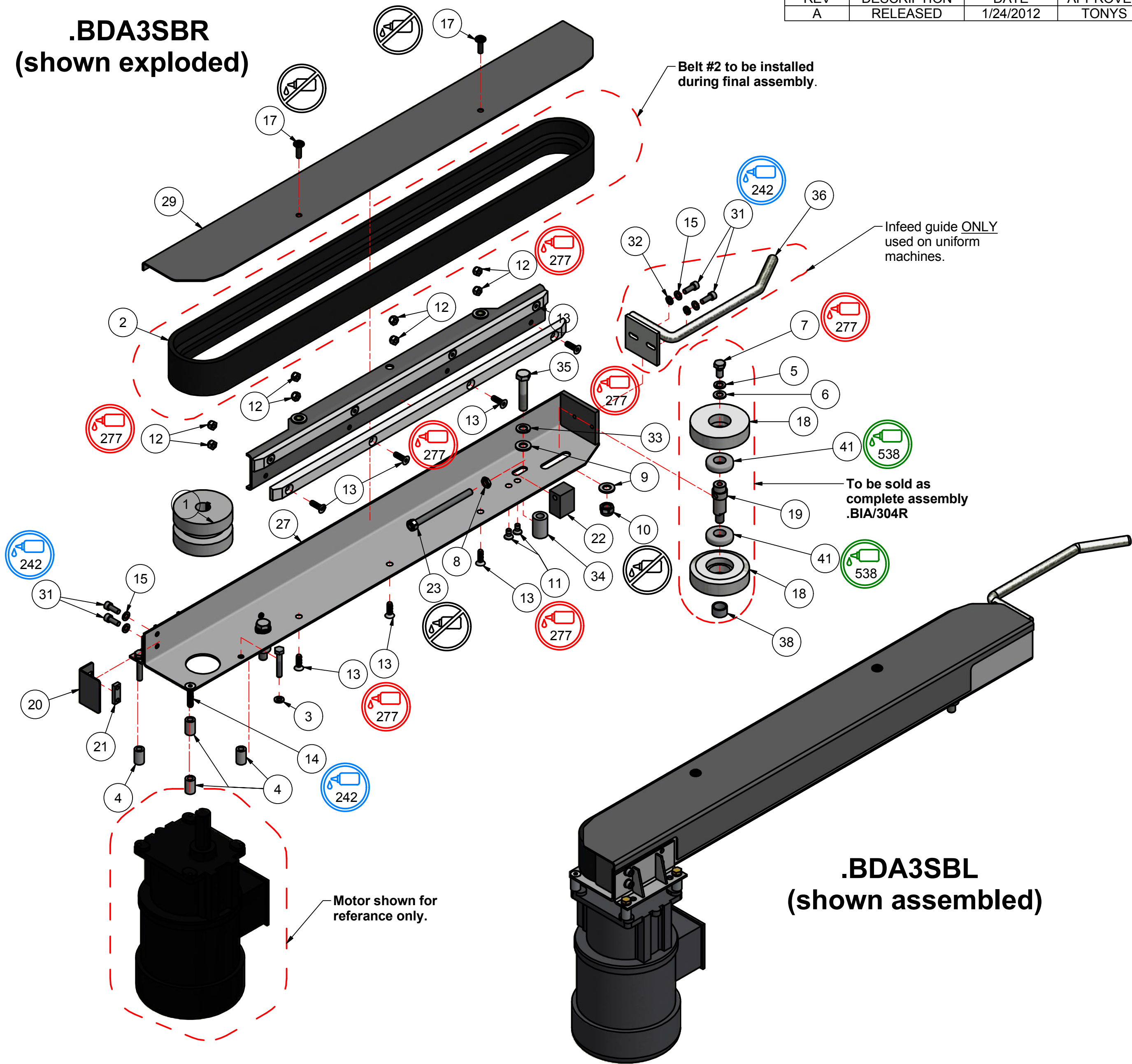
Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	PSC22248-3	SHAFT, CHAIN IDLER ROLLER
2	1	PSC22247-3	CHAIN IDLER ROLLER
3	1	LD3SB2-2024-5	HAND WHEEL
4	2	LD3SB2-2026	SPROCKET
5	1	LD3SB2-2021L-4	LEAD SCREW (REAR)
6	1	LD3SB2-2020G-4	LEAD SCREW (FRONT)
7	2	LD16SB-3397C-4	LEAD NUT RIGHT
8	4	LD3SB2-2025M	BEARING
9	2	LD16SB-3398C-4	LEAD NUT RIGHT
10	8	FHMI025P88	HHCS M10 X 25
11	8	FLWMIP	LOCK WASHER M10
12	8	FHFNMP	HEX NUT M10
13	4 FT	HC101	#35 ROLLER CHAIN
14	1	HC201	#35 MASTER LINK
15	1	FFWMHP	FLAT WASHER M8
16	1	FLWMHP	LOCK WASHER M8
17	1	FHMH020P10	HHCS M8 X 20
18	1	SPH-1544	COTTER PIN, HAIRPIN
19	1	SPH-1562	CAP, PUSH ON

TOLERANCES UNLESS OTHERWISE NOTED:		LOVESHAW RT. 296, SOUTH CANAAN, PA.	
INCH	XX = ±.015	ANGLES	± 1/2
METRIC	XX = ±.005	FINISH	
ST. ST.	N/A	DO NOT SCALE PRINT	
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW-ITW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OR USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN PERMISSION OF LOVESHAW-ITW. IT WILL BE RETURNED TO LOVESHAW-ITW UPON REQUEST.		TITLE SIDE BELT ADJUSTMENT ASSY.(METRIC)	
DRAWN		NOTED	
CHECKED		SCALE	
APPROVED		TONYS	

REVISION HISTORY			
REV	DESCRIPTION	DATE	APPROVED
A	RELEASED	12/4/2012	TONYS

Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	LD3SB2-2005A-4	DRIVE ROLLER
2	2	LD3SB2-2004K-4	ENDLESS BELT
3	6	FLWSDP	LOCK WASHER 1/4
4	8	K265D	SPACER 1/2"
5	2	FLWMHP	LOCK WASHER M8
6	2	FFWMHP	FLAT WASHER M8
7	2	FHHMH016P10	HHCS M8 X 16
8	2	FHJNMHP	HEX JAM NUT, M8, PLATED
9	2	FFWMIP	FLAT WASHER M10
10	2	FNLNMIP	NYLOCK NUT M10
11	4	FFHMG012P10	FHCS M6x12 LG.
12	16	FNLNMGP	M6 NYLOCK NUT
13	22	FFHMG020P10	FHCS M6 x 20
14	4	FFHSG125S08	FLAT HD 1/4-28 UNF x 1 1/4 LG. S.S.
15	8	FLWMGP	LOCK WASHER M6
17	4	SPH-1404	screw M6x20mm LG.
18	4	3SB2-3480-4	IDLER ROLLER
19	2	3SB2-3481-4	IDLER SHAFT
20	2	3SB2-3473-3	FINGER GUARD
21	2	3SB2-3475-3	GUARD NUT PLATE
22	2	3SB2-3478-3	BLOCK JACKING
23	2	3SB2-3479-3	STUD, JACKING
24	6	FHHSG150P08	HH 1/4-28 x 1 1/2" LG.
25	4	3SB2-3490-4	BELT RUB STRIP
26	2	3SB2-3489-4	BELT BACKER
27	1	3SB2-3488L/R-6	BELT ARM
28	1	3SB2-3488R-6	BELT ARM
29	2	3SB2-3491-5	BELT ARM COVER
30	1	3SB2-2010L-5	BOX GUIDE
31	4	FSHMG016P10	SHCS M6x16 LG.
32	4	FFWMGP	FLAT WASHER M6
33	4	FLWMIP	LOCK WASHER M10
34	2	LD16SB-3399E-3	SPACER
35	2	FHHMI050P88	HHCS M10 X 50
36	1	3SB2-2010R-5	BOX GUIDE RIGHT
38	2	3SB2-3467C-3	SHAFT SPACER
41	2	J122	BEARING

.BDA3SBR  
(shown exploded)



.BDA3SBL  
(shown assembled)

Loctite Application Note:  
277 is RED Loctite  
242 is BLUE Loctite  
538 is GREEN Loctite  
/ is no Loctite applied

MATL	PART #	CAD FILE	BDA3SBL.idw		TOLERANCES UNLESS OTHERWISE NOTED:		LOVESHAW an ITW Company RT. 296, SOUTH CANAAN, PA.	
NOTED	STD	PLOT DATE	1/24/2012				TITLE	
ST. ST.	N/A	DRAWN DATE	1/24/2012		INCH .XX = ±.015 .XXX = ±.005		BELT ARM ASSEMBLY	
STAINLESS : NO FINISH		DO NOT SCALE PRINT						
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW-ITW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHER WITHOUT THE EXPRESSED WRITTEN CONSENT OF LOVESHAW-ITW AND WILL BE RETURNED TO LOVESHAW-ITW UPON REQUEST.				.X = ±1.0mm METRIC .XX = ±.3mm .XXX = ±.1mm		MACH. FINISH <sup>125</sup> ✓		DWG NO BDA3SBL
								SCALE N/A
				FRACTIONS ± 1/64				CHECKED
								DRAWN TONYNS
								APPROVED TONYNS

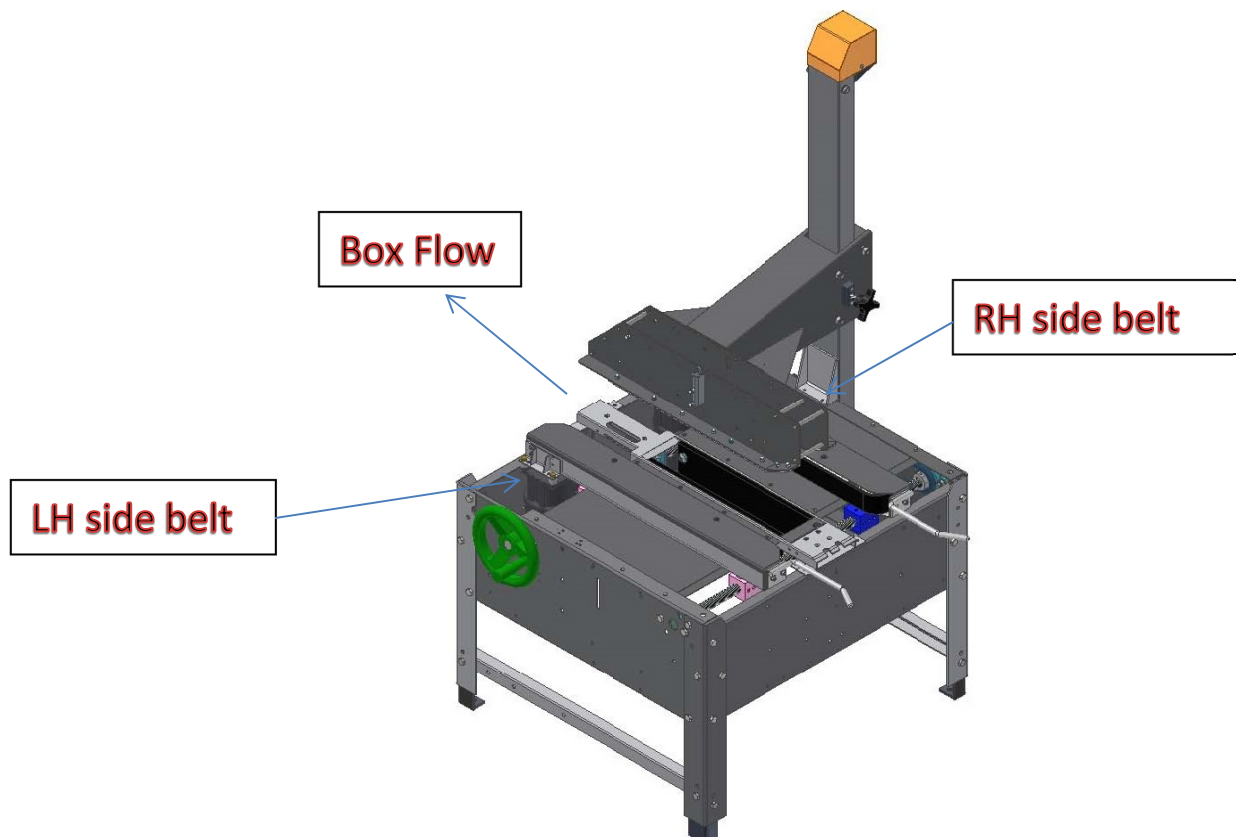
# LD3SBF & SP304F Motor Selection Chart

## SPECIAL NOTE:

Before ordering any sidebelt gear motors have machine Model, Serial Number and motor side location. This will help determine correct gear motor for replacement.

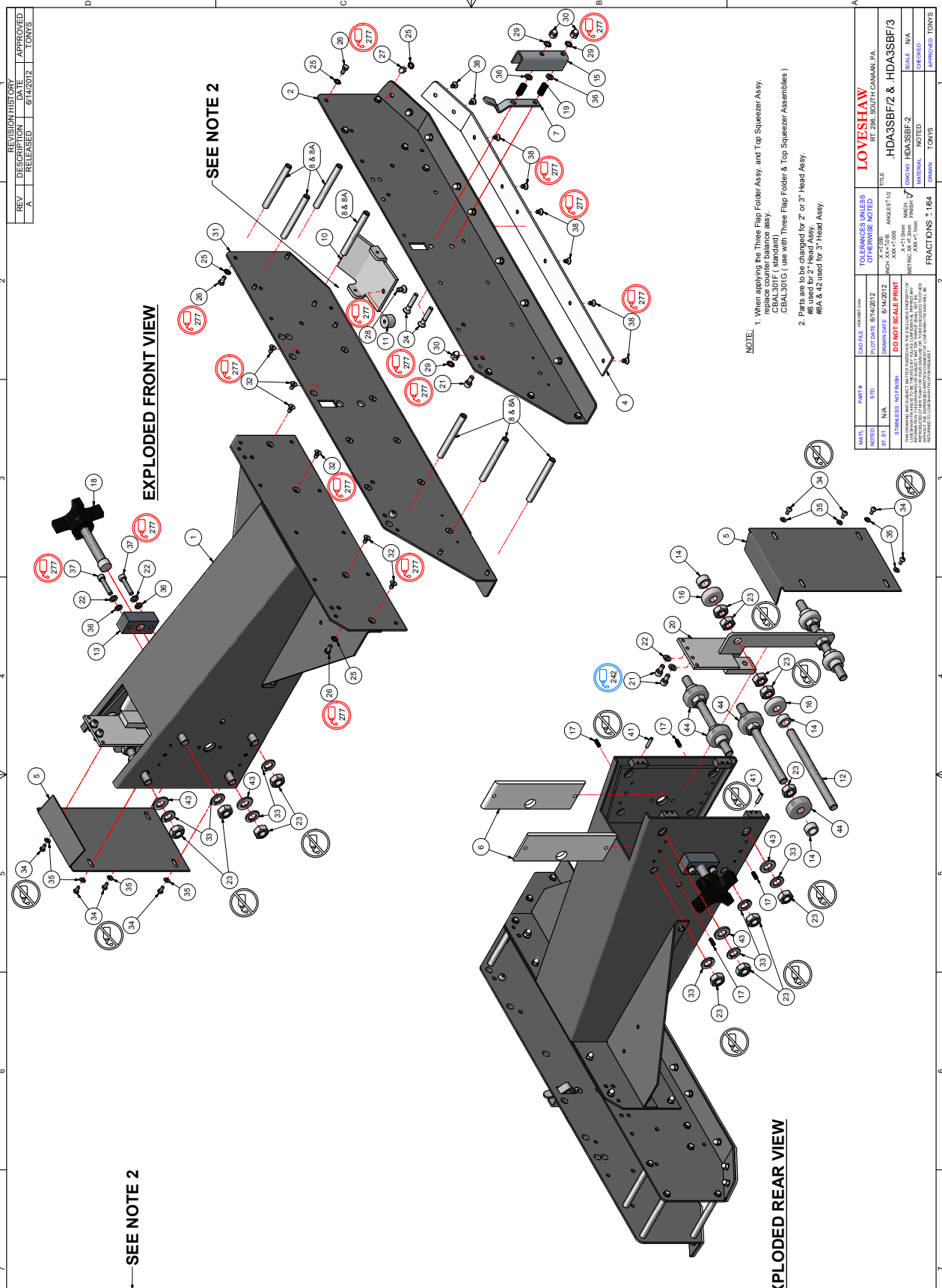
**See Special Note**

Motor Part #	Description	Voltage / Hz
50100-042R	Gear Motor RH	120/1/60
50100-042L	Gear Motor LH	120/1/60
50100-053	Gear Motor	240/1/50
50100-068	Gear Motor	220-440/3/50-60





Parts List		
ITEM	QTY	DESCRIPTION
1	1	3SB2-3509-5 HEAD WELDMENT
2	1	PSC22302-6 HEAD FRAME
3	1	PSC01131R-5 HOLD DOWN RAIL
4	1	PSC01131L-5 HOLD DOWN RAIL LEFT
5	1	PSC02308-4 HEAD COVER
6	2	PSC02306-4 SLIDE STRIP - RIGHT
7	1	PSC127B-4 DETENT PLATE
8	7	LD12B-1022-4 TIE BAR (2" HEAD)
9	7	LD12B-1012-3 TIE BAR (3" HEAD)
10	1	PSC02307-3 STUD - REAR ROLLER
11	1	PSC01201-3 STUD - REAR ROLLER
12	1	PSC02302-3 CLAMP NUT HEAD
13	1	PSC01132A-3 SPACER
14	8	PSC138-3 DETENT PLATE COVER
15	1	PSC127A-3 BALL BEARING (METRIC)
16	4	PSC03313M CLAMP SW. SCREW
17	4	PSC01131-3 SPRING
18	1	PSC01122-2 SPRING/ACTUATOR
19	2	LD1-1368-5 SHCS M6 X 1.0 X 12
20	1	FSHMG012P10 LOCK WASHER M6 LG
21	4	FLWMGP HEX DOME NUT M6
22	4	FFHMG012P10 LOCK WASHER M6 LG
23	2	FFHMG012P10 LOCK WASHER EXT.
24	2	FETLWMPF LOCK WASHER M6 LG
25	51	FETLWMPF EXT LOCK WASHER M5
26	16	FHHMF010P10 HHCS M6 X 0.8 X 10 LG
27	29	FHHMF010P10 HEX DOME NUT M6
28	1	FFHMG012P10 FHC'S M6X12 LG
29	4	FETLWMPF LOCK WASHER EXT.
30	4	FHHMG012P10 HEX DOME NUT M6
31	1	PSC22302M16 HEAD FRAME
32	13	FFHMF010P10 FHC'S M5 X 0.8 X 10 LG
33	8	FLVMJLP LOCK WASHER M12
34	4	FFHME008P10 M4 x 8mm LG
35	4	FFWMEP FLAT WASHER M6
36	4	FFWMGP FLAT WASHER M6
37	2	FFHMG012P10 FHC'S M6 X 1.0 X 20
38	16	FFHMF008P10 FHC'S M6 X 12
39	6	FHHMF012P10 HHCS M6 X 10
40	6	FHHMF012P10 HEX NUT M5
41	4	FSHME020P10 SET SCREW M4 X 20
42	2	PSC02219-3 MA5T SPACER
43	4	FFWMJLP FLAT WASHER M12
44	4	PSC011-3M BALL BEARING

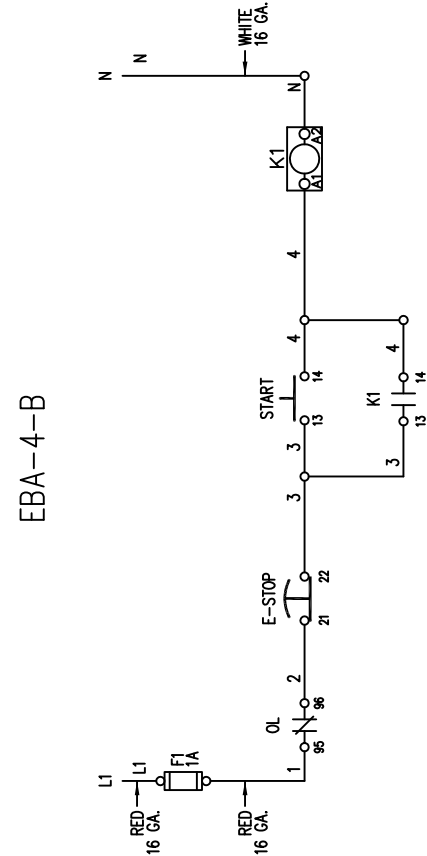




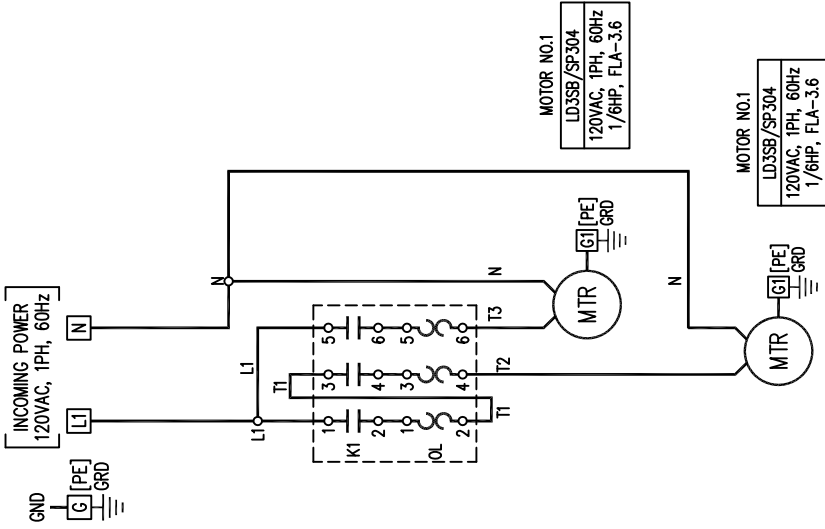
# REVISION RECORD

REV	DESCRIPTION	DATE	ATH	DR	CK
A	RELEASED	02/13			

CUSTOMER TO SUPPLY PROPERLY PROTECTED  
INCOMING POWER AS PER LOCAL CODES.



EBA-4-B



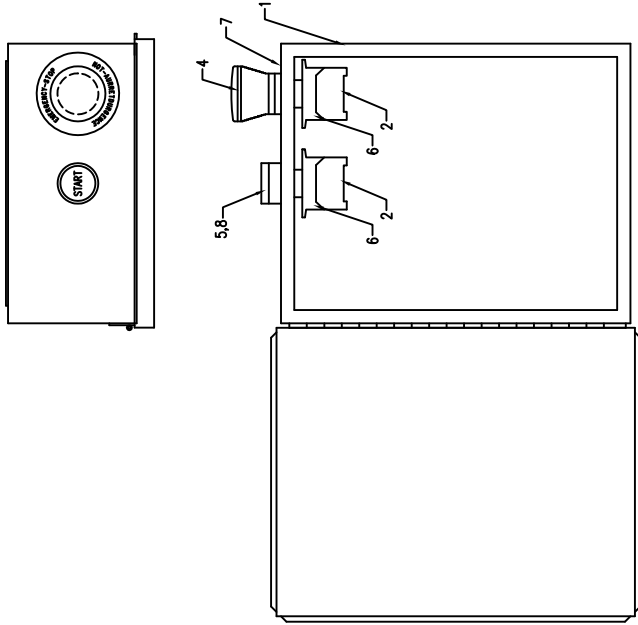
TOLERANCES EXCEPT AS NOTED	
DECIMAL (3 PLC) +/- .005	
FRACTIONAL +/- 1/64	
ANG. - 1/2°	

<b>THE LOVESHAW CORPORATION</b> RT 296, SOUTH CANAAN, PA.	
TITLE:	ELECTRICAL SCHEMATIC EBA-4-B
DWG. NO. ED2561	SCALE: N/A
MATERIAL: N/A	DATE: 2/1/13
DESIGNED: MENTA	DRAWN: WM
APPRVD: --	

# REVISION RECORD

REV	DESCRIPTION	DATE	ATH	DR	CK
A	RELEASED	02/13			

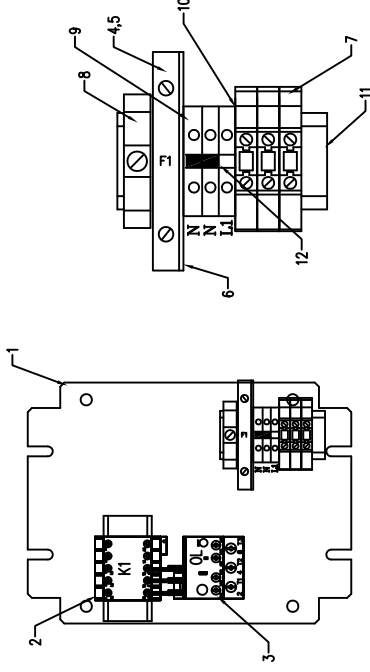
LD35B / SP304 - 120/1/60 - ENCLOSURE ASSEMBLY  
EEA-4-B



\* ENCLOSURE SHOWN WITH DOOR OPEN FOR CLARITY

ENCLOSURE ASSEMBLY BILL OF MATERIAL			
KEY	PART NO.	DESCRIPTION	QTY
1	SS1-A-R	ENCLOSURE 10x8x4	1
2	SS8-A-D7	N.O. CONTACT BLOCK	1
3	SS8-B-D7	N.C. CONTACT BLOCK	1
4	SS8-C-D7	STOP 40mm PUSH-PULL OPERATOR	1
5	SS8-D-D7	START PB OPERATOR	1
6	SS8-E-D7	COUPLING PLATE	2
7	SS8-F-D7	60mm YELLOW RING, W/EMERG STOP	1
8	SS8-G-D7	START COLOR CAP	1

LD35B / SP304 - 120/1/60 - PANEL ASSEMBLY  
EPA-4-B



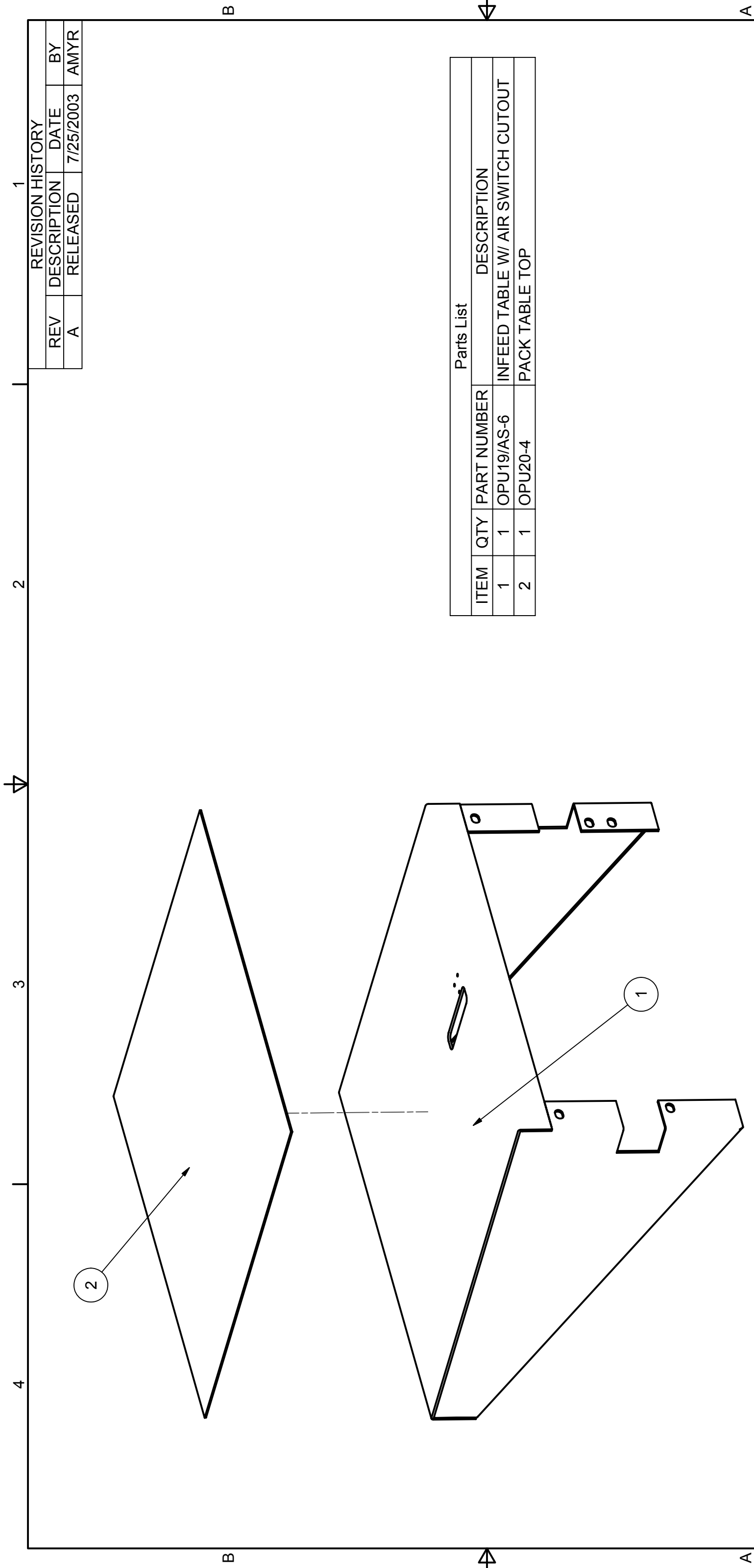
PANEL ASSEMBLY BILL OF MATERIAL			
KEY	PART NO.	DESCRIPTION	QTY
1	SS1-B-R	PANEL	1
2	SS2-A-1	CONTACTOR	1
3	SS3-I-1	MOTOR OVERLOAD	1
4	SS5-A	1A FUSE	1
5	SS6-FUSE	FUSE HOLDER	1
6	SS6-FUSE-EB	END PIECE	1
7	SS6-B	EARTH TERMINAL	3
8	SS6-C	END CLAMP-SMALL	2
9	SS6-A	TERMINAL BLOCK	3
10	SS6-J1	END PIECE	1
11	SS6-L	DIN RAIL	1
12	SS6-D-2	2 TERMINAL JUMPER	1

TOLERANCES EXCEPT AS NOTED  
*THE LOVESHAW CORPORATION*  
RT 296, SOUTH CANAAN, PA.

DECIMAL (3 PLC) +/- .005	TITLE: ELECTRICAL ASSEMBLY LD35B / SP304 - 120VAC
FRACTIONAL +/- 1/64	DWG. NO. ED2560 SCALE: N/A
ANG. - 1/2°	MATERIAL: N/A DATE: 02/01/13
	DESIGNED: MENTA DRAWN: WM APPRVD: --

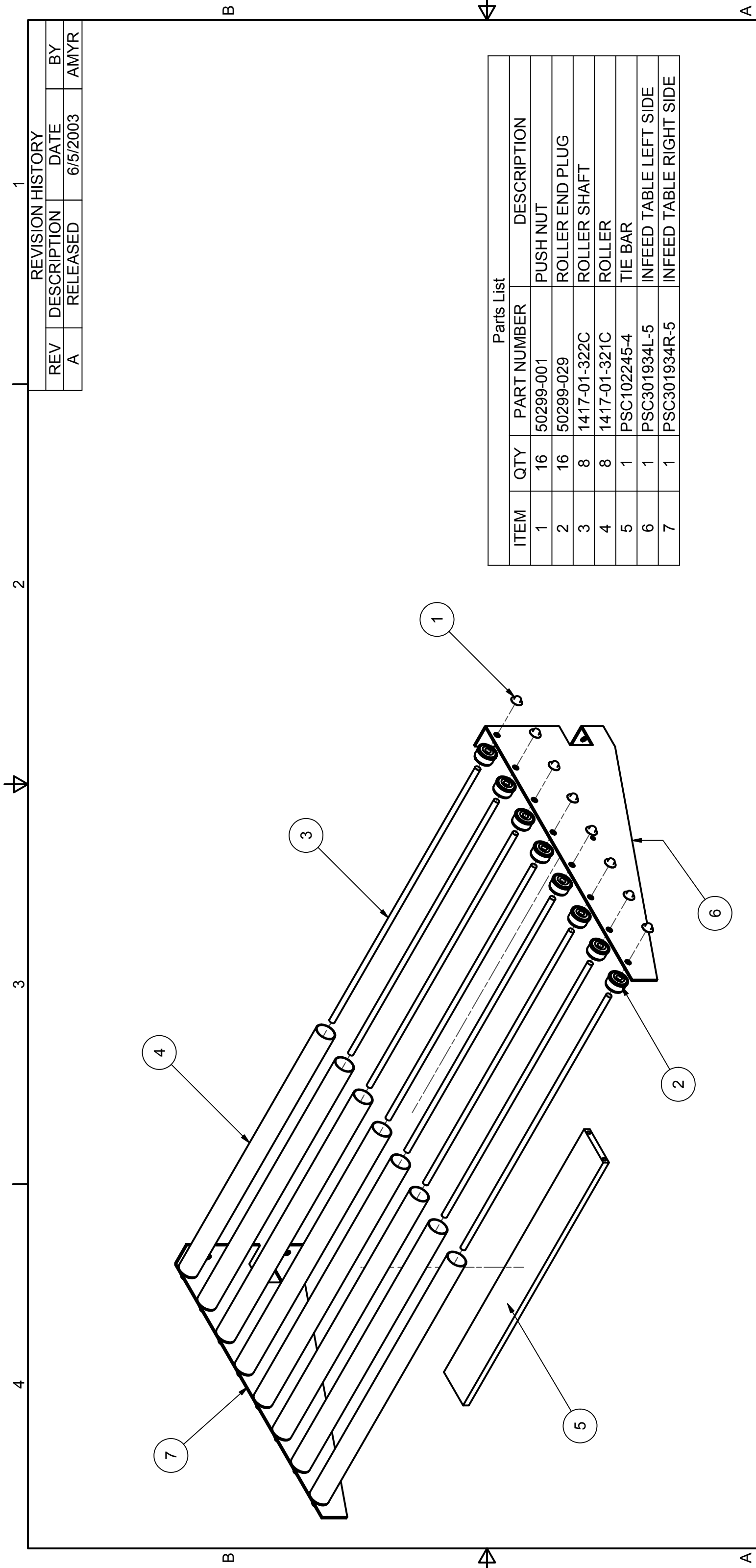


## ***MACHINE AVAIABLE SPECIAL OPTIONS***



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	OPU19/AS-6	INFEED TABLE W/ AIR SWITCH CUTOUT
2	1	OPU20-4	PACK TABLE TOP

MATERIAL		PART #	CAD FILE	ITA100	TOLERANCES UNLESS OTHERWISE NOTED:  X = ±.050 XX = ±.015 XXX = ±.005  X = ±1.0mm XX = ±1.3mm XXX = ±1.1mm  MACH. 125 FINISH  FRACTIONS 1/64	LOVESHAW RT. 296, SOUTH CANAAN, PA.			
C.R.S.		STD	PLOT DATE	7/25/2003		TITLE  INFEED TABLE ASSEMBLY			
ST. ST.		N/A	DRAWN DATE	7/25/2003					
STAINLESS : NO FINISH			DO NOT SCALE PRINT			DWG NO	ITA100	SCALE	N/A
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW-ITW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHER WITHOUT THE EXPRESSED WRITTEN CONSENT OF LOVESHAW-ITW AND WILL BE RETURNED TO LOVESHAW-ITW UPON REQUEST.					METRIC	XX = ±1.3mm XXX = ±1.1mm	MATERIAL	N/A	CHECKED
							DRAWN	AMYR	APPROVED
							FRACTIONS 1/64		



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	16	50299-001	PUSH NUT
2	16	50299-029	ROLLER END PLUG
3	8	1417-01-322C	ROLLER SHAFT
4	8	1417-01-321C	ROLLER
5	1	PSC102245-4	TIE BAR
6	1	PSC301934L-5	INFEED TABLE LEFT SIDE
7	1	PSC301934R-5	INFEED TABLE RIGHT SIDE

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	6/5/2003	AMYR

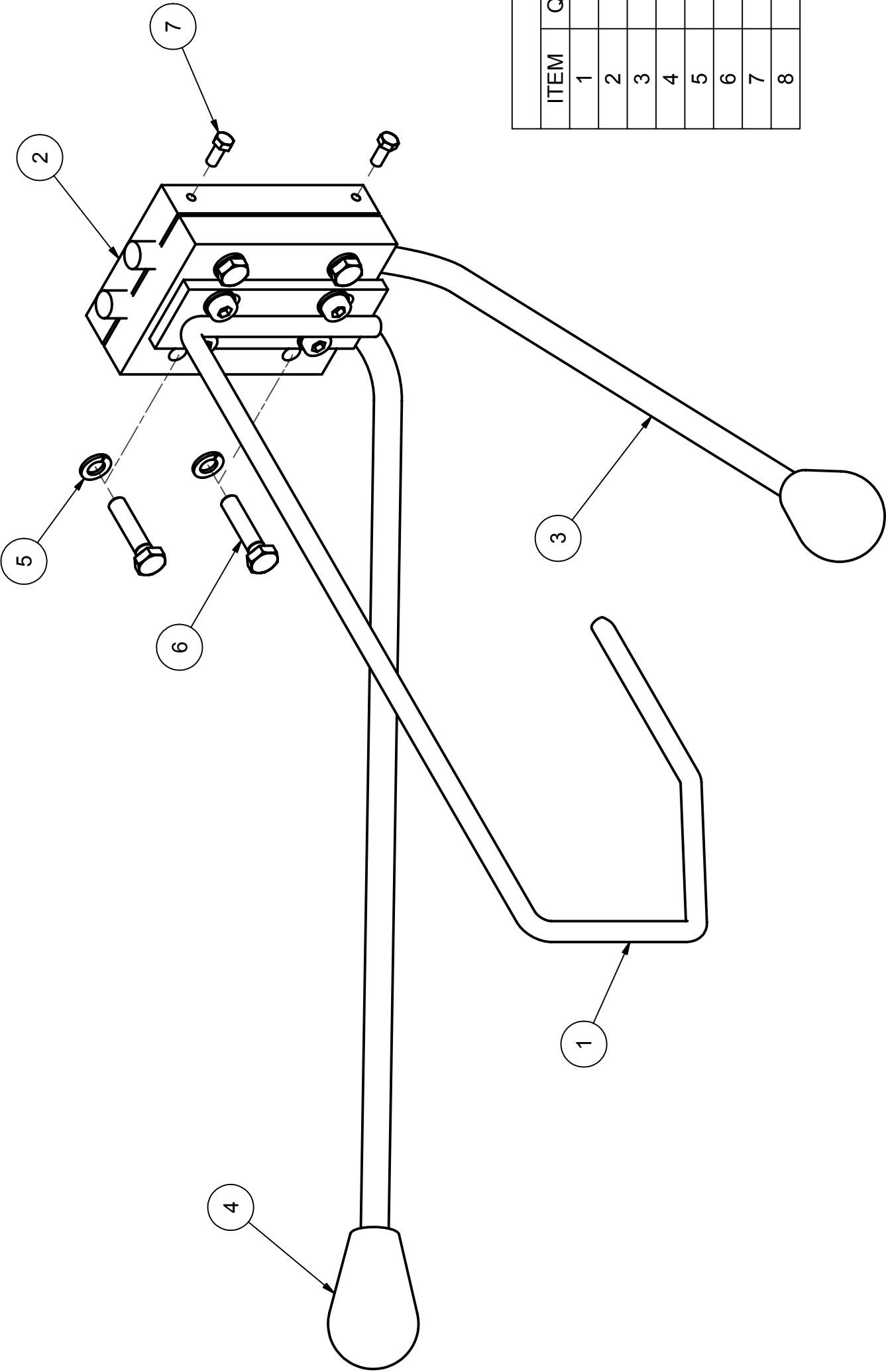
MAT'L		PART #	CAD FILE	ITA-RB	TOLERANCES UNLESS OTHERWISE NOTED:  .X =±.050 INCH .XX =±.015 .XXX =±.005  .X =±1.0mm METRIC .XX =±3mm .XXX =±1mm  FRACTIONS 1/64	TITLE INFEED PACK TABLE-ROLLER BED (FOR 3SB, 3E, 2TB)	RT. 296, SOUTH CANAAN, P.A.	LOVESHAW			
C.R.S.	STD	PLOT DATE	4/27/2005	DWG NO					.ITA-RB	SCALE	N/A
ST. ST.	N/A	DRAWN DATE	6/5/2003								
STAINLESS : NO FINISH		DO NOT SCALE PRINT			DRAWN	AMYR	APPROVED				
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LOVESHAW	
RT. 296, SOUTH CANAAN, PA.	

TITLE INFEED PACK TABLE-ROLLER BED (FOR 3SB, 3E, 2TB)	
--	--

DWG NO	ITA-RB	SCALE	N/A
MATERIAL	N/A	CHECKED	
DRAWN	AMYR	APPROVED	

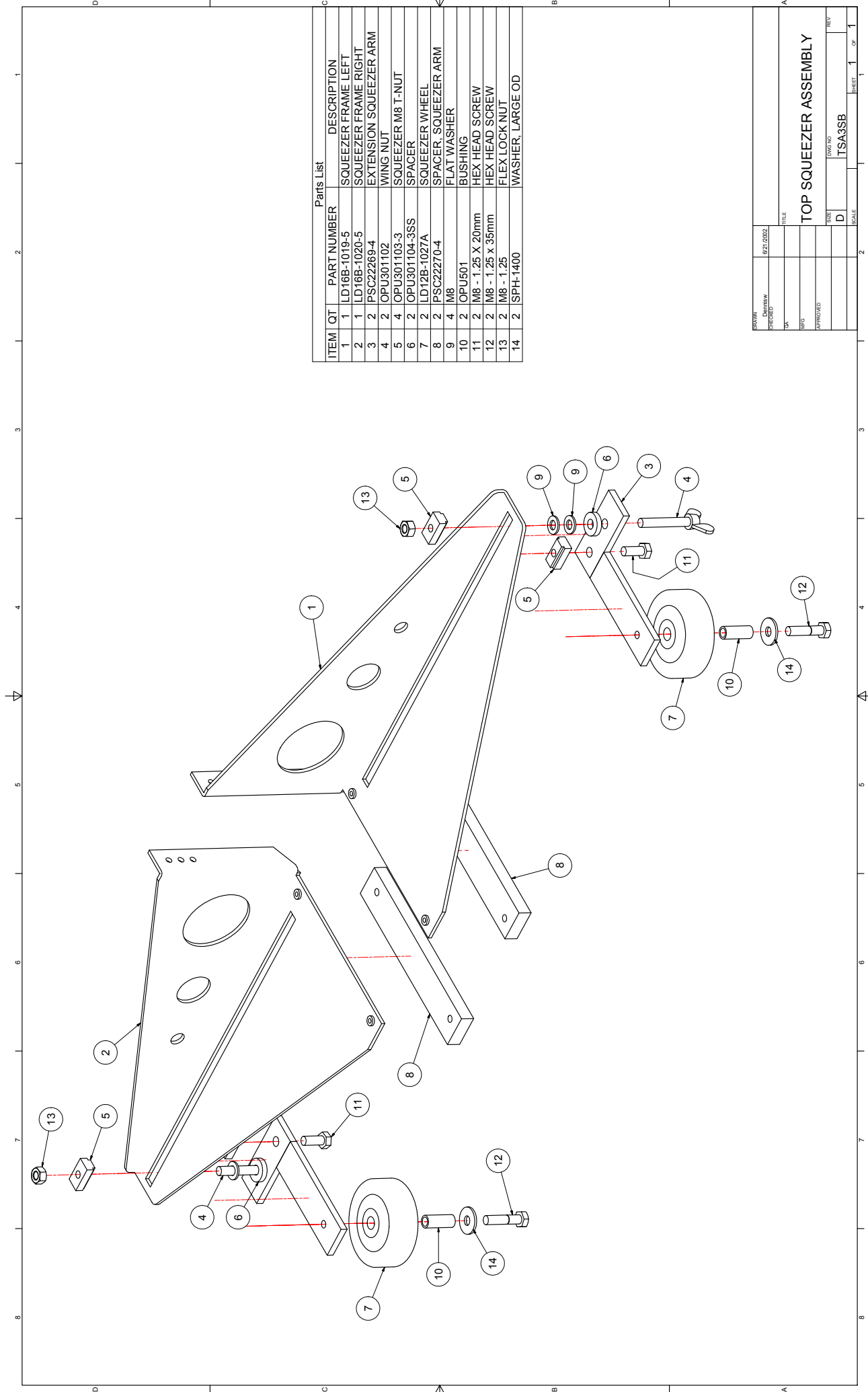
REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
A	RELEASED	6/21/2002	DW
B	M.C.R. #04-020	7/27/2004	AMYR



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	LD3SB2-3559-5	FLAP FOLDING WELDMENT
2	1	OPU301302-4	CLAMP FLAP CLOSER
3	2	PSX1933-4	FLAP CLOSER
4	2	SPH-1200	KNOB
5	8	FLWMHP	M8 LOCK WASHER
6	4	FHHMH035P10	HEX HD M8 X 35
7	4	FHHMF012910	M5 X 12 HHS
8	4	FSHMH020P10	SOC. HD. CAP SCREW M8 X 20

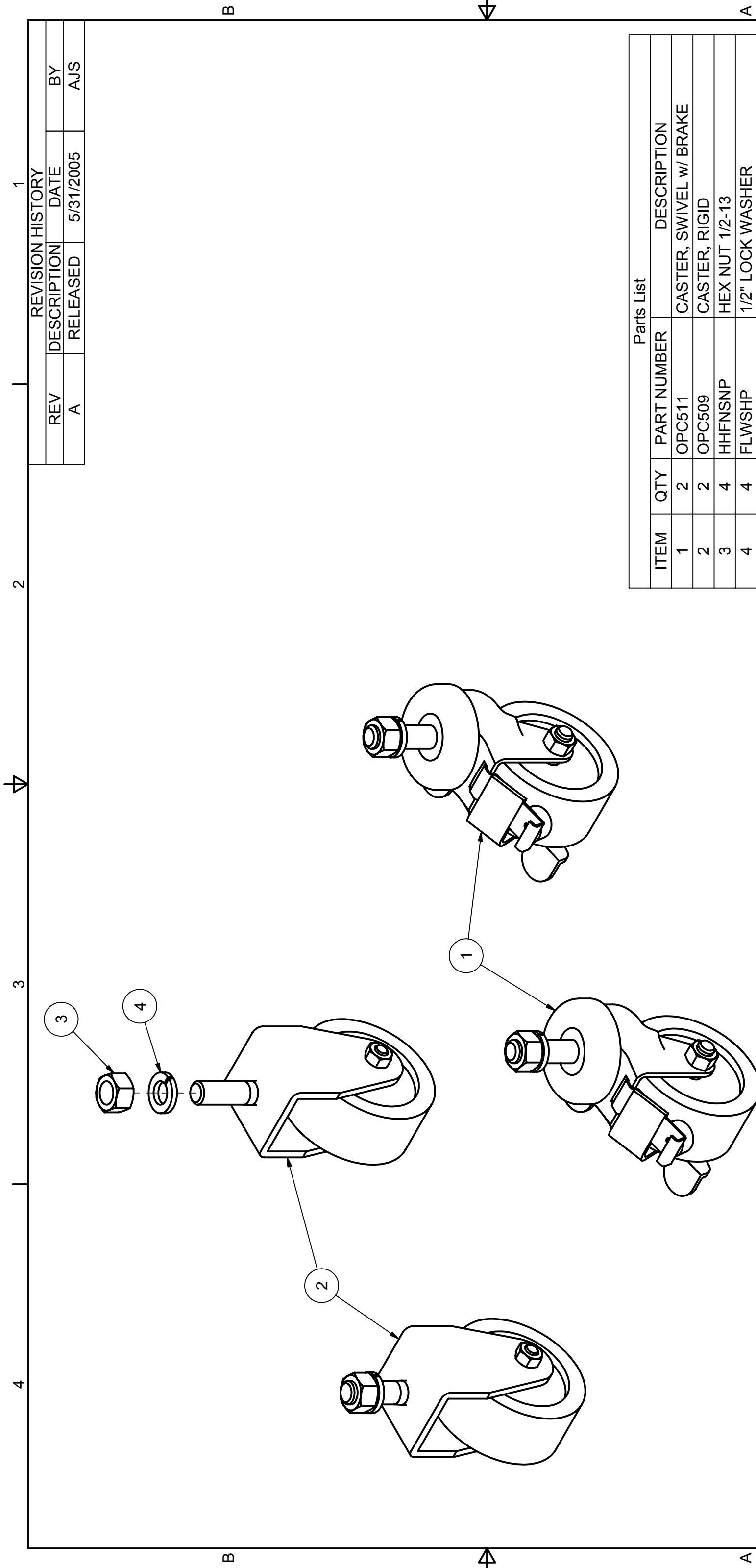
MAT'L		PART #	CAD FILE	TFF3SB-2FF	TOLERANCES UNLESS OTHERWISE NOTED:  .X =±.050 INCH .XX =±.015 .XXX =±.005  .X =±1.0mm METRIC .XX =±.3mm .XXX =±.1mm  ANGLES 1/2  MACH. 135 FINISH  FRACTIONS 1/64	LOVESHAW RT. 296, SOUTH CANAAN, PA.	
C.R.S.		STD	PLOT DATE	7/27/2004		TITLE TOP FLAP FOLDER	
ST. ST.		N/A	DRAWN DATE	6/21/2002		DWG NO .TFF3SB/2FF SCALE	
STAINLESS ; NO FINISH			DO NOT SCALE PRINT		MATERIAL N/A DRAWN AMYR		
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW-ITW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHER WITHOUT THE EXPRESSED WRITTEN CONSENT OF LOVESHAW-ITW AND WILL BE RETURNED TO LOVESHAW-ITW UPON REQUEST.					APPROVED		

FRACTIONS 1/64



Parts List			
ITEM	QT	PART NUMBER	DESCRIPTION
1	1	LD16B-1019-5	SQUEEZER FRAME LEFT
2	1	LD16B-1020-5	SQUEEZER FRAME RIGHT
3	2	PSC22269-4	EXTENSION SQUEEZER ARM
4	2	OPU301102	WING NUT
5	4	OPU301103-3	SQUEEZER M8 T-NUT
6	2	OPU301104-3SS	SPACER
7	2	LD12B-1027A	SQUEEZER WHEEL
8	2	PSC22270-4	SPACER SQUEEZER ARM
9	4	M8	FLAT WASHER
10	2	OPU501	BUSHING
11	2	M8 - 1.25 X 20mm	HEX HEAD SCREW
12	2	M8 - 1.25 x 35mm	HEX HEAD SCREW
13	2	M8 - 1.25	FLEX LOCK NUT
14	2	SPH-1400	WASHER, LARGE OD

REVISED	DATE	BY	CHKD	FILE
001	02/1/2002			
TOP SQUEEZER ASSEMBLY				
APPROVED	DATE	BY	CHKD	FILE
TSA3SB				
SCALE	1	OF	1	1



Parts List			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	2	OPC511	CASTER, SWIVEL w/ BRAKE
2	2	OPC509	CASTER, RIGID
3	4	HHFNSNP	HEX NUT 1/2-13
4	4	FLWSHP	1/2" LOCK WASHER

MAT'L		PART #	CAD FILE	LDC302.idw	TOLERANCES UNLESS OTHERWISE NOTED:  .X =±.050 INCH .XX =±.015 .XXX =±.005  .X =±1.0mm METRIC .XX =±.3mm .XXX =±.1mm  FRACTIONS 1/64	LOVESHAW RT. 296, SOUTH CANAAN, PA.			
NOTED		STD	PLOT DATE 5/31/2005			TITLE			
ST. ST.		LDC302/SS	DRAWN DATE 5/31/2005			LIGHT DUTY CASTER ASSY.			
STAINLESS ; NO FINISH			DO NOT SCALE PRINT		<div>THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW-ITW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHER WITHOUT THE EXPRESSED WRITTEN CONSENT OF LOVESHAW-ITW AND WILL BE RETURNED TO LOVESHAW-ITW UPON REQUEST.</div>	DWG NO .LDC302			SCALE N/A
						MATERIAL NOTED			CHECKED
						DRAWN tonys			APPROVED