

LITTLE DAVID

OWNERS MANUAL



LEGEND

2" CARTRIDGE

THE LOVESHAW CORPORATION
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REV. 11/21/03 A. R.

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 BOXES AFTER THEY CLEAR THE EXIT END OF THE MACHINE.
- * FINGER GUARDS ARE PROVIDED TO PREVENT A PINCH-POINT. THEY SHOULD ALWAYS BE IN PLACE WHEN RUNNING THE MACHINE.
- * 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 BYPASS ANY DESIGNED-IN SAFETY FEATURES SUCH AS INTERLOCKS, GUARDS, OR SHIELDS.
- * DO NOT PLACE HANDS OR BODY INSIDE CONFINES OF UNIFORM TYPE MACHINES UNLESS HEAD IS SECURELY LOCKED AND POWER IS DISCONNECTED.
- * ALWAYS DISCONNECT POWER SOURCE BEFORE SERVICING MACHINE.
- * WHEN OPERATING A SEMI-AUTOMATIC MACHINE, HOLD BOX FLAPS DOWN AT THE 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.

ARRIVAL INSPECTION

**** NOTE ****

WHEN UNCRATING MACHINE, CHECK FOR ANY PHYSICAL DAMAGE.

IF ANY DAMAGE HAS OCCURRED, NOTIFY COMPANY IMMEDIATELY.

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MACHINE DIMENSIONS:

| | | |
|-------------------------|-----------------|---------|
| HEIGHT: | 61 3/16 inches | 1554 mm |
| WIDTH: | 30 13/16 inches | 783 mm |
| LENGTH: (without rails) | 40 inches | 1016 mm |
| (with rails) | 52 1/8 inches | 1324 mm |

TABLE HEIGHT (adjustable):

| | | |
|----------|---------------|--------|
| MINIMUM: | 22 1/4 inches | 565 mm |
| MAXIMUM: | 32 1/4 inches | 819 mm |

ELECTRICAL:

STANDARD: 115V/1/60

OPTIONAL: 220V/1/50,60
220V/3/50,60
240V/1/50
380V/3/50
440V/3/50
440V/3/60

BOX CAPACITY:

| | | |
|---------|------------------------------|--------------------------|
| LENGTH: | 4.5 inches to unlimited max. | 114 mm to unlimited max. |
| WIDTH: | 4.5 inches to 22 inches | 114 mm to 559 mm |
| HEIGHT: | 2 inches to 24 inches | 51 mm to 609 mm |

OPERATING SPEED:

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

CLOSURE MATERIAL - PRESSURE SENSITIVE TAPE

| | | | |
|---------------------|------------|-------------------|-------|
| WIDTH: | 1.5 inches | 38 mm to 2 inches | 50 mm |
| MAX. ROLL DIAMETER: | 15 inches | 380 mm | |
| WEIGHT: (uncrated) | 203 LBS. | 104 KG. | |

INTRODUCTION

THE **LITTLE DAVID LDU 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.

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:

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OR 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 OPERATOR SIDE OF THE MACHINE.

THE HEIGHT OF THE MACHINE CAN BE ADJUSTED FROM 22 ¼" TO 33 ¼" (565 mm to 844 mm) IN ANY INCREMENT 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 INTO THE MACHINE. A CONVEYOR SHOULD BE PROVIDED AT THE OUTFEED END OF THE MACHINE TO RECEIVE THE BOXES AS THEY ARE DISCHARGED FROM THE MACHINE. **IMPORTANT: BE SURE THE TABLE AND CONVEYOR ARE ¼" (6 mm) BELOW THE MACHINE BELT HEIGHT.**

INSTALLATION AND ADJUSTMENT OF DRIVE COMPONENTS

THE MACHINE CONVEYOR SYSTEM CONSISTS OF (5) KEY COMPONENTS.

1. MOTOR / GEARBOX SYSTEM
2. DRIVE ROLLERS
3. BELTS
4. FRONT BELT TENSIONER AND GUIDES

MOTOR / GEARBOX SYSTEM:

THE MOTOR AND GEARBOX SYSTEM IS LOCATED IN THE REAR OF THE MACHINE TUCKED UNDER THE FRAME. SEE ASSEMBLY FOR INDIVIDUAL PART NUMBERS. THE SYSTEM CAN BE REMOVED FOR INSPECTION AND REPLACEMENTS BY FOLLOWING THIS PROCEDURE.

1. DISCONNECT POWER FROM MACHINE AND LOCK OUT POWER USING LOCKOUT BRACKET ON STARTER SWITCH.
2. LOOSEN THE (4) MOUNTING BOLTS AT THE GEARBOX SLIDE BRACKET. THEN SLIDE THE MOTOR AND GEARBOX ASSEMBLY UP TOWARDS THE FRAME. THIS WILL REMOVE THE TENSION FROM THE DRIVE CHAIN AND ALLOW THE DRIVE CHAIN TO BE REMOVED FROM THE ASSEMBLY.
3. THE POWER SUPPLY CORD MUST BE REMOVED FROM MOTOR FOR REMOVAL FROM MACHINE.
4. THEN REMOVE THE (4) MOUNTING BOLTS WHILE SUPPORTING THE MOTOR AND GEARBOX ASSEMBLY THEM REMOVE FROM THE MACHINE.
5. THE MOTOR MAY BE REMOVED FROM GEARBOX ASSEMBLY BY REMOVING THE (4) MOUNTING BOLTS ON THE GEARBOX FLANGE.
6. THE PROCESS SHOULD BE REVERSED TO REASSEMBLE THE SYSTEM.

DRIVE ROLLERS ADJUSTMENT AND BELT REPLACEMENT:

THE DRIVE ROLLERS ARE LOCATED ON THE DRIVE SHAFT AT THE REAR OF THE MACHINE. THEY TRANSFER POWER FROM THE GEARBOX ASSEMBLY TO THE BELTS. THE ADJUSTMENT FOR THE DRIVE ROLLERS IS AS FOLLOWS. 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. TO REPLACE BELTS FOLLOW INSTRUCTIONS #1 AND #2 LISTED BELOW.

1. TURN ON MACHINE UNTIL THE LACED PORTION OF THE BELT IS SHOWING THEN STOP THE MACHINE. (USE EXTREME CAUTION WHEN WORKING ON THE MACHINE WHILE POWER IS CONNECTED.) PULL UPWARD ON THE BELT TO COLLAPSE THE SELF-TENSIONING ASSEMBLY AT THE FRONT END OF THE MACHINE. PLACE A WEDGE (EXAMPLE: SCREWDRIVER HANDLE) BETWEEN THE FRAME AND BELT TO KEEP THE SELF-TENSIONING ASSEMBLY COLLAPSED. THIS WILL ALLOW THE REMOVAL OF THE PIN IN THE LACED PORTION OF THE BELT.
2. SLIDE THE BELT OUT OF THE MACHINE AND REPEAT FOR THE OTHER BELT.
3. THE PROCESS SHOULD BE REVERSED TO REASSEMBLE THE SYSTEM.

FRONT BELT TENSIONER ASSEMBLIES AND GUIDE ADJUSTMENT:

THE FRONT BELT TENSIONER ASSEMBLIES ARE LOCATED AT THE FRONT END OF THE MACHINE TUCKED INSIDE THE FRAME. THIS IS A SELF-TENSIONING SYSTEM THAT CONSTANTLY PLACES FORCE ON THE BELT TO TAKE UP ANY ADJUSTMENT IN LENGTH. THEY CONSIST OF (3) ITEMS - A TENSION ROLLER BRACKET WITH ROLLER, (2) GUIDE ROLLERS, AND (2) COMPRESSION SPRINGS. EACH TENSIONER CAN BE MOVED INDEPENDENTLY IN ORDER TO ACCOMMODATE THE 2" OR 3" TAPE CARTRIDGES. SEE ASSEMBLY FOR INDIVIDUAL PART NUMBERS. THE ADJUSTMENT OF THE FRONT BELT TENSIONER IS AS FOLLOWS.

1. DISCONNECT POWER FROM MACHINE AND LOCK OUT POWER USING LOCKOUT BRACKET ON STARTER SWITCH.
2. REFER TO ASSEMBLY FOR DIMENSIONS TO LOCATE THE POSITION OF THE TENSIONER.
3. THERE ARE SPLIT SHAFT COLLARS LOCATED ON EACH SIDE OF THE TENSIONER ASSEMBLY. LOOSEN THE COLLARS AND SLIDE TENSIONER INTO POSITION.
4. TIGHTEN COLLARS AFTER IN POSITION AND RESTORE POWER TO MACHINE.

ADJUSTMENT OF LEG EXTENSIONS

LEG EXTENSION ADJUSTMENT

THE LEG EXTENSIONS ARE LOCATED ON THE INSIDE OF THE (4) LEGS OF THE MACHINE. THEY HAVE THE ABILITY TO BE ADJUSTED INFINITELY IN THEIR RANGE. SEE ASSEMBLY FOR INDIVIDUAL PART NUMBERS. THE PROCEDURE FOR ADJUSTING IS AS FOLLOWS.

1. DISCONNECT POWER FROM MACHINE AND LOCK OUT POWER USING LOCKOUT BRACKET ON STARTER SWITCH.
2. REMOVE WEIGHT OFF MACHINE LEG.
3. LOOSEN THE 12 mm LOCKING BOLT LOCATED ON THE INSIDE OF THE MACHINE LEG. THIS WILL ALLOW THE LEG EXTENSION TO SLIDE FREELY TO PROPER HEIGHT.
4. TIGHTEN THE LOCKING BOLT TO XX FT/LBS. OF TORQUE TO INSURE PROPER CLAMPING.
5. REPEAT PROCESS ON ALL LEGS UNTIL THE DESIRED MACHINE HEIGHT IS OBTAINED.

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

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

MAIN FRAME

STARTER SWITCH:

THE STARTER SWITCH IS MOUNTED ON THE OPERATOR SIDE OF THE MACHINE. IT INCORPORATES A CIRCUIT BREAKER WHICH 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 SCREW AND PULL SWITCH FROM THE ELECTRICAL BOX. REMOVE THE WIRES AFTER FIRST NOTING THEIR CONNECTION TO THE SWITCH.

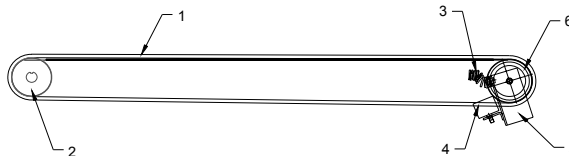
TO REPLACE THE STARTER SWITCH, REVERSE THE ABOVE PROCEDURE.

SIDE RAILS:

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

BELT THREADING DIAGRAM

| KEY | PART NUMBER | DESCRIPTION |
|-----|-------------|------------------------|
| 1 | LDU-1128-4 | BELT |
| 2 | LDU-1064-5 | DRIVE ROLLER |
| 3 | PSC301232 | BELT TENSIONING SPRING |
| 4 | K286 | GUIDE ROLLER |
| 5 | LDU-1092-5 | CONV. ROLLER BRACKET |
| 6 | PSC196-4 | ROLLER |



HEAD

THE HEAD TROLLEY ASSEMBLY TRAVELS ALONG THE MAST ON CAM BEARINGS AND UHMW WEAR PADS. THE HEIGHT OF THE HEAD IS ADJUSTED BY TURNING THE LOCK HAND KNOB COUNTERCLOCKWISE TO RELEASE THE HEAD. TURNING THE HAND WHEEL CLOCKWISE WILL LOCK THE HEAD IN THE DESIRED POSITION.

ADJUSTMENT OF HEAD ASSEMBLY

HEAD TROLLEY WEAR PAD ADJUSTMENT

SEE ASSEMBLY FOR INDIVIDUAL PART NUMBERS. THE ADJUSTMENT OF THE TROLLEY ASSEMBLY IS AS FOLLOWS.

1. DISCONNECT POWER FROM MACHINE AND LOCK OUT POWER USING LOCKOUT BRACKET ON STARTER SWITCH.
2. THERE ARE (4) NYLON PATCHED SET SCREWS LOCATED ON THE LOCK SIDE OF THE TROLLEY BLOCK. BY ADJUSTING THESE SET SCREWS INWARD THEY WILL REDUCE THE CLEARANCE BETWEEN THE WEAR PAD AND THE MAST. ADJUSTMENT OF THE PAD MUST BE UNIFORM ON ALL (4) SCREWS TO INSURE THAT PAD IS PARALLEL TO THE MAST. THE RECOMMENDED CLEARANCE IS APPROXIMATELY .020" OR .5 mm.
3. DURING THE ADJUSTMENT PROCESS SLIDE THE HEAD UP AND DOWN TO INSURE A SMOOTH MOVEMENT.

HEAD TROLLEY CAM BEARING ADJUSTMENT

THERE ARE (2) SETS OF CAM BEARINGS LOCATED IN THE TROLLEY ASSEMBLY. THE FIRST SET IS LOCATED IN THE FRONT OF THE HEAD LIFTING TROLLEY ASSEMBLY AND IS FIXED. THE SECOND SET IS LOCATED AT THE REAR OF THE ASSEMBLY AND IS MOVABLE. THE ADJUSTMENT OF THE REAR CAM BEARING ASSEMBLY IS AS FOLLOWS.

1. DISCONNECT POWER FROM MACHINE AND LOCK OUT POWER USING LOCKOUT BRACKET ON STARTER SWITCH.
2. REMOVE FRONT SPRING GUARD BY REMOVING THE (2) MOUNTING SCREWS LOCATED AT THE TOP OF THE GUARD.
3. THEN REMOVE THE MAST GUARD BY REMOVING ITS (8) MOUNTING SCREWS. THERE ARE (4) SCREWS LOCATED ON EACH SIDE OF THE GUARD JUST ABOVE AND BELOW THE SIDE CUT OUT. WITH THESE REMOVED THE GUARD WILL LIFT OFF.
4. ON THE TROLLEY ASSEMBLY THERE ARE (4) SET SCREWS. EACH SET SCREW PUSHES ON A TEE NUT THAT HOUSES THE CAM BAR SUPPORT. BY TURNING THE SET SCREW IN, THIS WILL DECREASE THE DISTANCE BETWEEN THE CAM BEARING AND THE MAST.
5. DURING THE ADJUSTMENT PROCESS SLIDE THE HEAD UP AND DOWN TO INSURE A SMOOTH MOVEMENT.

ELECTRICAL SYSTEM

THE ELECTRICAL SYSTEM CONSISTS OF THE DRIVE MOTOR WHICH INCORPORATES A FRACTIONAL HP A.C. MOTOR AND THE STARTER SWITCH. THE MOTOR AND FRAME ARE GROUNDED THROUGH THE STARTER SWITCH. THE STARTER SWITCH IS FASTENED TO THE MACHINE' S FRAME.

THE MOTOR STARTERS OVERLOAD RELAY IS FACTORY SET. IF IT TRIPS, A QUALIFIED ELECTRICIAN SHOULD CHECK THE ELECTRICAL SYSTEM, THEN RESET THE OVERLOAD RELAY.

THE BELTS ARE DRIVEN BY THE DRIVE MOTOR ON THE DISCHARGE END OF THE MACHINE. THE MOTOR IS CONTROLLED BY THE STARTER SWITCH IN WHICH THE HEATER IS FACTORY SET TO THE PROPER TRIP SETTING TO PROTECT THE MOTOR.

IF TROUBLE IS BEING EXPERIENCED WITH THE DRIVE MOTOR, A QUALIFIED ELECTRICIAN SHOULD FIRST CHECK THE STARTER SWITCH, THEN THE ELECTRICAL SYSTEM.

TO REPLACE THE DRIVE MOTOR, PROCEED AS FOLLOWS:

- DISCONNECT THE ELECTRICAL CONNECTIONS.
- REMOVE MOTOR FROM GEAR REDUCER, REPLACE MOTOR.
- TO CONNECT MOTOR, REFER TO WIRING DIAGRAM IN MOTOR JUNCTION BOX.
- CHECK MOTOR FOR PROPER ROTATION.

LUBRICATION

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

THE REDUCER HAS BEEN PRE-CHARGED AT THE FACTORY WITH SYNTHETIC LUBRICANT.

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:

| <u>PROBLEM:</u> | <u>SOLUTION:</u> |
|--|---|
| 1. TAPE DOES NOT ADHERE WELL TO BOX: | A. CHECK THAT BOX IS NOT WAXY OR OILY. B. 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. C. CHECK THE PRESSURE ON THE WIPE DOWN ROLLERS. IF NECESSARY, INCREASE MAIN SPRING PRESSURE. D. CHECK THAT THE SPRING IS NOT BROKEN. |
| 2. TAPE END STICKS TO ITSELF OR MECHANISM: | A. CHECK THAT THERE IS NO TOO MUCH DRAG ON THE TAPE CAUSING STRETCHING AND SNAP BACK AT CUT OFF. REDUCE THE TAPE CORE DRAG SETTING. B. CHECK THE TAPE THREADING PATH. C. CHECK FOR DEFECTIVE TAPE ROLL BY PULLING TAPE OFF MANUALLY. THE PULL SHOULD BE EVEN AND NOT VARY SUDDENLY. D. CHECK TAPE GUIDE PLATE SETTING AND FREEDOM OF MOVEMENT. E. CHECK FOR BINDING. |
| 3. TAPE BREAKS OR JAMS: | A. CHECK THE TAPE ROLL BY PULLING TAPE OFF MANUALLY. THE PULL SHOULD BE EVEN AND SHOULD NOT VARY SUDDENLY. B. CHECK THE TAPE CORE DRAG SETTING. C. CHECK THE TAPE THREADING PATH. D. CHECK FOR NICKS IN EDGE OF TAPE ROLL. PULL OFF DAMAGED TAPE. E. TAPE TENSION SET TOO HIGH. |

4. TAPE WRINKLES:
- A. CHECK THE TAPE ROLL BY PULLING TAPE OFF MANUALLY. THE PULL SHOULD BE EVEN AND SHOULD NOT VARY SUDDENLY.
 - B. 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.
 - C. CHECK THAT ALL THE ROLLERS TURN FREELY ON THEIR SHAFTS.
 - D. CHECK THE BOX CONTENTS. PARTIALLY FULL BOXES OR VERY COMPRESSIBLE CONTENTS MAY ALLOW THE FLAPS TO EXCESSIVELY DEPRESS CAUSING WRINKLES.
 - E. CHECK THE DRAG OF THE TAPE. TOO MUCH DRAG MAY CAUSE OVERRUNNING OF THE TAPE ROLL. ADJUST THE TAPE CORE DRAG SETTING.
 - F. TAPE TENSION SET TOO HIGH.
 - G. CHECK ROLLER STOP INSIDE CARTRIDGE.
 - H. CHECK THAT TAPE IS PROPERLY THREADED AND THAT TAPE CORE IS PROPERLY CENTERED.
 - I. CHECK THE PRESSURE OF THE HEAD AGAINST THE BELTS AND HESITATE AS IT IS BEING FED THROUGH THE MACHINE. ADJUST THE HEIGHT.
 - J. CHECK THAT THE BELTS ARE NOT SLIPPING.
 - K. CHECK ADJUSTMENT OF THE GUIDE PLATE AND FINGER PLATE.
5. SHORT TAPE TAB ON BOX:
- A. CHECK TAPE TENSION.
 - B. 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 THE FRONT ROLLER ARM CANNOT BE DEPRESSED BELOW BOX HEIGHT. THEY ARE LOCATED INSIDE CARTRIDGE ON BOTH SIDES. WHEN FULLY DEPRESSED, THE FRONT WIPE ROLLER SHOULD PROTRUDE 3/32" ABOVE CARTRIDGE FRAME. IF THIS NEEDS ADJUSTING, ROTATE 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 HOLE IN THE CARTRIDGE FRAME. THE FRONT ROLLER SHOULD THEN PROTRUDE TO BELT LEVEL.

7. TAPE NOT CUTTING:
- A. CHECK KNIFE ARM FOR MECHANICAL BINDING.
 - B. CHECK THAT KNIFE IS NOT DULL.
 - C. CHECK SPRINGS ON KNIFE STUDS.
 - D. CHECK BUSHINGS IN KNIFE STUDS.
 - E. IF KNIFE STOP BLOCK IS CAUSING FRICTION ON KNIFE ARM STUDS, ROTATE UNTIL FREE.
 - F. TAPE TENSION IS SET TOO LOW.

8. TAPE NOT CENTERED ON BOX:
- A. USE SCREW IN CENTER OF TAPE CORE TO RE-ALIGN.

9. TAPE NOT BEING WIPED:
- A. CHECK MAIN SPRING.
 - B. TAPE TENSION IS SET TOO HIGH.

BOX PROBLEMS:

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

6. HEAD PRESSURE TOO HIGH: A. RAISE HEAD SLIGHTLY.

BELT DRIVE PROBLEMS:

CHECK THAT MACHINE IS CONNECTED TO A LIVE ELECTRICAL SOURCE.

1. BELTS SLIP. A. RAISE HEAD SLIGHTLY.
B. REPLACE IS MISSING OR BROKEN.
2. BOX SLIPS AGAINST BELTS: A. LOWER HEAD SLIGHTLY TO INCREASE PRESSURE ON BOX.
3. BELTS RUB AGAINST FRAME: A. CHECK THAT BELTS ARE POSITIONED CORRECTLY IN BETWEEN THE BELT GUIDE ROLLERS.
B. 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 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 FOR BOXES WITH UNDERFILL OR COMPRESSIBLE CONTENTS.

TAPE GUIDE PLATE:

THE TAPE IS GUIDED TO THE FRONT ROLLER BY THE TAPE 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 FORM 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 ADJUSTMENTS ARE NECESSARY,, GENTLY BEND THE FINGERS NEAR THE TIPS. ONLY BEND A SMALL AMOUNT, THEN CHECK. FINGERS MUST CONTACT PLATE. WHEN THE TAPE 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 IS 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 DEVICES. THE KNIFE ARM SHOULD BE ADJUSTED SO THAT THE TIPS OF THE KNIFE ARE 2 ½" FROM THE CARTRIDGE FRAME. (SEE ASSEMBLY DRAWING). 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: PROCEDURE (TOP AND BOTTOM)

TOP TAPE:

1. REMOVE EXPIRED TAPE ROLL BY SLIDING IT OFF TAPE CORE ON MILL STAND, PULLING IT TOWARD THE REAR OF THE CARTRIDGE.
2. LOAD NEW ROLL OF TAPE ON TAPE CORE.
3. WITH LEFT HAND, GRAB CARTRIDGE NEAR TAPE CORE AND ROTATE UP/BACK UNTIL CARTRIDGE RESTS AGAINST STOP.
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 SETS ON TOP LOAD BRACKET IN HEAD FRAME.

BOTTOM TAPE:

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

LITTLE DAVID

TAPE CARTRIDGE MANUAL

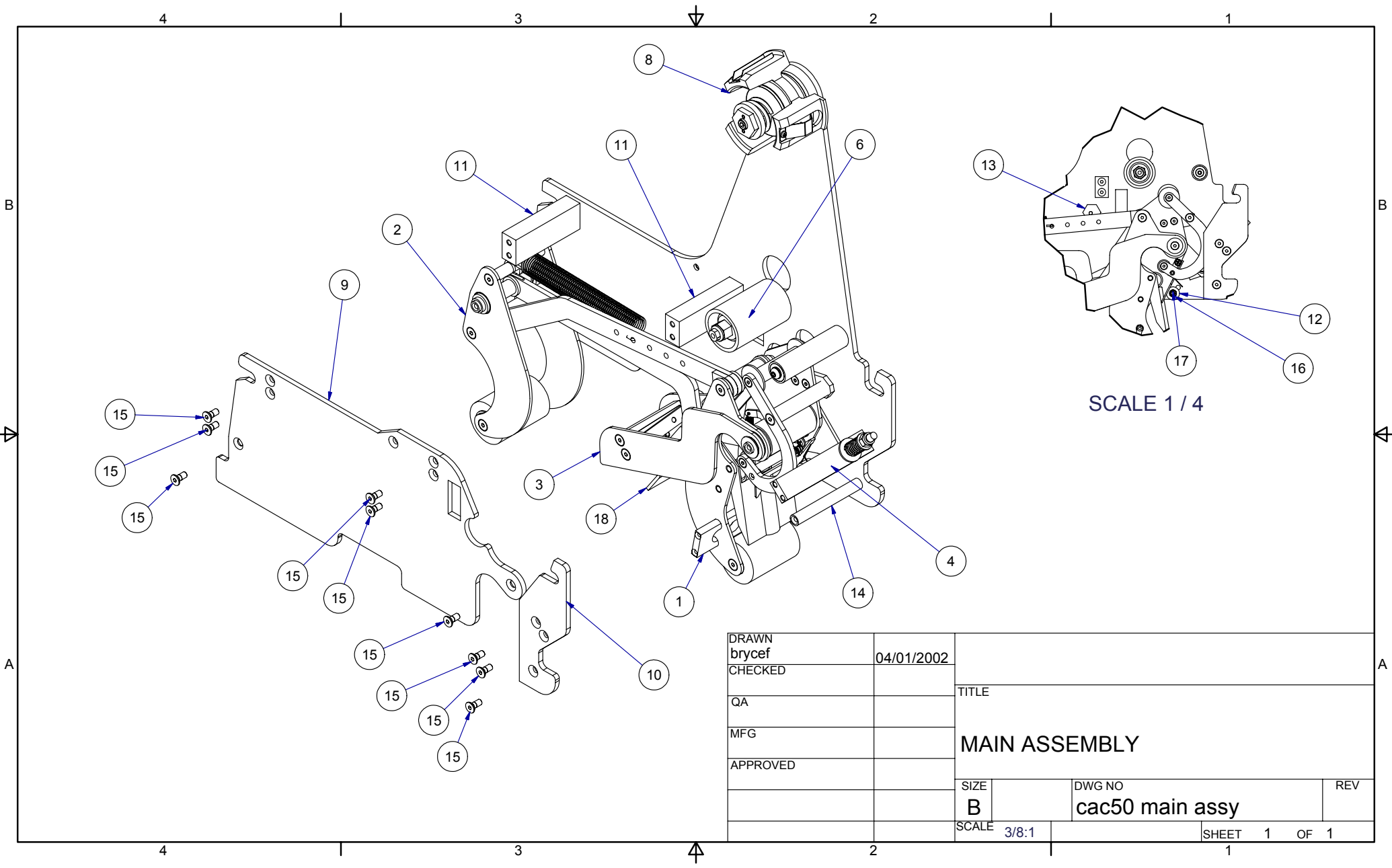


.CAC50

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

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

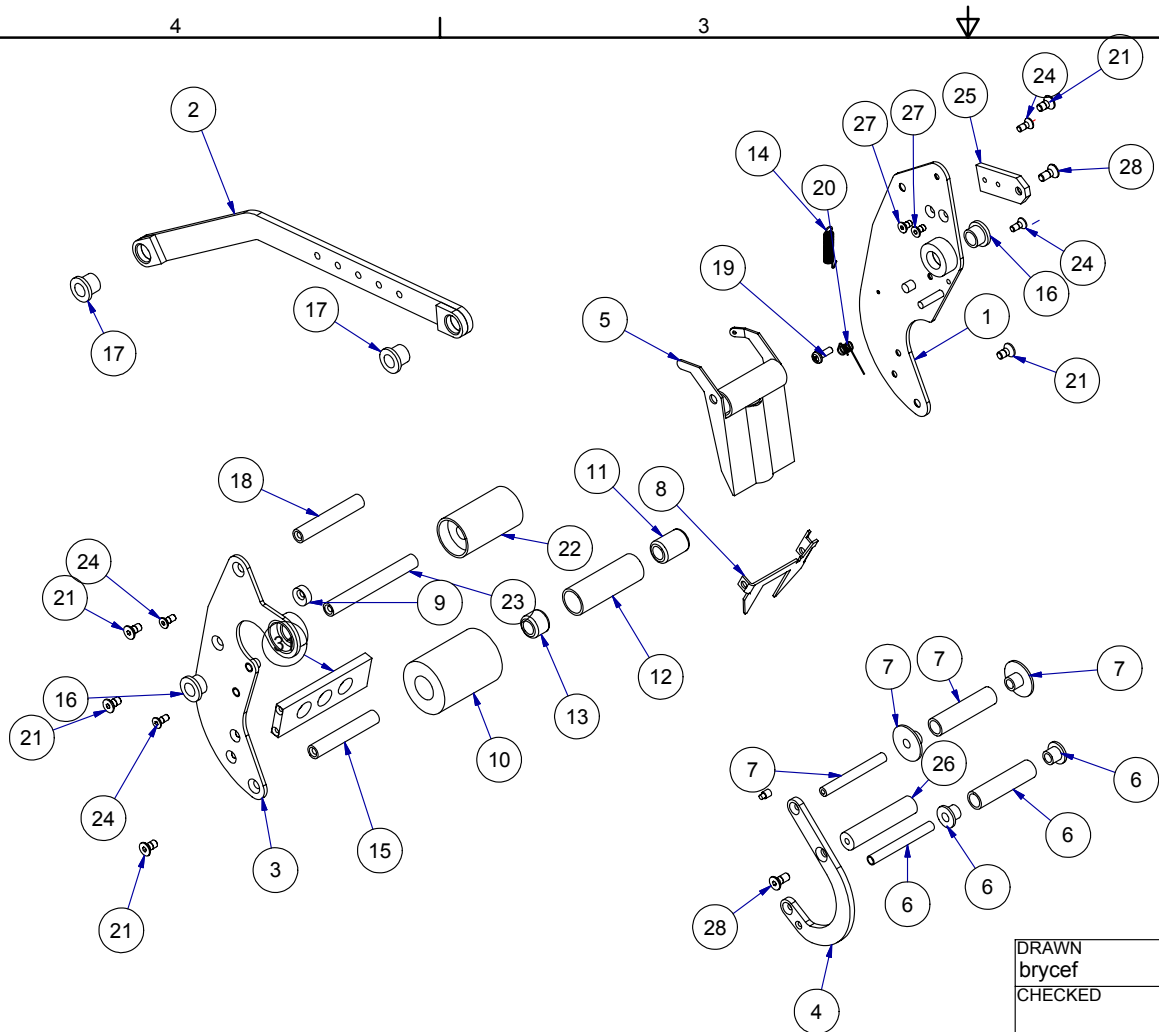
LOVESHAW - EUROPE
UNIT 9, BRUNEL GATE
W. PORTWAY INDUSTRIAL ESTATE
ANDOVER, HAMPSHIRE SP103SL
ENGLAND
44-264-3575-11



| | | | |
|-----------------|------------|----------------|---------------------------|
| DRAWN brycef | 04/01/2002 | TITLE | |
| CHECKED | | MAIN ASSEMBLY | |
| QA | | SIZE B | DWG NO cac50 main assy |
| MFG | | SCALE 3/8:1 | REV |
| APPROVED | | SHEET 1 OF 1 | |

CAC50 MAIN ASSEMBLY

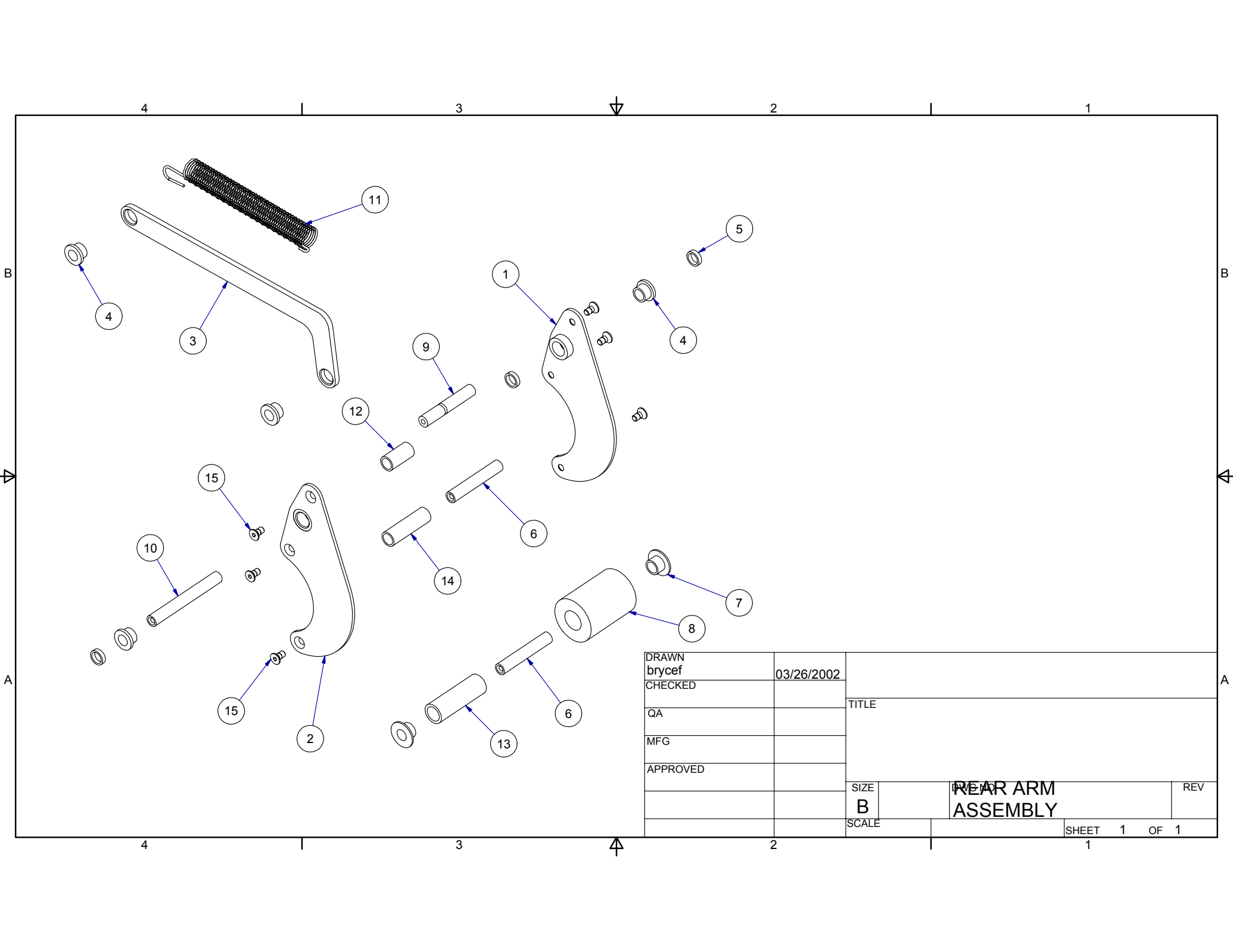
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|------------------------|----------------------------|
| 1 | 1 | FRONT ARM ASSY. | SEE SEPARATE ASSEMBLY |
| 2 | 1 | REAR ARM ASSY. | SEE SEPARATE ASSEMBLY |
| 3 | 1 | KNIFE ARM ASSY. | SEE SEPARATE ASSEMBLY |
| 4 | 1 | KNIFE ARM SPRING ASSY. | SEE SEPARATE ASSEMBLY |
| 5 | 1 | CAC50-102-6 | MAIN FRAME |
| 6 | 1 | TENSION ROLLER ASSY. | SEE SEPARATE ASSEMBLY |
| 7 | 1 | IDLER ROLLER ASSY. | SEE SEPARATE ASSEMBLY |
| 8 | 1 | TAPE CORE ASSEMBLY | SEE SEPARATE ASSEMBLY |
| 9 | 1 | CAC50-002-5 | FRAME – TOP |
| 10 | 1 | CAC50-012-3 | FRAME – TOP ACCESS |
| 11 | 2 | CAC50-015-3 | BLOCK FRAME |
| 12 | 1 | CAC50-050-3 | STOPPER – FRONT ARM |
| 13 | 1 | PSC301117-3 | STOP ROLLER ARM |
| 14 | 1 | PSC321025B-4 | SHAFT CARTRIDGE PLATE |
| 15 | 21 | ----- | FL. HD. SOC. SCREW M5 X 12 |
| 16 | 1 | ----- | M5 HEX NUT |
| 17 | 1 | ----- | FL. HD. SOC. SCREW M5 X 16 |
| 18 | 1 | KNIFE GUARD ASSY. | SEE SEPARATE ASSEMBLY |



| | | | |
|-----------------|------------|--------------------|--------|
| DRAWN brycef | 03/25/2002 | TITLE | |
| CHECKED | | FRONT ARM ASSEMBLY | |
| QA | | SIZE B | DWG NO |
| MFG | | SCALE 3/8:1 | REV |
| APPROVED | | FRONT ARM ASSY | |
| | | SHEET 1 | OF 1 |

FRONT ARM ASSEMBLY

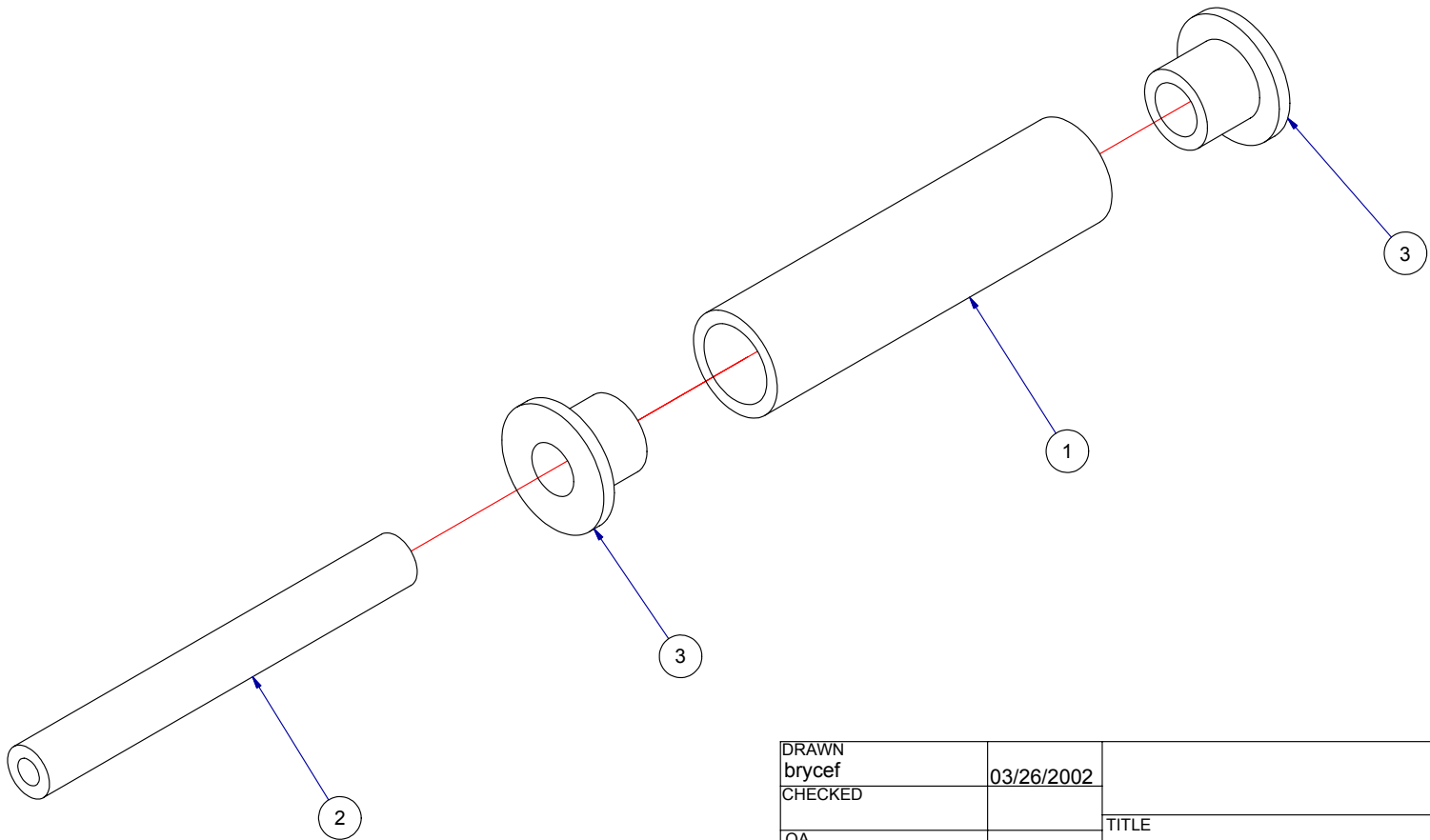
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|---------------|--|
| 1 | 1 | CAC50-005-4 | FRONT ARM – MAIN |
| 2 | 1 | CAC50-003-4 | CONNECTING LINK |
| 3 | 1 | CAC50-006-4 | FRONT ARM – TOP |
| 4 | 1 | JBW1014-3 | HORSE SHOE |
| 5 | 1 | CAC50-018-4 | TAPE GUIDE PLATE |
| 6 | 1 | .KNRA200/50/T | KNURLED ROLLER ASSY. TOP (SEE SEPARATE ASSEMBLY) |
| 7 | 1 | .KNRA200/50/B | KNURLED ROLLER ASSY. BOTTOM (SEE SEPARATE ASSEMBLY) |
| 8 | 1 | PSC311003-4 | TAPE HOLD DOWN PLATE |
| 9 | 1 | PSC139-3 | TAPE GUIDE PLATE STOP |
| 10 | 1 | PSC12/1-3* | WIPE ROLLER |
| 11 | 1 | J205-PS* | CLUTCH BEARING |
| 12 | 1 | CAC50-039-3* | SLEEVE – NEEDLE BEARING |
| 13 | 1 | J206-PS* | NEEDLE BEARING |
| 14 | 1 | PSC26-3 | EXTENSION SPRING |
| 15 | 1 | CAC50-037-3* | FRONT ROLLER SHAFT |
| 16 | 4 | 50186-039 | BRONZE FLANGE BUSHING |
| 17 | 2 | 50186-007 | BRONZE FLANGE BUSHING |
| 18 | 1 | CAC50-036-3 | WIPE ROLLER SHAFT |
| 19 | 1 | MS7M4-12 | PAN HD. SCREW M4 X 12 |
| 20 | 1 | PSC321022-4 | TORSION SPRING |
| 21 | 5 | MS2M5-10 | FL. HD. SOC. SCREW M5 X 10 |
| 22 | 1 | CAC50-046-3 | CENTER ROLLER |
| 23 | 1 | CAC50-034-3 | PIVOT ARM SHAFT |
| 24 | 4 | MS2M4-10 | FL. HD. SOC. SCREW M4 X 10 |
| 25 | 1 | CAC50-131-3 | SHAFT EXTENSION BRACKET |
| 26 | 1 | CAC50-132-3 | SHAFT HORSE SHOE BRACKET |
| 27 | 2 | MS2M4-8 | FL. HD. CAP SCREW M4 X 8 |
| 28 | 2 | MS2M5-12 | FL. HD. CAP SCREW M5 X 12 |
| 31 | 1 | CAC51-028A-3 | SPACER – FRONT ARMS |
| | * | .CRA50 | SOLD AS FULL ASSEMBLY |



| | | | |
|-----------------|------------|-------------------|-----|
| DRAWN brycef | 03/26/2002 | TITLE | |
| CHECKED | | | |
| QA | | | |
| MFG | | | |
| APPROVED | | SIZE B | REV |
| SCALE | | REAR ARM ASSEMBLY | |
| | | SHEET 1 OF 1 | |

REAR ARM ASSEMBLY

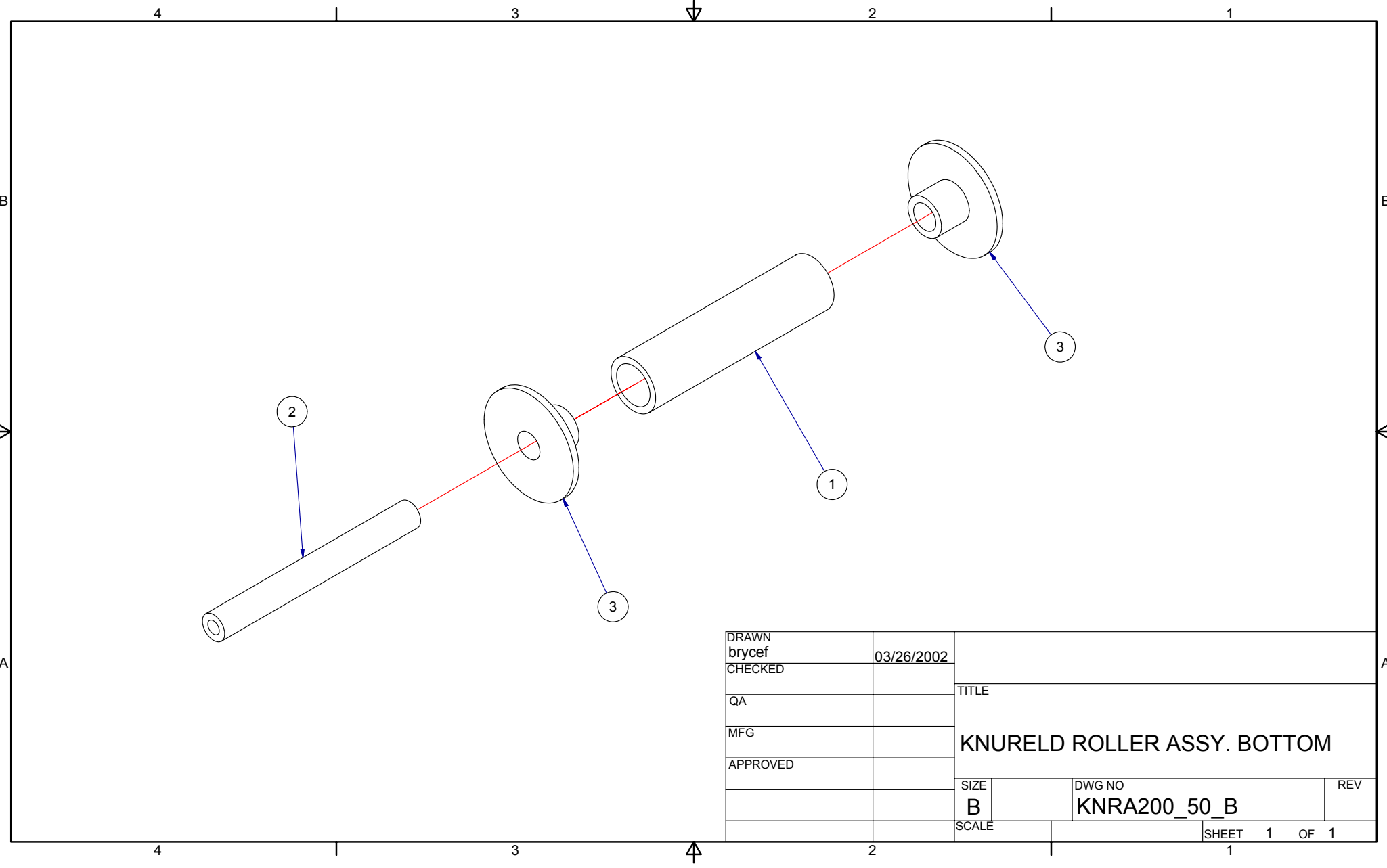
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|-------------------------------|
| 1 | 1 | CAC50-007-4 | REAR ARM RIGHT |
| 2 | 1 | CAC50-008-4 | REAR ARM LEFT |
| 3 | 1 | CAC50-004-4 | CONNECTING LINK – KNIFE GUARD |
| 4 | 4 | 50186-007 | BRONZE FLANGE BUSHING |
| 5 | 3 | CAC50-049-3 | REAR ARM PIVOT SPACER |
| 6 | 2 | CAC50-036-3 | WIPE ROLLER SHAFT |
| 7 | 2 | PSC12/3-3 | WIPE ROLLER BUSHING |
| 8 | 1 | PSC12/1-3 | WIPE ROLLER |
| 9 | 1 | CAC50-022-3 | REAR ARM SPRING STUD |
| 10 | 1 | CAC50-034-3 | PIVOT ARM SHAFT |
| 11 | 1 | PSC501101-4 | CARTRIDGE MAIN SPRING |
| 12 | 1 | CAC50-043-3 | REAR PIVOT ARM SPACER |
| 13 | 1 | PSC12/2-3 | WIPE ROLLER SLEEVE |
| 14 | 1 | CAC50-042-3 | REAR CONNECTING ARM SPACER |
| 15 | 6 | ----- | FL. HD. SOC. SCREW M5 X 10 |



| | | | |
|-----------------|------------|-----------------------------|--------------|
| DRAWN brycef | 03/26/2002 | TITLE | |
| CHECKED | | KNURLED ROLLER ASSEMBLY TOP | |
| QA | | SIZE | DWG NO |
| MFG | | B | KNRA200_50_T |
| APPROVED | | SCALE | REV |
| | | 2:1 | |
| | | SHEET | 1 OF 1 |

KNURLED ROLLER ASSEMBLY – TOP

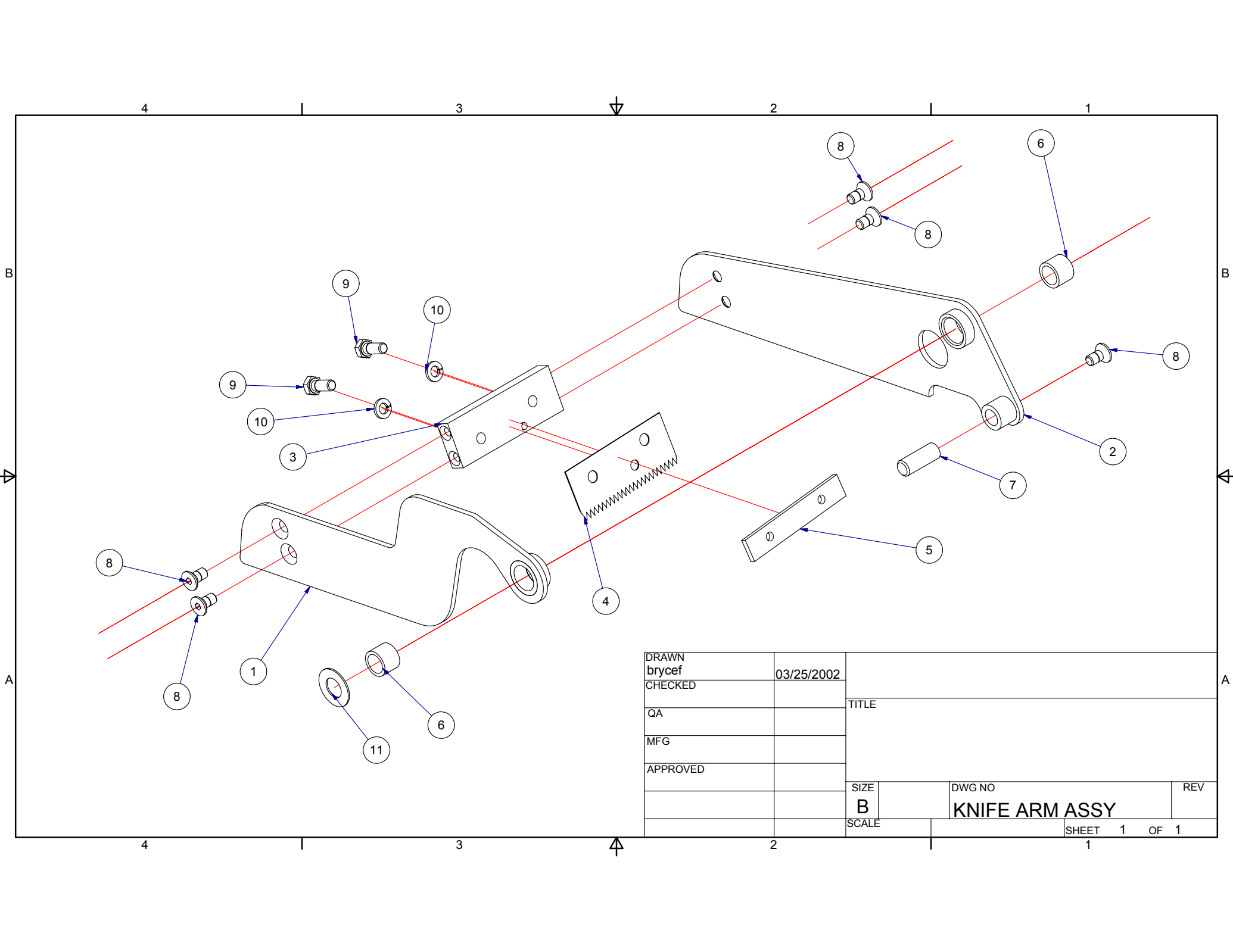
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|----------------------|
| 1 | 1 | CAC50-045-3 | KNURLED ROLLER |
| 2 | 1 | CAC50-044-3 | SHAFT KNURLED ROLLER |
| 3 | 2 | CAC50-116-3 | BUSHING |



| | | | |
|-----------------|------------|-----------------------------|------------------------|
| DRAWN brycef | 03/26/2002 | | |
| CHECKED | | TITLE | |
| QA | | KNURELD ROLLER ASSY. BOTTOM | |
| MFG | | | |
| APPROVED | | SIZE B | DWG NO KNRA200_50_B |
| | | SCALE | REV |
| | | SHEET 1 OF 1 | |

KNURLED ROLLER ASSEMBLY – BOTTOM

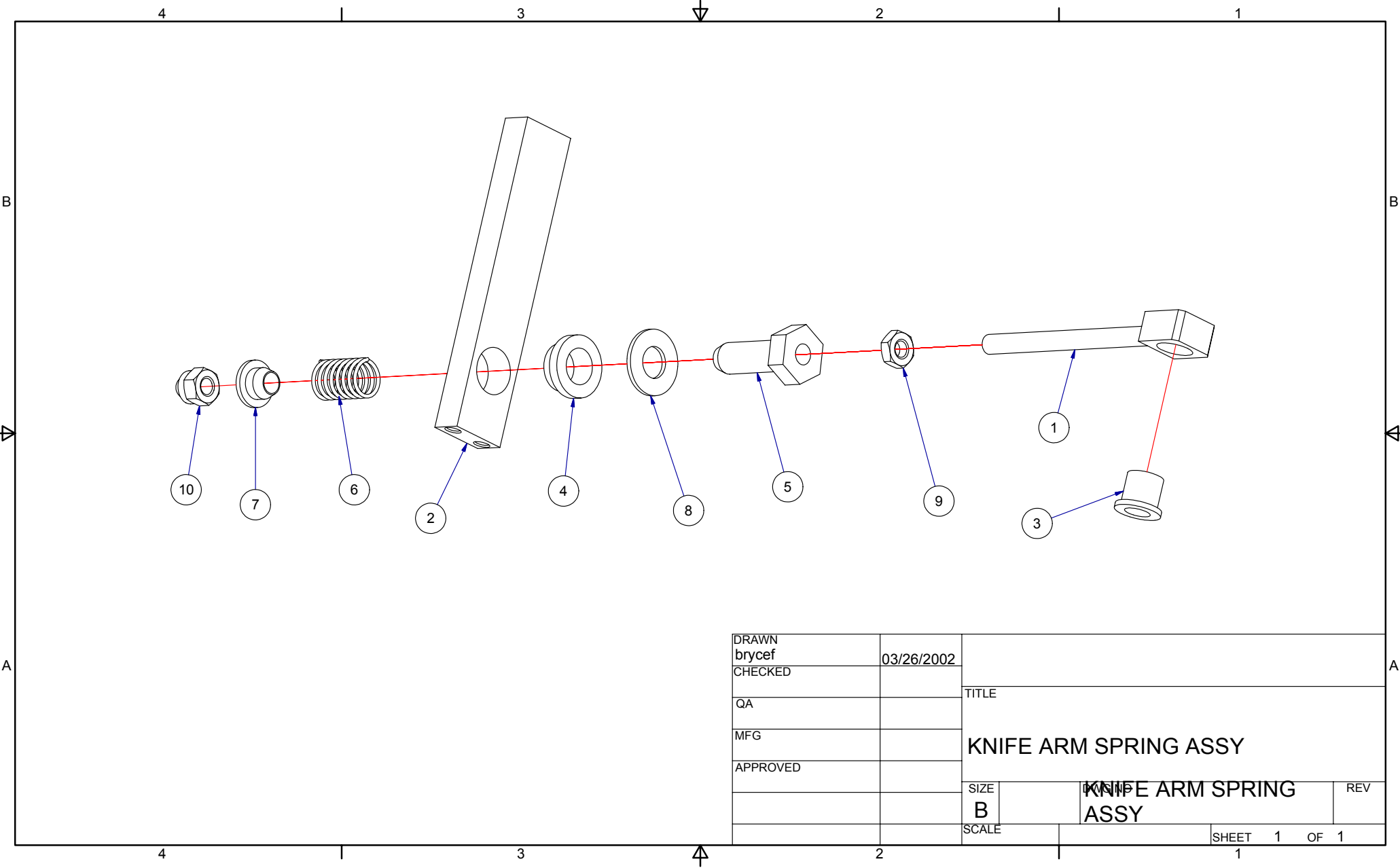
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|----------------------|
| 1 | 1 | CAC50-045-3 | KNURLED ROLLER |
| 2 | 1 | CAC50-044-3 | SHAFT KNURLED ROLLER |
| 3 | 2 | CAC50-117-3 | BUSHING |



| | | | | |
|-----------------|------------|-------|----------------|-----|
| DRAWN brycef | 03/25/2002 | TITLE | | |
| CHECKED | | | | |
| QA | | | | |
| MFG | | | | |
| APPROVED | | SIZE | DWG NO | REV |
| | | B | KNIFE ARM ASSY | |
| | | SCALE | SHEET 1 OF 1 | |

KNIFE ARM ASSEMBLY

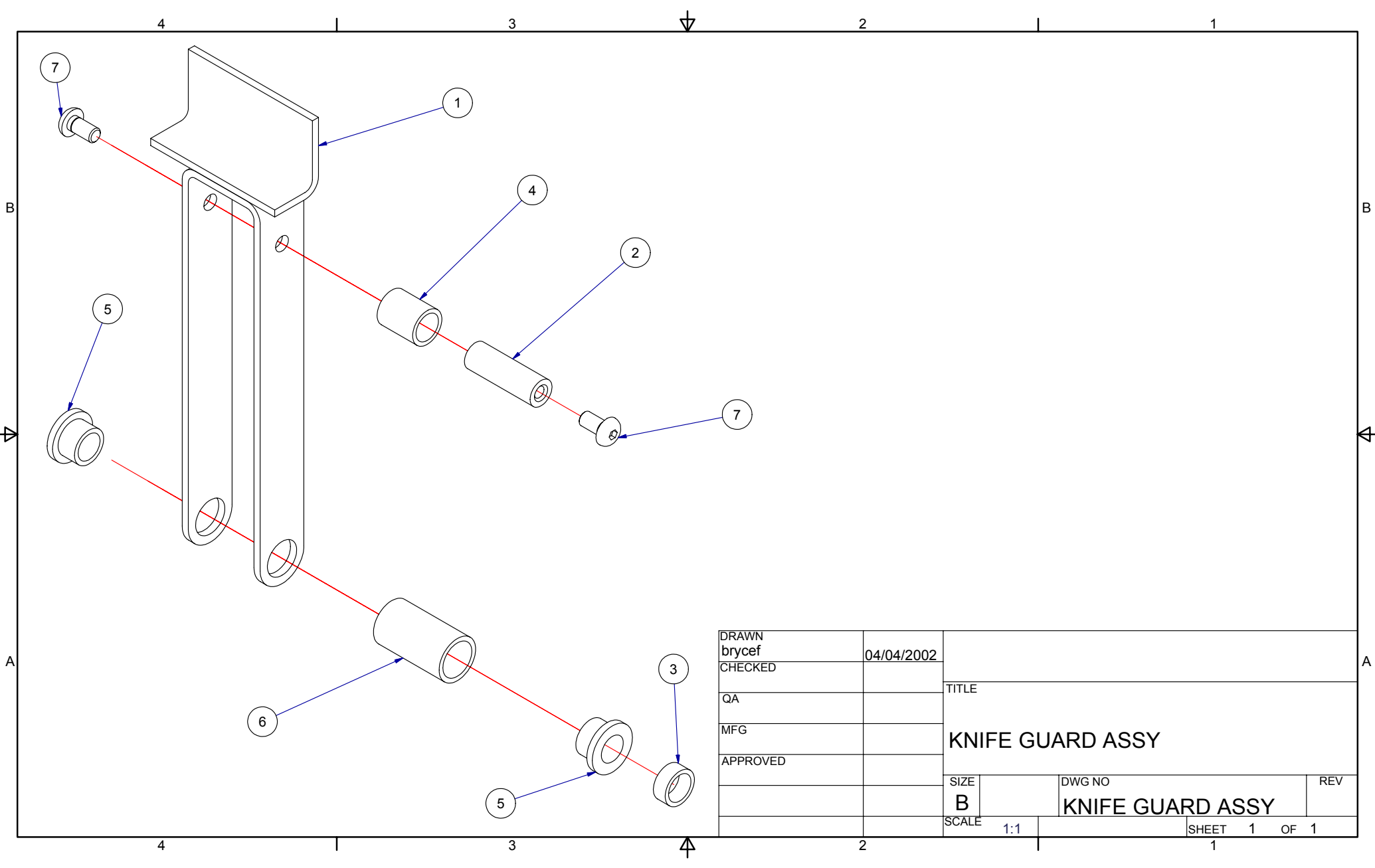
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|----------------------------|
| 1 | 1 | CAC50-010-4 | KNIFE ARM TOP |
| 2 | 1 | CAC50-009-4 | KNIFE ARM MAIN |
| 3 | 1 | CAC50-013-3 | KNIFE BRACKET |
| 4 | 1 | PSC11B-4 | KNIFE |
| 5 | 1 | PSC9-3 | KNIFE PLATE |
| 6 | 2 | 50185-049 | BRONZE FLANGE BUSHING |
| 7 | 1 | CAC50-017-3 | KNIFE ARM SHAFT |
| 8 | 5 | ----- | FL. HD. SOC. SCREW M5 X 10 |
| 9 | 2 | ----- | HEX HD. SCREW M5 X 12 |
| 10 | 2 | ----- | LOCK WASHER M5 |
| 11 | 1 | PSC321040 | BRONZE WASHER |



| | | | |
|-----------------|------------|-----------------------|-----------------------|
| DRAWN brycef | 03/26/2002 | TITLE | |
| CHECKED | | KNIFE ARM SPRING ASSY | |
| QA | | SIZE | REV |
| MFG | | B | KNIFE ARM SPRING ASSY |
| APPROVED | | SCALE | SHEET 1 OF 1 |

KNIFE ARM SPRING ASSEMBLY

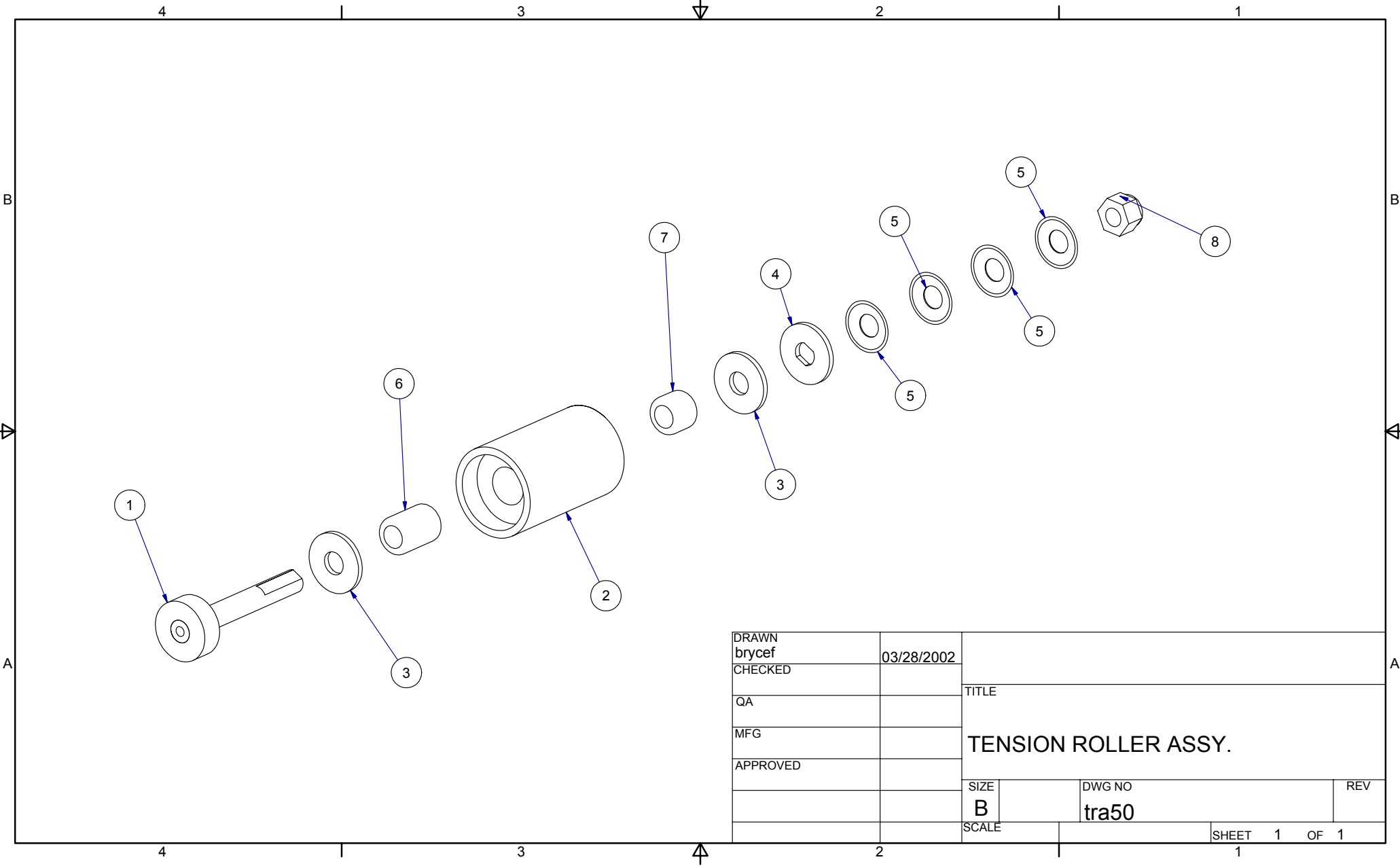
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|--------------------------|
| 1 | 1 | CAC50-038-3 | THREADED SUPPORT SHAFT |
| 2 | 1 | CAC50-016-3 | BLOCK – KNIFE ARM SPRING |
| 3 | 1 | PSC510 | BUSHING |
| 4 | 1 | PSC321044-3 | BUSHING |
| 5 | 1 | PSC321046-4 | STOP NUT |
| 6 | 1 | X111-PS | SPRING |
| 7 | 1 | PSC321045-4 | SPRING GUIDE |
| 8 | 1 | AV960C616C | FLAT WASHER |
| 9 | 1 | ----- | HEX NUT M6 |
| 10 | 1 | ----- | HEX NYLOCK NUT M6 |



| | | | |
|-----------------|------------|------------------|------------------|
| DRAWN brycef | 04/04/2002 | | |
| CHECKED | | TITLE | |
| QA | | KNIFE GUARD ASSY | |
| MFG | | SIZE | DWG NO |
| APPROVED | | B | KNIFE GUARD ASSY |
| | | SCALE | REV |
| | | 1:1 | |
| | | SHEET | 1 OF 1 |

KNIFE GUARD ASSEMBLY

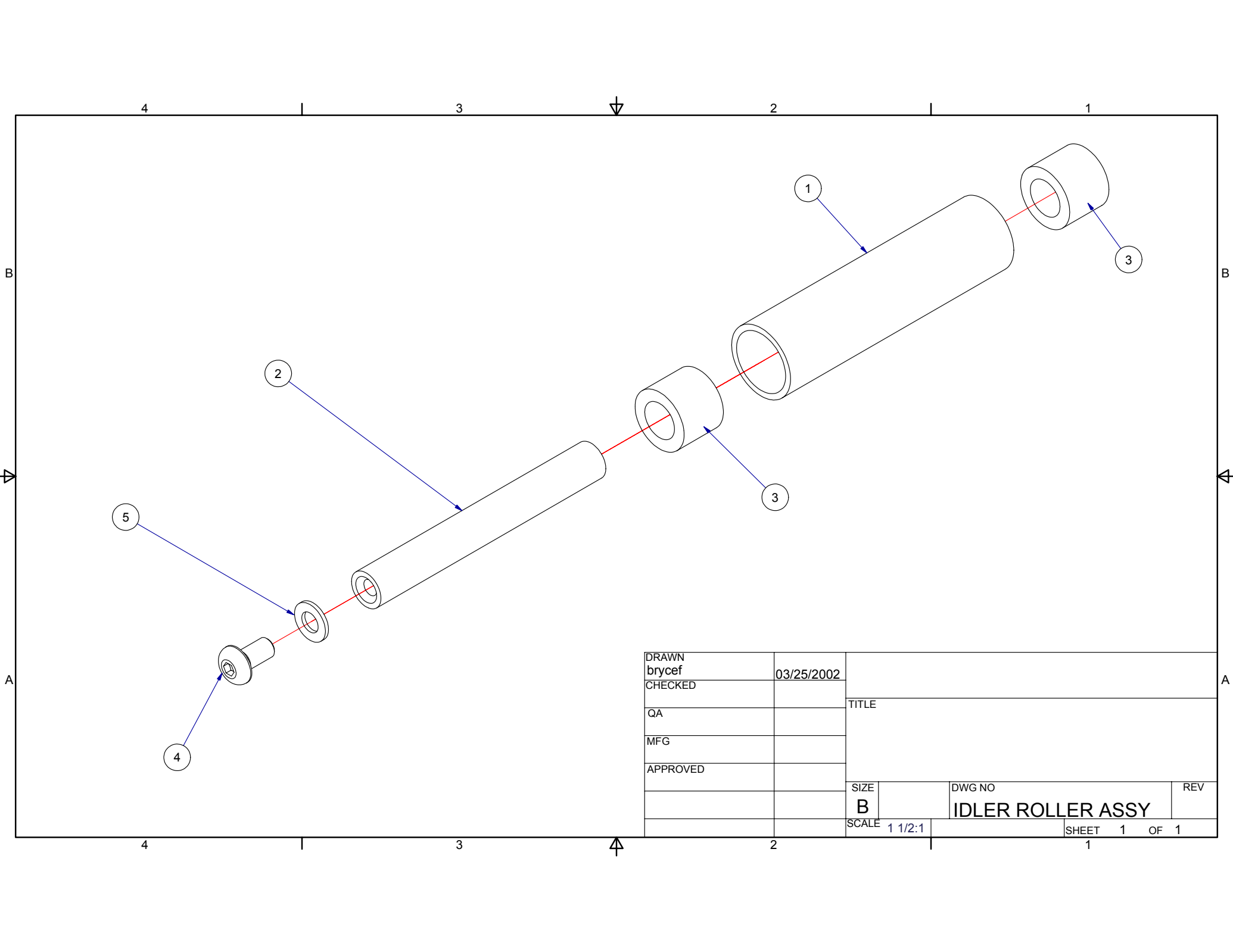
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|-----------------------------|
| 1 | 1 | CAC50-011-4 | KNIFE GUARD |
| 2 | 1 | CAC50-048-3 | KNIFE GUARD SHAFT |
| 3 | 1 | CAC50-040-3 | SPACER CONNECTING ARM |
| 4 | 1 | CAC50-041-3 | KNIFE GUARD SPACER |
| 5 | 2 | 50186-039 | BRONZE FLANGE BUSHING |
| 6 | 1 | PSC301110-3 | SPACER |
| 7 | 2 | ----- | BUT. SOC. CAP SCREW M5 X 10 |



| | | | |
|-----------------|------------|----------------------|--------------|
| DRAWN brycef | 03/28/2002 | TITLE | |
| CHECKED | | TENSION ROLLER ASSY. | |
| QA | | SIZE | REV |
| MFG | | B | tra50 |
| APPROVED | | SCALE | SHEET 1 OF 1 |

TENSION ROLLER ASSEMBLY

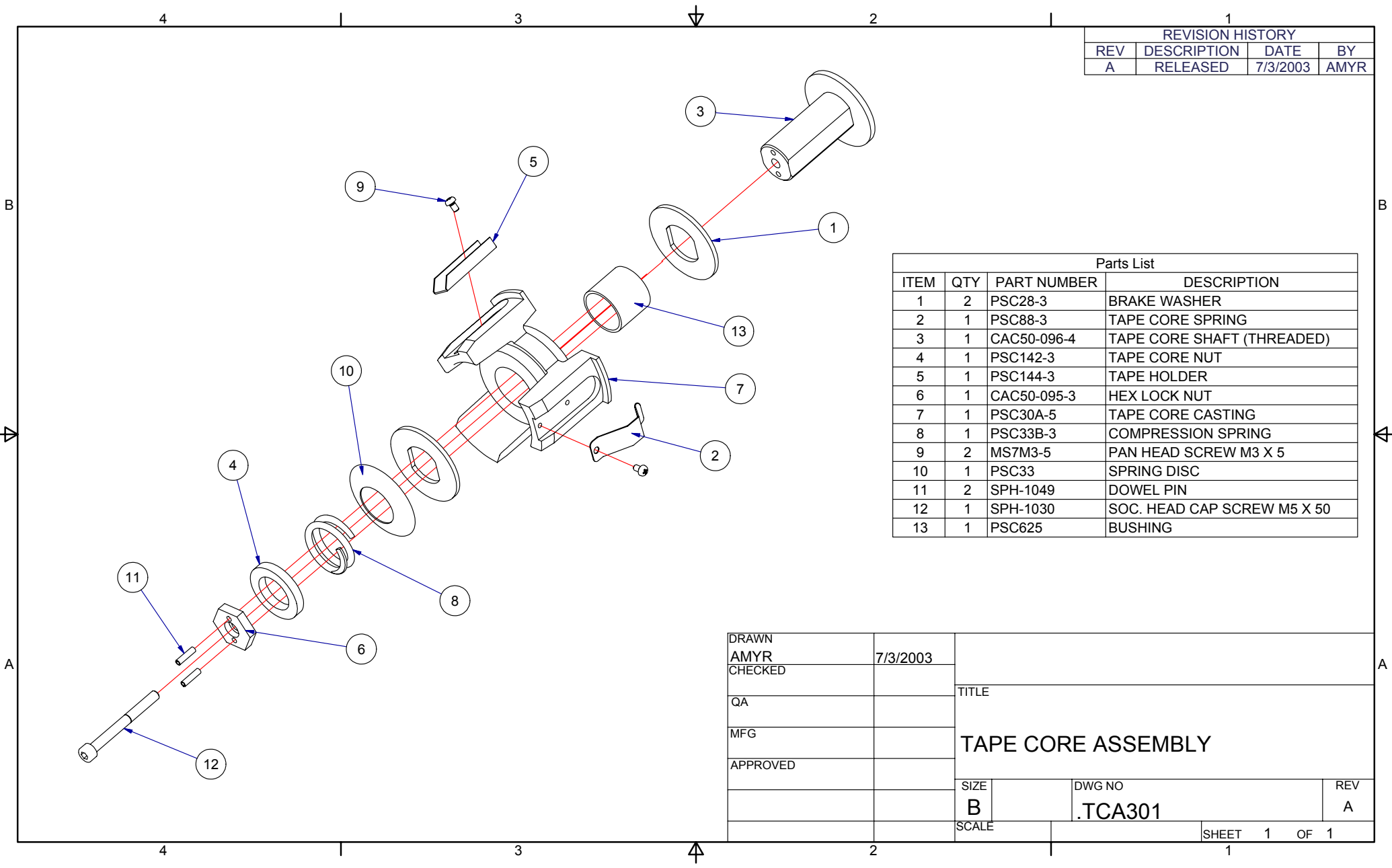
| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|-----------------------|
| 1 | 1 | CAC50-021-3 | KNURLED ROLLER SHAFT |
| 2 | 1 | PSC321023-4 | KNURLED ROLLER |
| 3 | 2 | PSC321031-3 | BRAKE WASHER |
| 4 | 1 | PSC321032-3 | LOCKING WASHER |
| 5 | 4 | PSC321039 | SPRING WASHER |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



| | | | | |
|----------|--------|------------|---------------|--------------------------|
| DRAWN | brycef | 03/25/2002 | | |
| CHECKED | | | | |
| QA | | | TITLE | |
| MFG | | | | |
| APPROVED | | | | |
| | | | SIZE | DWG NO |
| | | | B | IDLER ROLLER ASSY |
| | | | SCALE 1 1/2:1 | SHEET 1 OF 1 |

IDLER ROLLER ASSEMBLY

| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|-------------|-----------------------------|
| 1 | 1 | PSC49-3 | IDLER ROLLER |
| 2 | 1 | CAC50-024-3 | IDLER ROLLER SHAFT |
| 3 | 2 | PSC606 | BRONZE BUSHING |
| 4 | 1 | ----- | BUT. HS. SOC. SCREW M5 X 10 |
| 5 | 1 | ----- | WASHER M5 |



| 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 |
| 11 | 2 | SPH-1049 | DOWEL PIN |
| 12 | 1 | SPH-1030 | SOC. HEAD CAP SCREW M5 X 50 |
| 13 | 1 | PSC625 | BUSHING |

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

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:

| | |
|-------------------------|---------|
| <u>DRIVE MOTOR</u> - | 2 YEARS |
| <u>GEAR REDUCER</u> - | 2 YEARS |
| <u>GEAR MOTOR</u> - | 2 YEARS |
| <u>TAPE CARTRIDGE</u> - | 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.)

| | |
|--------------------------|--------|
| <u>PLC</u> - | 1 YEAR |
| <u>SERVO DRIVE</u> - | 1 YEAR |
| <u>ALL OTHER PARTS</u> - | 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/OR 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**, AN **ITW** COMPANY, WILL NOT ASSUME ANY EXPENSE OR LIABILITY FOR ANY REPAIRS MADE TO ITS GOODS OUTSIDE ITS FACILITY WITHOUT 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 ASSEMBLY DRAWINGS
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SIDE RAIL ASSEMBLY

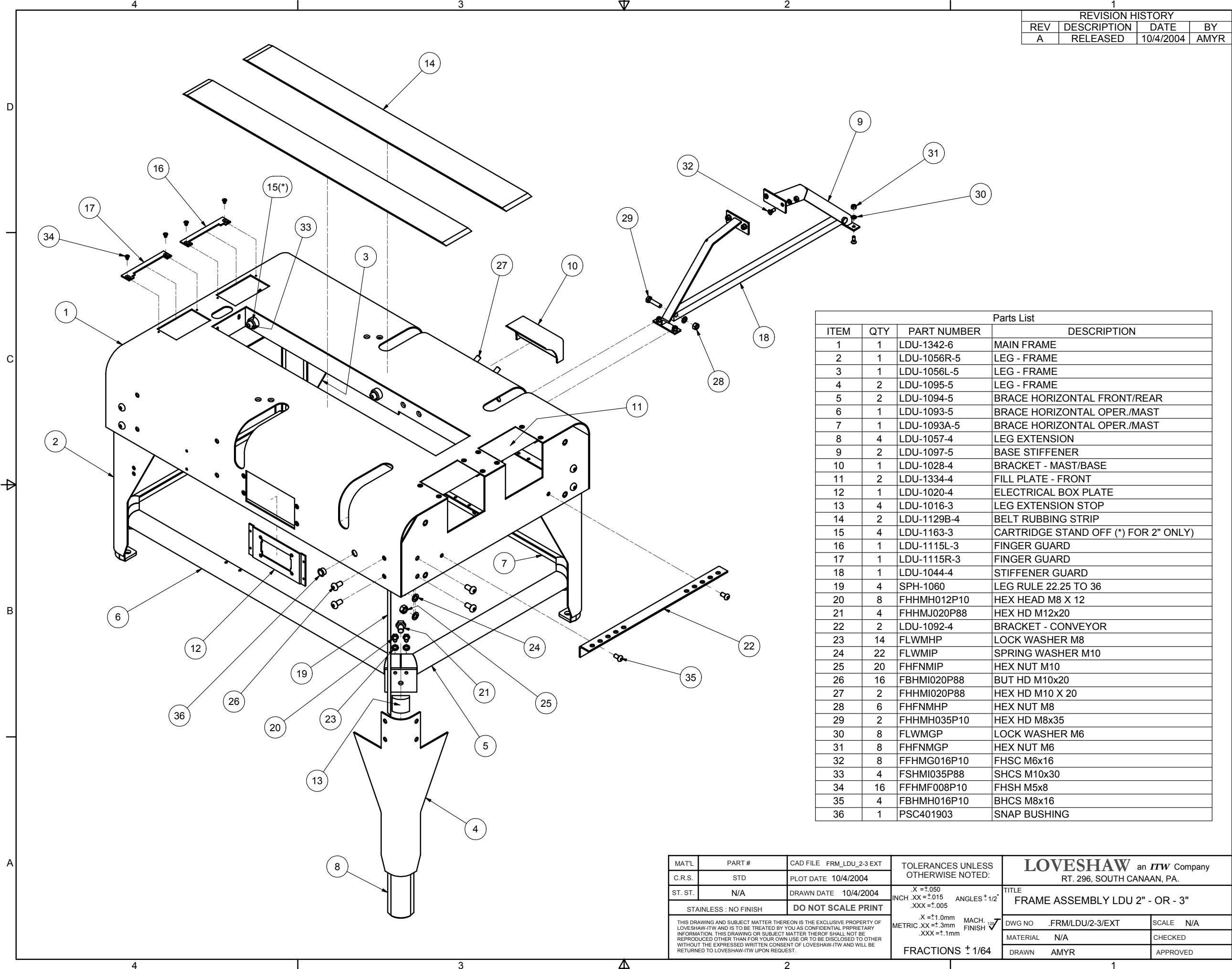
MAST AND TROLLEY ASSEMBLY

TROLLEY ASSEMBLY

INFEEED TABLE ASSEMBLY

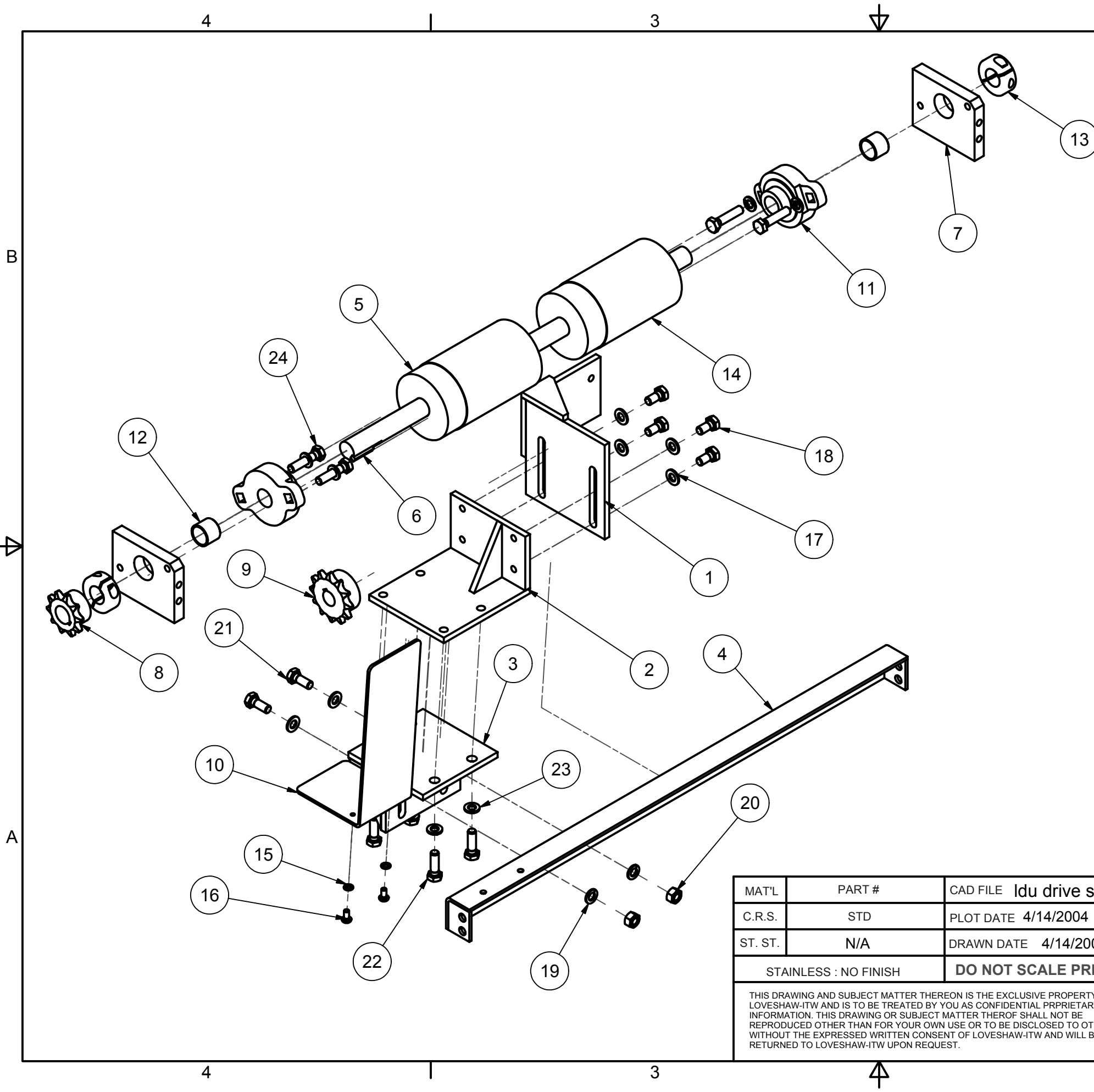
INFEEED ROLLER BED TABLE ASSEMBLY

| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 10/4/2004 | AMYR |



| Parts List | | | |
|------------|-----|-------------|--------------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | LDU-1342-6 | MAIN FRAME |
| 2 | 1 | LDU-1056R-5 | LEG - FRAME |
| 3 | 1 | LDU-1056L-5 | LEG - FRAME |
| 4 | 2 | LDU-1095-5 | LEG - FRAME |
| 5 | 2 | LDU-1094-5 | BRACE HORIZONTAL FRONT/REAR |
| 6 | 1 | LDU-1093-5 | BRACE HORIZONTAL OPER./MAST |
| 7 | 1 | LDU-1093A-5 | BRACE HORIZONTAL OPER./MAST |
| 8 | 4 | LDU-1057-4 | LEG EXTENSION |
| 9 | 2 | LDU-1097-5 | BASE STIFFENER |
| 10 | 1 | LDU-1028-4 | BRACKET - MAST/BASE |
| 11 | 2 | LDU-1334-4 | FILL PLATE - FRONT |
| 12 | 1 | LDU-1020-4 | ELECTRICAL BOX PLATE |
| 13 | 4 | LDU-1016-3 | LEG EXTENSION STOP |
| 14 | 2 | LDU-1129B-4 | BELT RUBBING STRIP |
| 15 | 4 | LDU-1163-3 | CARTRIDGE STAND OFF (*) FOR 2" ONLY) |
| 16 | 1 | LDU-1115L-3 | FINGER GUARD |
| 17 | 1 | LDU-1115R-3 | FINGER GUARD |
| 18 | 1 | LDU-1044-4 | STIFFENER GUARD |
| 19 | 4 | SPH-1060 | LEG RULE 22.25 TO 36 |
| 20 | 8 | FHHMH012P10 | HEX HEAD M8 X 12 |
| 21 | 4 | FHHMJ020P88 | HEX HD M12x20 |
| 22 | 2 | LDU-1092-4 | BRACKET - CONVEYOR |
| 23 | 14 | FLWMHP | LOCK WASHER M8 |
| 24 | 22 | FLWMIP | SPRING WASHER M10 |
| 25 | 20 | FHFNMP | HEX NUT M10 |
| 26 | 16 | FBHMI020P88 | BUT HD M10x20 |
| 27 | 2 | FHHMI020P88 | HEX HD M10 X 20 |
| 28 | 6 | FHFNMHP | HEX NUT M8 |
| 29 | 2 | FHHMH035P10 | HEX HD M8x35 |
| 30 | 8 | FLWMGP | LOCK WASHER M6 |
| 31 | 8 | FHFNMGF | HEX NUT M6 |
| 32 | 8 | FFHMG016P10 | FHSC M6x16 |
| 33 | 4 | FSHMI035P88 | SHCS M10x30 |
| 34 | 16 | FFHMF008P10 | FHSH M5x8 |
| 35 | 4 | FBHMH016P10 | BHCS M8x16 |
| 36 | 1 | PSC401903 | SNAP BUSHING |

| | | | | |
|---|--------|--------------------------|--|---|
| MATL | PART # | CAD FILE FRM_LDU_2-3 EXT | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. |
| C.R.S. | STD | PLOT DATE 10/4/2004 | .X = ±.050 INCH .XX = ±.015 ANGLS ± 1/2° .XXX = ±.005 | |
| ST. ST. | N/A | DRAWN DATE 10/4/2004 | .X = ±1.0mm METRIC .XX = ±.3mm MACH. FINISH ✓ .XXX = ±.1mm | TITLE FRAME ASSEMBLY LDU 2" - OR - 3" |
| STAINLESS : NO FINISH | | DO NOT SCALE PRINT | FRACTIONS ± 1/64 | DWG NO .FRM/LDU/2-3/EXT |
| <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> | | | | SCALE N/A |
| | | | | MATERIAL N/A |
| | | | | CHECKED |
| | | | | DRAWN AMYR |
| | | | | APPROVED |



| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 4/14/2004 | AMYR |

| Parts List | | | |
|------------|-----|-------------|---------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | LDU-1126-5 | BRACKET, GEAR BOX MOUNT |
| 2 | 1 | LDU-1127-5 | BRACKET, GEAR BOX SLIDE |
| 3 | 1 | LDU-1051-5 | BRACE, BOTTOM MOTOR |
| 4 | 1 | LDU-1052-5 | BRACE, MOTOR |
| 5 | 1 | LDU-1064-5 | ROLLER, DRIVE |
| 6 | 1 | LDU-1080-3 | KEY, DRIVE SHAFT HUB |
| 7 | 2 | LDU-1062-4 | BRACKET, BEARING |
| 8 | 1 | SPK-0050 | SPROCKET |
| 9 | 1 | SEE CHART | SPROCKET |
| 10 | 1 | LDU-1116-4 | GUARD, CHAIN |
| 11 | 2 | BRG-1019 | BEARING |
| 12 | 2 | BSG-1041 | PLANE BEARING |
| 13 | 2 | 202201 | SPLIT WASHER |
| 14 | 2 | LP09-056 | BELT LAGGING |
| 15 | 2 | FLWMFP | LOCK WASHER M5 |
| 16 | 2 | FBHMF010P10 | BUTTON HEAD SCREW M5 X 10 |
| 17 | 6 | FFWMHP | FLAT WASHER M8 |
| 18 | 4 | FHHMH016P10 | HEX HEAD SCREW M8x16 LG. |
| 19 | 6 | FLWMHP | LOCK WASHER M8 |
| 20 | 2 | FHFNMHP | HEX NUT M8 |
| 21 | 2 | FHHMH020P10 | HEX HEAD SCREW M8x20 |
| 22 | 4 | FHSH100P08 | HH 5/16-18 x 1 LG. |
| 23 | 4 | FLWSEP | LOCK WASHER 5/16 |
| 24 | 4 | FHHMH035P10 | HEX HEAD M8x35 |

| ASSY. NUMBER | SPROCKET | GEAR BOX | FT./MIN. |
|--------------|----------|----------|----------|
| .LDUC110 | SPK-0023 | RED-1001 | 80 |
| .LDUC110A | SPK-0049 | RED-1005 | 60 |

| | | | |
|---|--------|--------------------|---------------|
| MAT'L | PART # | CAD FILE | ldu drive std |
| C.R.S. | STD | PLOT DATE | 4/14/2004 |
| ST. ST. | N/A | DRAWN DATE | 4/14/2004 |
| STAINLESS : NO FINISH | | DO NOT SCALE PRINT | |
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TOLERANCES UNLESS OTHERWISE NOTED:

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

ANGLES ± 1/2°

MACH. FINISH ✓

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

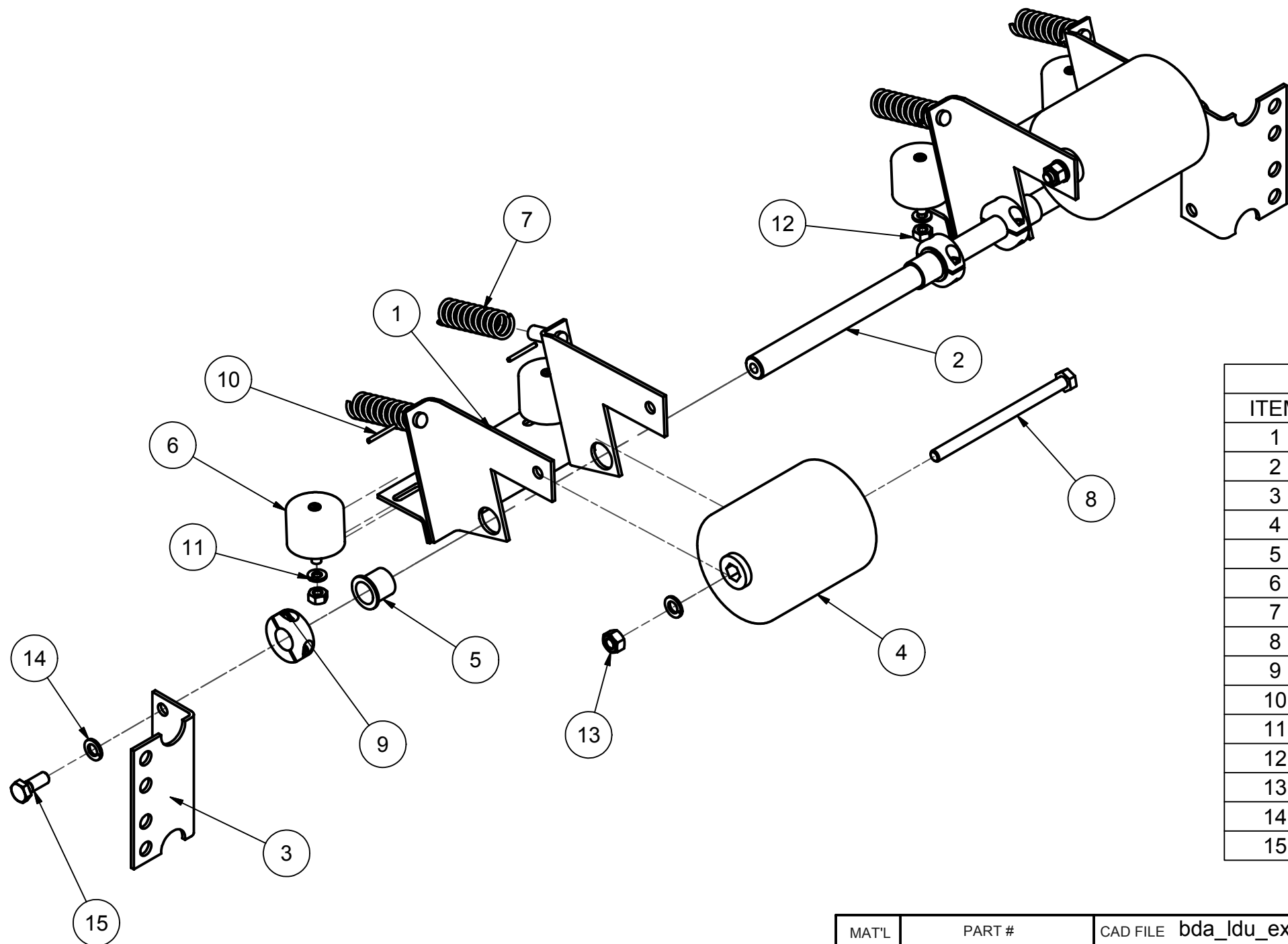
FRACTIONS ± 1/64

LOVESHAW an *ITW* Company
 RT. 296, SOUTH CANAAN, PA.

TITLE
DRIVE ASSEMBLY LDU

| | | | |
|----------|----------------|----------|-----|
| DWG NO | .LDU/DRIVE/STD | SCALE | N/A |
| MATERIAL | N/A | CHECKED | |
| DRAWN | AMYR | APPROVED | |

| REVISION HISTORY | | | |
|------------------|----------------|------------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 5/6/2004 | AMYR |
| B | M.C.R. #04-035 | 12/14/2004 | AMYR |



| Parts List | | | |
|------------|-----|-------------|-------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | LDU-1335-5 | TENSION ROLLER BRACKET |
| 2 | 1 | LDU-1098-4 | BAR - BELT TENSIONER |
| 3 | 2 | LDU-1099-4 | BRACKET - TENSIONER BAR |
| 4 | 2 | PSC196-4 | INFEED ROLLER - LARGE |
| 5 | 4 | PSC301224 | BUSHING |
| 6 | 4 | K286D | ROLLER |
| 7 | 4 | SPR-1016 | COMPRESSION SPRING |
| 8 | 2 | FHHMH120P10 | HEX HD M8 x 120 |
| 9 | 4 | SPC-1001 | SPLIT COLLAR 5/8" |
| 10 | 4 | PSR609 | ROLL PIN |
| 11 | 4 | FLWSDP | LOCK WASHER 1/4 |
| 12 | 4 | FHFNSEP | HEX NUT 1/4-20 |
| 13 | 2 | FHFNMHP | HEX NUT M8 |
| 14 | 4 | FLWMHP | LOCK WASHER M8 |
| 15 | 2 | FHHMH020P10 | HEX HD M8x20 |

| | | |
|---|--------|----------------------|
| MAT'L | PART # | CAD FILE bda_ldu_ext |
| C.R.S. | STD | PLOT DATE 12/14/2004 |
| ST. ST. | N/A | DRAWN DATE 5/6/2004 |
| STAINLESS : NO FINISH | | DO NOT SCALE PRINT |
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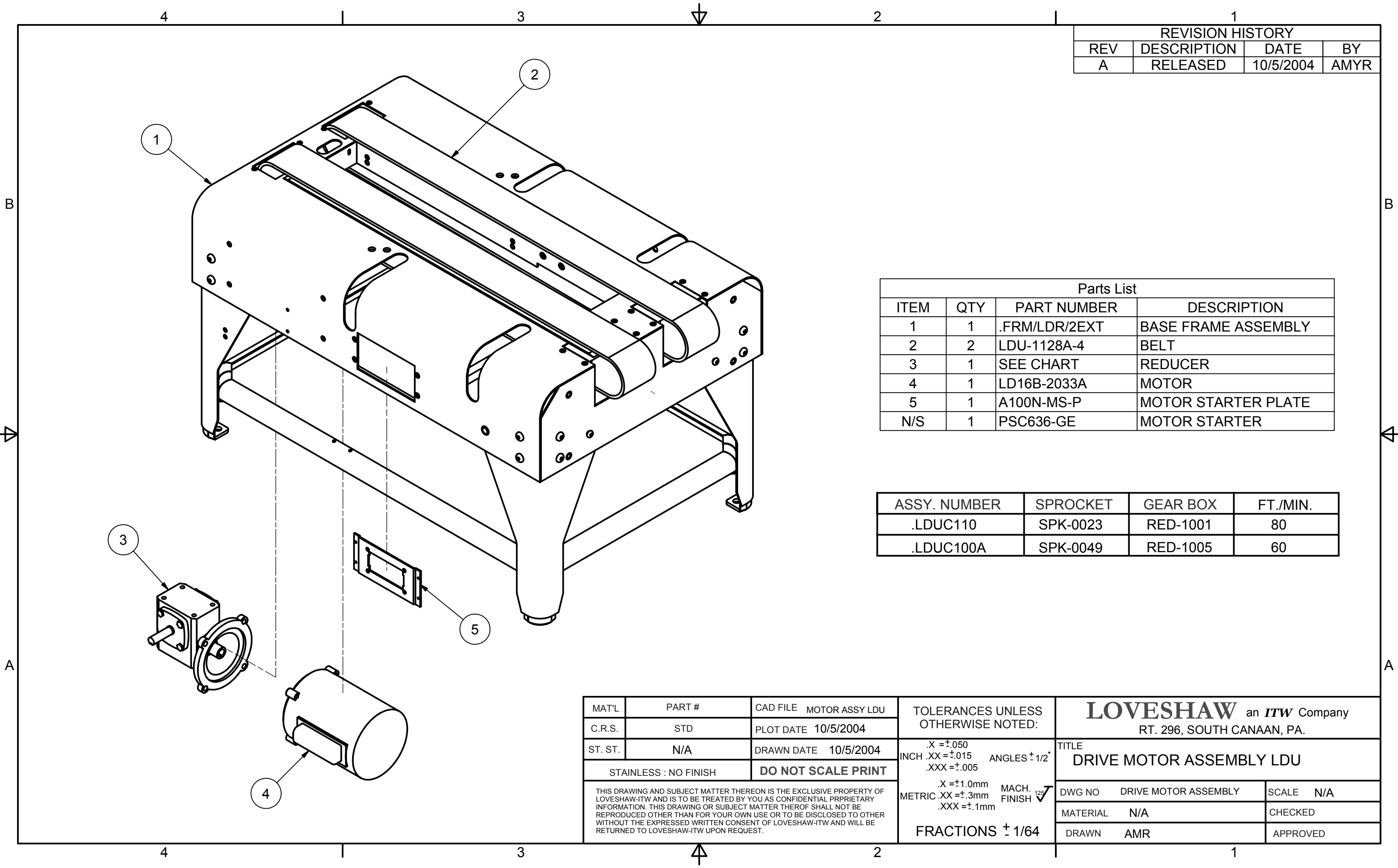
TOLERANCES UNLESS OTHERWISE NOTED:
 .X = ±.050
 INCH .XX = ±.015 ANGLES ± 1/2°
 .XXX = ±.005
 .X = ±1.0mm MACH. FINISH ✓
 METRIC .XX = ±.3mm
 .XXX = ±.1mm
 FRACTIONS ± 1/64

LOVESHAW an *ITW* Company
 RT. 296, SOUTH CANAAN, PA.

TITLE
BELT DRIVE ASSEMBLY

| | |
|---------------------|-----------|
| DWG NO .BDA/LDU/EXT | SCALE N/A |
| MATERIAL N/A | CHECKED |
| DRAWN AMYR | APPROVED |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 10/5/2004 | AMYR |



| Parts List | | | |
|------------|-----|---------------|---------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | .FRM/LDR/2EXT | BASE FRAME ASSEMBLY |
| 2 | 2 | LDU-1128A-4 | BELT |
| 3 | 1 | SEE CHART | REDUCER |
| 4 | 1 | LD16B-2033A | MOTOR |
| 5 | 1 | A100N-MS-P | MOTOR STARTER PLATE |
| N/S | 1 | PSC636-GE | MOTOR STARTER |

| ASSY. NUMBER | SPROCKET | GEAR BOX | FT./MIN. |
|--------------|----------|----------|----------|
| .LDUC110 | SPK-0023 | RED-1001 | 80 |
| .LDUC100A | SPK-0049 | RED-1005 | 60 |

| | | | |
|---|--------|---------------------------|----------------|
| MAT'L | PART # | CAD FILE | MOTOR ASSY LDU |
| C.R.S. | STD | PLOT DATE | 10/5/2004 |
| ST. ST. | N/A | DRAWN DATE | 10/5/2004 |
| 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 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 MACH. FINISH ✓
 METRIC .XX = ±.3mm
 .XXX = ±.1mm

FRACTIONS ± 1/64

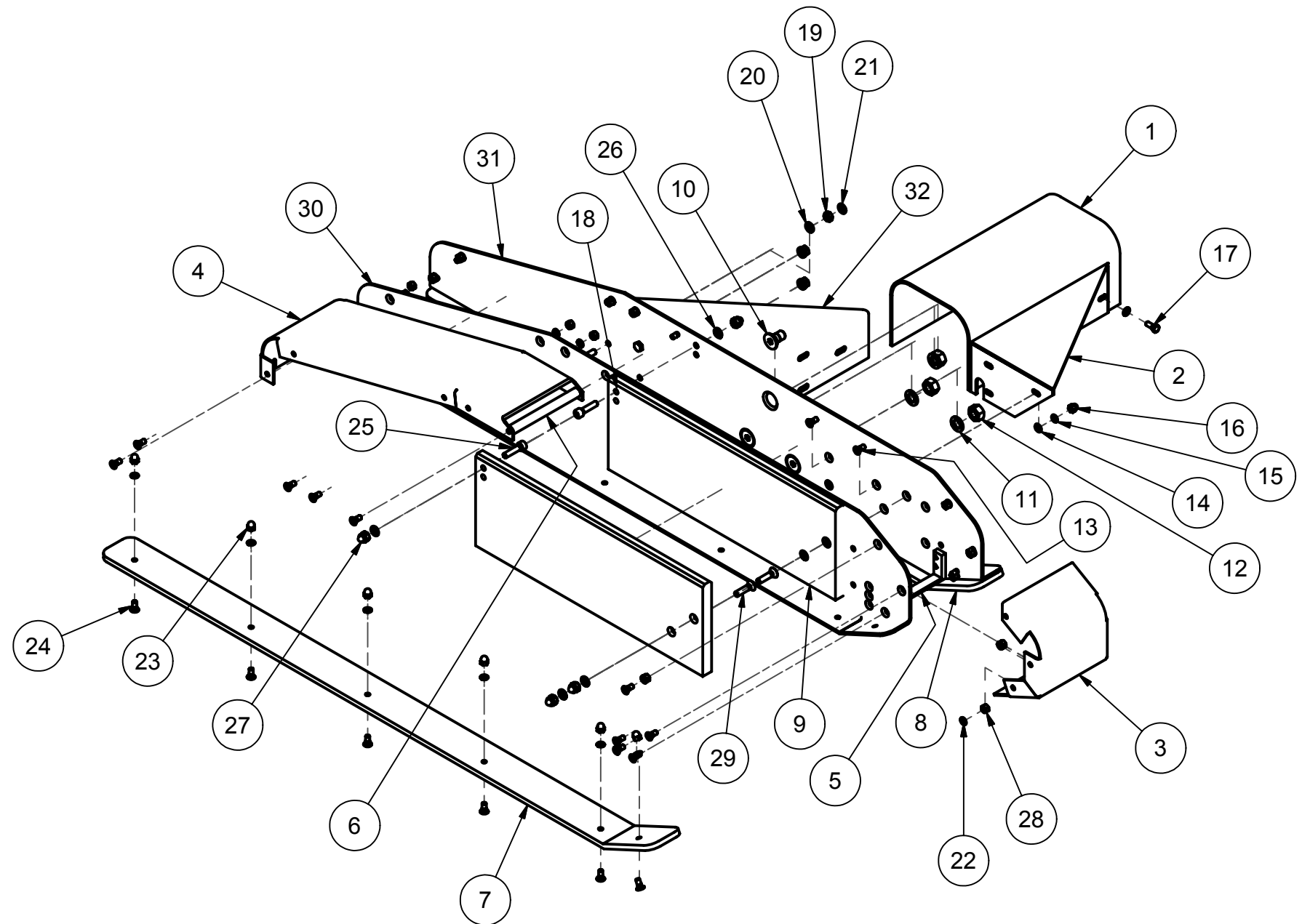
LOVESHAW an *ITW* Company
 RT. 296, SOUTH CANAAN, PA.

TITLE
DRIVE MOTOR ASSEMBLY LDU

| | | | |
|----------|----------------------|----------|-----|
| DWG NO | DRIVE MOTOR ASSEMBLY | SCALE | N/A |
| MATERIAL | N/A | CHECKED | |
| DRAWN | AMR | APPROVED | |

| REVISION HISTORY | | | |
|------------------|-------------|----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 1/5/2005 | AMYR |

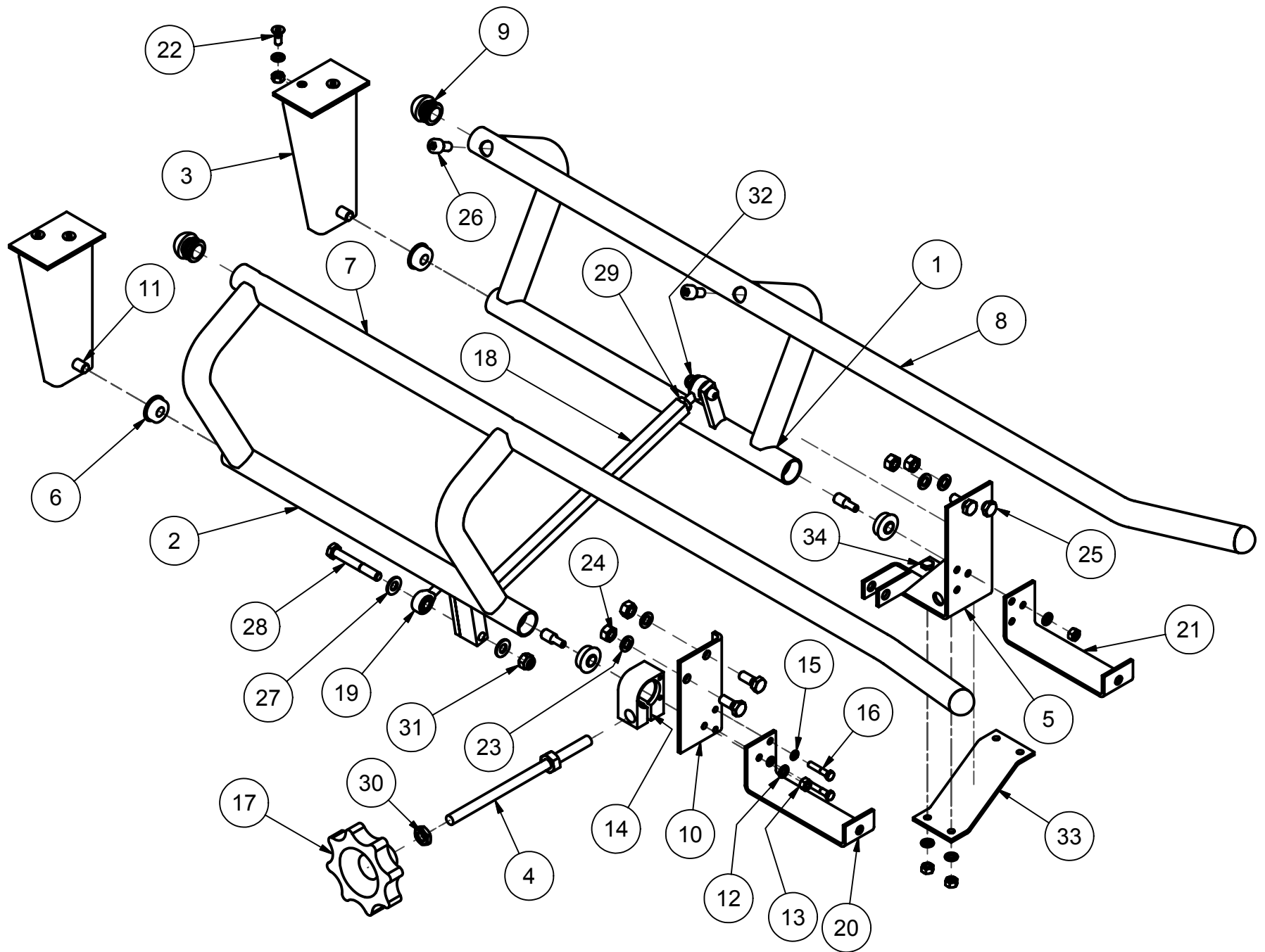
| Parts List | | | |
|------------|-----|-------------|---------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | LDU-1157-5 | HEAD NECK |
| 2 | 1 | LDU-1047-4 | STIFFENER - HEAD NECK |
| 3 | 1 | LDU-1067-4 | HEAD GUARD - FRONT |
| 4 | 1 | LDU-1151-5 | HEAD GUARD - REAR |
| 5 | 1 | LDU-1152-4 | TOP LOAD BRACKET |
| 6 | 1 | LDU-1153-3 | SHAFT - CARTRIDGE STOP |
| 7 | 1 | LDU-1161L-4 | WEAR STRIP LEFT |
| 8 | 1 | LDU-1161R-4 | WEAR STRIP RIGHT |
| 9 | 2 | LDU-1284-4 | SPACER - HEAD L/R |
| 10 | 3 | FFHMI020P88 | FL. HD. SOC. CAP SCREW M10 X 20 |
| 11 | 3 | FLWMIP | LOCK WASHER M10 |
| 12 | 3 | FHFNMIP | HEX NUT M10 |
| 13 | 3 | FFHMF012P10 | FL. HD. SOC. CAP SCREW M5 X 12 |
| 14 | 6 | FFWMFP | FLAT WASHER M5 |
| 15 | 6 | FFWMFP | FLAT WASHER M5 |
| 16 | 3 | FHDNMFP | HEX DOME NUT M5 |
| 17 | 3 | FHHMF012P10 | HEX HEAD SCREW M5 X 12 |
| 18 | 6 | FHHMG016P10 | HEX HEAD SCREW M6 X 16 |
| 19 | 3 | FHFNMG | HEX HEAD NUT M6 |
| 20 | 6 | FFWMGP | WASHER M6 |
| 21 | 6 | FLWMGP | LOCK WASHER M6 |
| 22 | 26 | FLWMFP | LOCK WASHER M5 |
| 23 | 12 | FHDNMFP | HEX DOME NUT M5 |
| 24 | 32 | FFHF012P10 | FLAT HEAD M5 X 12 LG. |
| 25 | 2 | FSHMG025P10 | SOC. HD. CAP SCREW M6 X 25 |
| 26 | 6 | FLWMGP | LOCK WASHER M6 |
| 27 | 6 | FHDNMGP | HEX DOME NUT M6 |
| 28 | 14 | FHFNMFP | HEX FLAT NUT M5 |
| 29 | 4 | FFHMG025P10 | FLAT HEAD SCREW M6 X 25 |
| 30 | 1 | LDU-1155-6 | PLATE, HEAD LH |
| 31 | 1 | LDU-1154-6 | PLATE, HEAD RH |
| 32 | 1 | LDU-1055-5 | BRACE, HEAD NECK |



| | | | | | |
|--|--------|-----------------------|--|---|--------------|
| MAT'L | PART # | CAD FILE HDA LDU 2 | TOLERANCES UNLESS OTHERWISE NOTED: .X = ±.050 INCH .XX = ±.015 .XXX = ±.005 | LOVESHAW an ITW Company RT. 296, SOUTH CANAAN, PA. | |
| C.R.S. | STD | PLOT DATE 1/5/2005 | | TITLE HEAD ASSEMBLY | |
| ST. ST. | N/A | DRAWN DATE 10/25/2004 | ANGLES ± 1/2° .X = ±1.0mm METRIC .XX = ±.3mm .XXX = ±.1mm | DWG NO .HDA/LDU/2 | SCALE N/A |
| STAINLESS : NO FINISH | | DO NOT SCALE PRINT | | MACH. FINISH 125 ✓ | MATERIAL N/A |
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|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 10/4/2004 | AMYR |

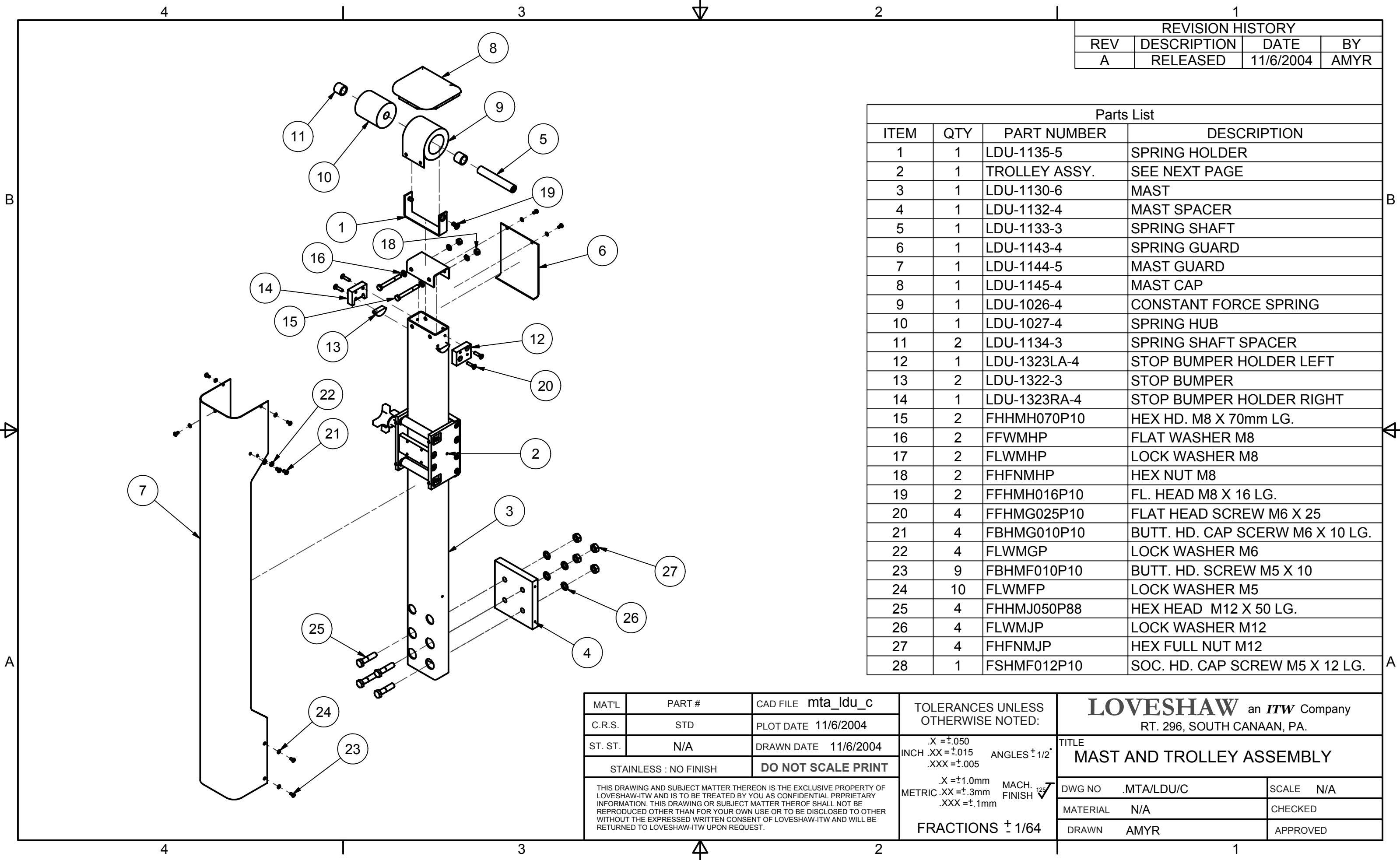
| Parts List | | | |
|------------|-----|--------------|------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | LDU-1104-5 | SIDE RAIL (RH) SIDE |
| 2 | 1 | LDU-1203-5 | SIDE RAIL (LH) SIDE PNEU. |
| 3 | 2 | LDU-1032-4 | SIDE RAIL BRACKET REAR |
| 4 | 1 | LDU-1043-4 | LOCK ROD |
| 5 | 1 | LDU-1084-5 | SIDE RAIL BRACKET (PNEU) |
| 6 | 4 | BRG-1012 | BEARING |
| 7 | 1 | LDU-1167LE-5 | SIDE RAIL TUBE EXT (18") LH |
| 8 | 1 | LDU-1167RE-5 | SIDE RAIL TUBE EXT (18") RH |
| 9 | 4 | PSC511A | SIDE RAIL CAP |
| 10 | 1 | LDU-1031L-4 | SIDE RAIL BRACKET FRONT |
| 11 | 4 | LDU-1107-3 | SIDE RAIL SUPPORT STUD |
| 12 | 10 | FLWMGP | LOCK WASHER M6 |
| 13 | 10 | FHFNMGP | HEX NUT M6 |
| 14 | 1 | LDU-1042-4 | LOCK BLOCK |
| 15 | 2 | FLWMFP | LOCK WASHER M5 |
| 16 | 2 | FHHMF025P10 | HEX HD M5x25 |
| 17 | 1 | PSU166-4 | SIDE RAIL HAND KNOB |
| 18 | 1 | LDU-1240-4 | LINK BAR - SIDE RAILS RANDOM |
| 19 | 2 | PSC552 | SPHERICAL ALIGN BEARING |
| 20 | 1 | LDU-1059L-4 | SIDE RAIL BRACE LEFT |
| 21 | 1 | LDU-1059R-4 | SIDE RAIL BRACE RIGHT |
| 22 | 4 | FFHMG016P10 | FHSC M6x16 |
| 23 | 4 | FLWMHP | LOCK WASHER M8 |
| 24 | 4 | FHFNMHP | HEX NUT M8 |
| 25 | 4 | FHHMH020P10 | HEX HD M8x20 |
| 26 | 4 | FSHMH016P10 | SHCS M8x16 |
| 27 | 3 | FFWSEP | FW 5/16 |
| 28 | 1 | FHHSH225P08 | HEX HEAD 5/16-18 X 2 1/4 LG. |
| 29 | 2 | FHJNSIP | HJN 5/16-24 |
| 30 | 1 | FHJNMIP | M10 HJN |
| 31 | 1 | FNLNSHP | 5/16 Std NC Nylock Nut |
| 32 | 1 | FNLNSEP | 1/4 Std NC Nylock Nut |
| 33 | 1 | LDU-1258-4 | SIDE RAIL BRACE |
| 34 | 2 | FHHMG016P10 | HEX HEAD SCREW M6 X 16 |



| | | | | | |
|--|--------|------------------------|--|---|-----------|
| MAT'L | PART # | CAD FILE sra_ldu_ext18 | TOLERANCES UNLESS OTHERWISE NOTED: .X = ±.050 INCH .XX = ±.015 ANGLES ± 1/2° .XXX = ±.005 | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. | |
| C.R.S. | STD | PLOT DATE 10/4/2004 | | TITLE SIDE RAIL ASSEMBLY | |
| ST. ST. | N/A | DRAWN DATE 10/4/2004 | METRIC .X = ±1.0mm MACH. FINISH 125 ✓ .XX = ±.3mm .XXX = ±.1mm FRACTIONS ± 1/64 | DWG NO .SRA/LDU/EXT18 | SCALE N/A |
| STAINLESS : NO FINISH DO NOT SCALE PRINT | | | | MATERIAL N/A CHECKED | |
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| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 11/6/2004 | AMYR |

| Parts List | | | |
|------------|-----|---------------|---------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | LDU-1135-5 | SPRING HOLDER |
| 2 | 1 | TROLLEY ASSY. | SEE NEXT PAGE |
| 3 | 1 | LDU-1130-6 | MAST |
| 4 | 1 | LDU-1132-4 | MAST SPACER |
| 5 | 1 | LDU-1133-3 | SPRING SHAFT |
| 6 | 1 | LDU-1143-4 | SPRING GUARD |
| 7 | 1 | LDU-1144-5 | MAST GUARD |
| 8 | 1 | LDU-1145-4 | MAST CAP |
| 9 | 1 | LDU-1026-4 | CONSTANT FORCE SPRING |
| 10 | 1 | LDU-1027-4 | SPRING HUB |
| 11 | 2 | LDU-1134-3 | SPRING SHAFT SPACER |
| 12 | 1 | LDU-1323LA-4 | STOP BUMPER HOLDER LEFT |
| 13 | 2 | LDU-1322-3 | STOP BUMPER |
| 14 | 1 | LDU-1323RA-4 | STOP BUMPER HOLDER RIGHT |
| 15 | 2 | FHHMH070P10 | HEX HD. M8 X 70mm LG. |
| 16 | 2 | FFWMHP | FLAT WASHER M8 |
| 17 | 2 | FLWMHP | LOCK WASHER M8 |
| 18 | 2 | FHFNMHP | HEX NUT M8 |
| 19 | 2 | FFHMH016P10 | FL. HEAD M8 X 16 LG. |
| 20 | 4 | FFHMG025P10 | FLAT HEAD SCREW M6 X 25 |
| 21 | 4 | FBHMG010P10 | BUTT. HD. CAP SCERW M6 X 10 LG. |
| 22 | 4 | FLWMGP | LOCK WASHER M6 |
| 23 | 9 | FBHMF010P10 | BUTT. HD. SCREW M5 X 10 |
| 24 | 10 | FLWMFP | LOCK WASHER M5 |
| 25 | 4 | FHHMJ050P88 | HEX HEAD M12 X 50 LG. |
| 26 | 4 | FLWMJP | LOCK WASHER M12 |
| 27 | 4 | FHFNMJP | HEX FULL NUT M12 |
| 28 | 1 | FSHMF012P10 | SOC. HD. CAP SCREW M5 X 12 LG. |



| | | | |
|--|--------|--------------------|-----------|
| MAT'L | PART # | CAD FILE | mta_ldu_c |
| C.R.S. | STD | PLOT DATE | 11/6/2004 |
| ST. ST. | N/A | DRAWN DATE | 11/6/2004 |
| 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. | | | |

TOLERANCES UNLESS OTHERWISE NOTED:
 .X = ±.050
 INCH .XX = ±.015 ANGLES ± 1/2°
 .XXX = ±.005
 .X = ±1.0mm MACH. FINISH ✓
 METRIC .XX = ±.3mm
 .XXX = ±.1mm
 FRACTIONS ± 1/64

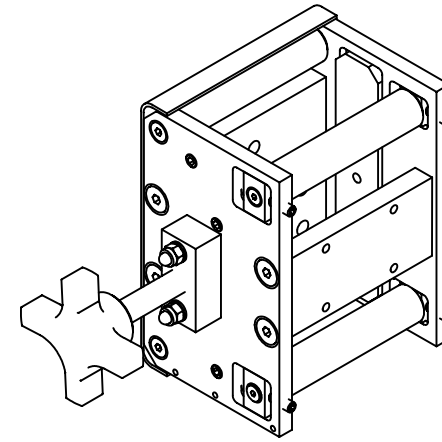
LOVESHAW an *ITW* Company
 RT. 296, SOUTH CANAAN, PA.

TITLE
MAST AND TROLLEY ASSEMBLY

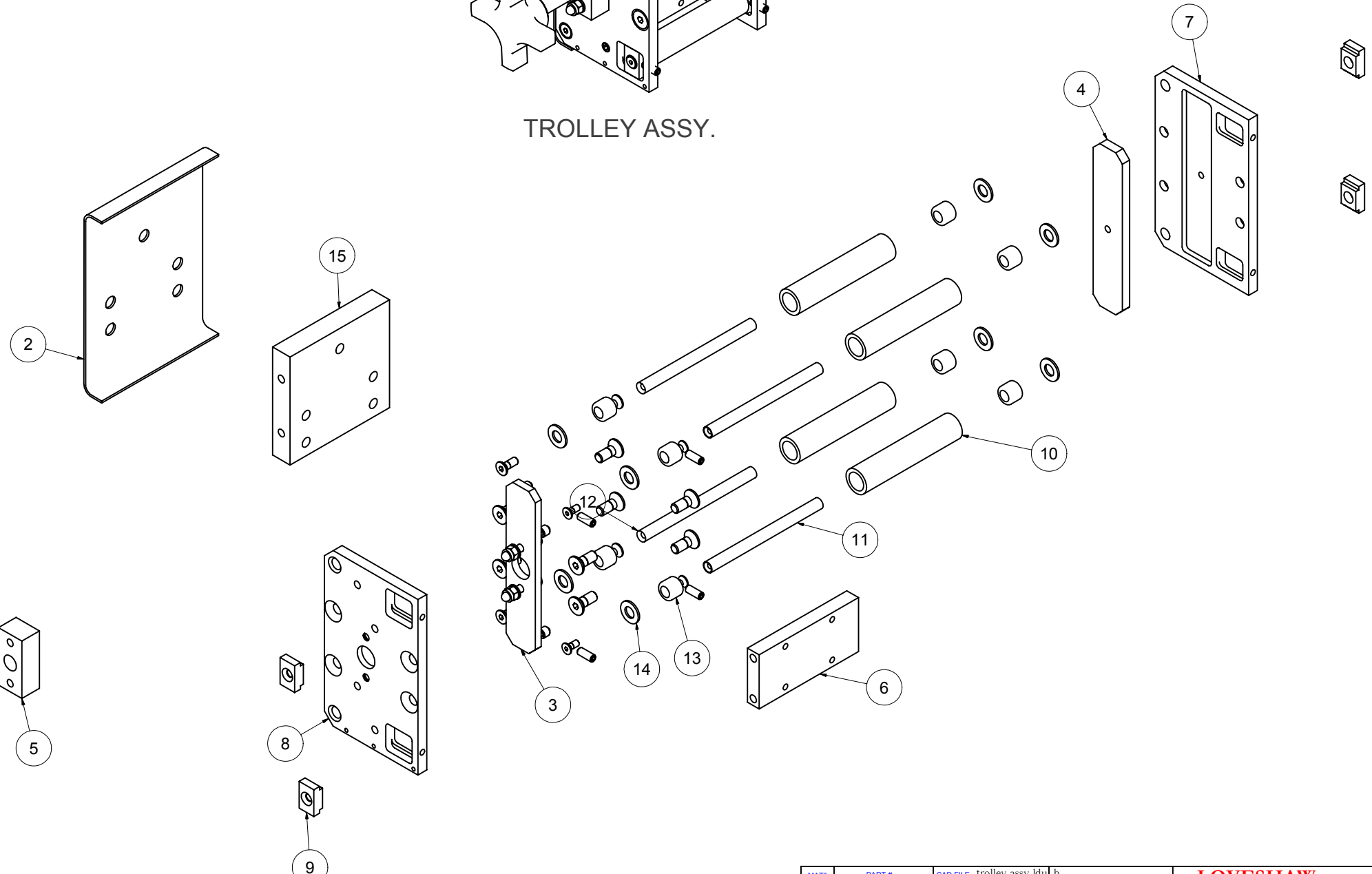
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| MATERIAL | N/A | CHECKED | |
| DRAWN | AMYR | APPROVED | |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|-----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 2/26/2003 | AJS |

| Parts List | | | |
|------------|-----|-------------|---------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | PSC301322 | CLAMP, SW. SCREW |
| 2 | 1 | LDU-1142-4 | TROLLEY GUARD |
| 3 | 1 | LDU-1023-3 | WEAR STRIP (LOCK SIDE) |
| 4 | 1 | LDU-1025-3 | WEAR STRIP (FIXED SIDE) |
| 5 | 1 | PSC301324-3 | CLAMP NUT - HEAD |
| 6 | 1 | LDU-1073-4 | SPRING BLOCK |
| 7 | 1 | LDU-1276-5 | TROLLEY PLATE (FIXED SIDE) |
| 8 | 1 | LDU-1275-5 | TROLLEY PLATE (LOCK SIDE) |
| 9 | 4 | LDU-1190-3 | CAM ROLLER TEE NUT |
| 10 | 4 | LDU-1261A-3 | ROLLER |
| 11 | 2 | LDU-1191-3 | SHAFT, SUPPORT |
| 12 | 2 | LDU-1191A-3 | SHAFT, SUPPORT M6-1.0 x 3/8 DP. |
| 13 | 8 | J206-PS | ROLLER BEARING |
| 14 | 8 | PSC311013 | THRUST BEARING 1/16 THK. |
| 15 | 1 | LDU-1139-4 | TROLLEY PLATE FRONT |
| 24 | 8 | FFHMH020P10 | FHCS M8x20 LG. |
| 25 | 2 | FFHMG035P10 | FHSC M6x35 LG. |
| 26 | 2 | FLWMGP | LOCK WASHER M6 |
| 27 | 2 | FHDNMGP | HEX DOME NUT M6 |
| 28 | 4 | FFHMG016P10 | FHSC M6x16 |
| 29 | 4 | FFHF012P10 | FLAT HEAD M5 X 12 LG. |
| 30 | 4 | SPH-1146 | SET SCREW 5/16-18 x 5/16 LG. |
| 31 | 4 | FSSMG016B10 | SET SCREW M6 X 16 LG. |

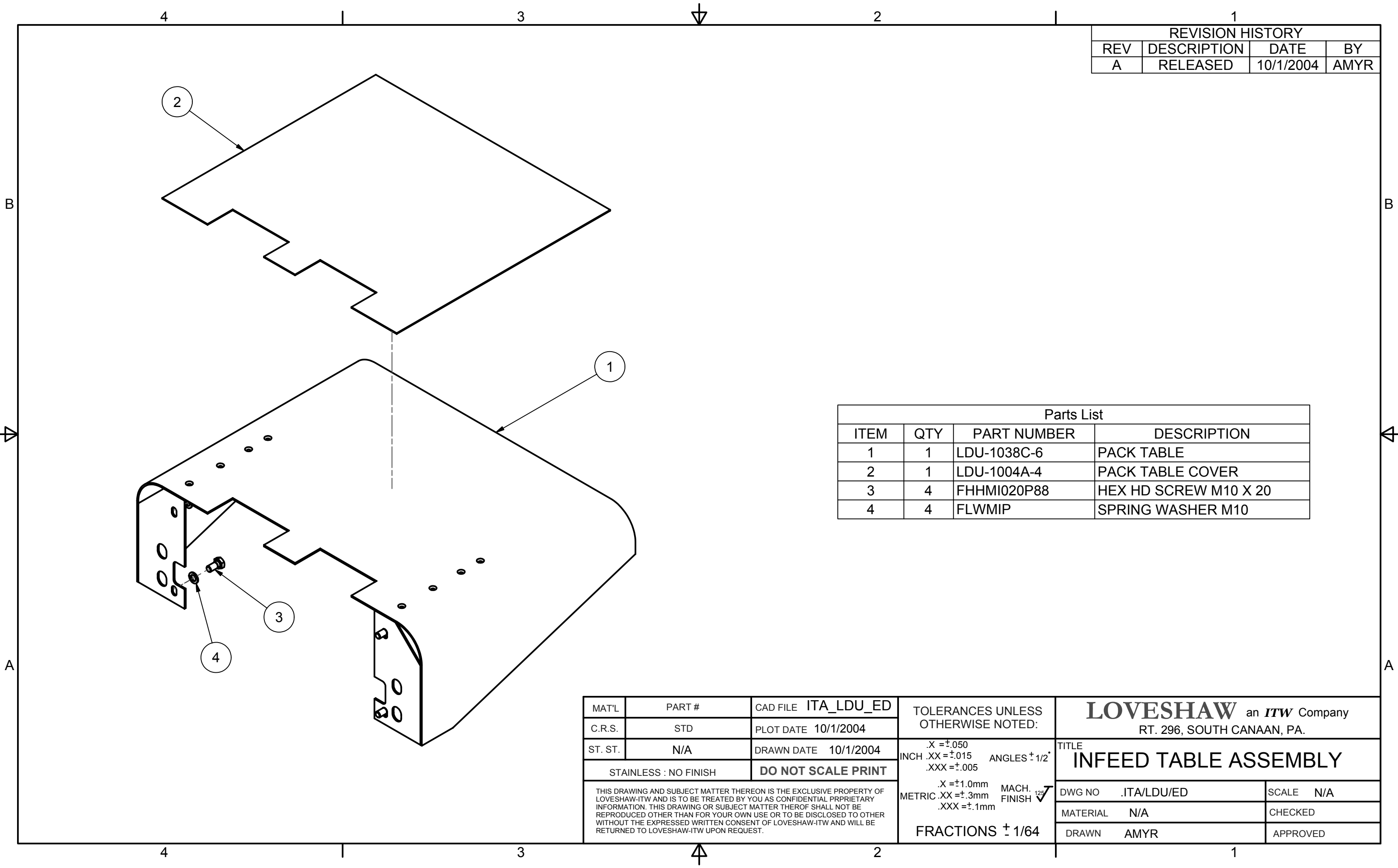


TROLLEY ASSY.



| | | | | | |
|---|--------|------------|--------------------|---|---|
| MATL | PART # | CAD FILE | trolley assy ldu.b | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. |
| C.R.S. | STD | PLOT DATE | 2/26/2003 | X = ±0.050 INCH XX = ±0.015 .XXX = ±0.005 ANGLES ±1/2° | |
| ST. ST. | N/A | DRAWN DATE | 2/26/2003 | X = ±1.0mm METRIC XX = ±0.3mm .XXX = ±0.1mm MACH. FINISH | TITLE TROLLEY ASSY LDU/B |
| STAINLESS - NO FINISH DO NOT SCALE PRINT | | | | DWG NO. | SCALE N/A |
| <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> | | | | MATERIAL NOTED DRAWN tony | CHECKED APPROVED |
| | | | | FRACTIONS ±1/64 | |

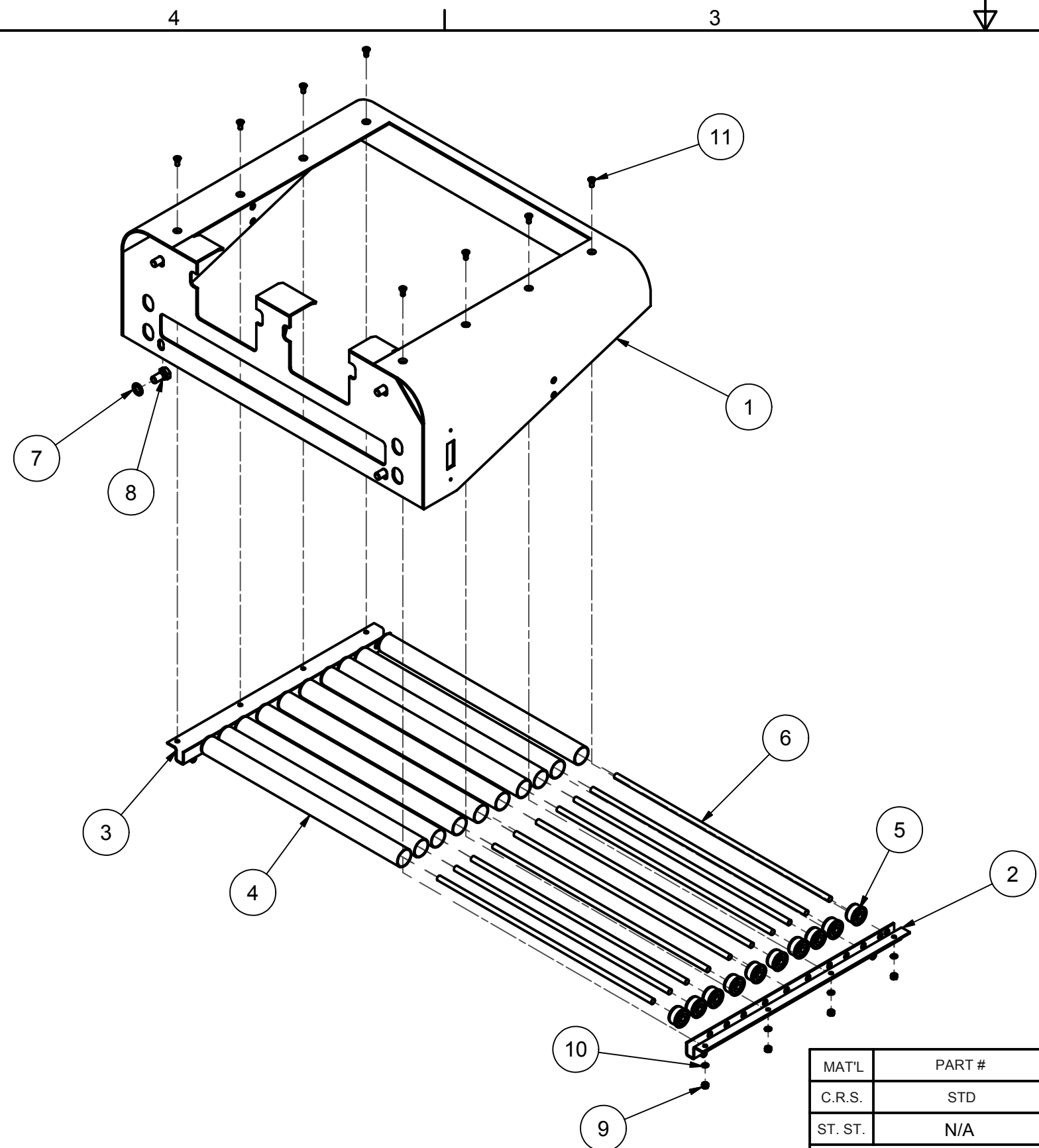
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|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 10/1/2004 | AMYR |



| Parts List | | | |
|------------|-----|-------------|-----------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | LDU-1038C-6 | PACK TABLE |
| 2 | 1 | LDU-1004A-4 | PACK TABLE COVER |
| 3 | 4 | FHHMI020P88 | HEX HD SCREW M10 X 20 |
| 4 | 4 | FLWMIP | SPRING WASHER M10 |

| | | | | | | |
|--|--------|---------------------------|------------|--|---|-----------|
| MAT'L | PART # | CAD FILE | ITA_LDU_ED | TOLERANCES UNLESS OTHERWISE NOTED: .X = ±.050 INCH .XX = ±.015 .XXX = ±.005 ANGLES ± 1/2° .X = ±1.0mm METRIC .XX = ±.3mm .XXX = ±.1mm MACH. FINISH 125 ✓ FRACTIONS ± 1/64 | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. TITLE INFEEED TABLE ASSEMBLY | |
| C.R.S. | STD | PLOT DATE | 10/1/2004 | | | |
| ST. ST. | N/A | DRAWN DATE | 10/1/2004 | | | |
| STAINLESS : NO FINISH | | DO NOT SCALE PRINT | | | DWG NO .ITA/LDU/ED | 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 PRPRIETARY 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 N/A | CHECKED |
| | | | | | DRAWN AMYR | APPROVED |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 10/4/2004 | AMYR |



| Parts List | | | |
|------------|-----|-------------|-----------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | LDU-1336-6 | PACK TABLE (ROLLER) EXT. DR |
| 2 | 1 | LDU-1345L-4 | BRKT. ROLLER SUPPORT (DUAL) |
| 3 | 1 | LDU-1345R-4 | BRKT. ROLLER SUPPORT (DUAL) |
| 4 | 10 | LDU-1007-4 | ROLLER, PACK TABLE |
| 5 | 20 | 50299-029 | ROLLER END PLUG |
| 6 | 10 | LDU-1008-4 | SHAFT, ROLLER |
| 7 | 4 | FLWMIP | SPRING WASHER M10 |
| 8 | 4 | FHHMI020P88 | HEX HD M10 X 20 |
| 9 | 8 | FHFNMFP | HEX FLAT NUT M5 |
| 10 | 8 | FLWMFP | LOCK WASHER M5 |
| 11 | 8 | FFHF012P10 | FLAT HEAD M5 X 12 LG. |

| | | | |
|---|--------|--------------------|---------------|
| MAT'L | PART # | CAD FILE | ita rb ldu ed |
| C.R.S. | STD | PLOT DATE | 10/4/2004 |
| ST. ST. | N/A | DRAWN DATE | 10/4/2004 |
| 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 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 MACH. FINISH ✓
 METRIC .XX = ±.3mm
 .XXX = ±.1mm

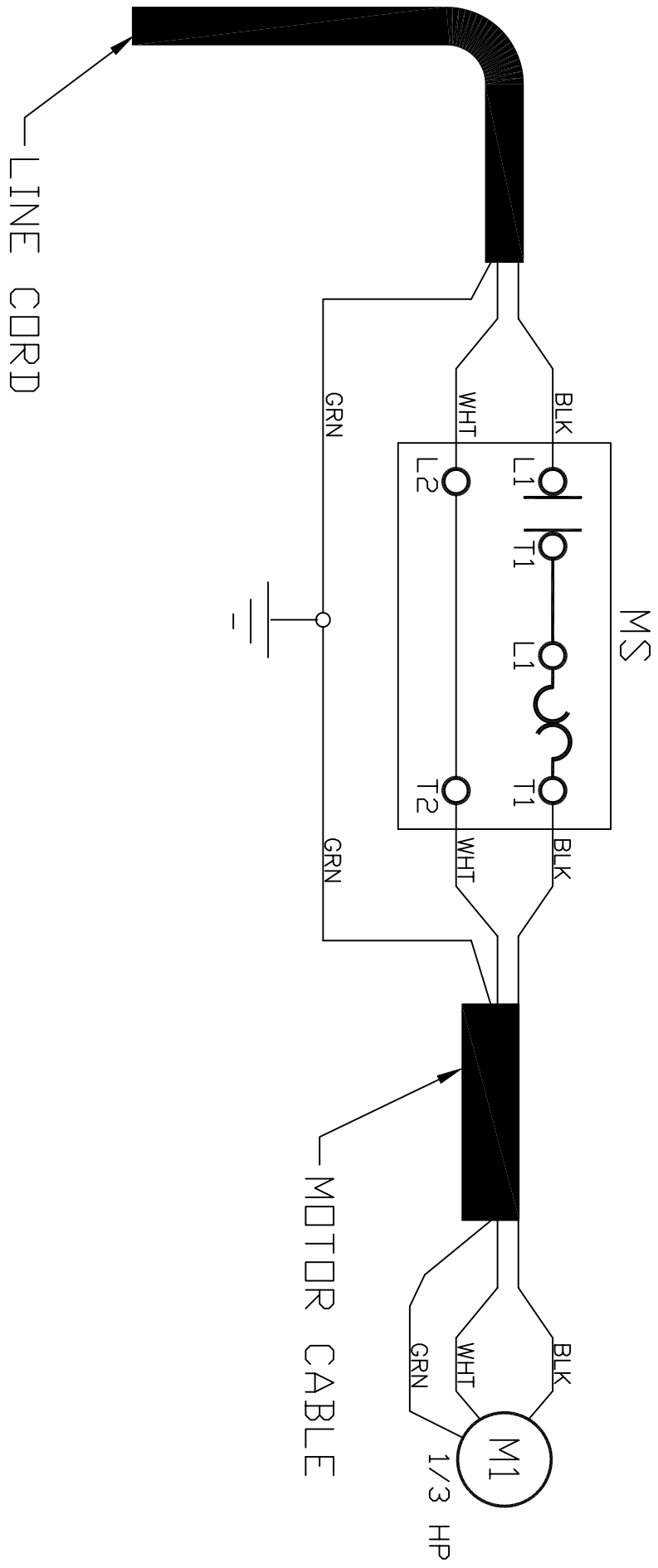
FRACTIONS ± 1/64

LOVESHAW an *ITW* Company
 RT. 296, SOUTH CANAAN, PA.

TITLE
INFED ROLLER BED TABLE ASSEMBLY

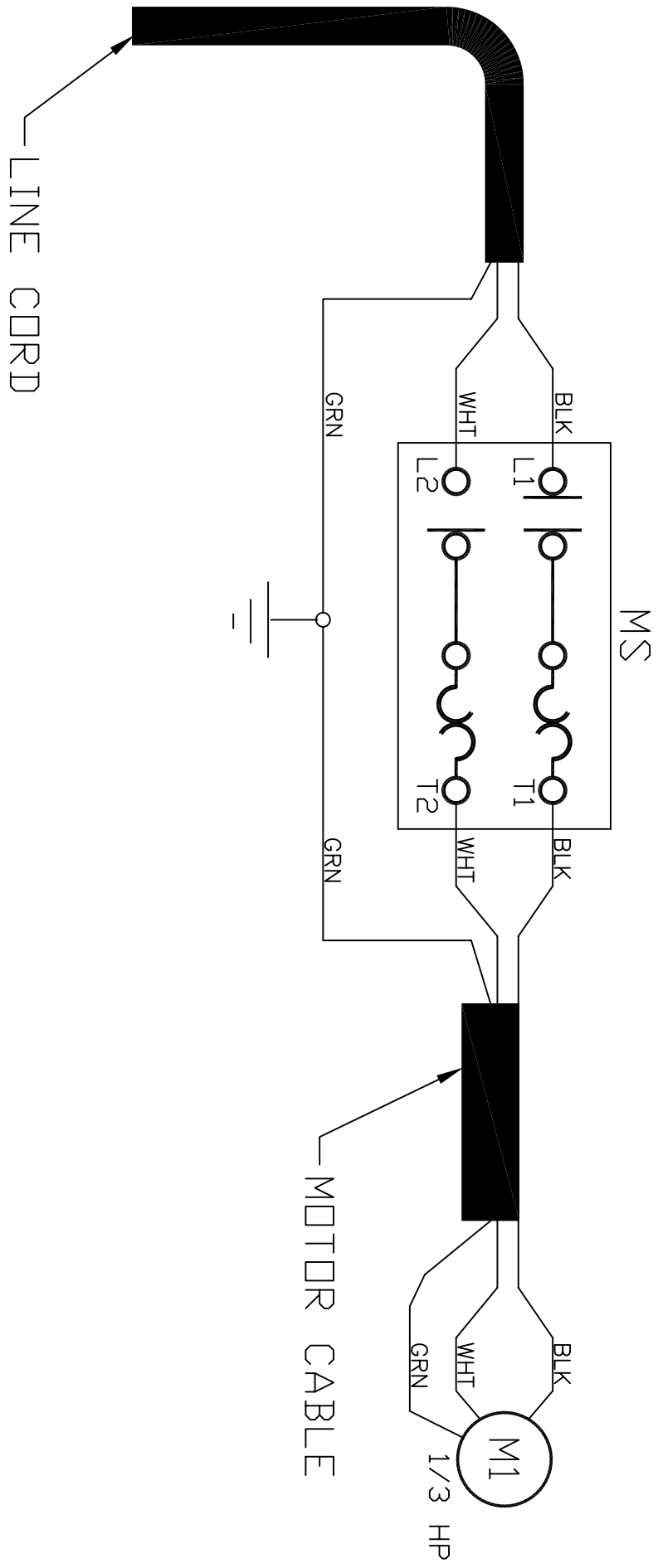
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| DRAWN | AMYR | APPROVED | |

| REVISION RECORD | | | | | |
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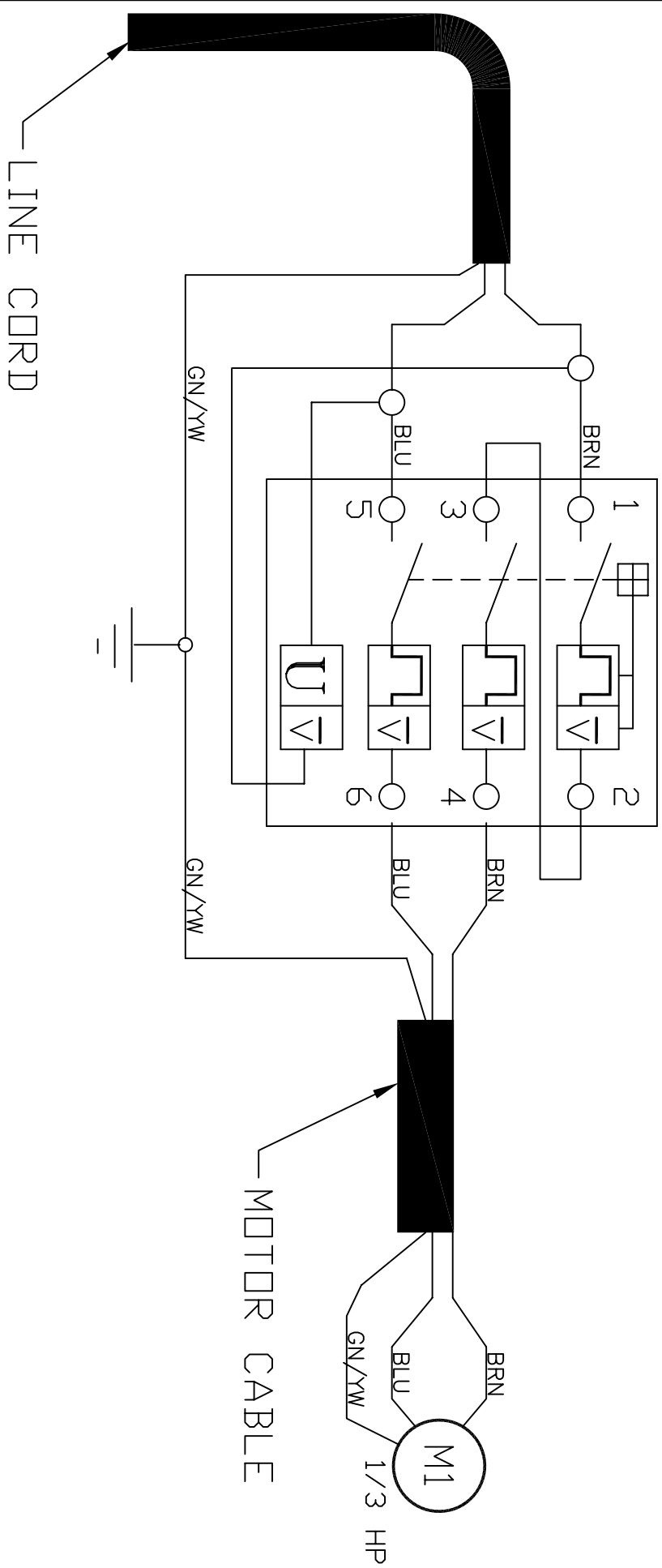
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| +/- 1/64 | MATERIAL: N/A | SCALE: N/A |
| ANG. - 1/2° | DESIGNED: MENTA | DRAWN: WM |
| | | DATE: 11/03/99 |
| | | APPRVD: -- |

| REVISION RECORD | | | | | |
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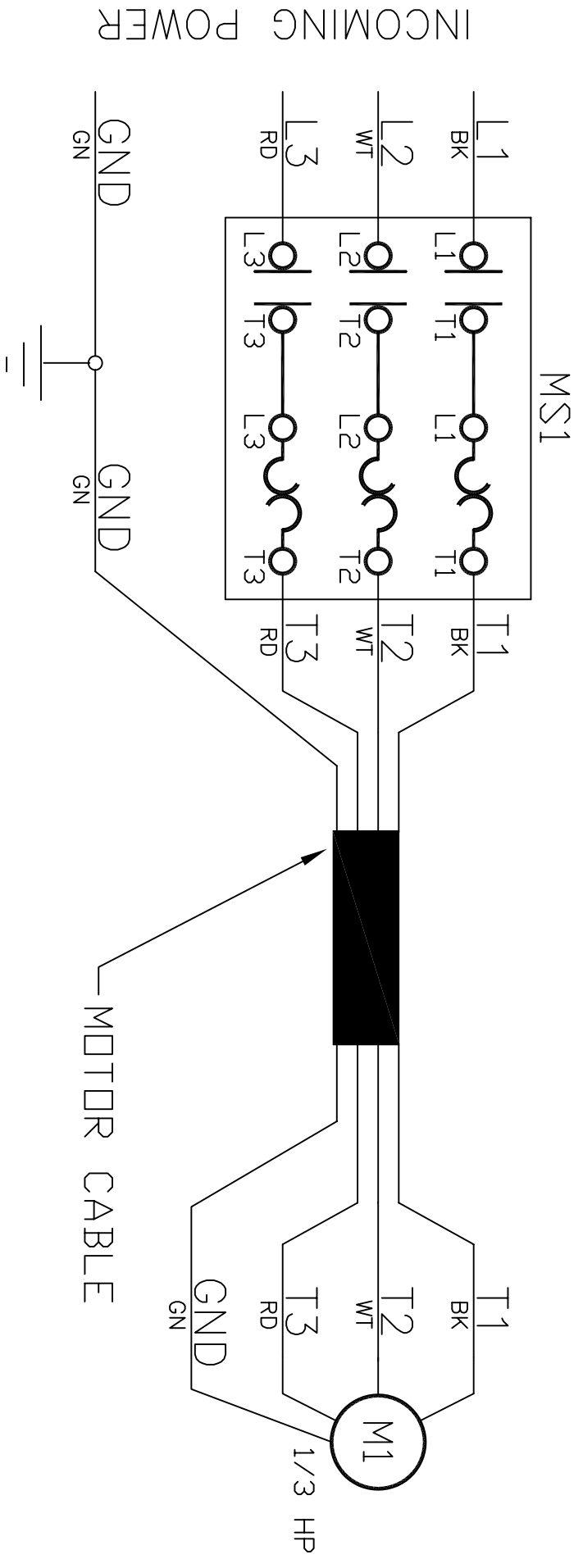
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| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA. | | | |
| DECIMAL (3 PLC) +/- .005 | TITLE: | ELECTRICAL SCHEMATIC LDU - 220/1/60 | | |
| FRACTIONAL | DWG. NO. ED843 | SCALE: | N/A | |
| +/- 1/64 | MATERIAL: N/A | DATE: | 1/03/99 | |
| ANG. - 1/2° | DESIGNED: MENTA | DRAWN: | WM | |
| | | APPRVD: | -- | |

| REVISION RECORD | | | | | |
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| REV | DESCRIPTION | DATE | ATH | DR | CK |
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| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION | | | | |
| RT 296, SOUTH CANAAN, PA. | ELECTRICAL SCHEMATIC | | | | |
| DECIMAL (3 PLC) | TITLE: | | | | |
| +/- .005 | LDU - 220/1/50 | | | | |
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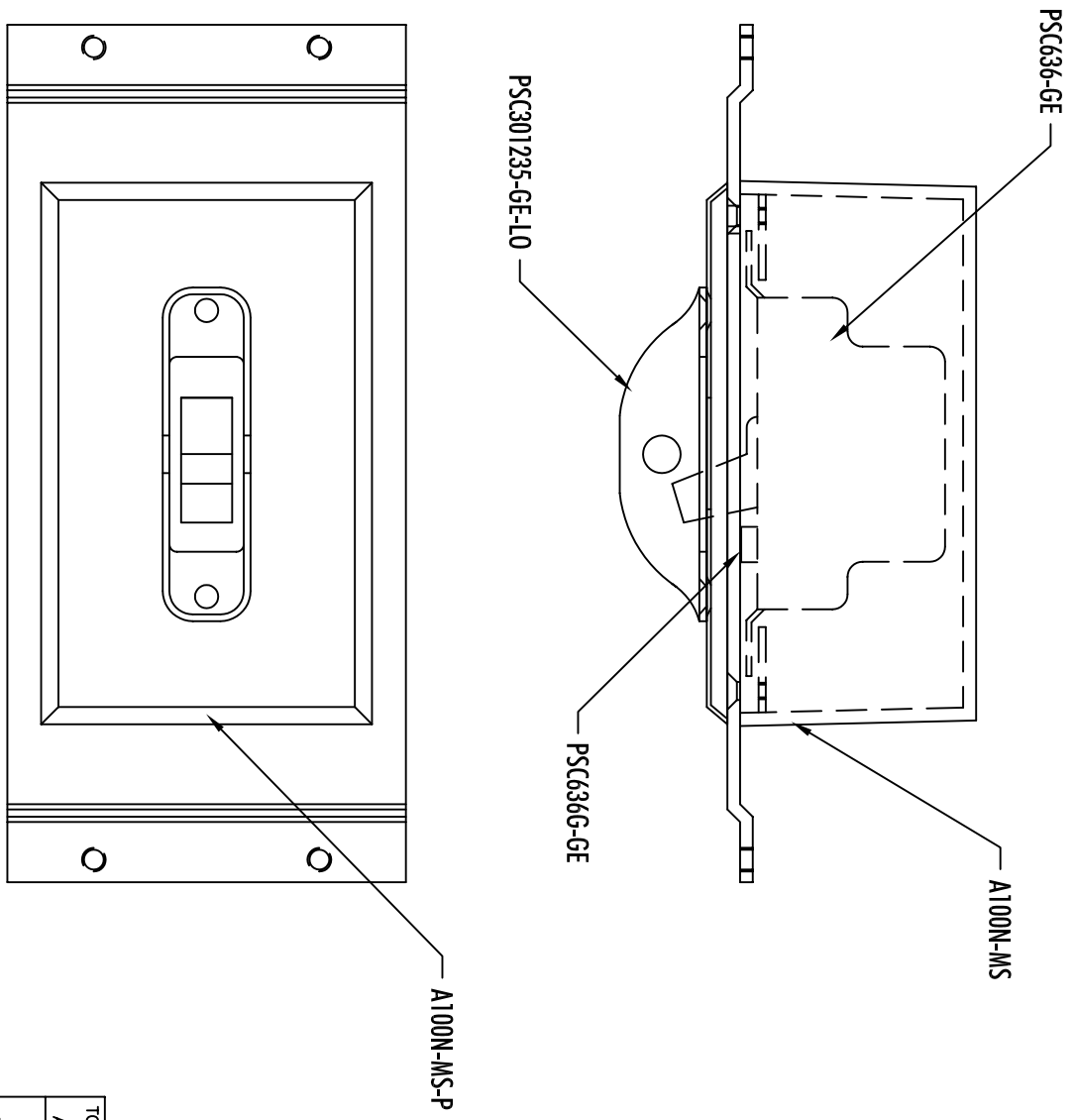
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INCOMING POWER

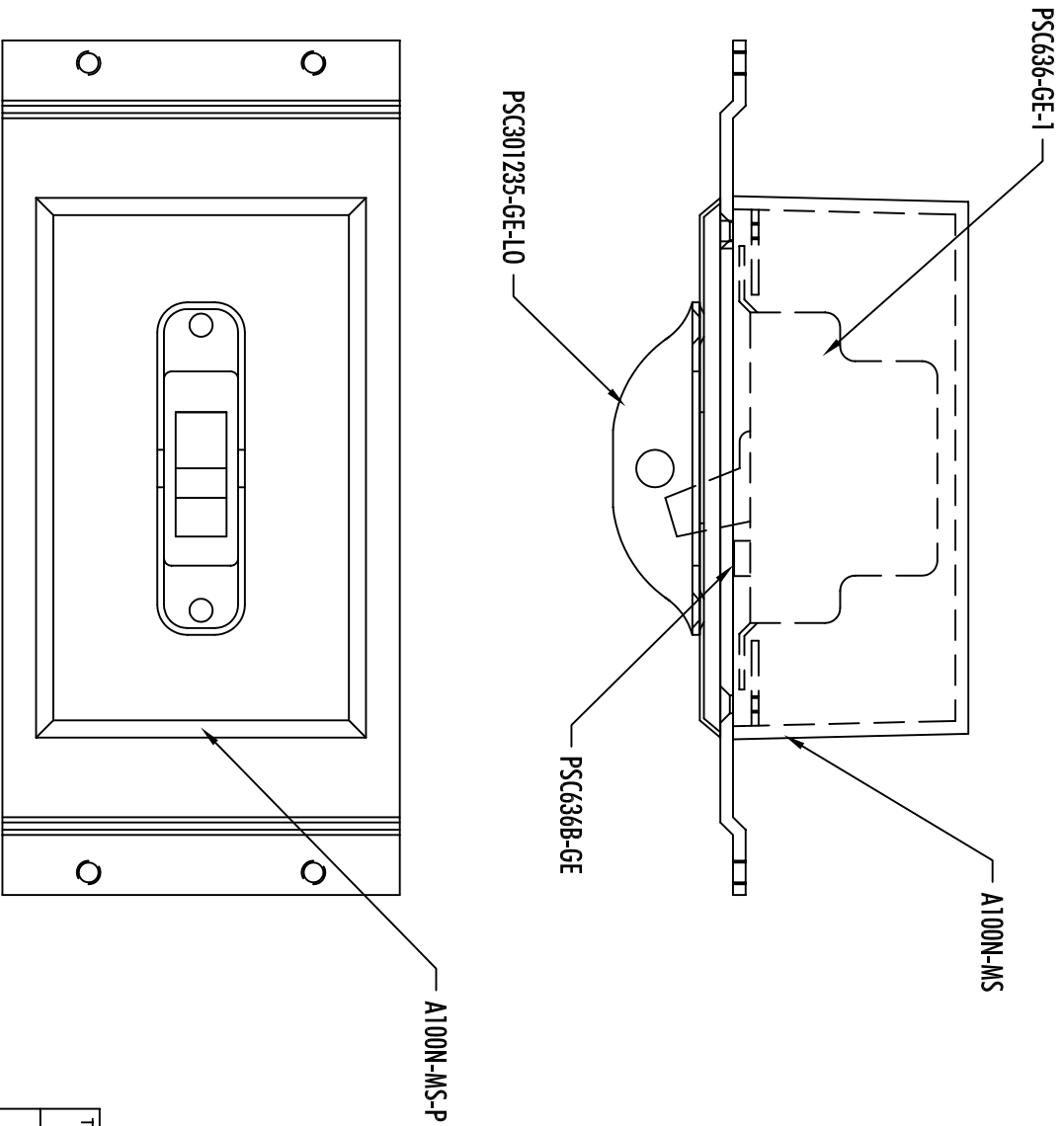
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| +/- .005 | | DWG. NO. ED845 | SCALE: N/A |
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| ANG. - 1/2° | | | APPRVD: -- |

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| REV | DESCRIPTION | DATE | ATH | DR CK |
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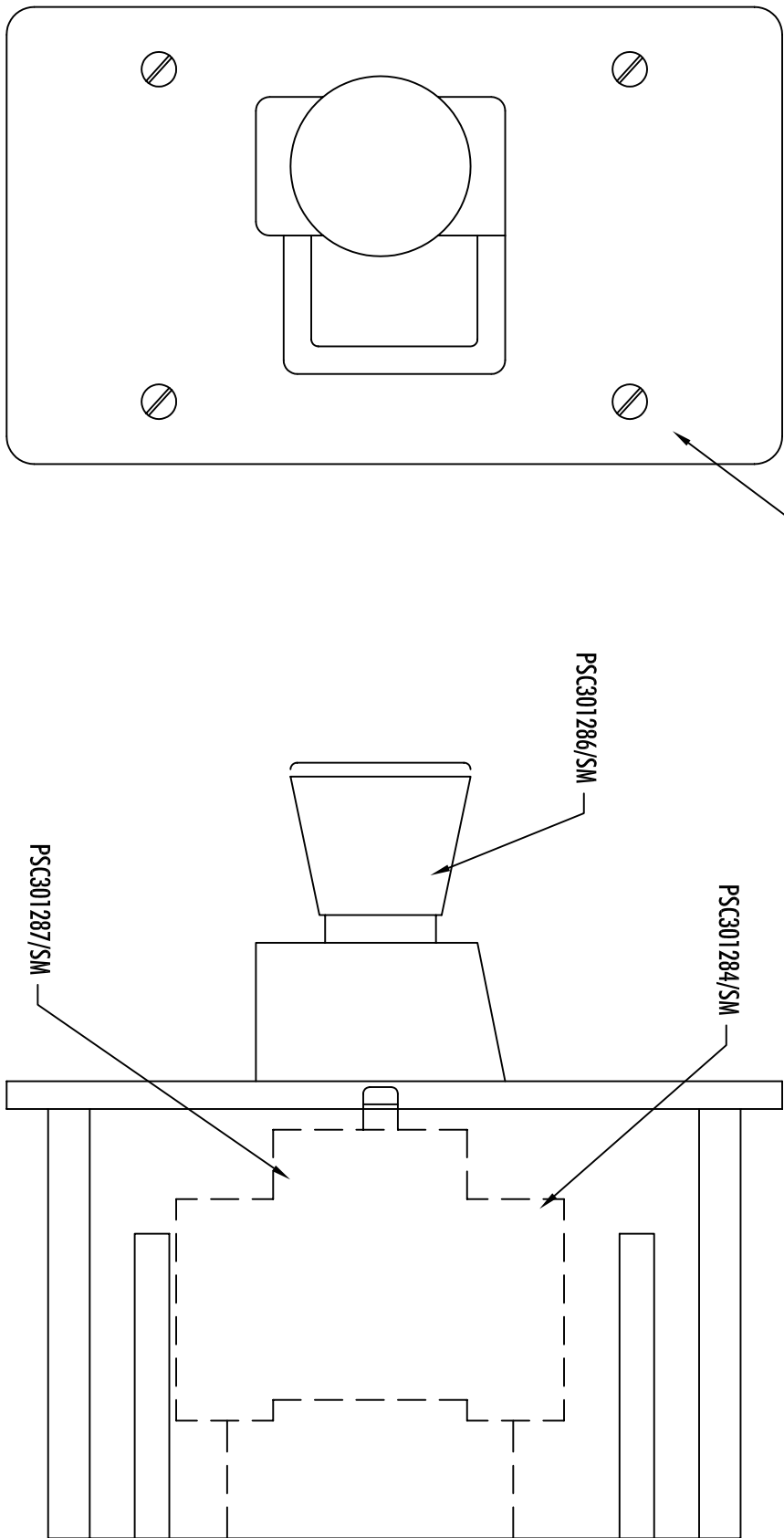
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| +/- .005 | TITLE: | ELECTRICAL ASSEMBLY | | |
| FRACTIONAL | DWG. NO. ED833 | LDU115/1/60 | | |
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| ANG. - 1/2° | DESIGNED: MENTA | DRAWN: WM | APPRVD: -- | |

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| REV | DESCRIPTION | DATE | ATH DR CK |
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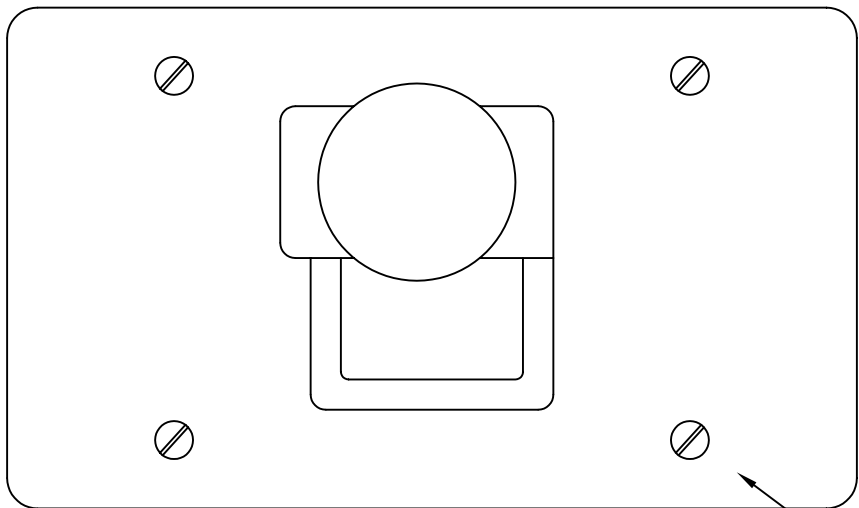
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| TOLERANCES EXCEPT AS NOTED | THE LOYESHAW CORPORATION | | |
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| FRACTIONAL | DWG. NO. ED834 | LDU220/1/60 | |
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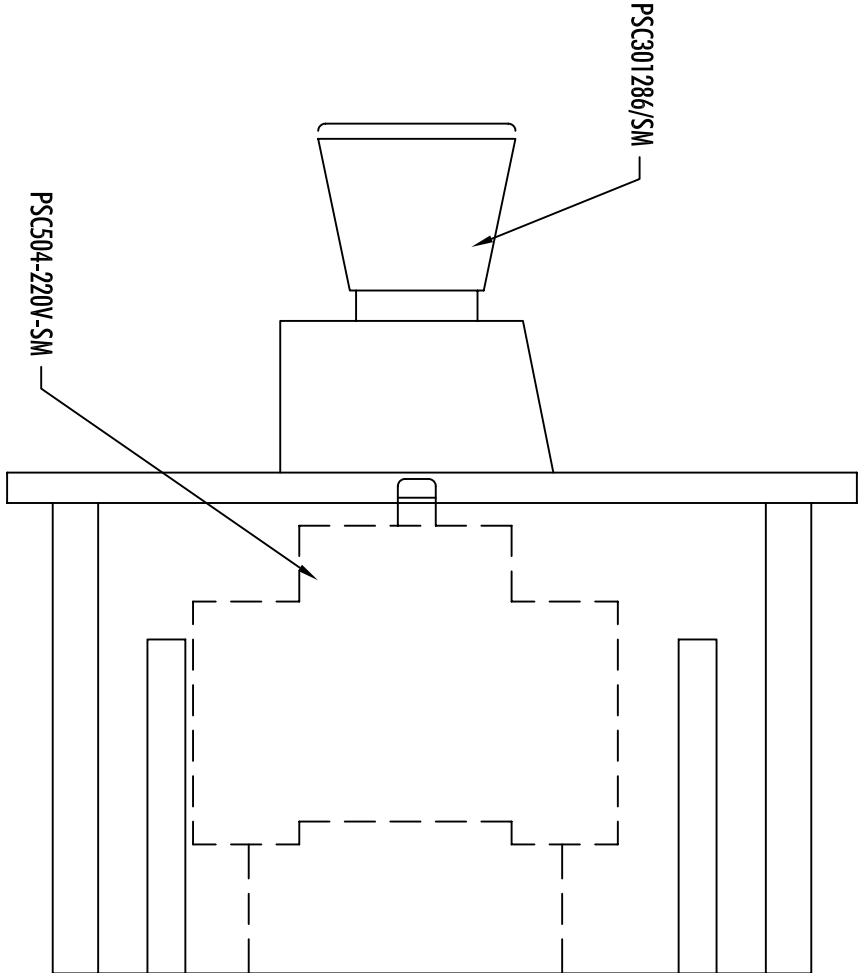


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| ANG. - 1/2° | DESIGNED: MENTA DRAWN: WM APPRVD: -- |

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| REV | DESCRIPTION | DATE | ATH DR CK |
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PSC301283-1/SM

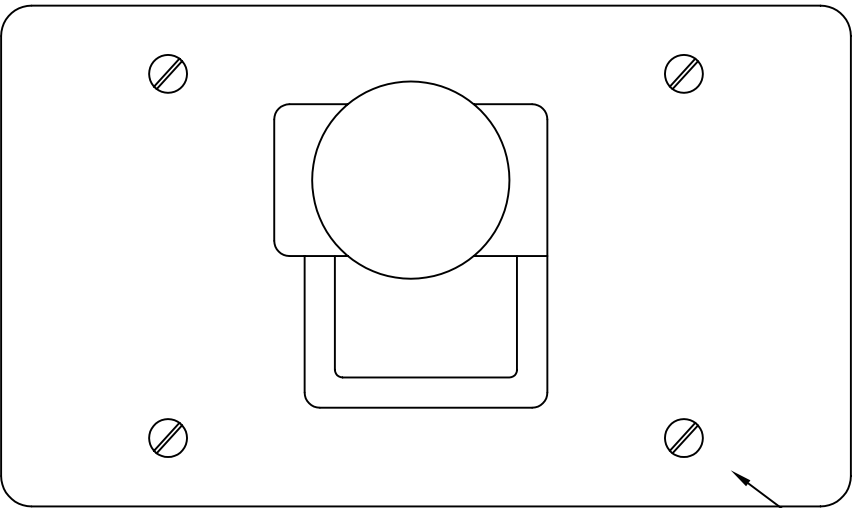


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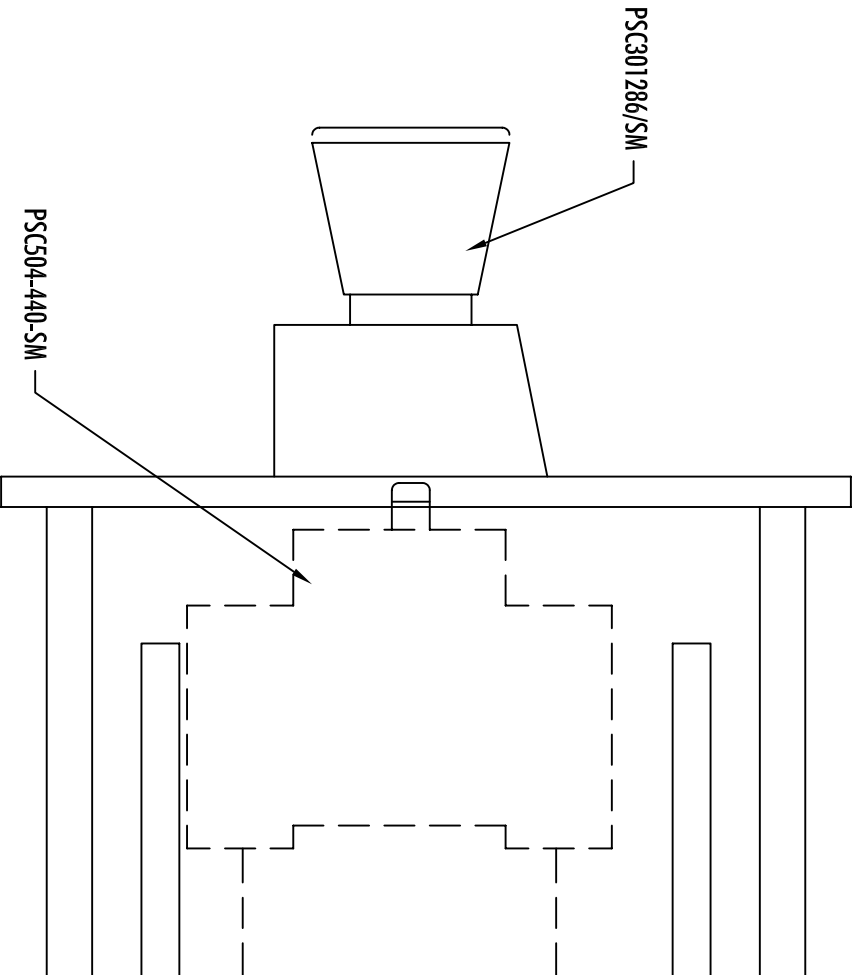
PSC504-220V-SM

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| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION | | |
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| ANG. - 1/2° | DESIGNED: | MENTA | DRAWN: WM |
| | SCALE: | 1 : 1 | |
| | DATE: | 11/03/99 | |
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PSC301283-1/SM

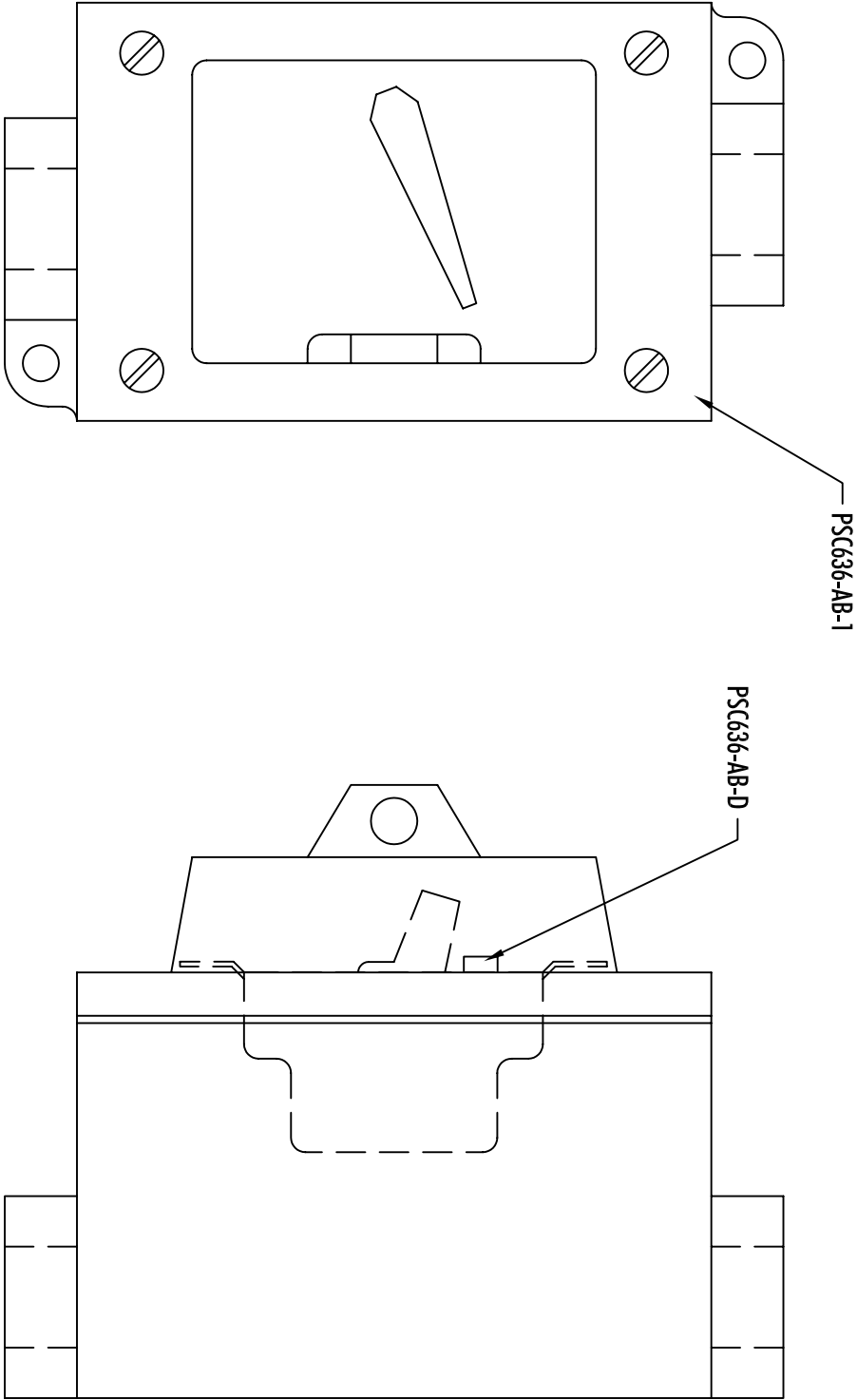


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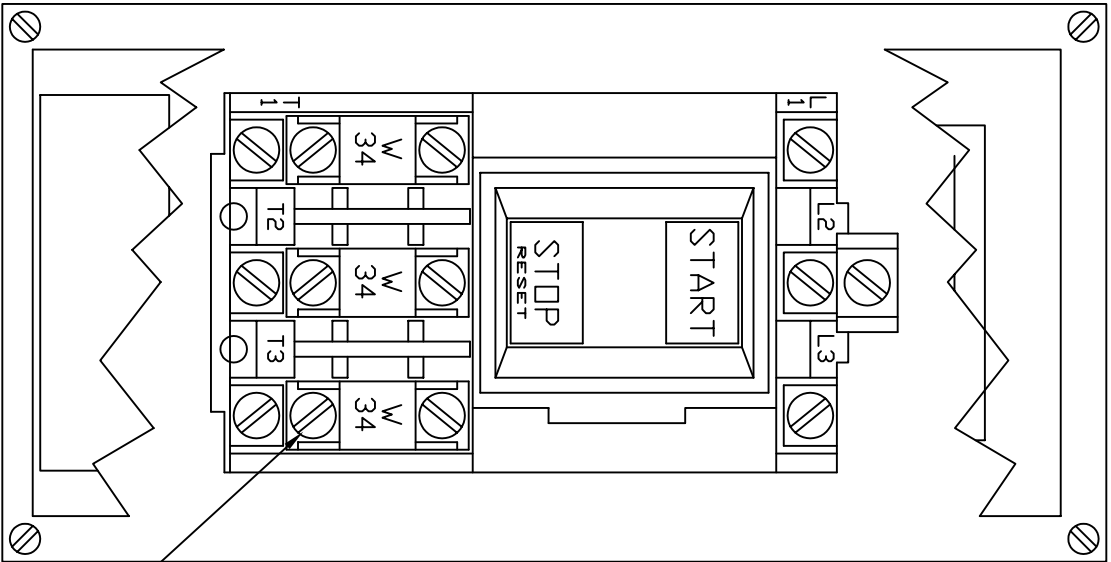
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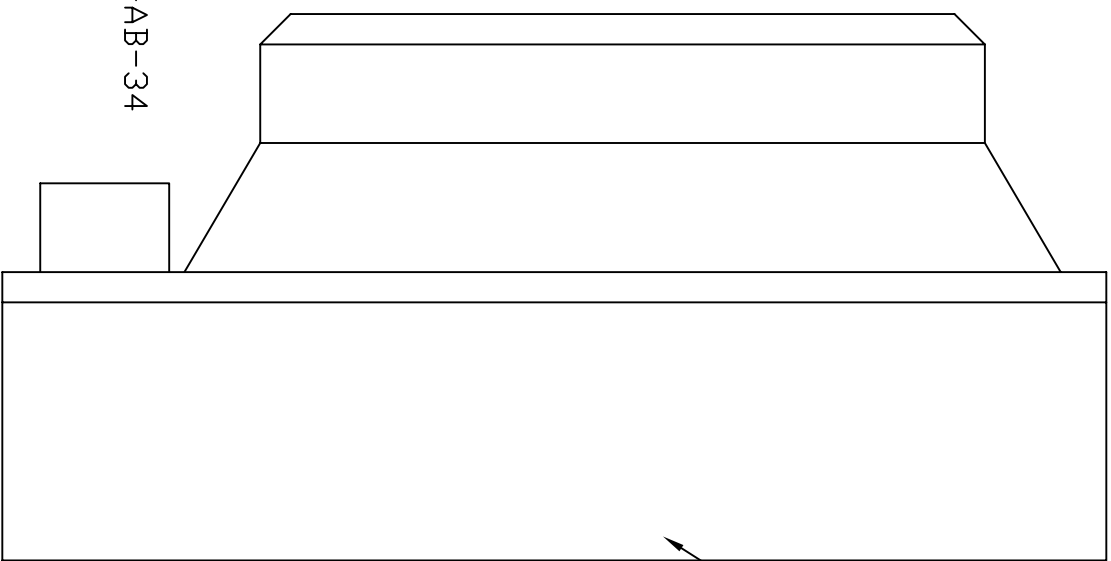


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| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION |
| DECIMAL (3 PLC) | RT 296, SOUTH CANAAN, PA. |
| FRACTIONAL | TITLE: ELECTRICAL ASSEMBLY |
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| | MATERIAL: N/A |
| | DATE: 11/03/99 |
| | SCALE: 1 : 1 |
| | DESIGNED: MENTA |
| | DRAWN: WM |
| | APPRVD: -- |
| | ANG. - 1/2° |

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A106-AB-34

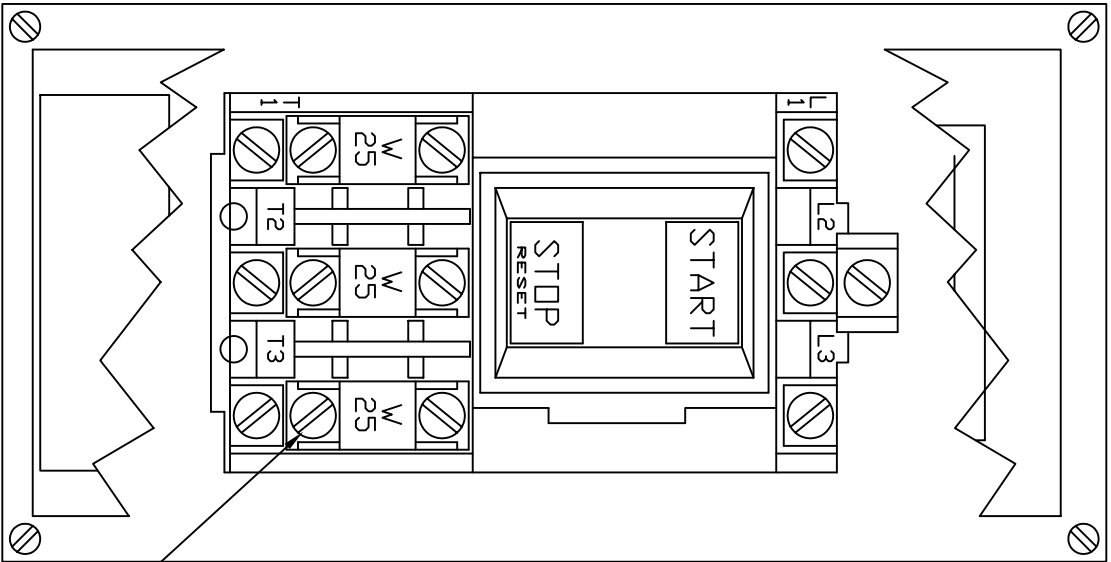


A106-AB-12-N4

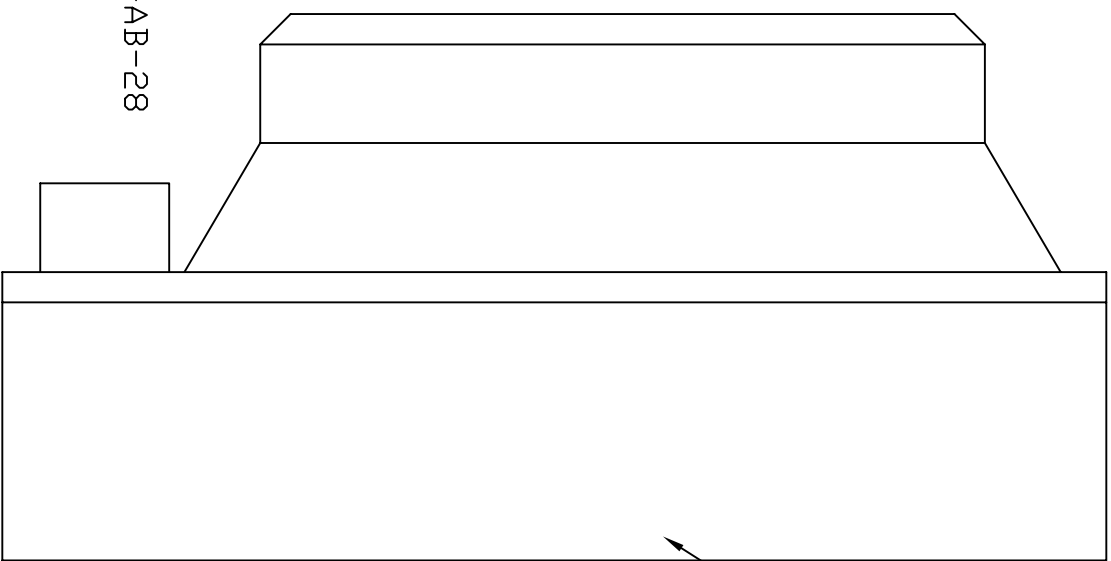
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| TOLERANCES EXCEPT AS NOTED | THE LOYESHAW CORPORATION | | |
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| +/- .005 | TITLE: | ELECTRICAL ASSEMBLY | |
| FRACTIONAL | DWG. NO. ED840 | LDU - 220/3/60 - NEMA 4 | |
| +/- 1/64 | MATERIAL: N/A | SCALE: 1 : 1 | DATE: 11/03/99 |
| ANG. - 1/2° | DESIGNED: MENTA | DRAWN: WM | APPRVD: -- |

| REVISION RECORD | | | |
|-----------------|-------------|------|-----------|
| REV | DESCRIPTION | DATE | ATH DR CK |
| | | | |



A106-AB-28



A106-AB-12-N4

* COVER CUT AWAY FOR CLARITY

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| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION |
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| +/- 1/64 | DWG. NO. ED841 |
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| | DESIGNED: MENTA |
| | DRAWN: WM |
| | SCALE: 1 : 1 |
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