

# LITTLE DAVID

*OWNERS MANUAL*



# LD7D

THE LOVESHAW CORPORATION  
P. O. BOX 83, RT. 296  
SOUTH CANAAN, PA 18459

TEL: (570) 937-4921  
FAX: (570) 937-4370

LOVESHAW - EUROPE  
UNIT 9, BRUNEL GATE  
W. PORTWAY INDUSTRIAL ESTATE  
ANDOVER, HAMPSHIRE SP103SL  
ENGLAND  
44-264-3575-11

## TABLE OF CONTENTS

### SUBJECT

GENERAL SAFETY PRECAUTIONS

BELT LAGGING INSTALLATION

MACHINE SPECIFICATIONS

INTRODUCTION

INSTALLATION

OPERATION

MAIN FRAME

BELT THREADING DIAGRAM

HEAD

ELECTRICAL SYSTEM

LUBRICATION

TROUBLE - SHOOTING

TAPE CARTRIDGE

WARRANTY

ILLUSTRATED REPLACEMENT PARTS  
TABLE OF CONTENTS

\*NOTE: WHEN ORDERING PARTS FOR ST. STEEL MACHINE,  
ADD (SS) TO END OF PART NUMBER

## GENERAL SAFETY PRECAUTIONS

BEFORE INSTALLING, OPERATING OR SERVICING THIS EQUIPMENT, READ THE FOLLOWING PRECAUTIONS CAREFULLY:

- \* THIS MACHINE IS EQUIPPED WITH MOVING BELTS. DO NOT PLACE HANDS NEAR THE REAR OF THIS MACHINE WHEN BELTS ARE MOVING, AS FINGERS MAY BE PINCHED WHERE BELTS ENTER FRAME. ALWAYS USE A ROLLER TYPE EXIT CONVEYOR AND ALWAYS REMOVE THE BOXES AFTER THEY CLEAR THE EXIT END OF THE MACHINE.
- \* FINGER GUARDS ARE PROVIDED TO MINIMIZE BELT GAP AS DRIVE BELTS WEAR . GAP SHOULD BE 1/32" BETWEEN GUARD AND BELT.
- \* OBSERVE CAUTION WHEN NEAR CARTRIDGE KNIFE OR WHEN THREADING TAPE. KNIFE IS VERY SHARP, AUTOMATICALLY OPERATED AND IS LINKED TO THE WIPE DOWN ROLLERS.
- \* DO NOT ATTEMPT TO OPEN OR WORK ON ELECTRICAL BOX, JUNCTION BOXES, OR OTHER ELECTRICAL COMPONENTS WITHOUT FIRST DISCONNECTING POWER TO THE MACHINE. SHOCK HAZARD EXISTS IF POWER IS NOT DISCONNECTED.
- \* DO NOT BY-PASS ANY DESIGNED-IN SAFETY FEATURES SUCH AS INTERLOCKS, GUARDS OR SHIELDS.
- \* FULLY AUTOMATIC MACHINES ARE EQUIPPED WITH A REAR FLAP KICKER. DO NOT PLACE ANY PART OF THE BODY NEAR THIS AREA WITHOUT FIRST DISCONNECTING POWER AND AIR SUPPLY.
- \* DO NOT PLACE HANDS OR BODY INSIDE CONFINES OF RANDOM TYPE MACHINES. THE SIDE RAILS AND HEAD OPERATE AUTOMATICALLY.
- \* DO NOT PLACE HANDS OR BODY INSIDE CONFINES OF UNIFORM TYPE MACHINES UNLESS HEAD IS SECURELY LOCKED AND POWER AND AIR ARE DISCONNECTED.
- \* ALWAYS DISCONNECT POWER AND AIR SUPPLY (IF APPLICABLE) BEFORE SERVICING THE MACHINE.
- \* WHEN OPERATING A SEMI-AUTOMATIC MACHINE, HOLD BOX FLAPS DOWN AT TRAILING EDGE OF THE BOX. RELEASE HANDS AS SOON AS THE BELTS TAKE THE BOX.
- \* DO NOT WEAR JEWELRY, LOOSE CLOTHING, SUCH AS TIES, SCARVES, ETC. AND LONG HAIR SHOULD BE PULLED BACK WHEN OPERATING THE MACHINE.
- \* SAFETY GLASSES SHOULD BE WORN WHEN WORKING ON OR AROUND THE MACHINE.

## BELT LAGGING INSTALLATION

1. IF THE BELT MOVES TO THE LEFT OR RIGHT AT THE EXIT END OF THE MACHINE, THEN THE BELT LAGGING (FRICTION) MATERIAL ON THE DRIVE ROLLER MUST BE CUT ON THE SAME SIDE THAT THE BELT IS MOVING TOWARDS. TO ACCOMPLISH THIS, FIRST REMOVE THE BELT THAT IS MOVING OUT OF LINE AS DESCRIBED ABOVE, SO THAT THE EXIT ROLLER CAN TURN FREELY, AFTER THE MACHINE IS TURNED ON.
2. TURN ON MACHINE AND WITH A UTILITY KNIFE, CUT ABOUT 1/8" OFF THE BELT LAGGING MATERIAL BY PLACING THE POINT OF THE KNIFE ON THE LAGGING MATERIAL WHILE THE DRIVE ROLLER IS TURNING. BE SURE TO PLACE THE KNIFE ON THE ROLLER SO THAT THE ROLLER IS MOVING AWAY FROM THE POINT OF THE KNIFE.
3. AFTER A COMPLETE CUT IS MADE, TURN MACHINE OFF AND WITH THE POINT OF THE KNIFE, LIFT UP A SECTION OF THE CUT LAGGING AND PULL OFF UNTIL IT IS REMOVED FROM THE DRIVE ROLLER COMPLETELY. (THIS CAN BE DONE BY JOGGING THE MACHINE ON/OFF WHILE PULLING THE CUT STRIP OF LAGGING).
4. REPLACE BELT AND CHECK ALIGNMENT. BELT WILL HAVE MOVED TO THE OPPOSITE SIDE THAT WAS CUT. THIS PROCEDURE MAY HAVE TO BE REPEATED UNTIL THE BELTS ARE CENTERED.

## MACHINE SPECIFICATIONS

### MACHINE DIMENSIONS:

|         |           |         |
|---------|-----------|---------|
| HEIGHT: | 56 inches | 1422 mm |
| WIDTH:  | 30 inches | 762 mm  |
| LENGTH: | 34 inches | 863 mm  |

### TABLE HEIGHT (adjustable):

|          |           |        |
|----------|-----------|--------|
| MINIMUM: | 22 inches | 560 mm |
| MAXIMUM: | 30 inches | 762 mm |

### ELECTRICAL:

|           |   |
|-----------|---|
| STANDARD: | 115V/1/60<br>240V/1/50  |
| OPTIONAL: | 220V/1/50,60<br>220V/3/50,60<br>380V/3/50<br>440V/3/50<br>440V/3/60 |

### BOX CAPACITY:

|         |                               |                             |
|---------|-------------------------------|-----------------------------|
| LENGTH: | 6 inches to<br>unlimited max. | 152 mm to<br>unlimited max. |
| WIDTH:  | 4.5 inches to<br>22 inches    | 114 mm to<br>559 mm         |
| HEIGHT: | 4.5 inches to                 | 152 mm to<br>609 mm         |

### OPERATING SPEED:

|                       |                      |           |
|-----------------------|----------------------|-----------|
| BELT SPEED:           | 80 ft / min.         | 18 m/min. |
| NUMBER OF BOXES/MIN.: | VARIES WITH BOX SIZE |           |

### CLOSURE MATERIAL - PRESSURE SENSITIVE TAPE

|                     |                           |                   |
|---------------------|---------------------------|-------------------|
| WIDTH:              | 1.5 inches to<br>2 inches | 38 mm to<br>50 mm |
| MAX. ROLL DIAMETER: | 15 inches                 | 380 mm            |
| WEIGHT: (uncrated)  | 180 lbs.                  | 81 kg.            |

## INTRODUCTION

THE LITTLE DAVID LD7D UNIFORM PRESSURE SENSITIVE TAPER IS DESIGNED TO TAPE THE TOP AND BOTTOM FLAPS OF A WIDE VARIETY OF BOX SIZES. AFTER MANUALLY ADJUSTING THE MACHINE FOR THE BOX SIZE, THE OPERATOR ONLY HAS TO FOLD THE FLAPS AND PUSH THE BOX INTO THE MACHINE AFTER WHICH THE MACHINE WILL TAPE THE TOP AND BOTTOM FLAPS AND DISCHARGE THE BOX.

THE SIMPLE BUT SOPHISTICATED DESIGN INSURES A MINIMUM OF MAINTENANCE PROBLEMS AND THE MACHINE CAN BE EASILY OPERATED BY UNSKILLED OPERATORS. DUE TO ITS SMALL SIZE AND SIMPLE PLUG-IN CONNECTION, IT CAN BE QUICKLY MOVED TO THE AREA WHERE IT IS NEEDED. IT MAY STAND ALONE OR IF DESIRED, BE INCORPORATED IN A CONVEYOR SYSTEM. ALL HARDWARE USED ON THIS MACHINE IS METRIC.

THE FINEST MATERIALS AND WORKMANSHIP HAVE BEEN EMPLOYED TO INSURE SATISFACTION. IF ADJUSTMENTS OR REPAIRS BECOME NECESSARY YOU WILL FIND SIMPLE INSTRUCTIONS OUTLINED IN THIS MANUAL. IF A PROBLEM OCCURS WHICH IS NOT COVERED IN THE MANUAL, PLEASE TELEPHONE OUR SERVICE DEPARTMENT AT:

LOVESHAW CORPORATION  
BOX 83 ROUTE 296  
SOUTH CANAAN, PA 18459  
PHONE: 1-800-962-2633 / 570-937-4921

LOVESHAW - EUROPE  
UNIT 9 BRUNEL GATE  
WEST PORTWAY INDUSTRIAL ESTATE  
ANDOVER, HAMPSHIRE SP10 3SL  
ENGLAND

ORE YOUR NEAREST LITTLE DAVID DISTRIBUTOR

## INSTALLATION

FOR DOMESTIC CUSTOMERS ONLY - THE LITTLE DAVID IS SHIPPED COMPLETELY ASSEMBLED.

THE LITTLE DAVID IS READY FOR OPERATION AFTER PLUGGING IT INTO AN APPROPRIATE GROUNDED ELECTRICAL OUTLET. THE CONNECTION CABLE IS LOCATED ON THE REAR OF THE MACHINE.

THE HEIGHT OF THE MACHINE CAN BE ADJUSTED FROM 22 INCHES TO 30 INCHES (559 mm to 762 mm) IN ONE INCH INCREMENTS BY ADJUSTING THE HEIGHT OF THE LEG EXTENSIONS.

THE MACHINE SHOULD BE PLACED ON A FLAT LEVEL FLOOR SO THAT IT DOES NOT ROCK. DUE TO ITS PORTABILITY AND EASY PLUG-IN CONNECTION, THE MACHINE MAY BE QUICKLY MOVED TO VARIOUS LOCATIONS AS THE NEED ARISES. OPTIONAL CASTERS ARE AVAILABLE, IF REQUIRED. THERE ARE HOLES PROVIDED IN THE LEG EXTENSIONS FOR LEVELING BOLTS, IF REQUIRED.

AN OPTIONAL INFEED TABLE CAN BE INSTALLED AT THE INFEED END OF THE MACHINE, HOWEVER, A CONVEYOR MAY BE USED INSTEAD. THE INFEED TABLE CAN BE USED SO THAT THE PACKER CAN FILL THE BOXES AND CLOSE THE FLAPS PRIOR TO FEEDING THE BOXES IN THE MACHINE. A CONVEYOR SHOULD BE PROVIDED AT THE OUT FEED END OF THE MACHINE TO RECEIVE THE BOXES AS THEY ARE DISCHARGED FROM THE MACHINE. **IMPORTANT: BE SURE THE TABLE AND CONVEYOR ARE 1/4" (6 mm) BELOW THE MACHINE BELT HEIGHT.**

## OPERATION

AFTER THE TAPE CARTRIDGES ARE LOADED, THE MACHINE IS READY TO SEAL BOXES. PLACE A SAMPLE BOX OF THE SIZE TO BE SEALED ON THE INFEED TABLE, FOLD THE FLAPS AND PUT JUST IN FRONT OF THE TOP TAPE CARTRIDGE. RELEASE THE SIDE RAILS BY TURNING THE SIDE RAIL LOCK HAND WHEEL COUNTERCLOCKWISE AND MOVE THE SIDE RAILS IN UNTIL BOTH RAILS ARE IN CONTACT WITH THE BOX. LOCK THE SIDE RAILS BY TURNING THE HAND WHEEL CLOCKWISE. RELEASE THE HEAD LOCK HAND WHEEL COUNTERCLOCKWISE. LOWER THE HEAD UNTIL IT MAKES CONTACT WITH THE BOX; THEN PUT A SLIGHT ADDITIONAL PRESSURE ON THE BOX. LOCK THE HEAD BY TURNING THE HEAD LOCK HAND WHEEL CLOCKWISE.

START THE MACHINE WITH THE START SWITCH LOCATED ON THE OPERATOR SIDE OF THE MACHINE. NOW THE SAMPLE BOX WILL BE TAPED AND DISCHARGED. THE MACHINE IS NOW READY TO PROCESS BOXES.

THE PACKER SHOULD FOLD THE BOX FLAPS IN THE NORMAL MANNER AND **WHILE HOLDING THEM CLOSED ON THE REAR OF THE BOX**, SHOULD FEED THE BOX INTO THE MACHINE UNTIL THE BELTS TAKE IT FROM HIM. THE MACHINE WILL SEAL THE TOP AND BOTTOM FLAPS AND DISCHARGE THE BOX TO THE OUT FEED CONVEYOR AUTOMATICALLY.

## MAIN FRAME

### STARTER SWITCH:

THE STARTER SWITCH IS MOUNTED ON THE OPERATOR SIDE OF THE MACHINE. IT INCORPORATES A CIRCUIT BREAKER THAT IS SET TO TRIP AT THE PROPER RATING OF THE MOTOR. TO REPLACE THIS SWITCH, FIRST DISCONNECT THE MACHINE FROM THE ELECTRICAL SUPPLY. REMOVE THE SWITCH BY LOOSENING THE TWO FASTENING SCREWS AND PULL THE SWITCH FROM THE ELECTRICAL BOX. REMOVE THE WIRES AFTER FIRST NOTING THEIR CONNECTIONS TO THE SWITCH.

TO REPLACE THE STARTER SWITCH, REVERSE THE ABOVE PROCEDURE.

### SIDE RAILS:

THE SIDE RAIL CENTER AND ALIGN THE BOX AS IT IS BEING PROCESSED. THEY ARE SET MANUALLY BY LOOSENING THE SIDE RAIL LOCK HAND WHEEL COUNTERCLOCKWISE. MOVE THE SIDE RAILS IN UNTIL BOTH SIDE RAILS COME IN CONTACT WITH THE BOX. RELOCK THE SIDE RAILS BY TURNING THE SIDE RAIL LOCK HAND WHEEL CLOCKWISE.

IF A SIDE RAIL NEEDS REPLACING, REMOVE THE TWO SCREWS ON THE TOP OF THE SIDE RAIL AND REPLACE WITH NEW ONE. SECURELY TIGHTEN SCREWS WHEN REPLACING A SIDE RAIL.

### BELTS:

TWO BELTS LOCATED ON THE BED OF THE MACHINE DRIVE THE BOX THROUGH THE MACHINE. THE BELTS RUN OVER A DRIVE ROLLER LOCATED AT THE EXIT END OF THE MACHINE, AND THEN ARE THREADED OVER THE INFEED ROLLERS LOCATED AT THE INFEED END.

TO REPLACE A BELT, BRING THE BELT LACING PIN TO THE TOP OF THE MACHINE. PUSH THE BELT TENSIONING BRACKET TOWARD THE EXIT END OF THE MACHINE AND PULL THE BELT LACING PIN. REMOVE THE OLD BELT AND REPLACE WITH THE NEW ONE. FOLLOW THE BELT THREADING DIAGRAM. MAKE SURE THE SPRINGS ON THE BELT TENSIONING ROLLER BRACKET ARE IN PLACE.

EACH BELT IS REPLACED SEPARATELY, HOWEVER, IT IS RECOMMENDED THAT BOTH BELTS BE REPLACED AT THE SAME TIME. IT IS IMPORTANT THAT FACTORY SUPPLIED BELTS BE USED SINCE THEY ARE OF SPECIAL CONSTRUCTION.

### BELT THREADING DIAGRAM

| KEY | PART NUMBER | DESCRIPTION            |
|-----|-------------|------------------------|
| 1   | PSC301244-4 | BELT                   |
| 2   | PSC301217-4 | DRIVE ROLLER           |
| 3   | PSC301232   | BELT TENSIONING SPRING |
| 4   | K286D       | GUIDE ROLLER           |
| 5   | PSC301208-5 | INFEED ROLLER BRACKET  |
| 6   | PSC301211-4 | INFEED ROLLER          |

## HEAD

THE HEAD RIDES ALONG THE MAST ON BEARINGS AND HIGH DENSITY POLYETHYLENE PADS. THE HEAD HEIGHT IS ADJUSTED BY TURNING THE HEAD LOCK HAND WHEEL COUNTERCLOCKWISE TO RELEASE THE HEAD. TURNING THE HAND WHEEL CLOCKWISE WILL LOCK THE HEAD IN THE DESIRED POSITION.

### BEARINGS:

IF ANY OF THE BEARINGS WHICH RUN AGAINST THE MAST NEED TO BE REPLACED, PROCEED AS FOLLOWS:

- DISCONNECT ELECTRICAL SUPPLY. PLACE A STURDY BOX/BLOCK ON BED OF MACHINE AND LOWER HEAD ONTO IT.
- REMOVE COVER FROM BACK OF HEAD TO EXPOSE BEARINGS. LOOSEN OUTSIDE NUTS ON THREADED SHAFT.
- BACK OFF NUTS BETWEEN BEARINGS WHILE TURNING THREADED SHAFT WITH A SCREW DRIVER UNTIL DEFECTIVE BEARING CAN BE REMOVED.
- REVERSE ABOVE PROCEDURE TO REPLACE BEARING.
- THE FRONT BEARINGS ARE ACCESSIBLE THROUGH THE BOTTOM OF THE HEAD.

WHENEVER THE BEARINGS HAVE BEEN CHANGED, THE CLEARANCE BETWEEN THE HEAD AND THE MAST MUST BE RE-ALIGNED. THE CLEARANCE BETWEEN THE TEFLON SLIDES AND THE SIDES OF THE MAST SHOULD BE ADJUSTED TO APPROXIMATELY .020" (.5 mm). THIS SHOULD BE CHECKED THROUGH THE HEADS RANGE OF TRAVEL TO INSURE THAT THIS CLEARANCE EXISTS AT THE HIGH POINTS OF THE MAST.

THE CLEARANCE BETWEEN THE BEARINGS AND THE FRONT AND REAR SURFACES OF THE MAST SHOULD BE SUCH THAT THE HEAD MOVES FREELY AND DOES NOT COCK OR SAG. TO ADJUST THE CLEARANCE, PROCEED AS FOLLOWS:

- REMOVE COVER FROM REAR OF HEAD.
- ADJUST CLEARANCE OF TEFLON SLIDES OF MAST BY LOOSENING LEFT NUT ON THREADED SHAFT LOCATED ON THE OUTSIDE OF THE HEAD, AND TIGHTEN NUT LOCATED AGAINST INSIDE OR ROLLER A CORRESPONDING AMOUNT. THIS IS THE EFFECT OF SPREADING OPEN THE SIDES OF THE HEAD. ADJUST THE FRONT AND REAR THREADED SHAFTS TOGETHER TO KEEP THE TEFLON SLIDES PARALLEL TO THE MAST. FIRST ADJUST THE UPPER PAIR OF SHAFTS THEN ADJUST THE LOWER PAIR OF SHAFTS.
- MOVE HEAD THROUGH ITS FULL TRAVEL AND CHECK THAT TEFLON SLIDES HAVE PROPER CLEARANCE AT THE HIGH POINTS.
- NEXT ADJUST THE FORE AND AFT ADJUSTMENT SCREWS. THESE ARE SET SCREWS THAT ARE LOCATED IN THE FOUR BLOCKS TO WHICH THE HEAD COVER IS MOUNTED. TURNING THEM CLOCKWISE WILL MOVE THE ADJACENT REAR BEARINGS IN TOWARD THE MAST. THEY SHOULD BE ADJUSTED SO THAT THE BEARING JUST CLEARS THE MAST. LOOSEN THE FOUR OUTSIDE NUTS OF THE TWO REAR THREADED SHAFTS BEFORE MAKING THIS ADJUSTMENT SO THAT THE SHAFTS CAN MOVE IN THEIR OVER-SIZED HOLES. BE SURE TO TIGHTEN THE OUTSIDE NUTS AFTER ADJUSTING. WHEN PROPERLY ADJUSTED, THE HEAD WILL BE PARALLEL TO THE BED OF THE MACHINE AND WILL NOT COCK ON THE MAST AND THE BEARINGS SHOULD RUN FREELY.
- MOVE THE HEAD THROUGH ITS FULL TRAVEL AND CHECK THAT THERE IS PROPER CLEARANCE AT THE HIGH POINTS.
- REPLACE HEAD COVER.

## **ELECTRICAL SYSTEM**

THE ELECTRICAL SYSTEM CONSISTS OF TWO FRACTIONAL HP DRIVE MOTORS AND THE STARTER SWITCH. THE MOTORS AND FRAME ARE GROUNDED THROUGH THE ELECTRICAL CONNECTOR.

THE CIRCUIT BREAKER IS FACTORY SET. IF IT TRIPS, IT SHOULD BE RESET AFTER INSPECTION OF THE ELECTRICAL SYSTEM.

**WARNING:** THE INSPECTION OF THE ELECTRICAL SYSTEM SHOULD BE DONE BY A QUALIFIED ELECTRICIAN **ONLY!**

## **LUBRICATION**

ALL MECHANICAL PARTS ON THE LITTLE DAVID ARE PERMANENTLY LUBRICATED AND SEALED BEARINGS ARE USED THROUGHOUT.

THE REDUCER USES 6 TO 8 OZS. OF SCH634.

THE MAST SHOULD BE CLEANED AND SPRAYED WITH A SILICONE LUBRICANT - THIS SHOULD BE DONE ON A WEEKLY BASIS TO ENSURE FREE MOVEMENT OF THE HEAD.

## **TROUBLE SHOOTING**

### **TAPING DIFFICULTIES:**

1. TAPE DOES NOT ADHERE WELL TO BOX:
  1. CHECK THAT BOX IS NOT WAXY OR OILY.
  2. CHECK THAT BOX IS PROPERLY CUT AND SCORED SO THAT THE FLAPS DO NOT OVERLAP. IF THE TAPE ADHERES TO THE TOP AND BOTTOM BUT NOT TO THE END PANELS, THE BOX MAY BE SKEWED FORMING A PARALLELOGRAM. IF THIS CONDITION EXISTS, BRING IT TO THE ATTENTION OF YOUR BOX SUPPLIER.
  3. CHECK THE PRESSURE ON THE WIPE DOWN ROLLERS. IF NECESSARY, INCREASE THE MAIN SPRING PRESSURE.
  4. CHECK THAT THE SPRING IS NOT BROKEN.
  
2. TAPE END STICKS TO ITSELF OR MECHANISM:
  1. CHECK THAT THERE IS NOT TOO MUCH DRAG ON THE TAPE CAUSING STRETCHING AND SNAP BACK AT CUT OFF. REDUCE THE TAPE CORE DRAG SETTING.
  2. CHECK THE TAPE THREADING PATH.
  3. CHECK FOR DEFECTIVE TAPE ROLL BY PULLING TAPE OFF MANUALLY. THE PULL SHOULD BE EVEN AND NOT VARY SUDDENLY.
  4. CHECK TAPE GUIDE PLATE SETTING AND FREEDOM OF MOVEMENT.
  5. CHECK ROLLER FOR BINDING.
  
3. TAPE BREAKS OR JAMS:
  1. CHECK THE TAPE ROLL BY PULLING TAPE OFF MANUALLY. THE PULL SHOULD BE EVEN AND SHOULD NOT VARY SUDDENLY.
  2. CHECK THE TAPE CORE DRAG SETTING.
  3. CHECK THE TAPE THREADING PATH.
  4. CHECK FOR NICKS IN EDGE OF TAPE ROLL. PULL OFF DAMAGED TAPE.
  5. TAPE TENSION SET TOO HIGH.
  
4. TAPE WRINKLES:
  1. CHECK THE TAPE ROLL BY PULLING TAPE OFF MANUALLY. THE PULL SHOULD BE EVEN AND SHOULD NOT VARY SUDDENLY.
  2. CHECK THE PRESSURE OF THE WIPE DOWN ROLLERS. TOO MUCH OR NO PRESSURE MAY CAUSE WRINKLES. PRESSURE THAT IS TOO GREAT MAY DEPRESS THE FLAPS CAUSING PROBLEMS. IF NECESSARY, RE-ADJUST THE PRESSURE.
  3. CHECK THAT ALL THE ROLLERS TURN FREELY ON THEIR SHAFTS.
  4. CHECK THE BOX CONTENTS. PARTIALLY FULL BOXES OR VERY COMPRESSIBLE CONTENTS MAY ALLOW THE FLAPS TO DEPRESS EXCESSIVELY CAUSING WRINKLES.
  5. CHECK THE DRAG OF THE TAPE. TOO MUCH DRAG MAY CAUSE OVERRUNNING OF THE TAPE ROLL. ADJUST THE TAPE CORE DRAG SETTING.
  6. TAPE TENSION SET TOO HIGH.
  7. CHECK ROLLER STOP INSIDE CARTRIDGE.
  8. CHECK THAT THE TAPE IS PROPERLY THREADED AND THAT TAPE CORE IS PROPERLY CENTERED.

## TROUBLE SHOOTING

9. CHECK THE PRESSURE OF THE HEAD AGAINST THE BELTS AND HESITATE AS IT IS BEING FED THROUGH THE MACHINE. ADJUST THE HEAD HEIGHT.
  10. CHECK THAT THE BELTS ARE NOT SLIPPING.
  11. CHECK ADJUSTMENT OF THE GUIDE PLATE AND FINGER PLATE.
5. SHORT TAPE TAB ON BOX:
1. CHECK TAPE TENSION.
  2. CHECK ROLLERS FOR BINDING.
6. TAPE NOT BEING WIPED ON BOTTOM OF BOX:
- THERE ARE LARGE ECCENTRIC STOPS THAT ARE FACTORY SET TO INSURE THAT FRONT ROLLER ARM CANNOT BE DEPRESSED BELOW BOX HEIGHT. THEY ARE LOCATED INSIDE CARTRIDGE ON BOTH SIDES. WHEN FULLY DEPRESSED, FRONT WIPE ROLLER SHOULD PROTRUDE 3/32" ABOVE CARTRIDGE FRAME. IF THIS NEEDS ADJUSTING, ROTATE THE ECCENTRIC STOPS. USE BOTH STOPS AND MAKE SURE ROLLER ARM CONTACTS FLAT SURFACES. WHEN PROCESSING BOXES LESS THAN 5" HIGH, THE ECCENTRIC STOPS MUST BE MOVED TO THE OPPOSITE HOLE IN THE CARTRIDGE FRAME. THE FRONT ROLLER SHOULD THEN PROTRUDE TO BELT LEVEL.
7. TAPE NOT CUTTING:
1. CHECK KNIFE ARM FOR MECHANICAL BINDING.
  2. CHECK THAT KNIFE IS NOT DULL.
  3. CHECK SPRINGS ON KNIFE STUDS.
  4. CHECK BUSHINGS IN KNIFE STUDS.
  5. IF KNIFE STOP BLOCK IS CAUSING FRICTION ON KNIFE STUDS, ROTATE UNTIL FREE.
  6. TAPE TENSION IS SET TOO LOW.
8. TAPE NOT CENTERED ON BOX:
1. USE SCREW IN CENTER OF TAPE CORE TO RE-ALIGN.
9. TAPE NOT BEING WIPED:
1. CHECK MAIN SPRING.
  2. TAPE TENSION IS SET TOO HIGH.

## **BOX PROBLEMS:**

### **BOXES JAMMING IN MACHINE:**

1. JAM CLEARING PROCEDURE:
  1. STOP MACHINE.
  2. OPEN SIDE RAILS AND RAISE HEAD.
  3. REMOVE JAMMED BOXES. CUT TAPE FLUSH WITH END OF WIPE ROLLER.
  4. RESET HEAD AND SIDE RAILS TO A SAMPLE SIZE BOX.
  5. START MACHINE. MACHINE IS NOW READY TO PROCESS THE NEXT BOX.
2. INCORRECT BOX SIZE OR SHAPE:
  1. CHECK BOXES TO MAKE SURE THE SIZE FALLS WITHIN THE LIMITS OF THE MACHINE.
  2. MACHINE WILL NOT PROCESS UNSTABLE BOXES.
3. CONTENTS BULGING THROUGH TOP OF BOX:
  1. CHECK TO BE SURE BOX IS NOT OVERFILLED WITH CONTENTS.
4. BOX SLIPPING AGAINST BELTS:
  1. INCREASE HEAD PRESSURE.
5. SIDE RAIL PRESSURE TOO HIGH:
  1. OPEN SIDE RAILS SLIGHTLY.
6. HEAD PRESSURE TOO HIGH:
  1. RAISE HEAD SLIGHTLY.

## **BELT DRIVE PROBLEMS:**

CHECK THAT MACHINE IS CONNECTED TO A LIVE ELECTRICAL SOURCE.

1. BELTS SLIP:
  1. RAISE HEAD SLIGHTLY.
  2. CHECK BELT TENSIONING SPRINGS. REPLACE IF MISSING OR BROKEN.
2. BOX SLIPS AGAINST BELTS:
  1. LOWER HEAD SLIGHTLY TO INCREASE PRESSURE ON BOX.
3. BELTS RUB AGAINST FRAME:
  1. CHECK THAT BELTS ARE POSITIONED CORRECTLY IN BETWEEN THE BELT GUIDE ROLLERS.
  2. CHECK FOR MISSING OR BROKEN BELT TENSIONING SPRINGS.

## **TAPE CARTRIDGE**

### **TAPE TENSION ROLLER:**

THE TAPE TENSION ROLLER MAINTAINS CONSTANT TENSION THROUGHOUT THE LIFE OF THE TAPE ROLL. IT HAS A ONE-WAY CLUTCH TO PREVENT PULL BACK ON TAPE. TURNING THE NYLOK NUT CLOCKWISE INCREASES THE TENSION. COUNTERCLOCKWISE DECREASES TENSION. TOO MUCH TENSION WILL CAUSE PROBLEMS.

### **WIPE DOWN ROLLERS:**

THE RUBBER WIPE DOWN ROLLERS WIPE THE TAPE ONTO THE BOX AS IT PASSES THROUGH THE MACHINE. THE FRONT ROLLER HAS A ONE-WAY CLUTCH TO PREVENT KICKBACK OF TAPE. THE PRESSURE EXERTED BY THE ROLLERS IS ADJUSTABLE BY CHANGING THE POSITION OF THE MAIN SPRING TO A DIFFERENT HOLE ON THE MAIN TIE BAR. THE PRESSURE SHOULD BE SUFFICIENT TO OBTAIN A GOOD WIPE. TOO MUCH PRESSURE CAN CAUSE PREMATURE WEAR. PRESSURE SHOULD BE REDUCED WITH UNDER FILL OR COMPRESSIBLE CONTENTS.

### **TAPE GUIDE PLATE:**

THE TAPE IS GUIDED TO THE FRONT ROLLER BY THE GUIDE PLATE. THE FLAT PORTION OF THIS PLATE MUST BE TANGENT TO THE RUBBER ROLLER FOR PROPER FUNCTION. THIS IS ADJUSTABLE BY ROTATING THE ECCENTRIC STOP IT BEARS AGAINST. THE TAPE GUIDE PLATE IN CONJUNCTION WITH THE FINGER PLATE FORMS THE TAPE WHICH ALLOWS IT TO STAND UP. THE TAPE GUIDE PLATE MOVES AS THE BOX PASSES, TO FORM A CORNER. THIS ENSURES SMOOTH TIGHT TAPE APPLICABLE TO THE LEADING CORNER OF THE BOX.

### **FINGER PLATE:**

THE FINGER PLATE PRESSES AGAINST THE ADHESIVE SIDE OF THE TAPE AND FORCES THE TAPE TO TAKE THE SHAPE OF THE TAPE GUIDE PLATE. IT IS IMPORTANT THAT THE FINGERS JUST MAKE CONTACT WITH THE TAPE GUIDE PLATE, WHEN THERE IS NO TAPE IN CARTRIDGE. IF AN ADJUSTMENT IS NECESSARY GENTLY BEND THE FINGERS NEAR THE TIPS. ONLY BEND A SMALL AMOUNT, THEN CHECK. FINGERS MUST CONTACT PLATE. WHEN THE GUIDE PLATE IS MOVED THE FINGERS SHOULD NOT FOLLOW. NOTE: FINGERS SHOULD BE ABLE TO MOVE 1/8" AWAY FROM PLATE.

### **KNIFE ARM:**

THE KNIFE ARM IS MOUNTED AT AN ANGLE TO CUT THE TAPE LIKE A SCISSORS. A STUD LOCATED ON THE MOUNTING BLOCK TO PREVENT INCORRECT REPLACEMENT OF KNIFE. THE KNIFE SHOULD BE CLEANED PERIODICALLY USING A RAG AND CLEANING FLUID. DO NOT USE A WIRE BRUSH OR OTHER ABRASIVE DEVICE. THE KNIFE ARM SHOULD BE ADJUSTED SO THAT THE TIPS OF THE KNIFE ARM ARE 2 1/2" FROM THE CARTRIDGE FRAME. THIS CAN BE ADJUSTED BY LOOSENING THE SMALL NUT ON THE KNIFE ARM STUD AND ROTATING THE STUD UNTIL THE LARGE NUT CONTACTS THE BUMPER AT THE DESIRED SETTING. KNIFE ARM TENSION IS CONTROLLED BY THE COMPRESSION SPRING ON THE STUD. TIGHTEN THE NYLOK NUT FOR GREATER TENSION. ALWAYS POWER DOWN MACHINE FIRST.

## **LOADING TAPE:**

### **TOP TAPE:**

1. RETRACT DETENT WITH RIGHT HAND.
2. WITH LEFT HAND, GRAB CARTRIDGE NEAR TAPE CORE AND ROTATE UP/BACK UNTIL CARTRIDGE RESTS AGAINST STOP.
3. LOAD TAPE ON TAPE CORE
4. FOLD TAPE ON ITSELF TO PREVENT ADHESIVE FROM GRABBING CARTRIDGE (ABOUT 1 FT. IN LENGTH).
5. THREAD AS PER DIAGRAM.
6. ROTATE REAR ROLLER ARM TO EXPOSE KNIFE.
7. PULL EXCESS TAPE ACROSS KNIFE TO CUT OFF FOLDED TAPE.
8. RELEASE REAR ROLLER ARM.
9. GRAB TAPE ROLL WITH LEFT HAND AND ROTATE CARTRIDGE UNTIL IT CONTACTS DETENT. MAINTAIN GRIP OF TAPE ROLL WITH LEFT HAND WHILE RETRACTING DETENT WITH RIGHT HAND. LOWER CARTRIDGE INTO PLACE AND RELEASE DETENT.

### **BOTTOM TAPE:**

1. GRAB REAR ROLLERS.
2. GRAB FRONT SHAFT OF CARTRIDGE.
3. RAISE REAR OF CARTRIDGE AND MOVE CARTRIDGE UP AND OUT OF MACHINE.
4. THREADING IS THE SAME AS TOP CARTRIDGE.
5. GRABBING THE CARTRIDGE BY REAR ROLLER AND FRONT SHAFT, ANGLE FRONT OF CARTRIDGE ONTO MOUNTING BOLTS AND THEN LOWER REAR OF CARTRIDGE.

**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**, AN **ITW** COMPANY (HEREIN AFTER “**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:

DRIVE MOTOR - 2 YEARS  
GEAR REDUCER - 2 YEARS  
GEAR MOTOR - 2 YEARS  
TAPE CARTRIDGE - 3 YEARS

(THIS APPLIES TO SIDE BELTS ONLY)  
(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.)

PLC - 1 YEAR  
SERVO DRIVE - 1 YEAR  
ALL OTHER PARTS - 1 YEAR

(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.)

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 REPLACEMENTS AND REPAIRS MUST BE MADE BY LOVESHAW OR A LOVESHAW 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**, AN **ITW** 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 AN ITW COMPANY**  
ROUTE 296, SOUTH CANAAN, PA 18459  
TEL: 570.937.4921 - 800.572.3434 - FAX: 570.937.3229

## ILLUSTRATED REPLACEMENT PARTS TABLE OF CONTENTS

FRAME ASSEMBLY

HEAD ASSEMBLY

HEAD COUNTER BALANCE ASSEMBLY

MAST ASSEMBLY

SIDE RAIL ASSEMBLY

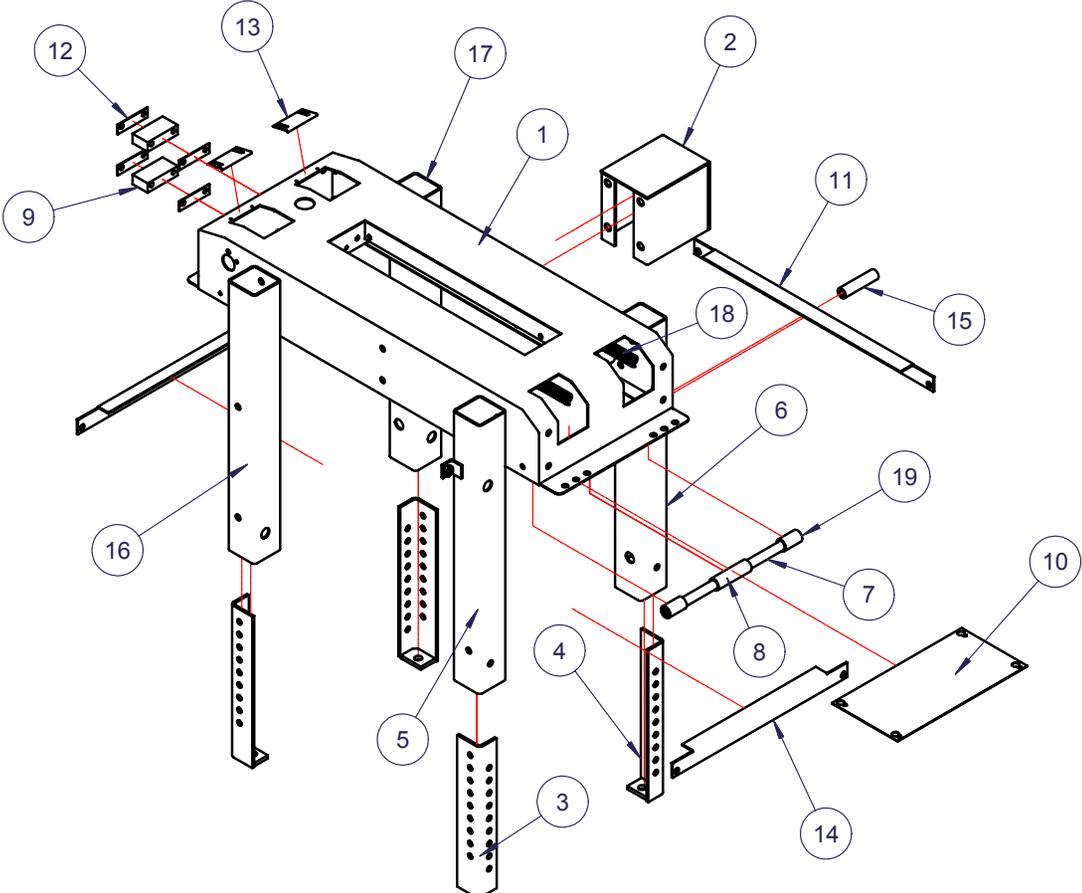
INFEEED ROLLER ASSEMBLY

ELECTRICAL COMPONENT ASSEMBLY

ELECTRICAL SCHEMATIC

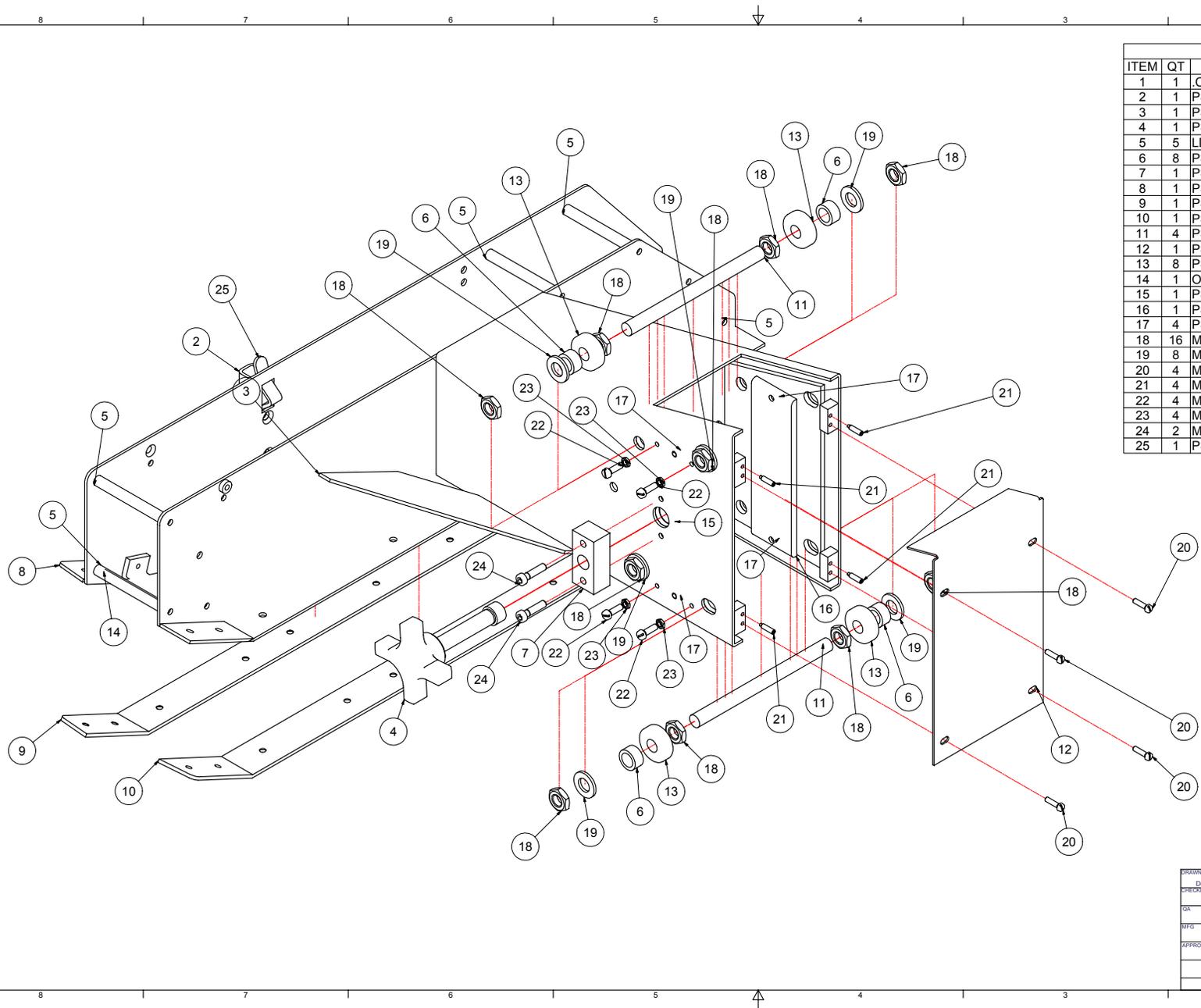
TAPE CARTRIDGE

| REVISION HISTORY |             |          |      |
|------------------|-------------|----------|------|
| REV              | DESCRIPTION | DATE     | BY   |
| A                | RELEASED    | 7/2/2003 | AMYR |



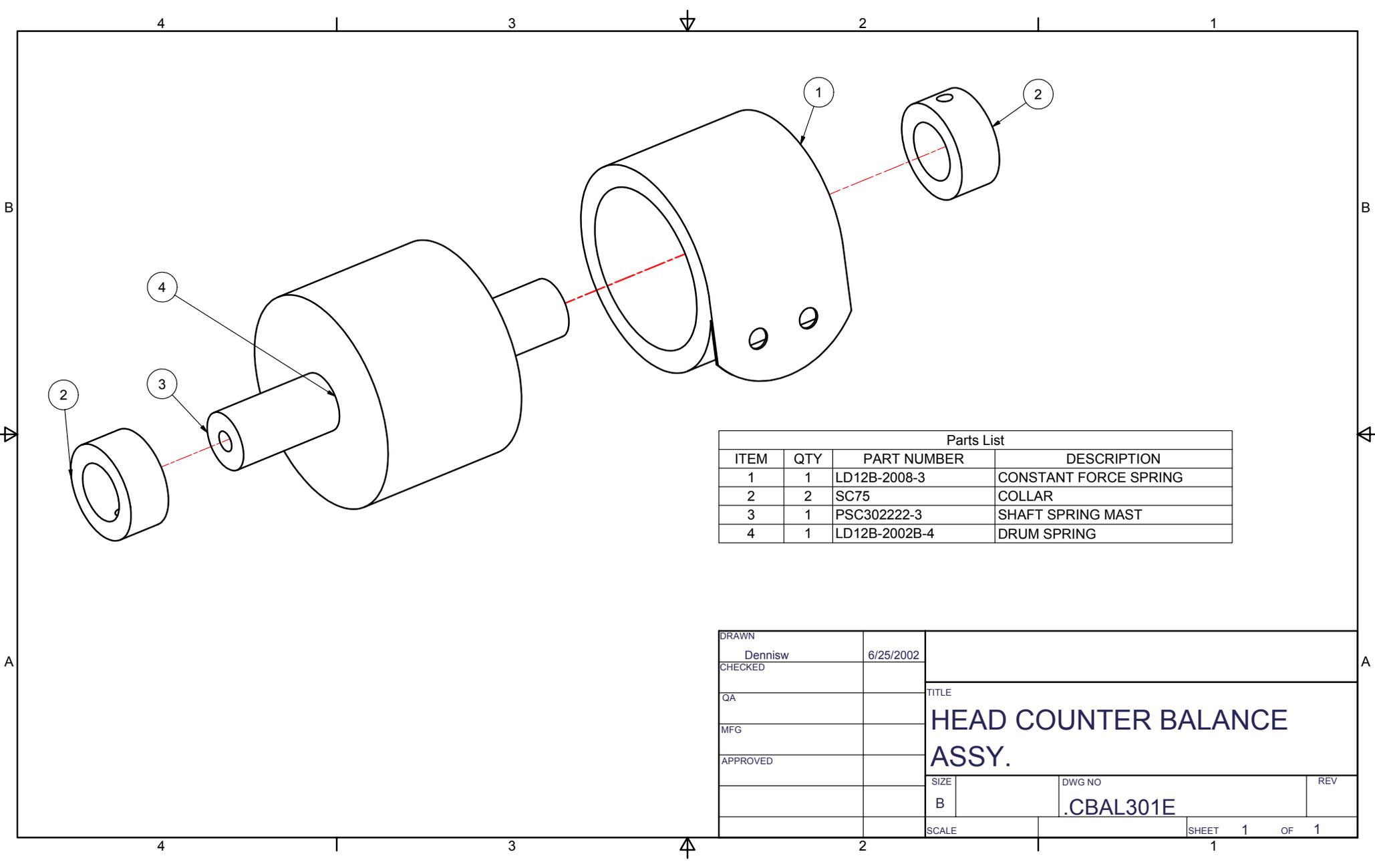
| Parts List |     |             |                              |
|------------|-----|-------------|------------------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION                  |
| 1          | 1   | PSC7A219-6  | MAIN FRAME WELDMNT           |
| 2          | 1   | PSC301282-4 | MAST ADAPTER                 |
| 3          | 2   | PSC37L-5    | AUXILIARY LEG LEFT           |
| 4          | 2   | PSC37R-5    | AUXILIARY LEG RIGHT          |
| 5          | 1   | PSC7A203-6  | LEG FRONT OPER SIDE          |
| 6          | 1   | PSC7A204-6  | LEG FRONT MAST SIDE          |
| 7          | 1   | PSC301220-4 | SHAFT INFEED ROLLER PIVOT    |
| 8          | 1   | PSC301225-3 | SPACER INFEED ROLLER BRACKET |
| 9          | 2   | PSC301233-4 | REDUCER SPACER               |
| 10         | 1   | PSC301250-4 | SAFETY PLATE                 |
| 11         | 2   | PSC301263-5 | TIE BAR                      |
| 12         | 4   | PSC301265-3 | RUBBER PAD REDUCER SPACER    |
| 13         | 2   | PSC301273-3 | BELT DRIVE GUARD             |
| 14         | 2   | PSC301274-5 | TIE BAR FRONT/REAR           |
| 15         | 1   | PSC301281-3 | MAST ADAPTER SPACER          |
| 16         | 1   | PSC7A216-6  | LEG REAR OPER SIDE           |
| 17         | 1   | PSC7A217-6  | LEG REAR MAST SIDE           |
| 18         | 4   | PSC301232   | COMPRESSION SPRING           |
| 19         | 2   | PSC301226-3 | SPACER TENSION BRACKET       |
| N/S        | 2   | PSC301244-4 | BELT                         |
| N/S        | 1   | PSC301266   | REDUCER PLUG                 |

|   |        |                    |                 |   |   |                     |          |     |
|---|--------|--------------------|-----------------|---|---|---------------------|----------|-----|
| MATL  | PART # | CAD FILE           | FRAME ASSY LD7D | TOLERANCES UNLESS OTHERWISE NOTED:<br>X = ±.050<br>INCH .XX = ±.015 ANGLES ± 1/2°<br>.XXX = ±.005 | LOVESHAW an ITW Company<br>RT. 296, SOUTH CANAAN, PA. |                     |          |     |
| C.R.S.  | STD    | PLOT DATE          | 7/1/2003        |   | TITLE   | FRAME ASSEMBLY LD7D |          |     |
| ST. ST.   | N/A    | DRAWN DATE         | 7/1/2003        | X = ±1.0mm MACH. FINISH ✓<br>METRIC .XX = ±.3mm<br>.XXX = ±.1mm                                   | DWG NO  | FRAME ASSY          | SCALE    | N/A |
| STAINLESS : NO FINISH   |        | DO NOT SCALE PRINT |                 |   | FRACTIONS   | ± 1/64              | MATERIAL | 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 THEROF 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. |        |                    |                 |   | DRAWN   | AMYR                | APPROVED |     |



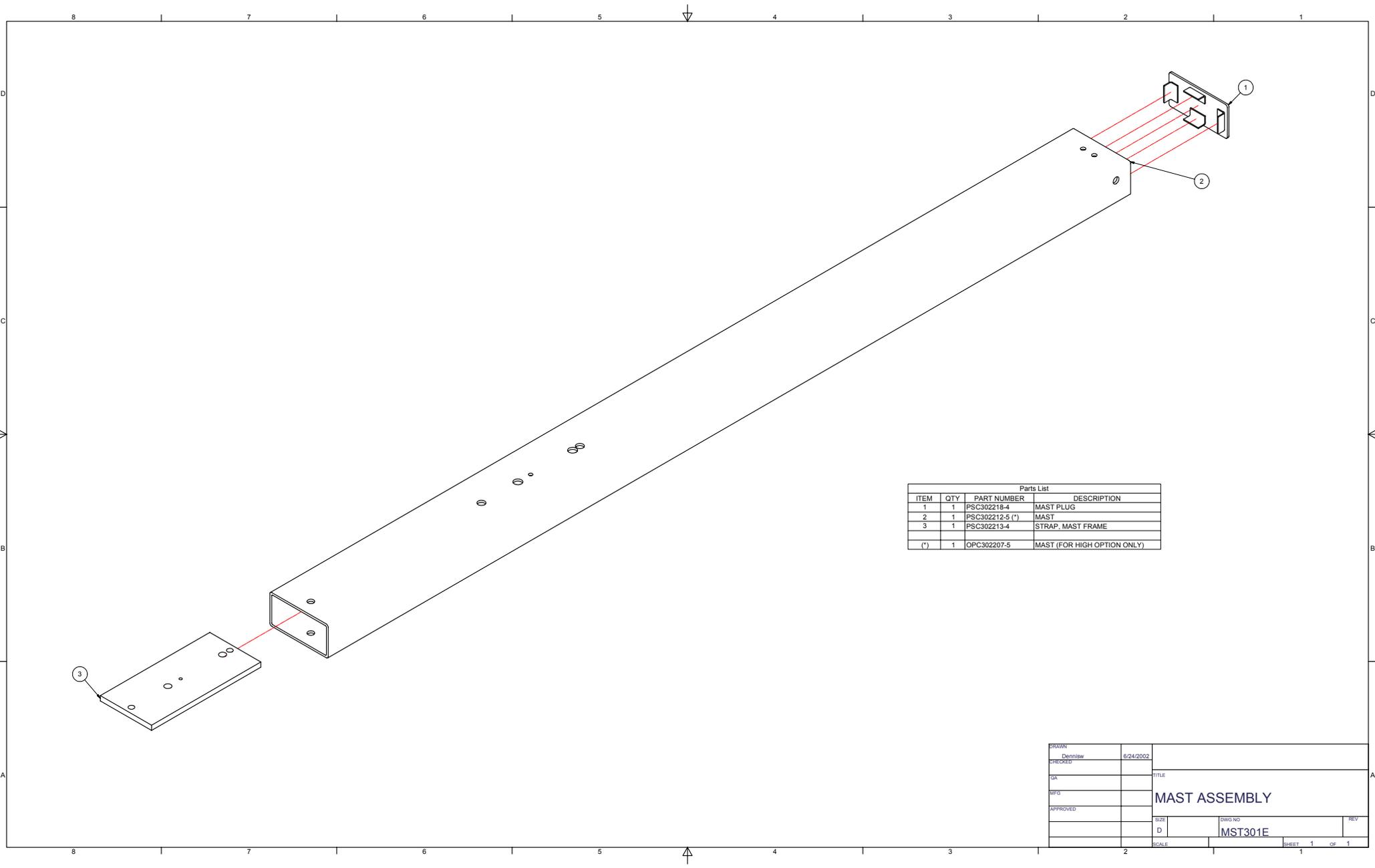
| Parts List |    |                 |                       |
|------------|----|-----------------|-----------------------|
| ITEM       | QT | PART NUMBER     | DESCRIPTION           |
| 1          | 1  | CBAL301E        | HEAD COUNTER BALANCE  |
| 2          | 1  | PSC127A-3       | COVER, DETENT PLATE   |
| 3          | 1  | PSC302301-6     | HEAD WELDMENT         |
| 4          | 1  | PSC301322       | CLAMP SW. SCREW       |
| 5          | 5  | LD12B-1022-4    | SHAFT                 |
| 6          | 8  | PSC138-3        | SPACER                |
| 7          | 1  | PSC301324-3     | CLAMP NUT-HEAD        |
| 8          | 1  | PSC301330-6     | HEAD FRAME OPER. SIDE |
| 9          | 1  | PSC301331L-5    | HOLD DOWN RAIL LEFT   |
| 10         | 1  | PSC301331R-5    | HOLD DOWN RAIL RIGHT  |
| 11         | 4  | PSC302307-3     | STUD REAR ROLLER      |
| 12         | 1  | PSC302308-4     | HEAD COVER            |
| 13         | 8  | PSC303313       | BEARING               |
| 14         | 1  | OPC80009-3      | TOP LOAD BRACKET      |
| 15         | 1  | PSC302305-4     | STRIP SLIDE RIGHT     |
| 16         | 1  | PSC302306-4     | STRIP SLIDE REAR      |
| 17         | 4  | PSC301313       | PIN                   |
| 18         | 16 | M12 X 1.75      | HEX NUT               |
| 19         | 8  | M12             | FLAT WASHER           |
| 20         | 4  | M4 x 0.7 X 16mm | SCREW                 |
| 21         | 4  | M4 x 0.7 X 16mm | CAP SCREW             |
| 22         | 4  | M5 x 0.8 X 16mm | SCREW                 |
| 23         | 4  | M5 x 0.8        | HEX NUT               |
| 24         | 2  | M6 x 1.0 X 25mm | CAP SCREW             |
| 25         | 1  | PSC127B-4       | PLATE DETENT          |

|                    |           |                      |                         |
|--------------------|-----------|----------------------|-------------------------|
| DRAWN<br>Dennislaw | 5/20/2002 |                      |                         |
| DESIGNED           |           | TITLE                |                         |
| QA                 |           | HEAD ASSEMBLY (LD7D) |                         |
| DFG                |           | SIZE<br>D            | DWG NO.<br>HDA301E (MP) |
| APPROVED           |           | SCALE                | REV                     |
|                    |           |                      | 1 OF 1                  |



| Parts List |     |               |                       |
|------------|-----|---------------|-----------------------|
| ITEM       | QTY | PART NUMBER   | DESCRIPTION           |
| 1          | 1   | LD12B-2008-3  | CONSTANT FORCE SPRING |
| 2          | 2   | SC75          | COLLAR                |
| 3          | 1   | PSC302222-3   | SHAFT SPRING MAST     |
| 4          | 1   | LD12B-2002B-4 | DRUM SPRING           |

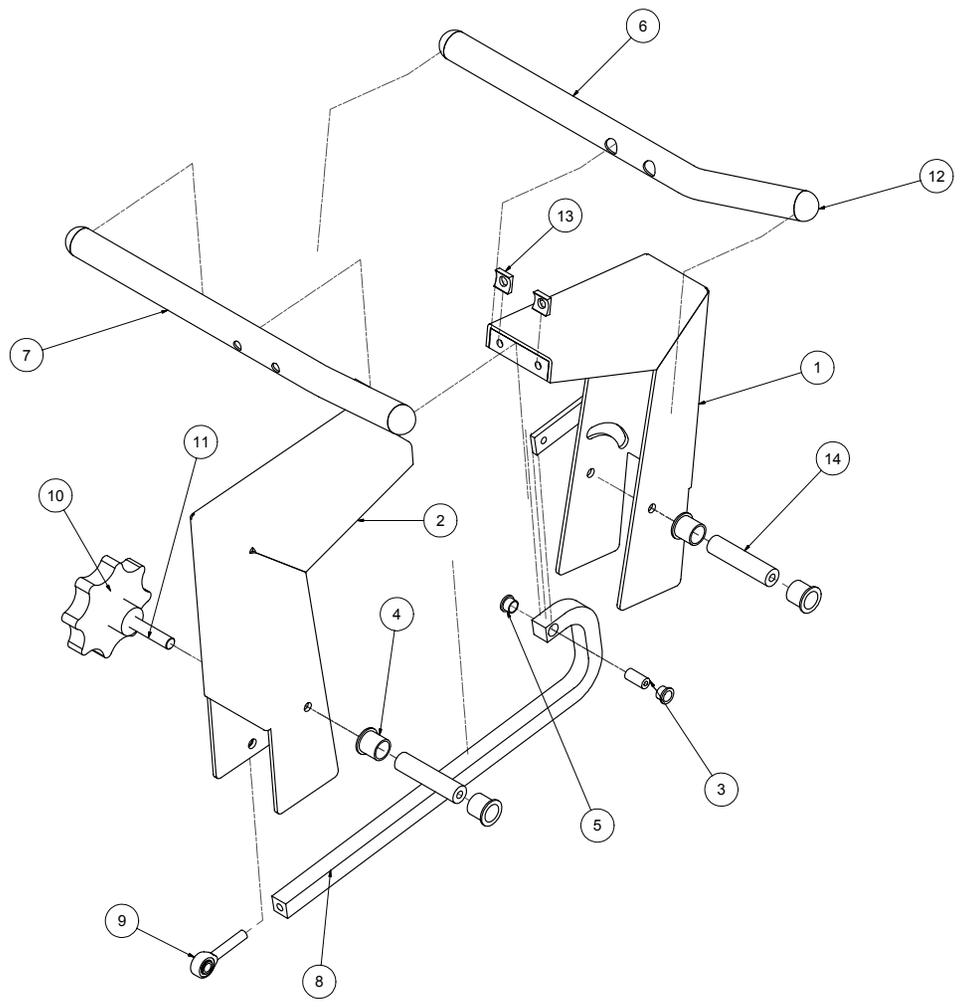
|          |         |           |                                   |              |
|----------|---------|-----------|-----------------------------------|--------------|
| DRAWN    | Dennisw | 6/25/2002 |                                   |              |
| CHECKED  |         |           |                                   |              |
| QA       |         |           | TITLE                             |              |
| MFG      |         |           | <b>HEAD COUNTER BALANCE ASSY.</b> |              |
| APPROVED |         |           | SIZE                              | DWG NO       |
|          |         |           | B                                 | .CBAL301E    |
|          |         |           | SCALE                             | SHEET 1 OF 1 |



| Parts List |     |                 |                             |
|------------|-----|-----------------|-----------------------------|
| ITEM       | QTY | PART NUMBER     | DESCRIPTION                 |
| 1          | 1   | PSC302218-4     | MAST PLUG                   |
| 2          | 1   | PSC302212-5 (*) | MAST                        |
| 3          | 1   | PSC302213-4     | STRAP, MAST FRAME           |
| (*)        | 1   | OPC302207-5     | MAST (FOR HIGH OPTION ONLY) |

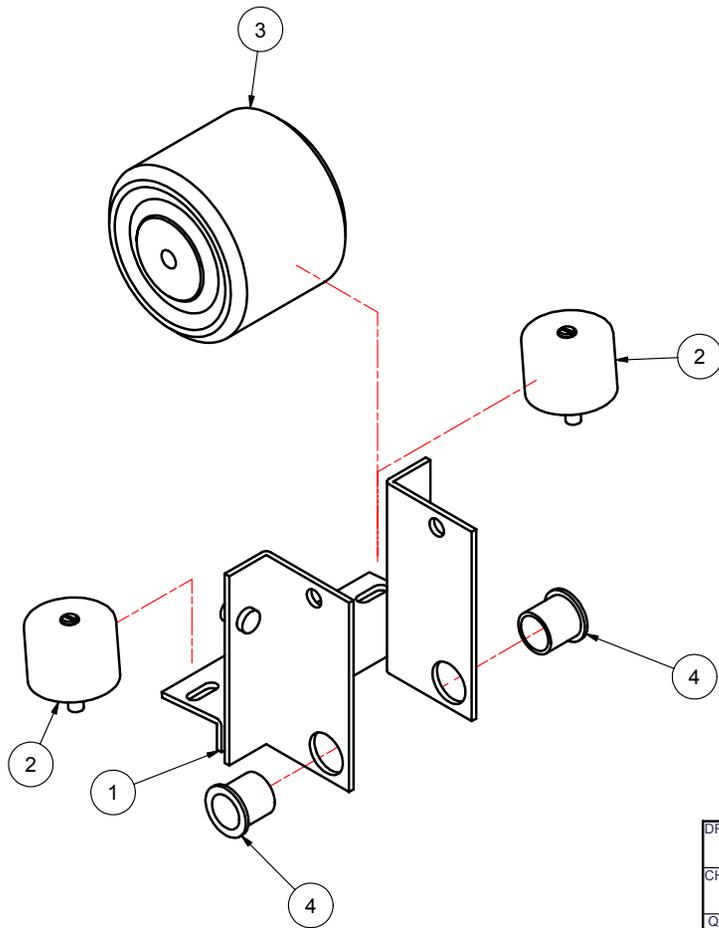
|                   |           |               |                    |
|-------------------|-----------|---------------|--------------------|
| DRAWN<br>Dennislw | 6/24/2002 | TITLE         |                    |
| CHECKED           |           | MAST ASSEMBLY |                    |
| QA                |           | SIZE<br>D     | DWG NO.<br>MST301E |
| DFG               |           | SCALE         | REV                |
| APPROVED          |           | SHEET 1       | OF 1               |

| REVISION HISTORY |                |            |      |
|------------------|----------------|------------|------|
| REV              | DESCRIPTION    | DATE       | BY   |
| A                | RELEASED       | 5/2/2003   | AMYR |
| B                | M.C.R. #03-009 | 11/24/2003 | AMYR |



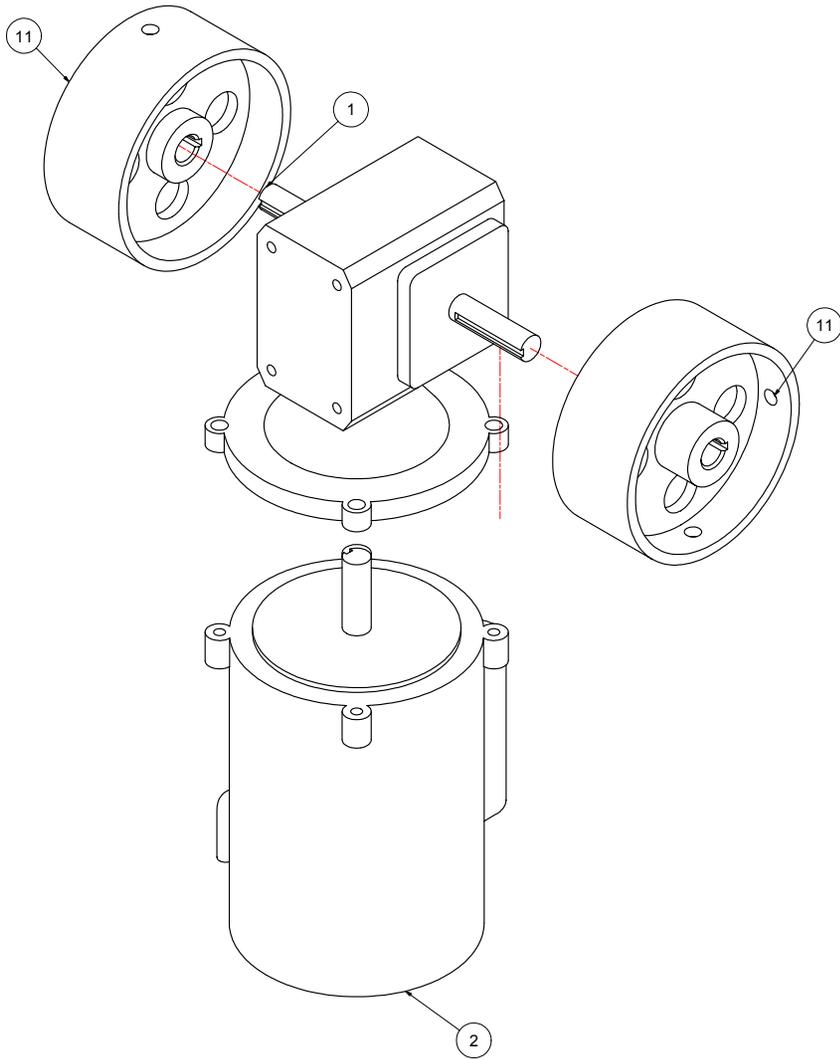
| Parts List |     |                  |                                     |
|------------|-----|------------------|-------------------------------------|
| ITEM       | QTY | PART NUMBER      | DESCRIPTION                         |
| 1          | 1   | PSC301917R-6     | SIDE RAIL MAST SIDE                 |
| 2          | 1   | PSC301917L-6     | SIDE RAIL OPER SIDE                 |
| 3          | 1   | PSC301222-3      | SHAFT - CONNECTING ARM              |
| 4          | 4   | PSC301244        | BUSHING                             |
| 5          | 2   | PSC301230-3      | BUSHING - CONNECTING ARM            |
| 6          | 1   | OPC301918R-5 (*) | SIDE RAIL RIGHT - EXTENDED          |
| 7          | 1   | OPC301918L-5 (*) | SIDE RAIL LEFT - EXTENDED           |
| 8          | 1   | PSC301271-5      | CONNECTING ARM                      |
| 9          | 1   | PSC552           | SPHERICAL BEARING                   |
| 10         | 1   | PSU166-4         | SIDE RAIL HAND KNOB                 |
| 11         | 1   | PSC7A211         | STUD                                |
| 12         | 4   | PSC511A          | SIDE RAIL END CAP                   |
| 13         | 4   | PSC212-3         | SIDE RAIL SPACER                    |
| 14         | 2   | PSC7A202-3       | SIDE RAIL PIVOT SHAFT               |
|            |     |                  |                                     |
| (*)        | 1   | PSC301918R-5     | SIDE RAIL RIGHT (SHORT OPTION ONLY) |
| (*)        | 1   | PSC301918L-5     | SIDE RAIL LEFT (SHORT OPTION ONLY)  |

|  |        |            |          |  |   |
|--|--------|------------|----------|--|---|
| MATL   | PART # | CAD FILE   | SRA7D    | TOLERANCES UNLESS OTHERWISE NOTED:             | LOVESHAW an ITW Company<br>RT. 296, SOUTH CANAAN, PA. |
| C.R.B.   | STD    | PLOT DATE  | 6/1/2006 |  |   |
| BT. ST.  | N/A    | DRAWN DATE | 5/2/2003 | INCH: XX ±.015<br>XXX ±.005                    | TITLE<br>SIDE RAIL ASSEMBLY                           |
| STAINLESS: NO FINISH DO NOT SCALE PRINT  |        |            |          | ° ±.1<br>' ±.005                               |   |
| THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW AND SHALL BE TREATED BY YOU AS CONFIDENTIAL, PROPRIETARY INFORMATION. THE DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF LOVESHAW AND SHALL BE RETURNED TO LOVESHAW IF YOU REQUEST. |        |            |          | MACH FURNISH<br>X ±.1<br>XX ±.015<br>XXX ±.005 | DWG NO. SRA7D   |
|  |        |            |          | MATERIAL: N/A                                  | SCALE: N/A  |
|  |        |            |          | FRACTIONS ± 1/64                               | CHECKED: AMYR   |
|  |        |            |          |  | APPROVED:   |



| Parts List |     |             |                       |
|------------|-----|-------------|-----------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION           |
| 1          | 1   | PSC301208-5 | INFEED ROLLER BRACKET |
| 2          | 2   | K286D       | ROLLER                |
| 3          | 1   | PSC301211-4 | INFEED ROLLER         |
| 4          | 2   | PSC301224   | BUSHING               |

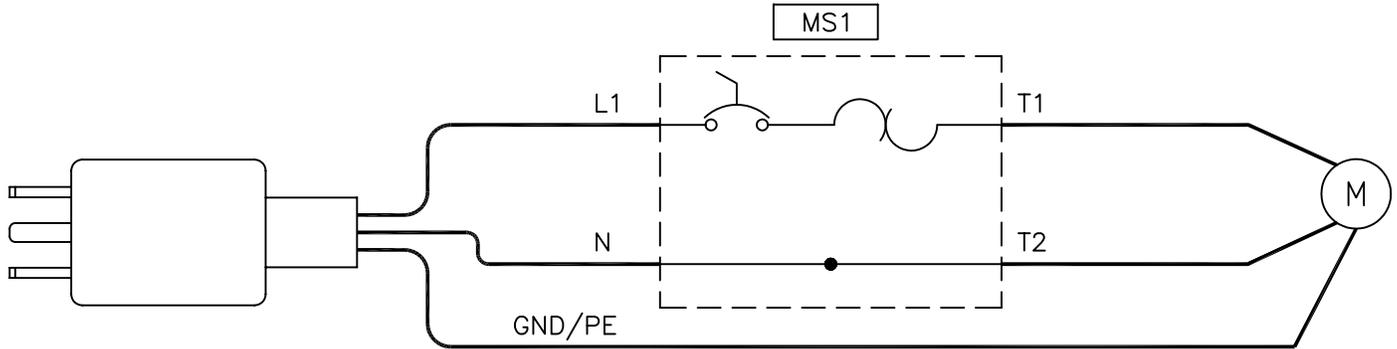
|          |         |           |                               |      |
|----------|---------|-----------|-------------------------------|------|
| DRAWN    | Dennisw | 6/25/2002 |                               |      |
| CHECKED  |         |           |                               |      |
| QA       |         |           | TITLE                         |      |
| MFG      |         |           | <b>INFEED ROLLER ASSEMBLY</b> |      |
| APPROVED |         |           |                               |      |
| SIZE     | B       | DWG NO    | IRLRA301                      | REV  |
| SCALE    |         | SHEET     | 1                             | OF 1 |



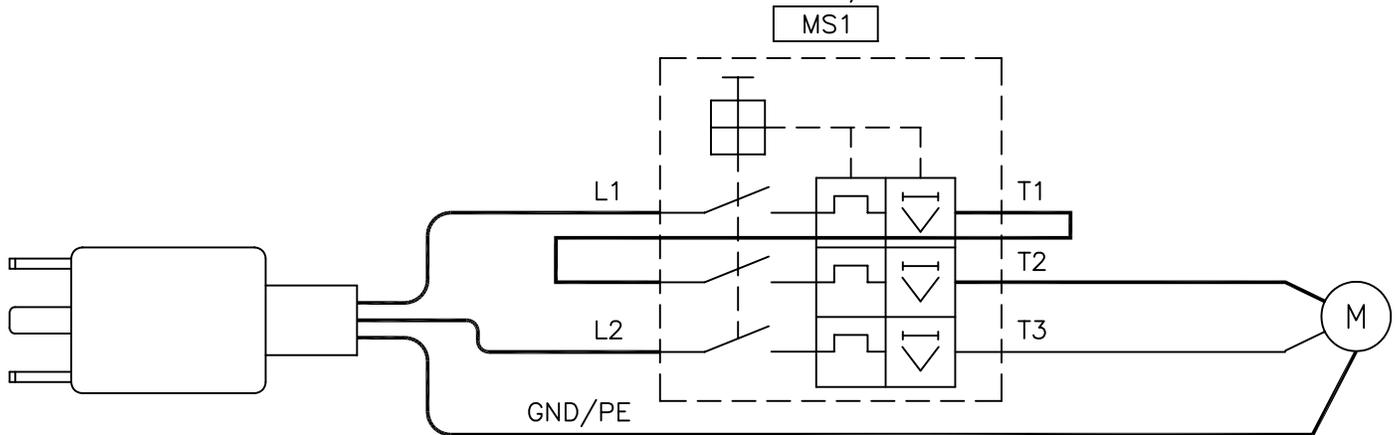
| Parts List |    |               |                           |
|------------|----|---------------|---------------------------|
| ITEM       | QT | PART NUMBER   | DESCRIPTION               |
| 1          | 1  | PSC301238     | REDUCER                   |
| 2          | 1  | PSC634A       | MOTOR                     |
| 3          | 1  | A204          | CONNECTOR (NOT SHOWN)     |
| 4          | 1  | PSC614        | BELT LAGGING (NOT SHOWN)  |
| 5          | 1  | PSC301241-4   | MOTOR CABLE (NOT SHOWN)   |
| 6          | 1  | PSC301235-GE  | MOTOR STARTER (NOT SHOWN) |
| 7          | 1  | PSC505A-115-4 | LINE CABLE (NOT SHOWN)    |
| 8          | 1  | PSC611        | STRAIN RELIEF (NOT SHOWN) |
| 9          | 1  | PSC636G-GE    | HEATER (NOT SHOWN)        |
| 10         | 1  | PSC647        | RING TERM. (NOT SHOWN)    |
| 11         | 2  | PSC301217-4   | DRIVE ROLLER              |

|                   |           |   |        |
|-------------------|-----------|---|--------|
| DRAWN<br>Dennistw | 6/25/2002 | TITLE<br><b>ELECTRICAL COMPONENT ASSEMBLY</b> |        |
| DESIGNED          |           | DWG NO.<br><b>LDCA100-115V</b>                |        |
| QA                |           | SCALE   | REV    |
| DTG               |           |   |        |
| APPROVED          |           |   |        |
|                   |           |   |        |
|                   |           | SHEET   | 1 OF 1 |

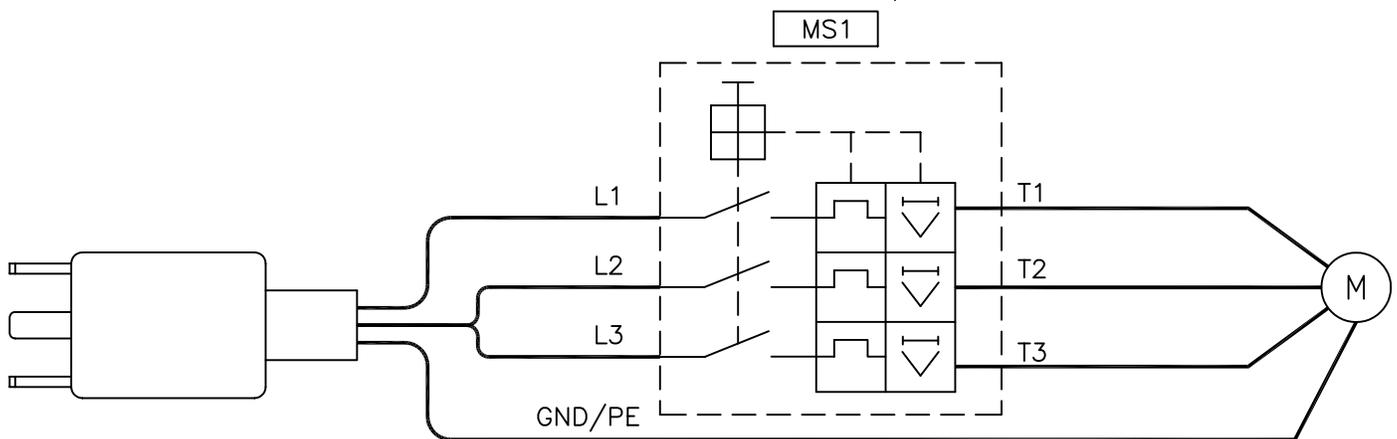
ELECTRICAL SCHEMATIC  
LEGEND, LD7 AND LD3  
120 VAC 60HZ



SINGLE PHASE 50/60 HZ MODELS

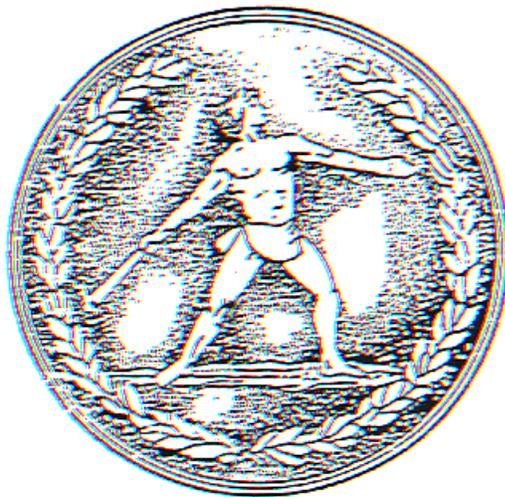


THREE PHASE 50/60 HZ MODELS



# LITTLE DAVID

*TAPE CARTRIDGE MANUAL*



# .CAC50

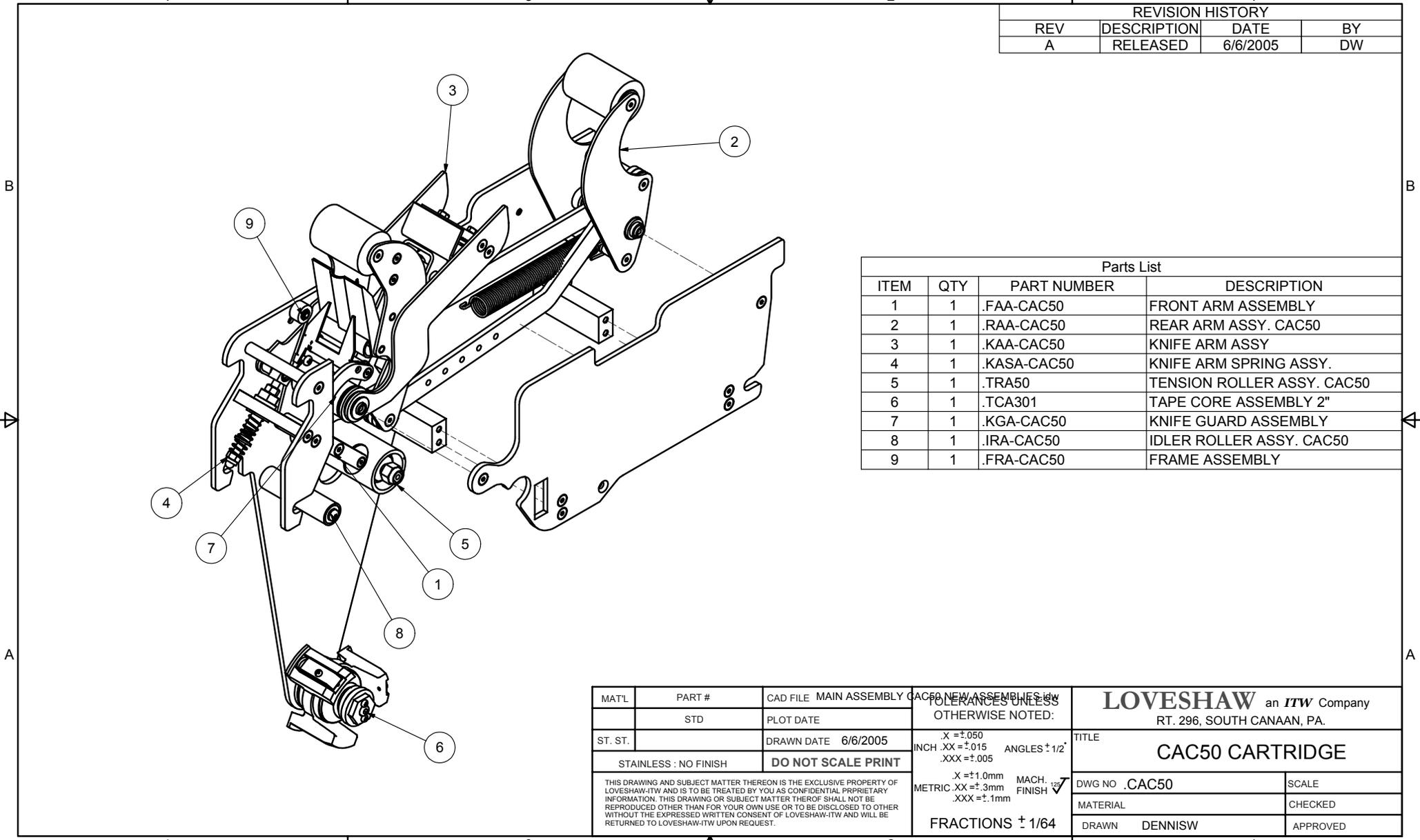
THE LOVESHAW CORPORATION  
P. O. BOX 83, RT. 296  
SOUTH CANAAN, PA 18459

TEL: (570) 937-4921  
FAX: (570) 937-4370

LOVESHAW - EUROPE  
UNIT 9, BRUNEL GATE  
W. PORTWAY INDUSTRIAL ESTATE  
ANDOVER, HAMPSHIRE SP103SL  
ENGLAND  
44-264-3575-11

4 3 2 1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/6/2005 | DW |



| Parts List |     |             |                            |
|------------|-----|-------------|----------------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION                |
| 1          | 1   | .FAA-CAC50  | FRONT ARM ASSEMBLY         |
| 2          | 1   | .RAA-CAC50  | REAR ARM ASSY. CAC50       |
| 3          | 1   | .KAA-CAC50  | KNIFE ARM ASSY             |
| 4          | 1   | .KASA-CAC50 | KNIFE ARM SPRING ASSY.     |
| 5          | 1   | .TRA50      | TENSION ROLLER ASSY. CAC50 |
| 6          | 1   | .TCA301     | TAPE CORE ASSEMBLY 2"      |
| 7          | 1   | .KGA-CAC50  | KNIFE GUARD ASSEMBLY       |
| 8          | 1   | .IRA-CAC50  | IDLER ROLLER ASSY. CAC50   |
| 9          | 1   | .FRA-CAC50  | FRAME ASSEMBLY             |

|  |                       |                              |              |   |   |          |
|--|-----------------------|------------------------------|--------------|---|---|----------|
| MATL   | PART #                | CAD FILE MAIN ASSEMBLY CAC50 | NEW ASSEMBLY | POLYMER UNLESS OTHERWISE NOTED:                               | <b>LOVESHAW</b> an <b>ITW</b> Company<br>RT. 296, SOUTH CANAAN, PA. |          |
|  | STD                   | PLOT DATE                    |              |   |   |          |
| ST. ST.  |                       | DRAWN DATE                   | 6/6/2005     | X = ±.050<br>INCH .XX = ±.015 ANGLES ± 1/2°<br>.XXX = ±.005   | TITLE   |          |
|  | STAINLESS : NO FINISH | <b>DO NOT SCALE PRINT</b>    |              | X = ±1.0mm MACH. FINISH<br>METRIC .XX = ±.3mm<br>.XXX = ±.1mm | <b>CAC50 CARTRIDGE</b>  |          |
| 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. |                       |                              |              |   | DWG NO .CAC50   | SCALE    |
|  |                       |                              |              |   | MATERIAL  | CHECKED  |
|  |                       |                              |              |   | DRAWN DENNISW   | APPROVED |

4 3 2 1

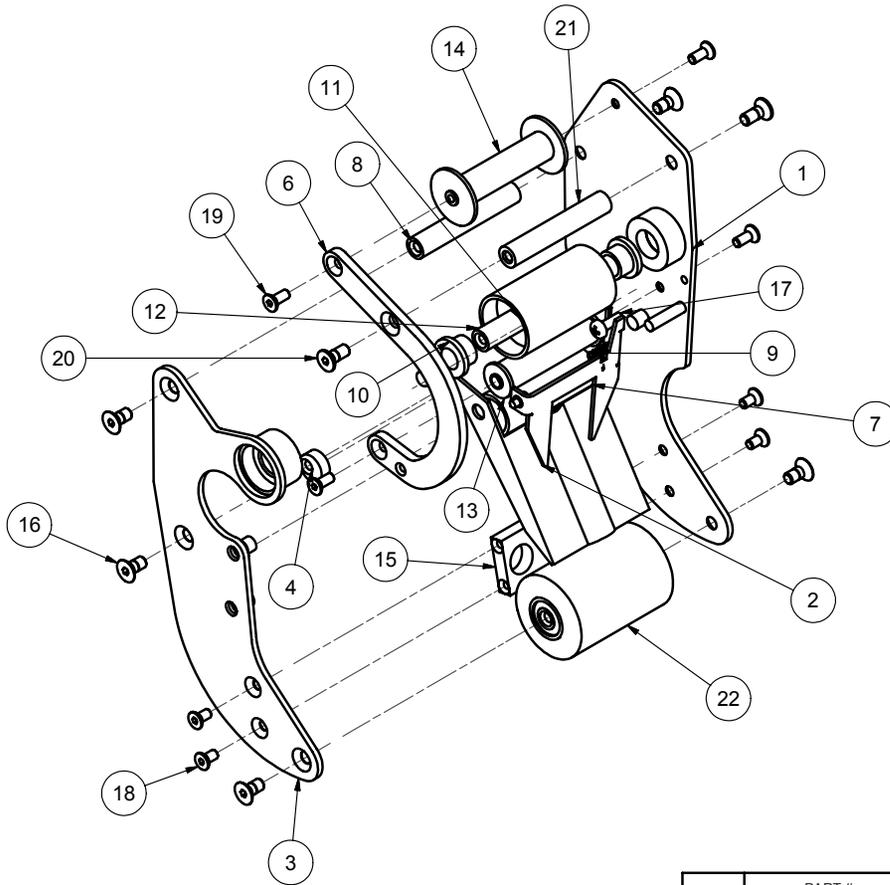
4

3

2

1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/3/2005 | DW |



| Parts List |     |               |                            |
|------------|-----|---------------|----------------------------|
| ITEM       | QTY | PART NUMBER   | DESCRIPTION                |
| 1          | 1   | CAC50-005-4   | ARM, FRONT (MAIN)          |
| 2          | 1   | PSC311003-4   | TAPE HOLD DOWN PLATE       |
| 3          | 1   | CAC50-006-4   | ARM, FRONT (TOP)           |
| 4          | 1   | PSC139-3      | STOP, TAPE GUIDE PLATE     |
| 5          | 1   | PSC26-3       | SPRING, GUIDE PLATE        |
| 6          | 1   | JBW1014-4     | HORSE SHOE                 |
| 7          | 1   | CAC50-018-4   | TAPE GUIDE PLATE           |
| 8          | 1   | CAC50-036-3   | SHAFT WIPE ROLLER          |
| 9          | 1   | PSC321022-3   | SPRING, FINGER PLATE       |
| 10         | 2   | 50186-039     | BUSHING                    |
| 11         | 1   | CAC50-046-3   | ROLLER CENTER              |
| 12         | 1   | CAC50-034-3   | SHAFT ARM PIVOT            |
| 13         | 1   | .KNRA200/50/T | KNURLED ROLLER ASSY.       |
| 14         | 1   | .KNRA200/50/B | KNURLED ROLLER ASSY        |
| 15         | 1   | CAC51-028A-3  | SPACER FRONT ARM           |
| 16         | 5   | FFHMF010P10   | FLAT HEAD M5 X 10          |
| 17         | 1   | FBHME012P10   | M4 X .07 BUTTON HEAD PHIL. |
| 18         | 4   | FFHME008P10   | M4 X 8 FHCS                |
| 19         | 4   | FFHME010P10   | M4 X 10 FHCS               |
| 20         | 2   | FFHMF012P10   | FLAT HD. M5 X 12 LG.       |
| 21         | 1   | CAC51-029A-3  | SHAFT                      |
| 22         | 1   | .CRA50        | CLUTCH ROLLER ASSY.        |

|  |                       |                             |   |   |
|--|-----------------------|-----------------------------|---|---|
| MATL   | PART #                | CAD FILE FRONT ARM ASSY.dwg | UNLESS OTHERWISE NOTED:                                       | <b>LOVESHAW</b> an <b>ITW</b> Company<br>RT. 296, SOUTH CANAAN, PA. |
|  | STD                   | PLOT DATE                   |   |   |
| ST. ST.  |                       | DRAWN DATE 6/3/2005         | X = ±.050<br>INCH .XX = ±.015 ANGLES ± 1/2°<br>.XXX = ±.005   | TITLE   |
|  | STAINLESS : NO FINISH | <b>DO NOT SCALE PRINT</b>   | X = ±1.0mm MACH. FINISH<br>METRIC .XX = ±.3mm<br>.XXX = ±.1mm | <b>FRONT ARM ASSEMBLY</b>   |
| 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. |                       |                             |   | DWG NO .FAA-CAC50   |
|  |                       |                             |   | SCALE   |
|  |                       |                             |   | CHECKED   |
|  |                       |                             |   | APPROVED  |
|  |                       |                             |   | DRAWN DENNISW   |

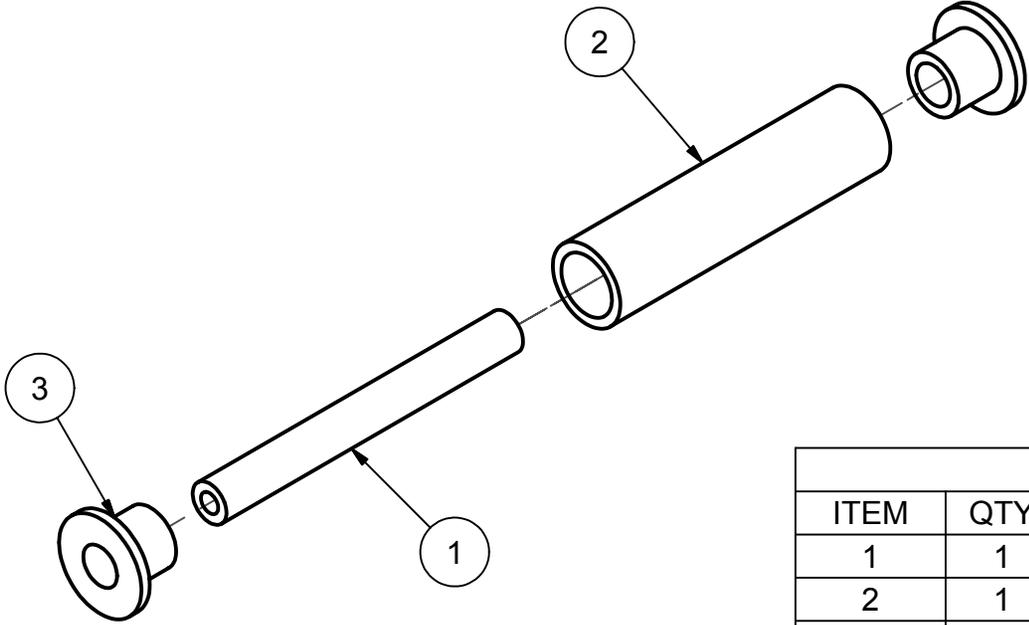
4

3

2

1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/2/2005 | DW |



| Parts List |     |             |                       |
|------------|-----|-------------|-----------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION           |
| 1          | 1   | CAC50-044-3 | SHAFT, KNURLED ROLLER |
| 2          | 1   | CAC50-045-3 | KNURLED ROLLER        |
| 3          | 2   | CAC50-116-3 | BUSHING, ROLLER TOP   |

|   |        |                            |
|---|--------|----------------------------|
| MAT'L   | PART # | CAD FILE <b>KNRA200_50</b> |
| N/A   | STD    | PLOT DATE <b>6/2/2005</b>  |
| ST. ST.   | N/A    | DRAWN DATE <b>6/2/2005</b> |
| STAINLESS : NO FINISH   |        | <b>DO NOT SCALE PRINT</b>  |
| <small>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.</small> |        |                            |

Tolerance and other specifications:

TOLERANCES UNLESS OTHERWISE NOTED:

.X = ±.050  
 INCH .XX = ±.015  
 .XXX = ±.005

ANGLES ± 1/2°

.X = ±1.0mm  
 METRIC .XX = ±.3mm  
 .XXX = ±.1mm

MACH. FINISH  $\checkmark$

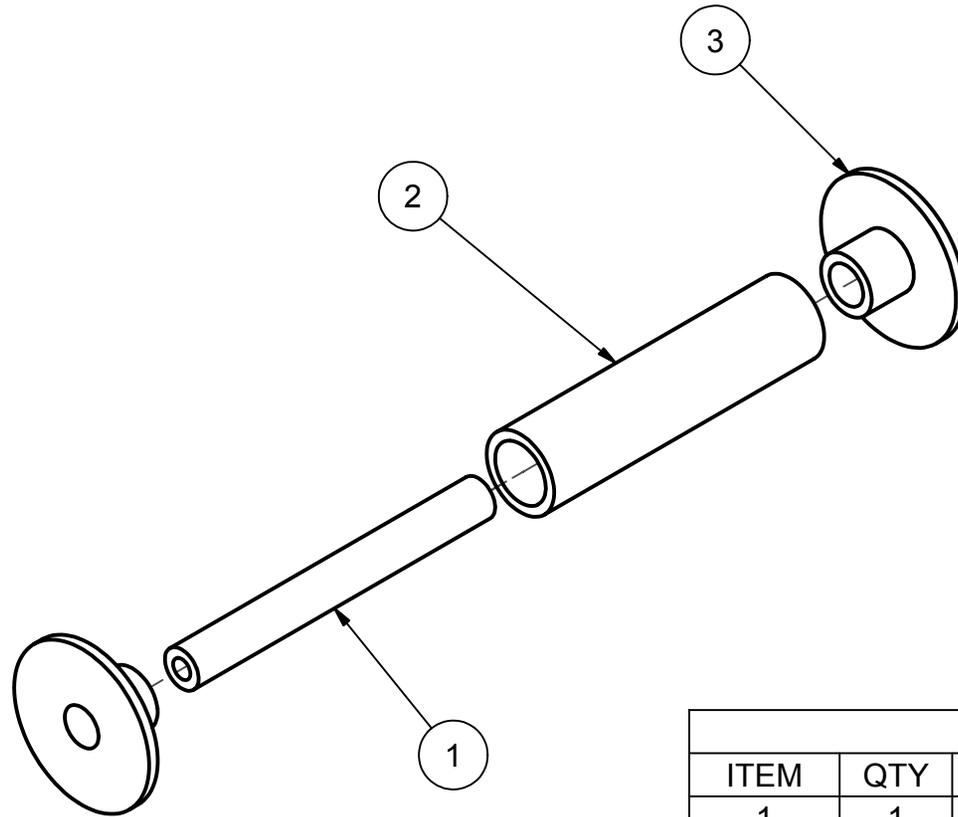
FRACTIONS ± 1/64

|   |                  |
|---|------------------|
| <b>LOVESHAW</b> an <i>ITW</i> Company<br>RT. 296, SOUTH CANAAN, PA. |                  |
| TITLE<br><b>KNURLED ROLLER ASSY.</b>                                |                  |
| DWG NO <b>.KNRA200/50/T</b>   | SCALE <b>N/A</b> |
| MATERIAL  | CHECKED          |
| DRAWN <b>DENNISW</b>  | APPROVED         |

2

1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/2/2005 | DW |



| Parts List |     |             |                        |
|------------|-----|-------------|------------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION            |
| 1          | 1   | CAC50-044-3 | SHAFT, KNURLED ROLLER  |
| 2          | 1   | CAC50-045-3 | KNURLED ROLLER         |
| 3          | 2   | CAC50-117-3 | BUSHING, ROLLER BOTTOM |

|   |        |                            |
|---|--------|----------------------------|
| MAT'L   | PART # | CAD FILE <b>KNRA200_50</b> |
|   | STD    | PLOT DATE                  |
| ST. ST.   |        | DRAWN DATE <b>6/2/2005</b> |
| STAINLESS : NO FINISH   |        | <b>DO NOT SCALE PRINT</b>  |
| <small>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.</small> |        |                            |

**TOLERANCES UNLESS OTHERWISE NOTED:**

.X = ±.050  
 INCH .XX = ±.015    ANGLES ± 1/2°  
 .XXX = ±.005

.X = ±1.0mm  
 METRIC .XX = ±.3mm    MACH. FINISH   
 .XXX = ±.1mm

**FRACTIONS ± 1/64**

|   |          |
|---|----------|
| <b>LOVESHAW</b> an <i>ITW</i> Company<br>RT. 296, SOUTH CANAAN, PA. |          |
| TITLE<br><b>KNURLED ROLLER ASSY</b>                                 |          |
| DWG NO <b>.KNRA200/50/B</b>   | SCALE    |
| MATERIAL  | CHECKED  |
| DRAWN <b>DENNISW</b>  | APPROVED |

2

1

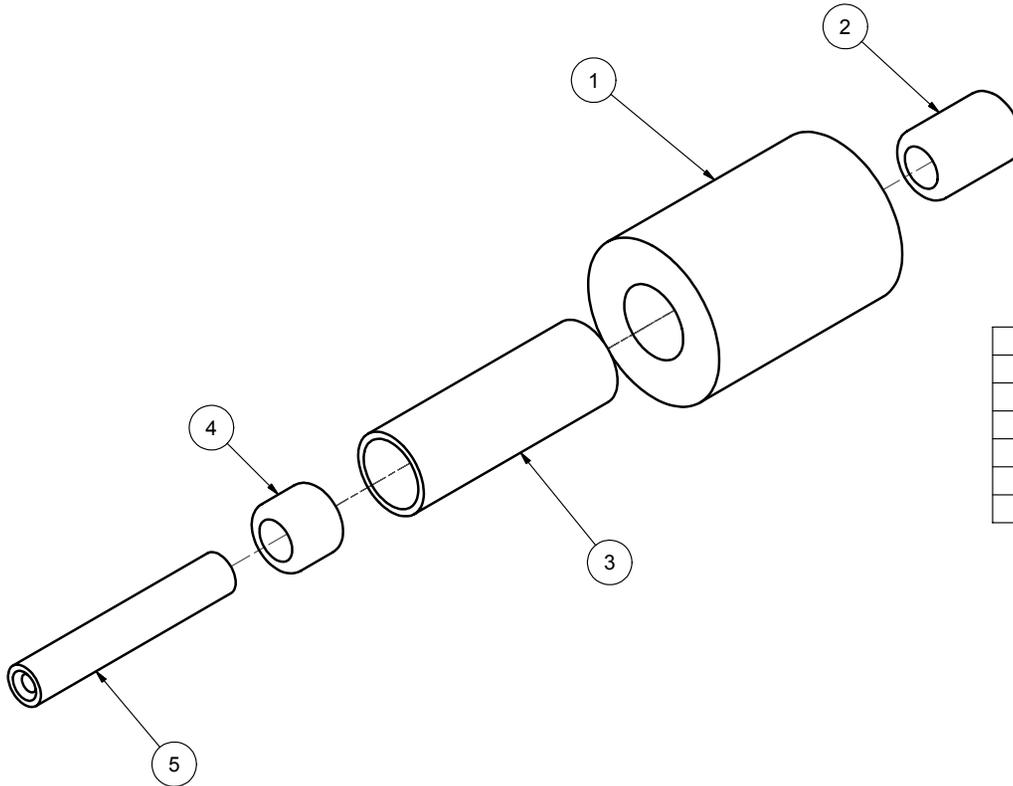
4

3

2

1

| REVISION HISTORY |             |           |    |
|------------------|-------------|-----------|----|
| REV              | DESCRIPTION | DATE      | BY |
| A                | RELEASED    | 5/25/2005 | DW |



| Parts List |     |             |                        |
|------------|-----|-------------|------------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION            |
| 1          | 1   | PSC12/1-3   | ROLLER, WIPE           |
| 2          | 1   | J205-PS     | BEARING                |
| 3          | 1   | CAC50-039-3 | SLEEVE, NEEDLE BEARING |
| 4          | 1   | J206-PS     | BEARING                |
| 5          | 1   | CAC50-037-3 | SHAFT FRONT ROLLER     |

ITEMS #1 AND #3 ARE NOT SOLD SEPARATELY.

|  |        |                      |  |   |          |
|--|--------|----------------------|--|---|----------|
| MATL   | PART # | CAD FILE CRA50.idw   | TOLERANCES UNLESS OTHERWISE NOTED:<br>.X = ±.050<br>INCH .XX = ±.015 ANGLES ± 1/2'<br>.XXX = ±.005 | LOVESHAW an ITW Company<br>RT. 296, SOUTH CANAAN, PA. |          |
|  | STD    | PLOT DATE            |  | TITLE<br>CLUTCH ROLLER ASSY.                          |          |
| ST. ST.  |        | DRAWN DATE 5/25/2005 | .X = ±1.0mm MACH. FINISH ✓<br>METRIC .XX = ±.3mm<br>.XXX = ±.1mm                                   | DWG NO .CRA50   | SCALE    |
| STAINLESS : NO FINISH  |        | DO NOT SCALE PRINT   |  | MATERIAL  | CHECKED  |
| 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. |        |                      | FRACTIONS ± 1/64   | DRAWN <input type="checkbox"/>                        | APPROVED |

4

3

2

1

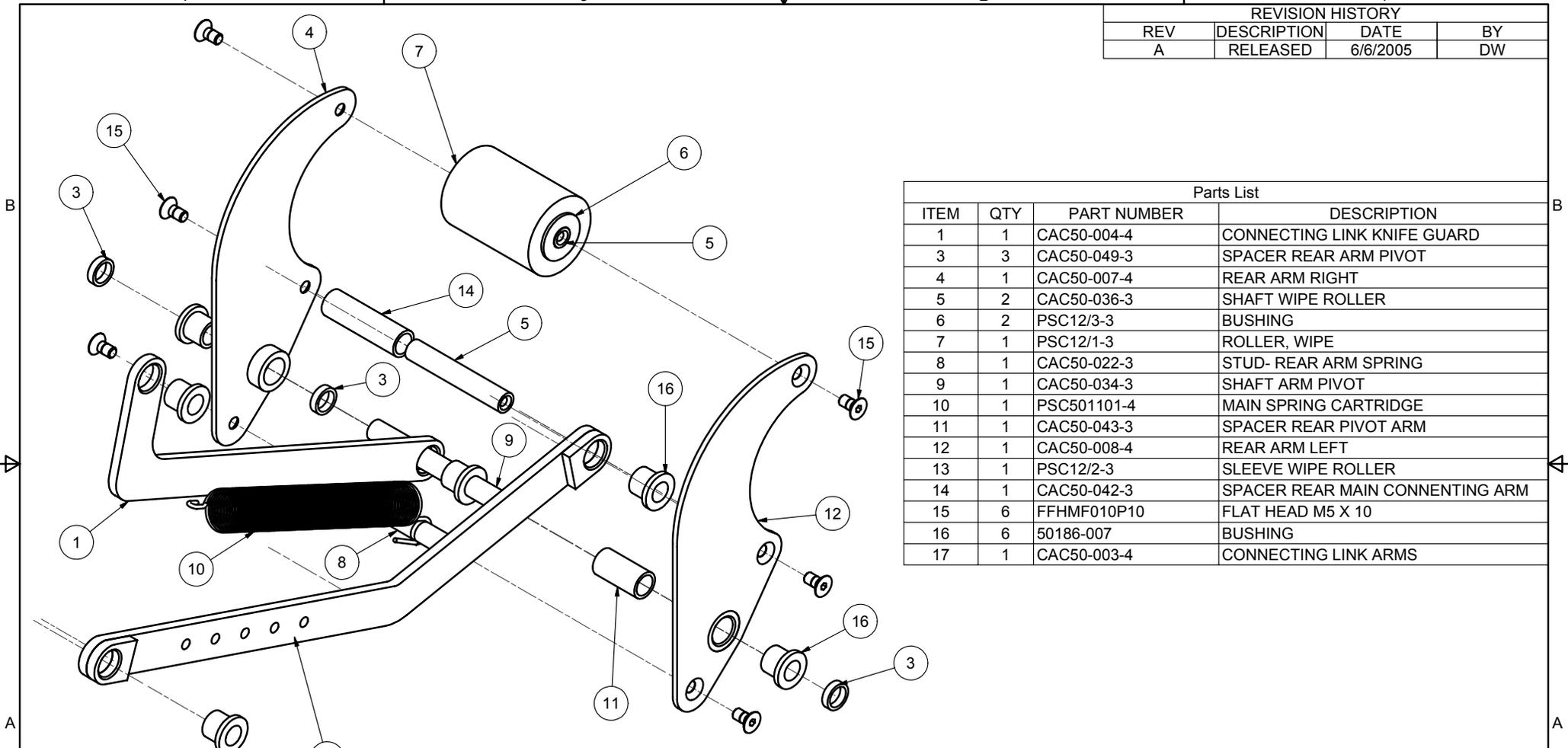
4

3

2

1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/6/2005 | DW |



| Parts List |     |             |                                 |
|------------|-----|-------------|---------------------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION                     |
| 1          | 1   | CAC50-004-4 | CONNECTING LINK KNIFE GUARD     |
| 3          | 3   | CAC50-049-3 | SPACER REAR ARM PIVOT           |
| 4          | 1   | CAC50-007-4 | REAR ARM RIGHT                  |
| 5          | 2   | CAC50-036-3 | SHAFT WIPE ROLLER               |
| 6          | 2   | PSC12/3-3   | BUSHING                         |
| 7          | 1   | PSC12/1-3   | ROLLER, WIPE                    |
| 8          | 1   | CAC50-022-3 | STUD- REAR ARM SPRING           |
| 9          | 1   | CAC50-034-3 | SHAFT ARM PIVOT                 |
| 10         | 1   | PSC501101-4 | MAIN SPRING CARTRIDGE           |
| 11         | 1   | CAC50-043-3 | SPACER REAR PIVOT ARM           |
| 12         | 1   | CAC50-008-4 | REAR ARM LEFT                   |
| 13         | 1   | PSC12/2-3   | SLEEVE WIPE ROLLER              |
| 14         | 1   | CAC50-042-3 | SPACER REAR MAIN CONNENTING ARM |
| 15         | 6   | FFHMF010P10 | FLAT HEAD M5 X 10               |
| 16         | 6   | 50186-007   | BUSHING                         |
| 17         | 1   | CAC50-003-4 | CONNECTING LINK ARMS            |

|  |        |                    |                   |
|--|--------|--------------------|-------------------|
| MATL   | PART # | CAD FILE           | REAR ARM ASSY.dwg |
|  | STD    | PLOT DATE          |                   |
| ST. ST.  |        | DRAWN DATE         | 6/6/2005          |
| STAINLESS : NO FINISH  |        | DO NOT SCALE PRINT |                   |
| <small>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 THEROF 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.</small> |        |                    |                   |

|   |          |
|---|----------|
| <b>LOVESHAW</b> an <b>ITW</b> Company<br>RT. 296, SOUTH CANAAN, PA. |          |
| TITLE<br><b>REAR ARM ASSY. CAC50</b>                                |          |
| DWG NO .RAA-CAC50   | SCALE    |
| MATERIAL  | CHECKED  |
| DRAWN DENNISW   | APPROVED |

4

3

2

1

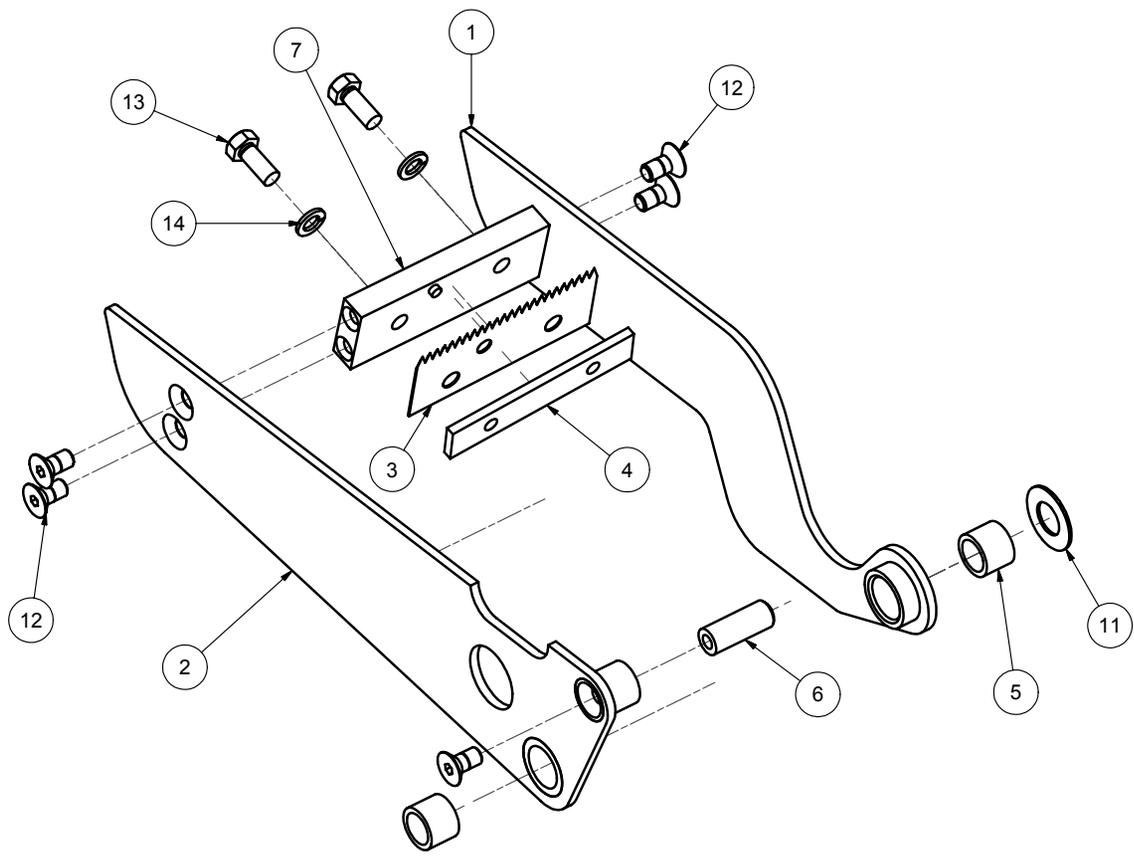
4

3

2

1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/3/2005 | DW |



| Parts List |     |             |                       |
|------------|-----|-------------|-----------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION           |
| 1          | 1   | CAC50-010-4 | KNIFE ARM TOP         |
| 2          | 1   | CAC50-009-4 | ARM, KNIFE (MAIN)     |
| 3          | 1   | PSC11B-4    | KNIFE                 |
| 4          | 1   | PSC9-3      | KNIFE PLATE CARTRIDGE |
| 5          | 2   | 50185-049   | BUSHING               |
| 6          | 1   | CAC50-017-3 | SHAFT KNIFE ARM       |
| 7          | 1   | CAC50-013-3 | KNIFE BRACKET         |
| 11         | 1   | PSC321040   | BEARING               |
| 12         | 5   | FFHMF010P10 | FLAT HEAD M5 X 10     |
| 13         | 2   | FHHMF012910 | HHS M5 X 12           |
| 14         | 2   | FLWMFP      | LOCK WASHER M5        |

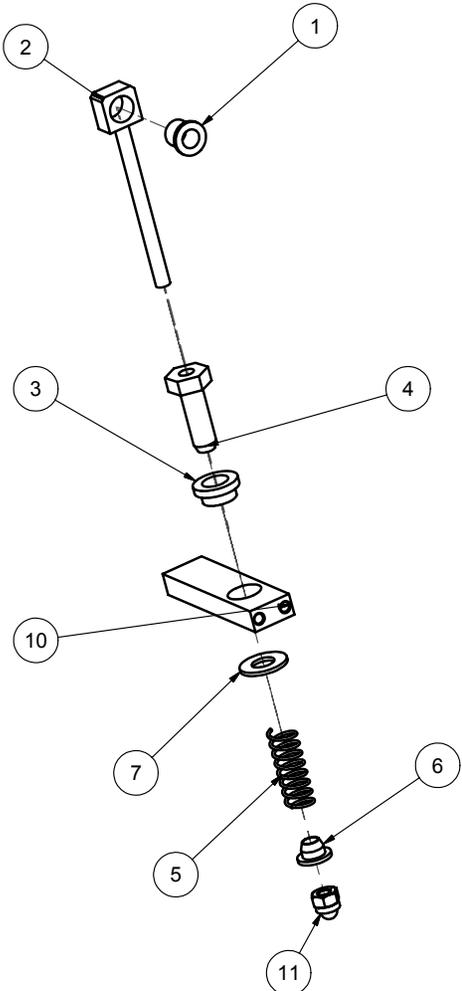
|  |        |                    |                    |  |   |                         |
|--|--------|--------------------|--------------------|--|---|-------------------------|
| MATL   | PART # | CAD FILE           | KNIFE ARM ASSY.dwg | TOLERANCES UNLESS OTHERWISE NOTED:<br>X = ±.050<br>INCH .XX = ±.015 ANGLES ± 1/2°<br>.XXX = ±.005<br>X = ±1.0mm MACH. FINISH ✓<br>METRIC .XX = ±.3mm<br>.XXX = ±.1mm | LOVESHAW an ITW Company<br>RT. 296, SOUTH CANAAN, PA. |                         |
| ST. ST.  | STD    | PLOT DATE          | DRAWN DATE         |  | 6/3/2005  | TITLE<br>KNIFE ARM ASSY |
| STAINLESS : NO FINISH  |        | DO NOT SCALE PRINT |                    | DWG NO .KAA-CAC50  |   | SCALE                   |
| 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. |        |                    |                    | MATERIAL   |   | CHECKED                 |
|  |        |                    |                    | DRAWN DENNISW  |   | APPROVED                |

4

3

2

1



| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/3/2005 | DW |

| Parts List |     |             |                        |
|------------|-----|-------------|------------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION            |
| 1          | 1   | PSC510      | BUSHING                |
| 2          | 1   | CAC50-038-3 | SHAFT THREADED SUPPORT |
| 3          | 1   | PSC321044-3 | BUSHING, KNIFE STOP    |
| 4          | 1   | PSC321046-3 | STOP NUT, KNIFE ARM    |
| 5          | 1   | X111-PS     | SPRING                 |
| 6          | 1   | PSC321045-3 | SPRING GUIDE           |
| 7          | 1   | AV960C616C  | FLAT WASHER            |
| 8          | 1   | FHFNMGP     | HEX NUT M6             |
| 10         | 1   | CAC50-016-3 | BLOCK KNIFE ARM SPRING |
| 11         | 1   | FHDNMGP     | HEX DOME NUT M6        |

|  |                       |                           |                           |   |   |
|--|-----------------------|---------------------------|---------------------------|---|---|
| MATL   | PART #                | CAD FILE                  | KNIFE ARM SPRING ASSY.dwg | UNLESS OTHERWISE NOTED:   | <b>LOVESHAW</b> an <b>ITW</b> Company<br>RT. 296, SOUTH CANAAN, PA. |
|  | STD                   | PLOT DATE                 |                           |   |   |
| ST. ST.  |                       | DRAWN DATE                | 6/3/2005                  | X = ±.050<br>INCH .XX = ±.015 ANGLES ± 1/2°<br>.XXX = ±.005     | TITLE   |
|  | STAINLESS : NO FINISH | <b>DO NOT SCALE PRINT</b> |                           | X = ±1.0mm MACH. FINISH ✓<br>METRIC .XX = ±.3mm<br>.XXX = ±.1mm | DWG NO .KASA-CAC50  |
| 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. |                       |                           |                           | FRACTIONS ± 1/64  | SCALE   |
|  |                       |                           |                           |   | MATERIAL  |
|  |                       |                           |                           |   | DRAWN DENNISW   |
|  |                       |                           |                           |   | CHECKED   |
|  |                       |                           |                           |   | APPROVED  |

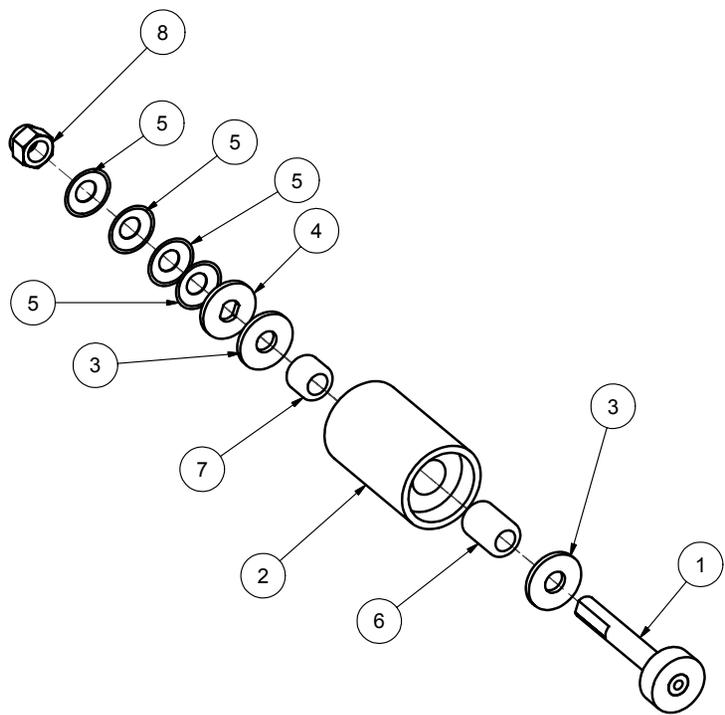
4

3

2

1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/6/2005 | DW |



| Parts List |     |             |                       |
|------------|-----|-------------|-----------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION           |
| 1          | 1   | CAC50-021-3 | SHAFT, KNURLED ROLLER |
| 2          | 1   | PSC321023-3 | KNURLED ROLLER        |
| 3          | 2   | PSC321031-3 | BRAKE WASHER          |
| 4          | 1   | PSC321032-3 | LOCKING WASHER        |
| 5          | 4   | PSC321039   | WASHER, SPRING        |
| 6          | 1   | J205-PS     | BEARING               |
| 7          | 1   | J206-PS     | BEARING               |
| 8          | 1   | 50299-028   | 3/8-16 LOCKNUT        |

|  |        |                    |  |  |
|--|--------|--------------------|--|--|
| MATL   | PART # | CAD FILE TRA50.idw | TOLERANCES UNLESS OTHERWISE NOTED:<br>X = ±.050<br>INCH .XX = ±.015 ANGLES ± 1/2°<br>.XXX = ±.005<br>X = ±1.0mm<br>METRIC .XX = ±.3mm MACH. FINISH ✓<br>.XXX = ±.1mm<br>FRACTIONS ± 1/64 | <b>LOVESHAW</b> an <i>ITW</i> Company<br>RT. 296, SOUTH CANAAN, PA.<br><b>TENSION ROLLER ASSY.</b><br><b>CAC50</b> |
| ST. ST.  | STD    | PLOT DATE          |  |  |
| STAINLESS : NO FINISH  |        | DO NOT SCALE PRINT | DRAWN DATE 6/6/2005  | DWG NO .TRA50  |
| 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. |        |                    |  | SCALE  |
|  |        |                    |  | CHECKED  |
| DRAWN DENNISW  |        |                    | APPROVED   |  |

4

3

2

1

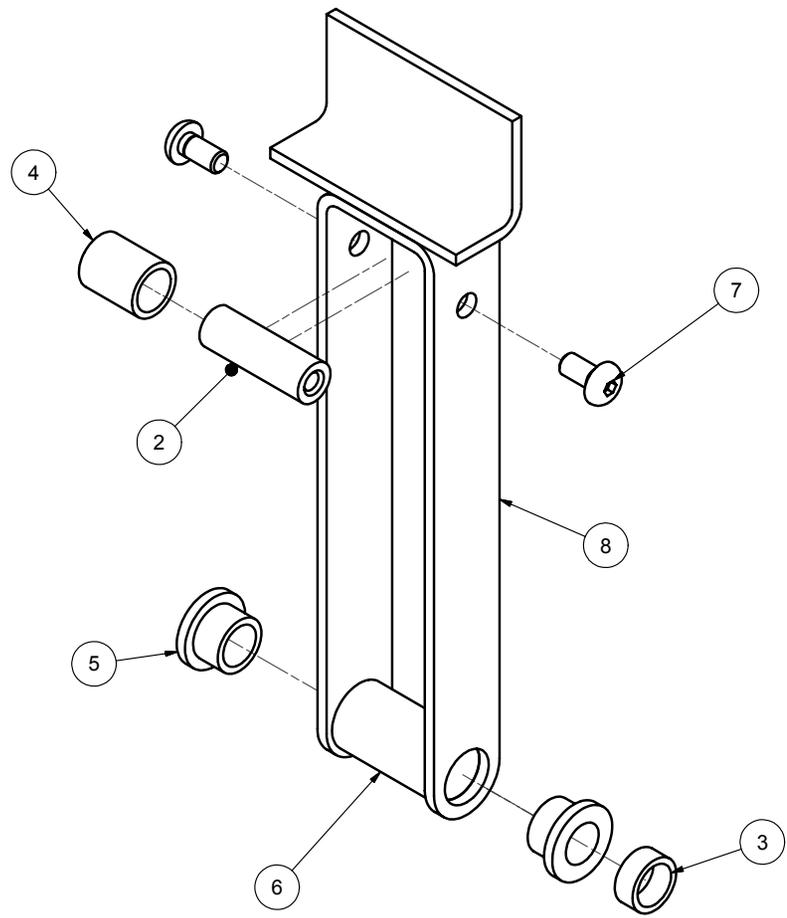
4

3

2

1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/3/2005 | DW |



| Parts List |     |             |                             |
|------------|-----|-------------|-----------------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION                 |
| 2          | 1   | CAC50-048-3 | SHAFT KNIFE GUARD           |
| 3          | 1   | CAC50-040-3 | SPACER CONN ARM KNIFE COVER |
| 4          | 1   | CAC50-041-3 | SPACER KNIFE GUARD          |
| 5          | 2   | 50186-039   | BUSHING                     |
| 6          | 1   | PSC301110-3 | SPACER                      |
| 7          | 2   | FBHMF010P10 | BUTT. HD. SCREW M5 X 10     |
| 8          | 1   | CAC50-011-4 | KNIFE GUARD                 |

|   |        |                    |                      |  |   |                             |
|---|--------|--------------------|----------------------|--|---|-----------------------------|
| MATL  | PART # | CAD FILE           | KNIFE GUARD ASSY.dwg | DIMENSIONS UNLESS OTHERWISE NOTED:<br>X = ±.050<br>INCH .XX = ±.015 ANGLES ± 1/2°<br>.XXX = ±.005<br>X = ±1.0mm MACH. FINISH ✓<br>METRIC .XX = ±.3mm<br>.XXX = ±.1mm<br>FRACTIONS ± 1/64 | <b>LOVESHAW</b> an <b>ITW</b> Company<br>RT. 296, SOUTH CANAAN, PA. |                             |
| ST. ST.   | STD    | PLOT DATE          | DRAWN DATE 6/3/2005  |  | TITLE   | <b>KNIFE GUARD ASSEMBLY</b> |
| STAINLESS : NO FINISH   |        | DO NOT SCALE PRINT |                      | DWG NO   | .KGA-CAC50  | SCALE                       |
| 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 THEROF 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. |        |                    |                      | MATERIAL   |   | CHECKED                     |
|   |        |                    |                      | DRAWN  | DENNISW   | APPROVED                    |

4

3

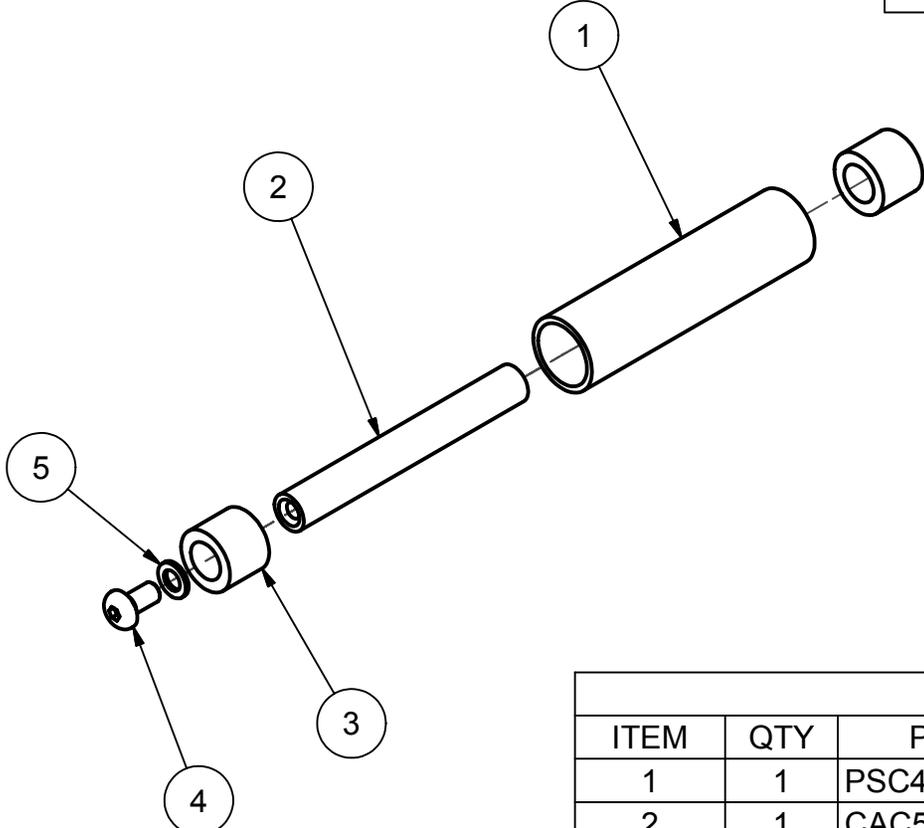
2

1

2

1

| REVISION HISTORY |             |          |    |
|------------------|-------------|----------|----|
| REV              | DESCRIPTION | DATE     | BY |
| A                | RELEASED    | 6/6/2005 | DW |



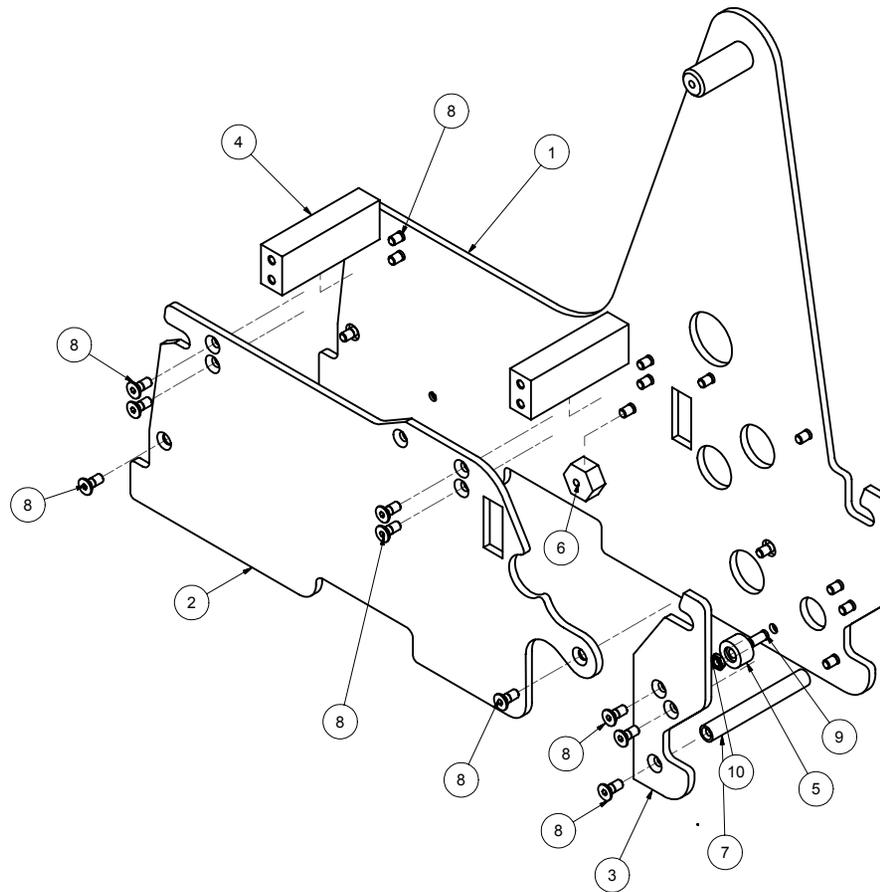
| Parts List |     |             |                         |
|------------|-----|-------------|-------------------------|
| ITEM       | QTY | PART NUMBER | DESCRIPTION             |
| 1          | 1   | PSC49-3     | ALUM. ROLLER CARTRIDGE  |
| 2          | 1   | CAC50-024-3 | SHAFT IDLER ROLLER      |
| 3          | 2   | PSC606      | BUSHING                 |
| 4          | 1   | FBHMF010P10 | BUTT. HD. SCREW M5 X 10 |
| 5          | 1   | FFWMFP      | FLAT WASHER M5          |

|  |        |                           |                       |  |  |         |         |          |
|--|--------|---------------------------|-----------------------|--|--|---------|---------|----------|
| MAT'L  | PART # | CAD FILE                  | IDLER ROLLER ASSY.iwc | TOLERANCES UNLESS OTHERWISE NOTED:<br>.X = ±.050<br>INCH .XX = ±.015<br>.XXX = ±.005<br>ANGLES ± 1/2°<br>.X = ±1.0mm<br>METRIC .XX = ±.3mm<br>.XXX = ±.1mm<br>MACH. FINISH 125 ✓ | <b>LOVESHAW</b> an <i>ITW</i> Company<br>RT. 296, SOUTH CANAAN, PA.<br><b>IDLER ROLLER ASSY. CAC50</b> |         |         |          |
|  | STD    | PLOT DATE                 |                       |  |  |         |         |          |
| ST. ST.  |        | DRAWN DATE                | 6/6/2005              |  | TITLE  |         |         |          |
| STAINLESS : NO FINISH  |        | <b>DO NOT SCALE PRINT</b> |                       |  | DWG NO .IRA-CAC50  | SCALE   |         |          |
| 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. |        |                           |                       |  | MATERIAL   | CHECKED |         |          |
|  |        |                           |                       | FRACTIONS ± 1/64   |  | DRAWN   | DENNISW | APPROVED |

2

1

| REVISION HISTORY |             |           |    |
|------------------|-------------|-----------|----|
| REV              | DESCRIPTION | DATE      | BY |
| A                | RELEASED    | 5/31/2005 | DW |



| Parts List |     |              |                                 |
|------------|-----|--------------|---------------------------------|
| ITEM       | QTY | PART NUMBER  | DESCRIPTION                     |
| 1          | 1   | CAC50-102-6  | MAIN FRAME                      |
| 2          | 1   | CAC50-002-5  | FRAME, TOP                      |
| 3          | 1   | CAC50-012-4  | FRAME TOP EXCESS                |
| 4          | 2   | CAC50-015-3  | BLOCK FRAME                     |
| 5          | 1   | CAC50-050-3  | STOPPER FRONT ARM               |
| 6          | 1   | PSC301117-3  | STOP ROLLER ARM                 |
| 7          | 1   | PSC321025B-3 | SHAFT, CARTRIDGE PLATES         |
| 8          | 21  | FFHMF012P10  | FLAT HD. M5 X 12 LG.            |
| 9          | 1   | FFHMF016P10  | FLAT HEAD CAP SCREW M5 X 16 LG. |
| 10         | 1   | FHJNMFP      | M5 HJN                          |

|   |        |                    |               |
|---|--------|--------------------|---------------|
| MATL  | PART # | CAD FILE           | FRA-CAC50.idw |
|   | STD    | PLOT DATE          |               |
| ST. ST.   |        | DRAWN DATE         | 5/31/2005     |
|   |        | DO NOT SCALE PRINT |               |
| STAINLESS : NO FINISH   |        |                    |               |
| <small>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.</small> |        |                    |               |

|                                    |                |
|------------------------------------|----------------|
| TOLERANCES UNLESS OTHERWISE NOTED: |                |
| X = ±0.050                         | ANGLES ±1/2°   |
| INCH .XX = ±0.015                  | .XXX = ±0.005  |
| METRIC .XX = ±0.3mm                | .XXX = ±0.1mm  |
| X = ±1.0mm                         | MACH. FINISH ✓ |
| FRACTIONS ± 1/64                   |                |

|   |          |
|---|----------|
| <b>LOVESHAW</b> an <i>itw</i> Company<br>RT. 296, SOUTH CANAAN, PA. |          |
| TITLE   |          |
| FRAME ASSEMBLY  |          |
| DWG NO. FRA-CAC50   | SCALE    |
| MATERIAL  | CHECKED  |
| DRAWN DENNISW   | APPROVED |

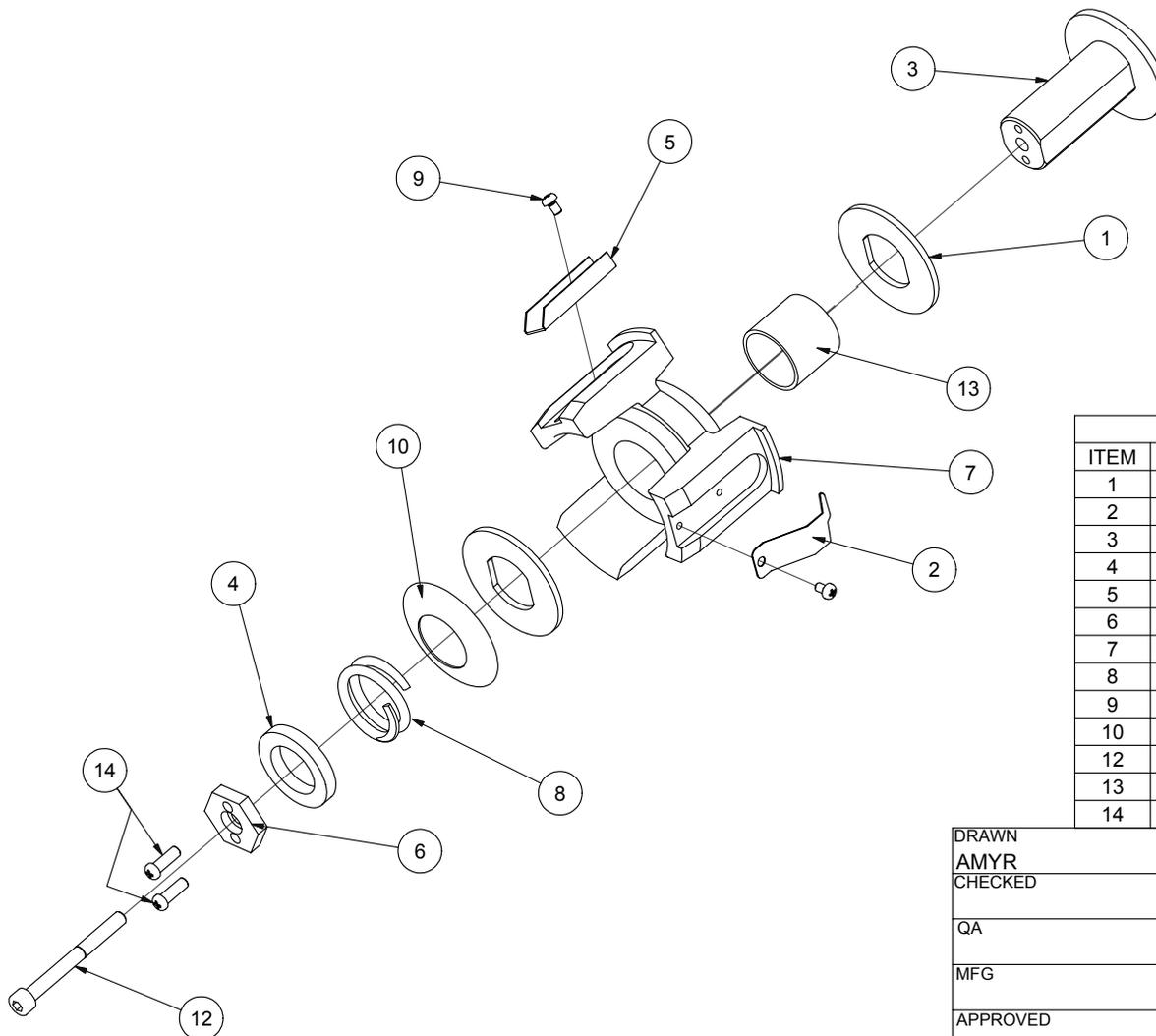
4

3

2

1

| REVISION HISTORY |             |          |      |
|------------------|-------------|----------|------|
| REV              | DESCRIPTION | DATE     | BY   |
| A                | RELEASED    | 7/3/2003 | AMYR |



| Parts List |     |             |   |
|------------|-----|-------------|---|
| ITEM       | QTY | PART NUMBER | DESCRIPTION                                 |
| 1          | 2   | PSC28-3     | BRAKE WASHER                                |
| 2          | 1   | PSC88-3     | TAPE CORE SPRING                            |
| 3          | 1   | CAC50-096-4 | TAPE CORE SHAFT (THREADED)                  |
| 4          | 1   | PSC142-3    | TAPE CORE NUT                               |
| 5          | 1   | PSC144-3    | TAPE HOLDER                                 |
| 6          | 1   | CAC50-095-3 | HEX LOCK NUT                                |
| 7          | 1   | PSC30A-5    | TAPE CORE CASTING                           |
| 8          | 1   | PSC33B-3    | COMPRESSION SPRING                          |
| 9          | 2   | MS7M3-5     | PAN HEAD SCREW M3 X 5                       |
| 10         | 1   | PSC33       | SPRING DISC                                 |
| 12         | 1   | SPH-1030    | SOC. HEAD CAP SCREW M5 X 50                 |
| 13         | 1   | PSC625      | BUSHING                                     |
| 14         | 2   | SPH-1221    | M4-.7 x 12 mm LG. PAN HD BOLT (FULL THREAD) |

|          |      |          |                    |         |
|----------|------|----------|--------------------|---------|
| DRAWN    | AMYR | 7/3/2003 | TITLE              |         |
| CHECKED  |      |          | TAPE CORE ASSEMBLY |         |
| QA       |      |          | SIZE               | DWG NO  |
| MFG      |      |          | B                  | .TCA301 |
| APPROVED |      |          | SCALE              | REV     |
|          |      |          |                    | A       |
|          |      |          | SHEET              | 1 OF 1  |

4

3

2

1

## **TAPE CORE ASSEMBLY ADJUSTMENT PROCEDURES**

**(.TCA201 = 3" TAPE CORE AND .TCA301 = 2" TAPE CORE)**

### **STEP 1: UNLOCKING THE TAPE CORE FOR ADJUSTMENT:**

THERE IS A LOCKING BOLT USED TO MAINTAIN THE HEIGHT ADJUSTMENT OF THE TAPE CORE. THIS MUST BE LOOSENED TO CHANGE THE HEIGHT OF THE TAPE CORE. THIS WILL ALLOW YOU TO ADJUST THE HEIGHT OF THE TAPE (TRACKING) THROUGH THE CARTRIDGE. USING A 3 mm HEX KEY WRENCH TURN IN A COUNTERCLOCKWISE DIRECTION TO LOOSEN THE SOCKET HEAD CAP SCREW (SPH-1030). THEN TURN THE TAPE CORE NUT LP06B-039-3 (3") OR PSC142-3 (2") IN A COUNTERCLOCKWISE DIRECTION TO REMOVE DRAG FROM THE DISC SPRING (PSC33). BE SURE TO LOOSEN ENOUGH TO ALLOW THE TAPE CORE INTERNAL ASSEMBLY TO SPIN FREELY AND ADJUST UP AND DOWN.

### **STEP 2: ADJUSTING THE TAPE CORE HEIGHT:**

THE INTERNAL ASSEMBLY IS THREADED ON A STUD MOUNTED ON THE CARTRIDGE MILL STAND. BY HOLDING THE EXTERNAL PART OF THE TAPE CORE ASSEMBLY AND ROTATING THE HEX LOCK NUT CAC50-101-3 (3") OR CAC50-095-3 (2") THE INTERNAL ASSEMBLY WILL ROTATE CHANGING THE HEIGHT OF THE TAPE CORE ASSEMBLY. TURN IN A CLOCKWISE DIRECTION TO DECREASE THE HEIGHT AND IN A COUNTERCLOCKWISE DIRECTION TO INCREASE THE HEIGHT. ***DO NOT OVER TIGHTEN THE INTERNAL ASSEMBLY.*** THIS MAY CAUSE DAMAGE TO THE TAPE CORE ASSEMBLY. RUN THE TAPE THROUGH THE CARTRIDGE AND CHECK FOR PROPER TAPE POSITION. REPEAT ADJUSTMENT AS REQUIRED TO CENTER TAPE.

### **STEP 3: ADJUSTING TAPE ROLL BACK LASH OR FREE SPIN:**

THERE IS A DISC SPRING (PSC33) AND A SET OF BRAKE WASHERS (PSC28-3) USED TO SLOW THE FREE SPINNING OF THE TAPE ROLL CAUSED WHEN THE TAPE IS PULLED THROUGH THE CARTRIDGE. BY ROTATING THE TAPE CORE NUT LP06B-039-3 (3") OR PSC142-3 (2") IN A CLOCKWISE DIRECTION THIS WILL INCREASE THE DRAG FROM THE DISC SPRING (PSC33) RESTRICTING THE AMOUNT OF FREE SPIN. THIS SHOULD BE SET WITH JUST ENOUGH DRAG TO STOP THE FREE SPINNING. TOO MUCH OR TOO LITTLE WILL AFFECT THE CARTRIDGE TAPING PERFORMANCE. RUN TAPE THROUGH THE CARTRIDGE AND CHECK FOR TAPE ROLL FREE SPIN. REPEAT ADJUSTMENT AS REQUIRED TO SET TAPE ROLL FREE SPIN.

### **STEP 4: LOCKING THE TAPE CORE:**

AFTER THE TAPE IS CENTERED AND THE TAPE ROLL FREE SPIN IS PROPERLY ADJUSTED THE TAPE CORE SHOULD BE LOCKED INTO POSITION. USING A 3 mm HEX KEY WRENCH TURN IN A CLOCKWISE DIRECTION TO TIGHTEN THE SOCKET HEAD CAP SCREW (SPH-1030). THIS WILL INSURE THAT THE HEIGHT ADJUSTMENT IS MAINTAINED DURING OPERATION.