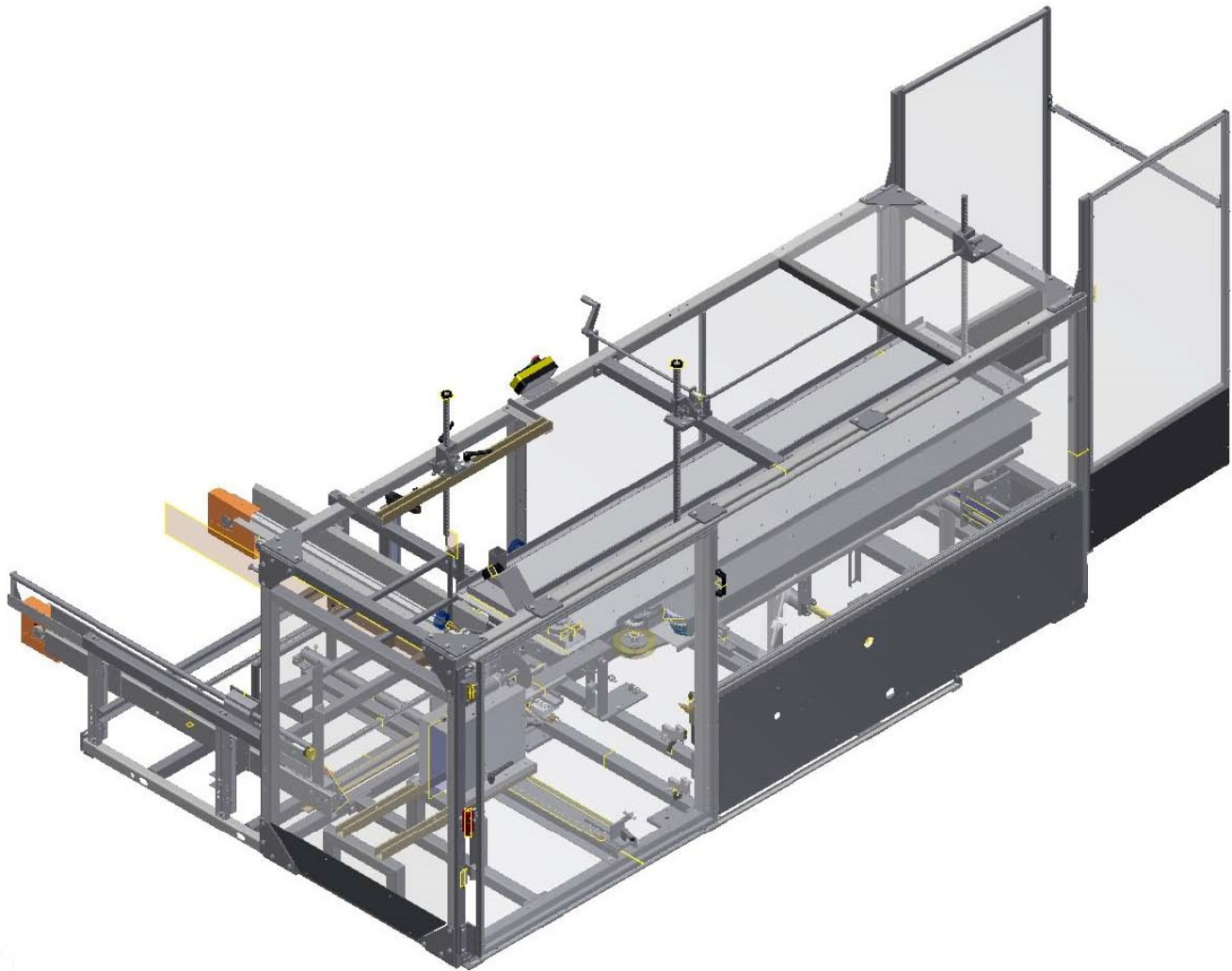


LOVESHAW

Little David™ Case Erector

CF50T / XL Case Erector



Version: D

Operator's Manual

LOVESHAW

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GENERAL SAFETY PRECAUTIONS

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

1. THIS MACHINE IS EQUIPPED WITH MOVING PARTS. DO NOT PLACE HANDS IN THE MACHINE WHEN PARTS ARE MOVING.
2. ALWAYS USE A ROLLER-TYPE EXIT CONVEYOR, AND ALWAYS REMOVE BOXES AFTER THEY CLEAR THE EXIT END OF THE MACHINE.
3. USE CAUTION WHEN NEAR CARTRIDGE KNIFE OR WHEN THREADING TAPE. KNIFE IS VERY SHARP, AUTOMATICALLY OPERATED AND LINKED TO THE WIPE-DOWN ROLLERS.
4. 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.
5. DO NOT BYPASS ANY DESIGNED-IN SAFETY FEATURES SUCH AS INTERLOCKS, GUARDS OR SHIELDS.
6. DO NOT PLACE HANDS OR BODY INSIDE CONFINES OF MACHINE WHILE IT IS RUNNING.
7. ALWAYS DISCONNECT POWER SOURCE AND AIR SUPPLY (IF APPLICABLE) BEFORE SERVICING MACHINE.
8. SAFETY GLASSES SHOULD BE WORN WHEN WORKING ON OR AROUND MACHINE.

MACHINE SPECIFICATIONS

| | |
|-----------------------------------|--|
| MACHINE MODEL: | CF50T/XL |
| STANDARD DISCHARGE HEIGHT: | 23" |
| AMERICAN ELECTRICAL REQUIREMENTS: | |
| PRIMARY VOLTAGE: | 110 VOLTS, 1 PHASE, 60 HERTZ |
| CONTROL VOLTAGE: | 110 VOLTS, 1 PHASE, 60 HERTZ |
| EUROPEAN ELECTRICAL REQUIREMENTS: | |
| PRIMARY VOLTAGE: | 220 VOLTS, 1 PHASE, 50 HERTZ |
| CONTROL VOLTAGE: | 220 VOLTS, 1 PHASE, 50 HERTZ |
| CASE CAPACITY: | |
| LENGTH: | 7" (178mm) MIN. TO 24" (610mm) MAX. |
| WIDTH: | 6" (152mm) MIN. TO 20" (406mm) MAX. |
| HEIGHT: | 4" (102mm) MIN. TO 20" (508mm) MAX. |
| LUG DRIVE SPEED: | 85 FEET/MIN. |
| MACHINE SPEED: | STANDARD: 10 CASES/MIN. |
| CLOSURE MATERIAL: | 2" OR 3" PRESSURE SENSITIVE TAPE |
| MAXIMUM ROLL DIAMETER: | 15" |
| AIR REQUIREMENTS: | 15 C.F.M. AT 14 CASES PER MIN. AT 80 PSI |
| MACHINE OPTIONS: | <ol style="list-style-type: none">1. LOW TAPE ALARM2. LOW HOPPER ALARM3. CASTERS4. LEVELING PADS5. JAM DETECTION |

INSTALLATION PROCEDURE

1. EXERCISE CARE WHEN HANDLING THIS MACHINE. A SUDDEN JOLT OR JAR MAY CAUSE SERIOUS DAMAGE.
2. DO NOT REMOVE THE SHIPPING SKID UNTIL MACHINE HAS BEEN MOVED TO A POINT OF INSTALLATION. THE SKID IS DESIGNED FOR EASY AND SAFE HANDLING OF YOUR MACHINE.
3. RAISE OR LOWER THE MACHINE TO THE DESIRED OPERATING ELEVATION USING THE LEVELING JACK SCREWS AND LEVEL THE MACHINE.
4. A GREAT DEAL OF TROUBLE MAY BE CAUSED IF THE ELECTRICAL CURRENT IS SUPPLIED BY LINES WHICH ARE NOT HEAVY ENOUGH. IF THIS OCCURS, THE MOTOR AND CONTROLS CANNOT OPERATE AT THEIR FULL CAPACITY AND OVER HEATING MAY RESULT. A SIMILAR CONDITION WILL EXIST IF POOR ELECTRICAL CONNECTIONS ARE MADE. IT'S THEREFORE WORTHWHILE TO MAKE SURE THAT EVERYTHING IS ELECTRICALLY CORRECT.
5. ELECTRICAL POLARITY MUST BE SUPPLIED TO THE MACHINE EXACTLY AS SHOWN ON THE ELECTRICAL DIAGRAM. POWER MUST BE SUPPLIED TO (L1) SIDE OF THE CIRCUIT AND THE (L2) SIDE WILL BE NEUTRAL. IF THIS IS NOT CORRECT, THE CIRCUIT PROTECTORS (ECP 1) WILL TRIP OUT BECAUSE OF A SHORT CIRCUIT.
6. THE COMPRESSED AIR SUPPLIED TO THE MACHINE SHOULD BE CLEAN AND DRY, AS THE FILTER IS ONLY MEANT TO REMOVE MINOR PARTICLES OR SLIGHT AMOUNTS OF MOISTURE. DIRT OR MOISTURE IN THE AIR LINE CAN CAUSE THE ERRATIC OPERATION OF CONTROL VALVES.
7. CONNECT THE AIR SUPPLY TO AN AIR SOURCE WITH A MINIMUM LINE PRESSURE OF 80 PSI.
8. BEFORE STARTING THE MACHINE, LOAD THE TAPE CARTRIDGE WITH TAPE AND THREAD THE TAPE. SEE THREADING DIAGRAM ON TAPE UNIT.
9. FOR PROPER START-UP PROCEDURE, SEE THE START-UP PROCEDURE SECTION OF THIS MANUAL.
10. SAFETY GLASSES SHOULD BE WORN WHEN WORKING ON OR AROUND MACHINE.

SEQUENCE OF OPERATION

INITIAL CONDITIONS:

- A. MAIN AIR VALVE TURNED ON.
- B. POWER CORD CONNECTED.
- C. EMERGENCY STOP BUTTON IS PULLED OUT.
- D. SELECTOR SWITCH IS SET TO "AUTO".
- E. HOPPER HAS BLANKS PROPERLY LOADED.

GENERAL SEQUENCE:

1. PRESS THE "START" PUSH-BUTTON (PB1). MOTOR CONTACTOR (K1) IS ENERGIZED AND THE MOTOR STARTS.
2. NORMALLY OPEN CONTACT (K1) CLOSSES, PROGRAMMABLE CONTROLLER IS ENERGIZED, AND THE SEQUENCE STARTS.
3. THE CASE PUSHER (SOL 4) AND VACUUM TROLLEY (SOL 5) GO TO HOME POSITION.
4. AS SOON AS PROXIMITY SWITCHES 1 (TROLLEY) AND 3 (PUSHER) ARE ACTIVATED, AND PHOTOCCELL 3 (HOPPER) IS BLOCKED, OUTPUT 2 ENERGIZES THE VACUUM VALVE (SOL 2) AND THE VACUUM TROLLEY (OUTPUT 1) MOVES FORWARD TO PICK UP A BLANK.
5. AT THE TROLLEY EXTENDED POSITION, PROXIMITY SWITCH 2 ACTIVATES (INPUT 1), ENERGIZING TIMER 4. AFTER A PRE-SET TIME, TIMER 4 TIMES OUT, DE-ENERGIZING THE VACUUM TROLLEY SOLENOID (OUTPUT 1).
6. THE VACUUM CUP TROLLEY THEN RETURNS TO THE HOME POSITION, ACTIVATING PROXIMITY SWITCH 1 (INPUT 0), ENERGIZING THE MINOR FLAP FOLDER (SOL 6, OUTPUT 3).
7. PROXIMITY SWITCH 1 ENERGIZES TIMER 3. AFTER A PRESET TIME, TIMER 3 TIMES OUT DE-ENERGIZING THE VACUUM VALVE (SOL 2, OUTPUT 2). THE FORMED CASE IS RELEASED, READY FOR TRANSFER.
8. AS THE CHAIN LUG IS DETECTED BY PHOTOCCELL 1 (PC1), THE INTERNAL RELAY 1004 TURNS ON THE CASE PUSHER VALVE (SOL4, OUTPUT 5). THE FORMED CASE IS PUSHED INTO THE FEED ROLLERS, AND THEN ACCELERATED INTO THE CHAIN LUG DRIVE.

9. AT THE EXTENDED POSITION OF THE CASE PUSHER, PROXIMITY SWITCH 4 IS ACTIVATED, ENERGIZING THE INTERNAL RELAY 1003. THIS RELAY THEN DE-ENERGIZES THE CASE PUSHER VALVE (SOL4, OUTPUT 5), SENDING THE CASE PUSHER TO THE HOME POSITION.
10. AS OUTPUT 5 IS DE-ENERGIZED, TIMER 6 STARTS TIMING. WHEN TIMER 6 TIMES OUT, THE MINOR FLAP FOLDER (SOL 6, OUTPUT 3) IS DE-ACTIVATED. THE MACHINE IS NOW READY FOR THE NEXT CYCLE.
11. REPEAT SEQUENCE STARTING AT GENERAL SEQUENCE #4.

NOTE 1:

THE CASE-ON-DEMAND PHOTOCCELL (PC2) IS LOCATED DOWNSTREAM FROM THE MACHINE. IF THIS SWITCH IS BLOCKED, INPUT 8 IS ENERGIZED AND THE CASE PUSHER WILL NOT PUSH ANYMORE CASES INTO THE LUG DRIVE UNTIL THE PHOTOCCELL IS CLEARED.

NOTE 2:

GS1, GS2, OR GS3 OPEN IF THEIR RESPECTIVE SAFETY DOOR IS OPENED. THE MOTOR THEN STOPS AND THE MAIN AIR SUPPLY IS DUMPED (SOL1, OUTPUT 0). ALL THE AIR CYLINDERS WILL LOOSE AIR PRESSURE. THE SAFETY DOORS MUST BE CLOSED TO RE-START THE MACHINE.

CONTROL DESCRIPTION

| DEVICE | DESCRIPTION | PART NUMBER |
|---------------|--|-------------|
| GS1, GS2, GS3 | SAFETY GATE SWITCHES | A195SG-TM1 |
| PROX1 | PROXIMITY SWITCH ACTIVATES WHEN TROLLEY IS HOME | 302575 |
| PROX2 | PROXIMITY SWITCH ACTIVATES WHEN TROLLEY IS PICKING BOX | N597 |
| PROX3 | PROXIMITY SWITCH ACTIVATES WHEN CASE PUSHER IS RETRACTED | N597 |
| PROX4 | PROXIMITY SWITCH ACTIVATES WHEN CASE PUSHER IS EXTENDED | N597 |
| PROX5 | OPTIONAL – LOW HOPPER | |
| PROX6 | OPTIONAL – CASE JAM (USED W/ PC5) | |
| PC1 | CHAIN LUG DETECTOR | 303526 |
| PC2 | CASE DEMAND | 303528 |
| PC3 | HOPPER DEMAND | 303526 |
| PC4 | OPTIONAL – LOW TAPE DETECTION | |
| PC5 | OPTIONAL – CASE JAM (USED W/ PROX6) | |
| PC6 | OPTIONAL – NO TAPE DETECTION | |
| PC7 | OPTIONAL – CASE AT TAPE INSPECTION | |
| SOL 1 | MAIN AIR SLOW START/DUMP VALVE | N402-100 |
| SOL 2 | CONTROLS VACUUM ON / OFF | N402-99 |
| SOL 3 | CONTROLS BLANK HOPPER DRIVE | N402-97 |
| SOL 4 | CONTROLS CASE PUSHER | N402-97 |
| SOL 5 | CONTROLS TROLLEY | N402-97 |
| SOL 6 | CONTROLS FLAP FOLDERS | N402-97 |
| PB1 | CYCLE START BUTTON | |
| PB2 | E-STOP BUTTON | |
| PB3 | STEP MODE PUSH BUTTON | |
| SS1 | MANUAL/AUTO MODE SWITCH | |

TOP FINGER:

SET THE HORIZONTAL POSITION OF THE FINGER SO THAT IT LIES IN THE CENTER OF THE SLOT. LOOSEN THE RATCHET HANDLE (ITEM # 23) AND SLIDE THE ASSEMBLY BY HAND THEN RE-TIGHTEN THE RATCHET HANDLE. SET THE VERTICAL POSITION OF THE FINGER SO THAT APPROXIMATELY 1/4" OF THE FINGER TIP IS IN THE SLOT. VERY WIDE BOXES MAY REQUIRE MORE FINGER AND VERY STIFF BOXES MAY REQUIRE LESS. MOVE THE FINGER UP OR DOWN BY LOOSENING THE RATCHET HANDLE WHILE HOLDING THE GEAR KNOB (ITEM # 13). TURN THE GEAR KNOB TO ACHIEVE THE PROPER SETTING AND RE-TIGHTEN THE RATCHET HANDLE.

BOTTOM FINGER:

THE BOTTOM FINGER REQUIRES THE SAME SET-UP AS THE TOP FINGER. HOWEVER, ONCE THE VERTICAL POSITION IS SET INITIALLY, IT SHOULD NOT NEED ADJUSTMENT FOR MOST OTHER BOXES BECAUSE THE BOTTOM OF THE CASE IS ALWAYS THE SAME DISTANCE FROM THE FINGER. THE HORIZONTAL POSITION IS SET BY LOOSENING THE CLAMP KNOB AND SLIDING THE FINGER BY HAND. RE-TIGHTEN THE CLAMP KNOB.

4. CASE PUSHER:

SET POINT: LENGTH OF ERECTED BOX

THE CASE PUSHER/REAR FLAP FOLDER ASSEMBLY WILL BE SET SO THAT THE PUSHER PLATE (ITEM # 4) IS APPROXIMATELY 1/4" AWAY FROM THE REAR MINOR PANEL OF THE FORMED CARTON, AS IT SITS ERECTED ON THE BOTTOM FLAP FOLDERS. TO ACCOMPLISH THIS, LOOSEN THE (2) RATCHET HANDLES (ITEM # 22) AND SLIDE THE ASSEMBLY. ALIGN THE REAR EDGE OF THE CASE PUSHER FRAME TO THE SCALE EQUAL TO THE LENGTH OF THE CARTON. TIGHTEN RATCHET HANDLES BEFORE STARTING MACHINE.

EXAMPLE: IF THE CASE YOU ARE RUNNING IS 16" LONG, YOU WOULD ALIGN THE FRAME WITH 16" ON THE SCALE.

5. VACUUM TREE:

SET POINT: CENTER OF MAJOR PANEL

CASE LENGTH ADJUSTMENT:

THE VACUUM TREE SHOULD BE POSITIONED HORIZONTALLY IN THE CENTER OF THE MAJOR PANEL (LENGTH OF THE BOX). TO SET, PUSH THE TROLLEY TOWARD THE HOPPER SO THAT IT IS NEAR THE BLANK. LOOSEN RATCHET HANDLE (ITEM # 39) AND SLIDE THE TREE TO THE MIDDLE OF THE MAJOR PANEL. RE-TIGHTEN RATCHET HANDLE.

VACUUM CUP POSITION:

THE VACUUM CUPS SHOULD BE SET ON EACH CORNER OF THE MAJOR PANEL TO PROVIDE THE BEST SUPPORT. TRY NOT TO HAVE ANY CUPS LANDING OVER A SCORE LINE ON THE

BLANK. THE CUPS SHOULD BE OFFSET FROM THE EDGES BY ABOUT 1/4". WHENEVER POSSIBLE USE ALL FOUR CUPS TO RUN THE BOXES. TWO CUPS MAY BE USED IF THE MAJOR PANEL IS TOO SMALL. FOR TALL BOXES (OVER 10") THE VACUUM POST EXTENSION MAY BE USED. TO SET, LOOSEN THE CENTER KNOBS FOR VERTICAL POSITION. LOOSEN

THE OUTER KNOBS TO ALLOW THE ARMS TO SWEEP THROUGH THEIR ARC. THIS PROVIDES BOTH WIDTH AND HEIGHT ADJUSTMENT. BE SURE TO TIGHTEN ALL KNOBS WHEN FINISHED. TO REMOVE A SET OF CUPS (2), DISCONNECT THE HOSES AT THE QUICK RELEASE COUPLING, LOOSEN THE CENTER KNOB AND SLIDE THE BAR UP AND OFF THE POST.

IMPORTANT!!!! BEFORE STARTING MACHINE, PUSH THE TROLLEY BY HAND BACK AND FORTH THROUGH THE FORMING AREA TO CHECK FOR INTERFERENCE WITH THE FLAP FOLDERS.

6. TROLLEY STOP:

SET POINT: 1/2 THE WIDTH OF THE ERECTED BOX

THE TROLLEY STOP SETTING IS BASED ON THE WIDTH OF THE BOX. IT ALIGNS THE ERECTED BOX WITH THE LUG DRIVE SYSTEM. THE STOP WILL BE SET TO HALF THE WIDTH OF THE BOX USING THE SCALE PROVIDED AND THE REAR EDGE OF THE STOP.

EXAMPLE: IF THE CASE YOU ARE RUNNING IS 10" WIDE, YOU WOULD SET THE STOP TO 5" ON THE SCALE.

7. LUG DRIVE WIDTH ADJUSTMENT:

SET POINT: 1/2 THE WIDTH OF THE ERECTED BOX

TO SET, TURN THE HANDWHEEL ON THE OPERATORS SIDE OF THE MACHINE. TURNING THE HAND WHEEL CLOCKWISE WILL OPEN THE DRIVE, COUNTER-CLOCKWISE WILL CLOSE UP THE DRIVE. OPEN THE SLIDING GATES AND USE THE SCALE TO GET AN APPROXIMATE SET POINT. ALIGN THE EDGE OF THE DRIVE ANGLE WITH THE SCALE USING 1/2 THE WIDTH OF THE BOX AS THE PARAMETER.

EXAMPLE: IF THE CASE YOU ARE RUNNING IS 10" WIDE, YOU WOULD ALIGN THE EDGE WITH 5" ON THE SCALE. TO CHECK, PUT A FULLY FORMED CARTON INTO THE DRIVE SECTION AT DISCHARGE END. THERE SHOULD BE APPROXIMATELY 1/8" CLEARANCE ON EACH SIDE OF CARTON.

8. TOP SLED ADJUSTMENT:

SET POINT: HEIGHT OF ERECTED BOX + 1/16"

TO SET, PUT A FULLY FORMED CARTON INTO THE DRIVE SECTION AT THE DISCHARGE END. USE THE CRANK HANDLE LOCATED NEAR THE OPERATOR'S STATION TO RAISE OR LOWER THE SLED UNTIL IT CONTACTS THE TOP OF THE BOX FLAPS. THE BOX SHOULD HAVE

LIGHT PRESSURE ON IT, NOT BINDING. ALIGN THE SCALE TO THE TOP OF THE BRACKET AT A MEASUREMENT EQUAL TO THE HEIGHT OF THE BOX PLUS 1/2 THE WIDTH (IN INCHES).

OTHER SET-UP CONSIDERATIONS:

- WHEN HANDLING SMALL CASES, ONLY TWO VACUUM CUPS WILL BE REQUIRED. REMOVE ONE OF THE VACUUM CUP BARS ALONG WITH THE VACUUM CUPS. DISCONNECT THE TWO HOSES USING THE QUICK RELEASE FITTINGS WHICH WILL AUTOMATICALLY SEAL OFF THE VACUUM SYSTEM.
- WHEN RUNNING A TALL BOX, USE THE VACUUM POST EXTENSION SO THE CUPS WILL REACH THE UPPER CORNERS OF THE MAJOR PANEL.
- TWO SETS OF FLAP FOLDING TOOLS ARE PROVIDED. THE SMALLER SET SHOULD BE USED FOR BOXES UP TO 12" IN LENGTH. THE LARGER SET SHOULD BE USED FOR BOXES LONGER THAN 12" IN LENGTH.
- TWO PUSHER DISKS ARE PROVIDED. THE SMALLER DISK SHOULD BE USED FOR BOXES UP TO 8" IN WIDTH. THE LARGER DISK SHOULD BE USED FOR BOXES OVER 8" WIDE.
- THE FORMING BAR, (ALONG WITH THE FINGERS) HELPS OPEN THE BLANK AS IT IS PULLED INTO THE FORMING AREA. IT SHOULD STRIKE THE CENTER OF THE MINOR PANEL AND CAUSE A GRADUAL OPENING. IT IS ADJUSTABLE IN TWO DIRECTIONS, TOWARD THE HOPPER AND TOWARD THE LUG DRIVE. FOR MOST BOXES, NO ADJUSTMENT WILL BE NECESSARY. IF YOU ARE HAVING DIFFICULTY OPENING A BOX, YOU CAN TRY ADJUSTING HOW SOON AND WHERE THE BAR STRIKES THE MINOR PANEL. MOST BOXES (PROVIDED THEY MEET THE CORRUGATED SPEC), WILL RUN SATISFACTORILY BY ADJUSTING THE FINGER DEPTH AND FORMING BAR POSITION.
- **IMPORTANT!!!!!!:** MAKE SURE TO TIGHTEN ALL FASTENERS AFTER CHANGING TOOLS OR MAKING ADJUSTMENTS BEFORE STARTING MACHINE.

START UP PROCEDURE

THIS MACHINE IS TO BE USED, AS DESCRIBED, BY PROPERLY TRAINED PERSONNEL.

WARNING:

NEVER.....START THE MACHINE UNTIL ALL PERSONNEL ARE CLEAR.

NEVER.....LUBRICATE OR REPAIR THE MACHINE WHILE IT IS RUNNING.

NEVER.....PUT YOUR HANDS IN THE MACHINE WHILE IT IS RUNNING.

NEVER.....ALLOW ANY PART OF YOUR BODY TO COME IN CONTACT WITH MOVING PARTS OF THE MACHINE WHILE IT IS RUNNING.

1. CLOSE THE SAFETY DOORS.
2. LOAD BLANKS INTO THE HOPPER.
3. RETURN BOX SUPPORT ANGLE TO THE TOP OF THE SLED. MAKE SURE THE ANGLE IS NOT HANGING OVER WHERE IT COULD GET CAUGHT BY A BLANK.
4. PULL OUT THE E-STOP BUTTON.
5. SET SELECTOR SWITCH TO MANUAL.
6. PRESS THE START BUTTON (LUG DRIVES SHOULD START).
7. PRESS THE STEP BUTTON TO ADVANCE THE MACHINE THROUGH A CYCLE. CHECK EACH STAGE TO MAKE SURE SET-UP IS CORRECT.
8. INSPECT INITIAL BOX FOR FORMING AND TAPING QUALITY.
9. SET SELECTOR SWITCH TO AUTO. MACHINE WILL START PROCESSING BOXES AUTOMATICALLY.

IF MACHINE DOES NOT START, CHECK THE FOLLOWING:

- SAFETY GATES ARE CLOSED.
- HOPPER DEMAND PHOTO EYE IS BLOCKED.
(ORANGE INDICATOR SHOULD BE ON)
- DOWNSTREAM CASE-ON-DEMAND EYE IS NOT BLOCKED.
(RED FLASHING INDICATOR SHOULD NOT BE ON)

SHUT DOWN PROCEDURE

EMERGENCY SHUT DOWN.

TO SHUT THE MACHINE DOWN IN AN EMERGENCY, PRESS THE E-STOP BUTTON OR OPEN A SAFETY GATE.

NOTE: YOU WILL HAVE TO CLEAR ANY CASES THAT WERE BEING FORMED BY THE MACHINE BEFORE YOU CAN RESTART THE MACHINE.

NORMAL SHUT DOWN.

1. LET THE MACHINE FINISH THE CYCLE OF CASES BEING FORMED.
2. PRESS THE E-STOP BUTTON.

MAINTENANCE SCHEDULE

TURN MACHINE OFF BEFORE PERFORMING ANY MAINTENANCE.

ELECTRICAL

CHECK MONTHLY:

1. CHECK OVER-CURRENT RELAY SETTINGS. TIME (ΔT) MUST BE SET TO 0. CURRENT (ΔI) SET JUST ABOVE THRESHOLD OF RED LIGHT COMING ON.
2. INSPECT FOR LOOSE WIRES THROUGHOUT THE MACHINE AND INSIDE THE PANEL BOX.
2. INSPECT FOR MOISTURE INSIDE THE PANEL BOX.
3. CLEAN LENS ON PHOTOCELLS.

PNEUMATIC

CHECK DAILY:

1. CHECK THAT THE REGULATOR IS SET TO 80 PSI.
2. CHECK FLOW CONTROL SETTINGS TO ENSURE CYLINDERS ARE NOT RUNNING HARDER THAN NECESSARY. IF THE CYLINDER SPEED IS NOT METERED PROPERLY, EXCESSIVE NOISE AND PREMATURE WEAR OF THE COMPONENTS WILL RESULT.

CHECK WEEKLY:

1. INSPECT AIR FILTER AND DRAIN IF NECESSARY. WATER IN THE AIR LINES WILL CAUSE THE MACHINE TO RUN ERRATICALLY AND WILL EVENTUALLY CAUSE THE SOLENOID VALVES TO FAIL.
2. INSPECT AND CLEAR THE VACUUM GENERATOR. CHECK THAT VACUUM LINES ARE IN GOOD CONDITION AND FREE FROM DEBRIS.
3. INSPECT THE COMPONENTS AND THE AIR LINES FOR LEAKS. LOSS OF AIR MEANS LOSS OF SPEED AND EFFICIENCY.
4. INSPECT THE VACUUM CUPS FOR CRACKS OR TEARS.

CHECK MONTHLY:

1. INSPECT AIR CYLINDERS FOR BUSHING AND BUMPER WEAR.
2. INSPECT THE VACUUM HOSES FOR CRACKS OR CRIMPS.

MECHANICAL

CHECK WEEKLY:

1. INSPECT THE BOTTOM FLAP FOLDER ASSEMBLIES. CHECK FOR BEARING WEAR. LUBRICATE PIVOT BUSHINGS WITH A GREASE GUN AND A *MULTI-PURPOSE LITHIUM GREASE*. CHECK THE CLEVIS FOR WEAR AND LUBRICATE WITH A *TEFLON BASED SPRAY SUCH AS DUPONT TEFLON LUBRICANT WITH MOLY*. CHECK AIR CYLINDER MOUNTINGS FOR TIGHTNESS.
2. INSPECT ALL LEAD SCREWS AND CHAINS THROUGHOUT THE ENTIRE MACHINE. CLEAN AND LUBRICATE ALL SCREWS AND CHAINS WITH A TEFLON LUBRICANT.
3. INSPECT THE LUG CHAIN DRIVES. ADJUST CHAIN TENSION AND LUBRICATE WITH A TEFLON LUBRICANT AS NECESSARY. CHECK FOR CHAIN AND SPROCKET WEAR. CHECK SPROCKET ALIGNMENT. TIGHTEN ALL FASTENERS.
4. INSPECT THE MOTOR/REDUCER ASSEMBLY. CHECK OIL LEVEL IN REDUCER BY REMOVING THE BREATHER AND INSERTING A LONG THIN PIECE OF MATERIAL (A ZIP-TIE WORKS WELL) UNTIL IT TOUCHES THE FLOOR OF THE BOX. WITHDRAW THE PIECE AND CHECK THE DEPTH OF THE OIL. IT SHOULD BE APPROXIMATELY 1.25" DEEP. IF NECESSARY, ADD 90 WT. GEAR OIL SUCH AS *MOBILGEAR 600 XP 150*. ADJUST AND LUBRICATE THE DRIVE CHAIN WITH A TEFLON LUBRICANT.
NOTE: RIGHT ANGLE GEAR BOXES (LUG DRIVE) ARE PERMANENTLY LUBRICATED AND MAINTENANCE FREE.
5. CHECK TAPE CARTRIDGE KNIFE FOR DEBRIS. CLEAN WITH AN OILY RAG. NEVER USE SHARP OBJECTS TO CLEAN KNIFE.

HOW TO ORDER SPARE PARTS

FOR GENERAL INFORMATION AND ORDERING PARTS CONTACT:
THE LOVESHAW CORPORATION
2206 EASTON TURNPIKE, BOX 83
SOUTH CANAAN, PA.
18459

TEL: 1-800-572-3434

PLEASE HAVE YOUR MACHINE MODEL AND SERIAL NUMBER WHEN CALLING FOR PARTS OR SERVICE. THEY CAN BE FOUND ON THE LABEL LOCATED ON THE OUTSIDE OF THE ELECTRICAL PANEL BOX.

WHEN CALLING LOVESHAW FOR PARTS:

- A. GIVE THE MACHINE MODEL AND SERIAL NUMBER.
- B. GIVE THE ASSEMBLY PART NUMBER AND DESCRIPTION.
(I.E., .TSACF50/A - TOP SLED ASSEMBLY)
- C. GIVE ITEM NUMBER, PART NUMBER, AND DESCRIPTION.
(I.E., ITEM # 7, 204330, 1/2" I.D. X 5/8" O.D. FLANGE BUSHING)

BY FOLLOWING THE PROCEDURE DESCRIBED ABOVE, YOU WILL ASSIST US IN SUPPLYING YOU WITH CORRECT PARTS FOR YOUR MACHINE AND ELIMINATE ANY MISUNDERSTANDING BETWEEN YOUR PURCHASING AGENT AND OUR PARTS DEPARTMENT.

SEE THE LIST OF SUGGESTED SPARE PARTS ON THE NEXT PAGE, BY STOCKING THESE PARTS, YOU WILL ELIMINATE EXCESSIVE DOWN TIME WAITING FOR SHIPMENT OF PARTS.

RECOMMENDED SPARE PARTS KIT MODEL CF50T/XL

| PART # | QTY | DESCRIPTION |
|------------------|-----|-----------------------------------|
| .CAC60 (*) | 1 | TAPE CARTRIDGE 2" |
| PSC11B60-4 (*) | 4 | KNIFE BLADE 2" |
| .CAC61 (**) | 1 | TAPE CARTRIDGE 3" |
| PS4117A60-4 (**) | 4 | KNIFE BLADE 3" |
| CF50-0103-4 | 2 | WHEEL, POLYURETHANE |
| 203214 | 2 | THRUST WASHER |
| SPR-1037 | 2 | SPRING, EXTENSION |
| 204143 | 2 | LINK, CHAIN |
| HC202 | 2 | MASTER LINK |
| HC302 | 2 | HALF LINK |
| 200287 | 1 | BUMPER |
| N401-245 | 1 | CYLINDER, FLAP FOLDER |
| N531 | 1 | ROD CLEVIS |
| 202822-2 | 1 | SPRING, HOPPER BACKSTOP |
| N576 | 1 | VACUUM GENERATOR |
| N402-99 | 1 | VALVE, VACUUM |
| N402-97 | 2 | VALVE, STACK (SINGLE REPLACEMENT) |
| N596 | 1 | SWITCH BAND |
| N597 | 2 | REED SWITCH |
| N590 | 1 | FLOW CONTROL |
| N600 | 1 | FILTER ELEMENT |
| N400-46 | 1 | FLOW CONTROL, QUICK EXHAUST |
| SHK-007 | 1 | SHOCK ABSORBER |
| N594 | 1 | ROD CLEVIS, TROLLEY CYLINDER |
| 203075 | 1 | ROD EYE BEARING |
| 201816 | 2 | KNOB, VACUUM ARM |
| 203220A | 4 | VACUUM CUP (BLUE) |
| SPR-1073 | 4 | SPRING |
| 202146 | 1 | KNOB |
| 202669 | 1 | RATCHET HANDLE, LOCKING |
| 204823 | 1 | RATCHET HANDLE, LIFTING |
| 203354 | 2 | BRUSH HOPPER 10" |
| A125SB-10-R | 1 | FUSE, 10 AMP |
| A125SB-2/10-312 | 1 | FUSE, 2/10 AMP |
| 303526 | 1 | PHOTOELECTRIC SENSOR |
| 302575 | 1 | PROXIMITY SWITCH |
| A195SG-TM1 | 1 | SWITCH, SAFETY GATE |
| A195SG-TM1 KEY | 1 | SWITCH KEY, SAFETY GATE |
| N401-242/R | 1 | SEAL KIT, 40 mm CYLINDER |
| N401-241/R | 1 | SEAL KIT, 50 mm CYLINDER |

(*) THESE COMPONENTS ARE FOR 2" MACHINE, (**) THESE COMPONENTS ARE FOR 3" MACHINE.

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TROUBLE SHOOTING

IF THE MACHINE WILL NOT START CYCLING OR STOPS IN MID-CYCLE. IT IS LIKELY A SENSOR OR SWITCH IS NOT IN THE CORRECT STATE. REFER TO THE "SEQUENCE OF OPERATION" SECTION AND CHECK EACH COMPONENT.

1. CHECK THE SAFETY GATES TO ENSURE THAT THEY ARE CLOSED.
2. CHECK THAT PROXIMITY SWITCHES AND PHOTOCELLS ARE BEING TRIPPED.
3. INSPECT WIRING FOR LOOSE CONNECTIONS.
4. INSPECT AIR LINES FOR LOOSE CONNECTIONS OR LEAKS.

PROBLEM

SOLUTION

1. VACUUM SYSTEM IS NOT OPERATIONAL.

A. SOLENOID VALVE MAY BE DEFECTIVE. PUSH MANUAL OVERRIDE TO SEE IF VALVE FUNCTIONS. IF SO, CHECK SOLENOID FOR CONTINUITY. REPLACE IF DEFECTIVE.

B. SPOOL IN VALVE MAY BE STUCK. DISASSEMBLE VALVE, CLEAN THOROUGHLY, REPLACE DEFECTIVE PARTS. REASSEMBLE.

C. SYSTEM MAY BE BLOCKED. CHECK SUPPLY LINES AND GENERATOR FOR BLOCKAGE. REMOVE OR REPLACE PART IF NECESSARY.

2. VACUUM TROLLEY WILL NOT MOVE TOWARD HOPPER TO PICK UP BLANK. (CYLINDER IN RETRACTED POSITION).

A. SOLENOID VALVE MAY BE DEFECTIVE. PUSH MANUAL OVERRIDE TO SEE IF VALVE FUNCTIONS. IF SO, CHECK SOLENOID FOR CONTINUITY. REPLACE IF DEFECTIVE.

B. SPOOL IN VALVE MAY BE STUCK. DISASSEMBLE VALVE, CLEAN THOROUGHLY, REPLACE DEFECTIVE PARTS. REASSEMBLE.

C. HOME POSITION PROXIMITY SWITCH (PROX 1) MAY BE DEFECTIVE OR OUT OF ADJUSTMENT. ADJUST POSITION SLIGHTLY UNTIL INDICATOR LIGHT TURNS ON. IF NOT, CHECK FOR CONTINUITY. IF DEFECTIVE, REPLACE.

PROBLEM

SOLUTION

3. VACUUM TROLLEY WILL NOT MOVE BACK FROM BLANK PICK UP POSITION (CYLINDER IN EXTENDED POSITION).

A. SOLENOID VALVE MAY BE DEFECTIVE. PUSH MANUAL OVERRIDE TO SEE IF VALVE FUNCTIONS. IF SO, CHECK SOLENOID FOR CONTINUITY. REPLACE IF DEFECTIVE.

B. SPOOL IN VALVE MAY BE STUCK. DISASSEMBLE VALVE, CLEAN THOROUGHLY, REPLACE DEFECTIVE PARTS. REASSEMBLE.

C. PICK UP POSITION PROXIMITY SWITCH (PROX 2) MAY BE DEFECTIVE OR OUT OF ADJUSTMENT. ADJUST POSITION SLIGHTLY UNTIL INDICATOR LIGHT TURNS ON. IF NOT, CHECK FOR CONTINUITY. IF DEFECTIVE, REPLACE.

4. VACUUM CUPS WILL NOT PICK A BLANK OUT OF THE HOPPER.

A. VACUUM PRESSURE MAY BE INSUFFICIENT. TEST BY PLACING A BLANK ON THE CUPS WITH THE VACUUM ON. YOU SHOULD NOT BE ABLE TO EASILY PULL THE BLANK OFF OF THE VACUUM CUPS. IF SO, CHECK FOR:

- CORRECT AIR PRESSURE AND SUPPLY (80 PSI, 10 CFM)
- DAMAGED OR WORN CUPS
- DAMAGED OR WORN HOSES
- CLOGGED SYSTEM COMPONENTS

B. HOPPER OUT OF ADJUSTMENT.

CHECK THE FOLLOWING SET-UPS:

- HOPPER RETAINER BAR AND BRUSH OVERLAP THE BLANK TOO FAR.
- TOO MUCH PRESSURE ON THE LEADING BLANK. MOVE HOPPER DEMAND PHOTO EYE BACK SLIGHTLY.
- OPEN HOPPER RAILS 1/8"
- MAKE SURE BLANK ISN'T HITTING TOP SLED ON THE WAY IN. IF SO, LOWER HOPPER AND RE-ADJUST TOP FINGER.
- TOO MUCH FINGER PRESSURE. SEE SET-UP SECTION FOR PROPER ADJUSTMENT.

PROBLEM

SOLUTION

5. MINOR FLAP FOLDERS WILL NOT EXTEND.

A. SOLENOID VALVE MAY BE DEFECTIVE. PUSH MANUAL OVERRIDE TO SEE IF VALVE FUNCTIONS. IF SO, CHECK SOLENOID FOR CONTINUITY. REPLACE IF DEFECTIVE.

B. SPOOL IN VALVE MAY BE STUCK. DISASSEMBLE VALVE, CLEAN THOROUGHLY, REPLACE DEFECTIVE PARTS. REASSEMBLE.

C. CHECK VACUUM TROLLEY HOME POSITION PROXIMITY SWITCH (PROX 1). THIS SWITCH MUST BE MADE FOR FLAPS TO EXTEND.

6. CASE PUSHER WILL NOT EXTEND TO PUSH A FORMED CASE INTO THE LUG DRIVE.

A. SOLENOID VALVE MAY BE DEFECTIVE. PUSH MANUAL OVERRIDE TO SEE IF VALVE FUNCTIONS. IF SO, CHECK SOLENOID FOR CONTINUITY. REPLACE IF DEFECTIVE.

B. SPOOL IN VALVE MAY BE STUCK. DISASSEMBLE VALVE, CLEAN THOROUGHLY, REPLACE DEFECTIVE PARTS. REASSEMBLE.

C. PUSHER RETRACTED POSITION PROXIMITY SWITCH (PROX 3) MAY BE DEFECTIVE OR OUT OF ADJUSTMENT. SEE SOLUTION 2C.

7. CASE PUSHER WILL NOT RETRACT.

A. SOLENOID VALVE MAY BE DEFECTIVE. PUSH MANUAL OVERRIDE TO SEE IF VALVE FUNCTIONS. IF SO, CHECK SOLENOID FOR CONTINUITY. REPLACE IF DEFECTIVE.

B. SPOOL IN VALVE MAY BE STUCK. DISASSEMBLE VALVE, CLEAN THOROUGHLY, REPLACE DEFECTIVE PARTS. REASSEMBLE.

C. PUSHER EXTEND POSITION PROXIMITY SWITCH (PROX 4) MAY BE DEFECTIVE OR OUT OF ADJUSTMENT. SEE SOLUTION 2C.

PROBLEM

SOLUTION

8. CASE IS NOT SQUARE AT DISCHARGE.

- A. PUSHER LUGS OUT OF ALIGNMENT.
TO CORRECT:
- STOP THE MACHINE SO THAT THE LUGS ARE IN THE AREA OVER THE TAPE CARTRIDGE. REMOVE THE CARTRIDGE.
 - DISCONNECT THE ELECTRICAL SUPPLY.
 - REMOVE OPERATOR SIDE CHAIN DRIVE COVER.
 - LOCATE THE DRIVE SPROCKET AT THE DISCHARGE END OF THE SYSTEM. USING A 3 mm HEX KEY, LOOSEN THE (6) SOCKET HEAD CAP SCREWS FROM THE TOP OF THE ADJUSTABLE BUSHING. TAKE 3 OF THE SCREWS AND THREAD THEM INTO THE ADJACENT JACKING HOLES. THIS WILL DRIVE THE BUSHING APART AND ENABLE IT TO TURN ON THE SHAFT.
 - USING A 12" SQUARE, ALIGN THE LUGS BY PLACING THE SQUARE BETWEEN THE CHAIN GUIDES AND AGAINST THE RIGHT-SIDE CHAIN LUG. INDEX THE LEFT-SIDE LUG BY TURNING THE SPROCKET UNTIL IT IS EVEN WITH THE OTHER SIDE. BE SURE TO PUSH BACK ON LUGS TO ELIMINATE DRIVE SYSTEM LASH.
 - RE-INSTALL SCREWS AND TIGHTEN THE TAPERED BUSHING IN A CRISS-CROSS PATTERN GRADUALLY WORKING YOUR WAY AROUND UNTIL ALL 6 SCREWS ARE TIGHT. AS YOU DO THIS, MAKE SURE THE SPROCKET AND CHAIN ARE ALIGNED VERTICALLY WITH THE GUIDES.
 - REPLACE LUG DRIVE COVER.

B. FOLDING PANELS OUT OF ADJUSTMENT.

TO CORRECT:

- THE LEXAN FOLDING PANELS THAT CLOSE THE MAJOR FLAPS SHOULD BE SET AT ANGLE OF APPROXIMATELY 75 DEG. BETWEEN THE PANELS. TO ADJUST, LOOSEN THE (4) HOSE CLAMPS WITH A 1/4" SOCKET AND ROTATE THEM ON THE FOLDING BAR SO THAT THE BODY OF THE CLAMP SUPPORTS THE PANEL AT THE DESIRED ANGLE. BE CAREFUL TO NOT OVER-TIGHTEN THE CLAMPS.

9. MACHINE SHUTS OFF SUDDENLY WHILE PUSHING A CASE THROUGH THE LUG DRIVE.

- A. CHECK THE OVER CURRENT RELAY (OCR1) LOCATED IN THE PANEL BOX. IF IT IS TRIPPING OUT UNDER NORMAL (NON-JAM) CONDITIONS, ADJUST IT AS FOLLOWS:
- WHILE MACHINE IS RUNNING SET CURRENT LEVEL (I) BY TURNING ADJUSTER CLOCKWISE UNTIL RED LIGHT *DOES NOT* COME ON DURING THE CYCLE.
 - MAKE SURE TIME (T) IS SET TO MIN.

Little David® Warranty

For: CASE FORMER MODELS
CF20T, CF30T, CF40T, CF40TXL, CF50T MODELS

1 YEAR WARRANTY ON DRIVE MOTOR
1 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 ALL OTHER PARTS

(EXCEPT FOR WEAR AND MOVING PARTS.)

For: CASE FORMER MODEL
CF5

1 YEAR ON PLC
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 - 1 YEAR
GEAR REDUCER - 1 YEAR
TAPE CARTRIDGE - 3 YEARS

(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
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

2206 EASTON TURNPIKE SOUTH CANAAN, PA 18459
TEL: 570.937.4921 - 800.572.3434 - FAX: 570.937.3229

ILLUSTRATED MACHINE ASSEMBLIES

FRAME ASSEMBLY

MAIN DRIVE ASSEMBLY

DRIVE CHAIN ASSEMBLY

HOPPER FRAME ASSEMBLY

HOPPER DRIVE ASSEMBLY
BOTTOM FINGER ASSEMBLY

HOPPER GATE ASSEMBLY

TOP FINGER ASSEMBLY

VACUUM TROLLEY ASSEMBLY

VACUUM BAR ASSEMBLY

VACUUM CUP ASSEMBLY

FRONT FLAP FOLDER ASSEMBLY

REAR FLAP FOLDER ASSEMBLY

TOP SLED ASSEMBLY

PLOW BAR ASSEMBLY

SAFETY GUARD ASSEMBLY

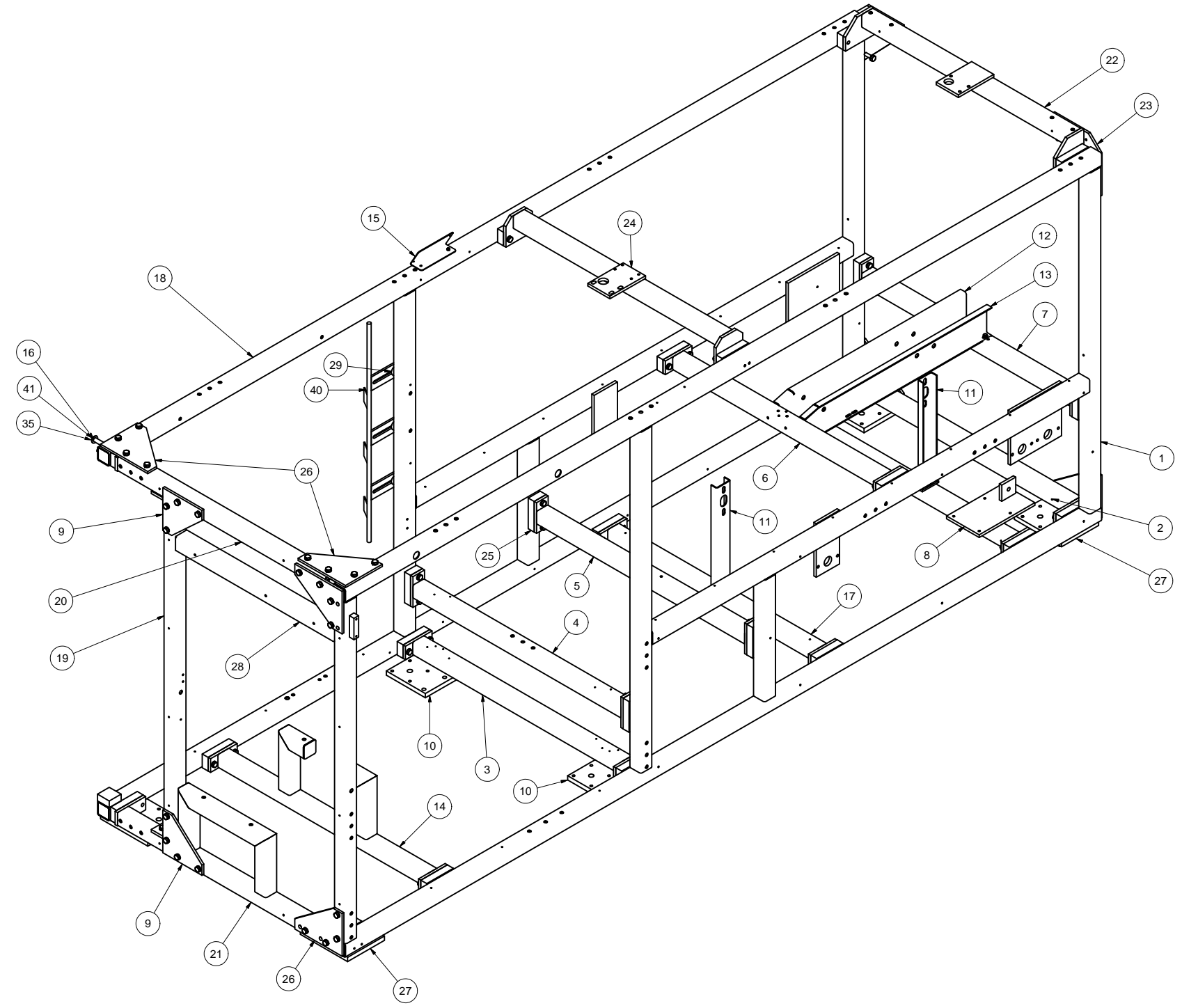
PNEUMATIC COMPONENTS

PNEUMATIC SCHEMATIC

ELECTRICAL

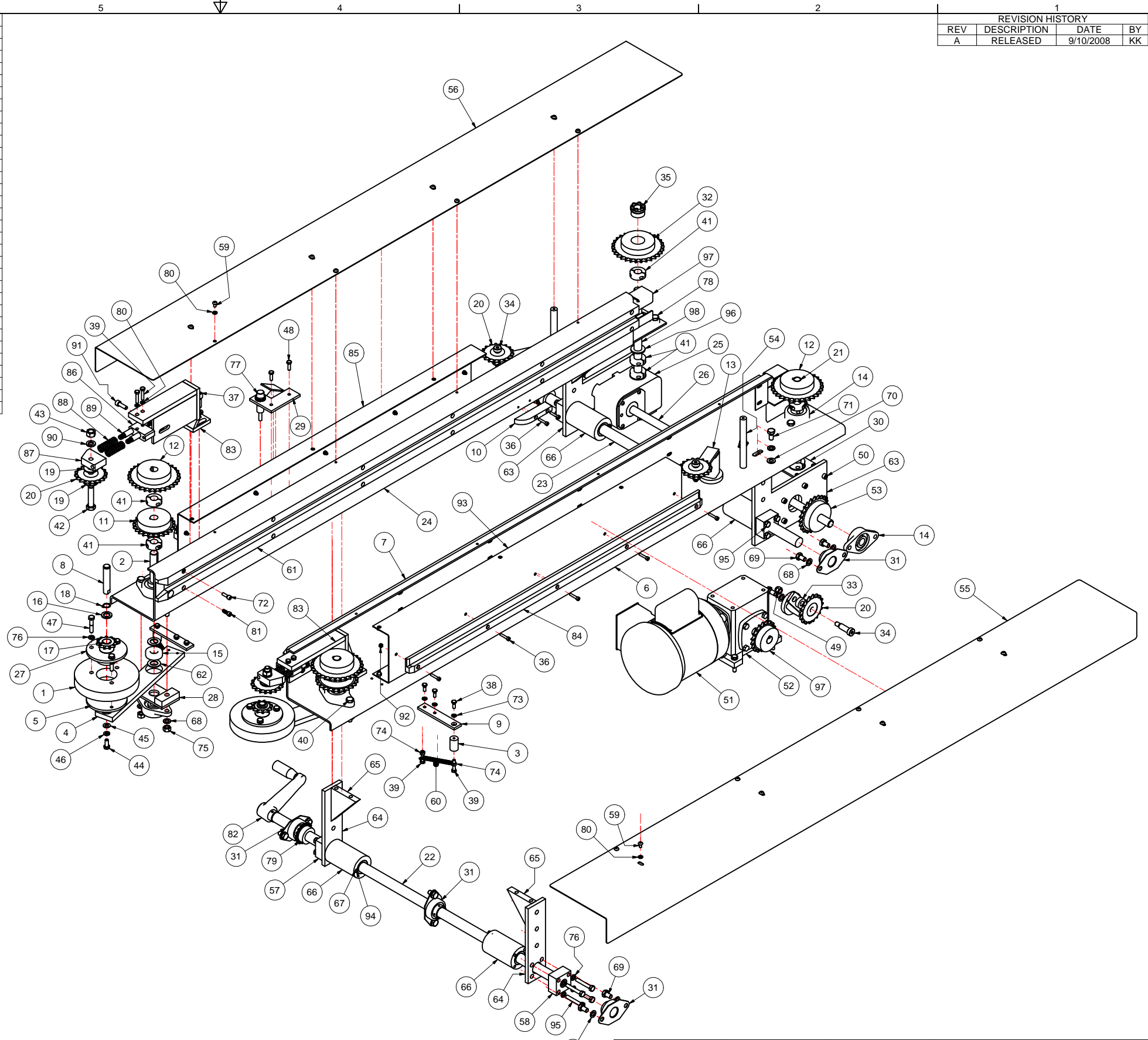
| Parts List | | | |
|------------|-----|--------------|--------------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | CF50-0008R-6 | FRAME, SIDE, RIGHT |
| 2 | 1 | CF50-0010-4 | CROSSMEMBER, END |
| 3 | 1 | CF50-0011-4 | CROSSMEMBER, MID |
| 4 | 1 | CF50-0016-4 | CROSSMEMBER, FRONT FLAP FOLDER |
| 5 | 1 | CF50-0017-4 | CROSSMEMBER, FOLDING BAR SUPPORT |
| 6 | 1 | CF50-0018-5 | CROSSMEMBER, CARTRIDGE SUPPORT REAR |
| 7 | 1 | CF50-0019-4 | CROSSMEMBER, CARTRIDGE SUPPORT FRONT |
| 8 | 1 | CF50-0020-4 | CROSSMEMBER, BEARING SUPPORT |
| 9 | 2 | CF50-0021-4 | GUSSET, FRAME |
| 10 | 2 | CF50-0022-4 | GUSSET, LEVELING PAD |
| 11 | 2 | CF50-0068-4 | SUPPORT, LEAD SCREW |
| 12 | 1 | CF50-0113L-5 | TAPE CARTRIDGE SIDE PLATE, LEFT |
| 13 | 1 | CF50-0113R-5 | TAPE CARTRIDGE SIDE PLATE, RIGHT |
| 14 | 1 | CF50-0131A-4 | CROSSMEMBER, BOX PUSHER, MODIFIED |
| 15 | 1 | CF50-0150-4 | BRACKET, OPERATOR STATION |
| 16 | 1 | CF50-0185-3 | HOOK, HOPPER GATE |
| 17 | 1 | CF50-0196-4 | CROSSMEMBER, DRIVE SUPPORT |
| 18 | 1 | CF50-0338-6 | FRAME, XL, LEFT SIDE |
| 19 | 1 | CF50-0339-6 | POST, FRAME, XL |
| 20 | 1 | CF50-0340-4 | CROSSMEMBER, END, XL |
| 21 | 1 | CF50-0341-4 | CROSSMEMBER, END, XL |
| 22 | 1 | CF50-0342-4 | CROSSMEMBER, END, SLED SUPPORT |
| 23 | 2 | CF50-0343-4 | GUSSET, XL, SPECIAL |
| 24 | 1 | CF50-0344-4 | CROSS MEMBER, SLED SUPPORT, XL |
| 25 | 26 | CF50-0347-4 | BLOCK, FRAME SPACER |
| 26 | 6 | CF50-0348-4 | GUSSET, XL |
| 27 | 4 | CF50-0349-5 | GUSSET, LEVELING PAD, XL |
| 28 | 1 | CF50-0370-4 | SUPPORT, REAR GUARD |
| 29 | 3 | CF50-0408-3 | SPACER, BLANK HOLDER |
| 30 | 2 | FFWMGP | FLAT WASHER M6 |
| 31 | 2 | FFWMIP | FLAT WASHER M10 |
| 32 | 2 | FHHM016P10 | HHCS M6 X 16 |
| 33 | 2 | FHHMF010P10 | HHCS M5 X 0.8 X 10 LG. |
| 34 | 4 | FHHMG030P10 | HHCS M6 X 30 |
| 35 | 1 | FHHMH016P10 | HHCS M8 X 16 |
| 36 | 97 | FHHM030P88 | HHCS M10 X 1.5 X 30 LG. |
| 37 | 2 | FLWMFP | LOCK WASHER M5 |
| 38 | 6 | FLWMGP | LOCK WASHER M6 |
| 39 | 98 | FLWMIP | LOCK WASHER M10 |
| 40 | 1 | PC600183 | BLANK HOLDER EXTENDED |
| 41 | 1 | SPH-1286 | FENDER WASHER, 8MM |

| REVISION HISTORY | | | |
|------------------|-------------|------------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 12/19/2011 | RM |



| | | | | |
|---|--------|-------------------------|--|---|
| MATL | PART # | CAD FILE .FRACF50XL.dwg | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an ITW Company RT. 296, SOUTH CANAAN, PA. |
| ST. ST. | STD | PLOT DATE 12/19/2011 | X = ±1.050 INCH .XX = ±0.015 .XXX = ±1.005 ANGLES ±1/2° | |
| STAINLESS - NO FINISH | | DO NOT SCALE PRINT | X = ±1.0mm METRIC .XX = ±1.3mm .XXX = ±1.1mm MACH. FINISH | TITLE |
| <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> | | | | DWG NO .FRACF50XL |
| FRACTIONS ± 1/64 | | | | SCALE |
| | | | | CHECKED |
| | | | | APPROVED |
| | | | | MATERIAL |
| | | | | DRAWN richm |

| Parts List | | | | Parts List | | | |
|------------|-----|--------------|--------------------------------------|------------|-----|--------------|--------------------------------------|
| ITE | QTY | PART NUMBER | DESCRIPTION | ITE | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | CF50-0103-4 | INFEED WHEEL | 68 | 38 | FLWMIP | LOCK WASHER M10 |
| 2 | 2 | A621774 | PIVOT SHAFT | 69 | 12 | FHHM1016P10 | HEX HD. CAP SCREW M10 X 16 LG. |
| 3 | 2 | CF50-0104-3 | SPRING MOUNT | 70 | 10 | FFWMIP | FLAT WASHER M10 |
| 4 | 2 | CF50-0105-4 | WHEEL MOUNTING PLATE | 71 | 11 | FHHM1020P88 | HEX HD. CAP SCREW M10 X 20 LG. |
| 5 | 2 | CF50-0106-4 | WHEEL CLAMPING PLATE | 72 | 19 | FSHMG020P10 | SOC. HD. CAP SCREW M6 X 20 LG. |
| 6 | 1 | CF50-0033R-6 | ANGLE, MAIN DRIVE, RIGHT | 73 | 14 | FLWMGP | LOCK WASHER M6 |
| 7 | 1 | CF50-0034R-6 | CHAIN GUIDE, MAIN DRIVE, RIGHT | 74 | 6 | FHFNMGP | HEX NUT M6 |
| 8 | 2 | A621861 | INFEED SHAFT | 75 | 8 | FHFNMIP | HEX NUT M10 |
| 9 | 2 | CF50-0108-3 | SPRING MOUNTING BRACKET | 76 | 26 | FLWMHP | LOCK WASHER M8 |
| 10 | 2 | CF50-0048-3 | PAD, BOX SQUEEZER | 77 | 1 | 303526 | PHOTOELECTRIC SENSOR |
| 11 | 2 | 200104-12 | PRIMARY INFEED SPROCKET | 78 | 4 | FHHM1030P88 | HEX HD. CAP SCREW M10 X 1.5 X 30 LG. |
| 12 | 3 | 204298-12 | LUG DRIVE SPROCKET | 79 | 2 | LD3SB2-2026 | SPROCKET |
| 13 | 3 | 204133 | CHAIN TENSIONER | 80 | 26 | FFWMGP | FLAT WASHER M6 |
| 14 | 8 | 200844 | FLANGE BEARING, 2-BOLT, 3/4" | 81 | 2 | SPH-1327 | SOC. HD. CAP SCREW M6 X 18 LG. |
| 15 | 2 | 203341 | BALL BEARING | 82 | 1 | HC-1036 | CRANK HANDLE |
| 16 | 4 | 203214 | THRUST WASHER | 83 | 2 | CF50-0282 -4 | BRACKET, CHAIN INFEED, RIGHT |
| 17 | 4 | 204297 | NEEDLE BEARING | 84 | 2 | CF50-0264-4 | GUIDE STRIP, CHAIN RETURN |
| 18 | 2 | 40-015 | RETAINING RING | 85 | 1 | CF50-0265L-4 | CHANNEL, CHAIN RETURN, LEFT |
| 19 | 4 | FFWSHP | FLAT WASHER 1/2" | 86 | 2 | CF50-0283-3 | BLOCK, ANCHOR |
| 20 | 5 | 204292 | IDLER SPROCKET | 87 | 2 | CF50-0284-3 | BLOCK, IDLER |
| 21 | 1 | B622354B/SS | VERTICAL SHAFT | 88 | 4 | SPR-1052 | SPRING, COMPRESSION |
| 22 | 1 | CF50-0067-4 | LEAD SCREW, LONG | 89 | 4 | SPH-1359 | SHOULDER BOLT, 1/2" X 3" LG. |
| 23 | 1 | CF50-0066-4 | LEAD SCREW, SHORT | 90 | 2 | FLWSHP | LOCK WASHER 1/2" |
| 24 | 1 | CF50-0033L-6 | ANGLE, MAIN DRIVE, LEFT | 91 | 2 | FSHMH025P10 | SOC. HD. CAP SCREW M8 X 25 LG. |
| 25 | 1 | 204707-L | RIGHT ANGLE GEARBOX, LH | 92 | 10 | FNLNMFS | M5 NYLON LOCKING NUT S.S. |
| 26 | 1 | CF50-0122-4 | DRIVE SHAFT-HORIZONTAL | 93 | 1 | CF50-0265R-4 | CHANNEL, CHAIN RETURN, RIGHT |
| 27 | 2 | CF50-0107-4 | WHEEL SPROCKET PLATE | 94 | 4 | FBHME012P10 | BUTT. HD. M4 x 12 LG. |
| 28 | 2 | CF50-0109-4 | BEARING MOUNT | 95 | 16 | FHHMH050S10 | HEX HD. M8 X 50 LG. S.S. |
| 29 | 1 | CF50-0110-4 | PHOTOCELL MOUNT | 96 | 2 | 204336 | THRUST WASHER |
| 30 | 1 | 204707-R | RIGHT ANGLE GEARBOX, RH | 97 | 1 | SPK-0123 | DRIVE SPROCKET |
| 31 | 6 | LD3SB2-2025 | BEARING BLOCK | 98 | 1 | B622354D/SS | SHAFT, VERTICAL, KEYLESS |
| 32 | 1 | 204298-21 | TIMING SPROCKET | | | | |
| 33 | 3 | STD-032-6 | SPACER | | | | |
| 34 | 3 | FSBSJ125B05 | SHOULDER BOLT | | | | |
| 35 | 1 | TT-1002 | ADJUSTABLE BUSHING | | | | |
| 36 | 14 | FSHMF025B10 | SOC. HD. CAP SCREW M5 X 25 LG. | | | | |
| 37 | 5 | FSHM1035P88 | SOC. HD. CAP SCREW M10 X 30 LG. | | | | |
| 38 | 6 | FHHMG016P10 | HEX HD. CAP SCREW M6 X 16 LG. | | | | |
| 39 | 8 | FHHMG030P10 | HEX HD. CAP SCREW M6 X 30 LG. | | | | |
| 40 | 4 | FHHM1060P88 | HEX HD. CAP SCREW M10 X 60 LG. | | | | |
| 41 | 10 | 202221 | SHAFT COLLAR, 3/4" - 2 PIECE | | | | |
| 42 | 2 | FHHSN225P05 | HEX HD. CAP SCREW 1/2-13 X 2.25 LG. | | | | |
| 43 | 2 | HFFNSNP | HEX NUT 1/2-13 | | | | |
| 44 | 2 | FHSH075P05 | HEX HD. CAP SCREW 5/16-18 X 0.75 LG. | | | | |
| 45 | 2 | FFWSEP | FLAT WASHER 5/16 | | | | |
| 46 | 2 | FLWSEP | LOCK WASHER 5/16 | | | | |
| 47 | 10 | FHHMH040P10 | HEX HD. CAP SCREW M8 X 40 LG. | | | | |
| 48 | 2 | FHHMG020P10 | HEX HD. CAP SCREW M6 X 20 LG. | | | | |
| 49 | 3 | FNLNSJP | NYLOCK NUT 3/8 STD NC | | | | |
| 50 | 12 | FSHSH075B05 | SOC. HD. CAP SCREW 5/16-18 X 3/4 LG. | | | | |
| 51 | 1 | LP07-001-US | MOTOR, LUG DRIVE | | | | |
| 52 | 1 | 204662 | GEAR REDUCER | | | | |
| 53 | 1 | 203174-12 | SECONDARY DRIVE SPROCKET | | | | |
| 54 | 2 | CF50-0145-3 | STANDOFF, CHAIN GUARD | | | | |
| 55 | 1 | CF50-0151R-4 | CHAIN GUARD, RIGHT | | | | |
| 56 | 1 | CF50-0151L-4 | CHAIN GUARD, LEFT | | | | |
| 57 | 2 | CF50-0135L-4 | NUT PLATE, LH THREAD | | | | |
| 58 | 2 | CF50-0135R-4 | NUT PLATE, RH THREAD | | | | |
| 59 | 16 | FBHMG010P10 | BUTT. HD. CAP SCREW M6 X 10 LG. | | | | |
| 60 | 2 | SPR-1037 | EXTENSION SPRING | | | | |
| 61 | 1 | CF50-0034L-6 | CHAIN GUIDE, MAIN DRIVE, LEFT | | | | |
| 62 | 4 | SPH-1299 | BUSHING, 3/4" I.D. | | | | |
| 63 | 2 | CF50-0198-5 | DRIVE SUPPORT, FRONT | | | | |
| 64 | 2 | CF50-0199-4 | DRIVE SUPPORT, REAR | | | | |
| 65 | 4 | CF50-0200-4 | BRACKET, DRIVE SUPPORT | | | | |
| 66 | 4 | CF50-0250-4 | BEARING HOUSING ASSY. | | | | |
| 67 | 3 | FFWMEP | FLAT WASHER M4 | | | | |

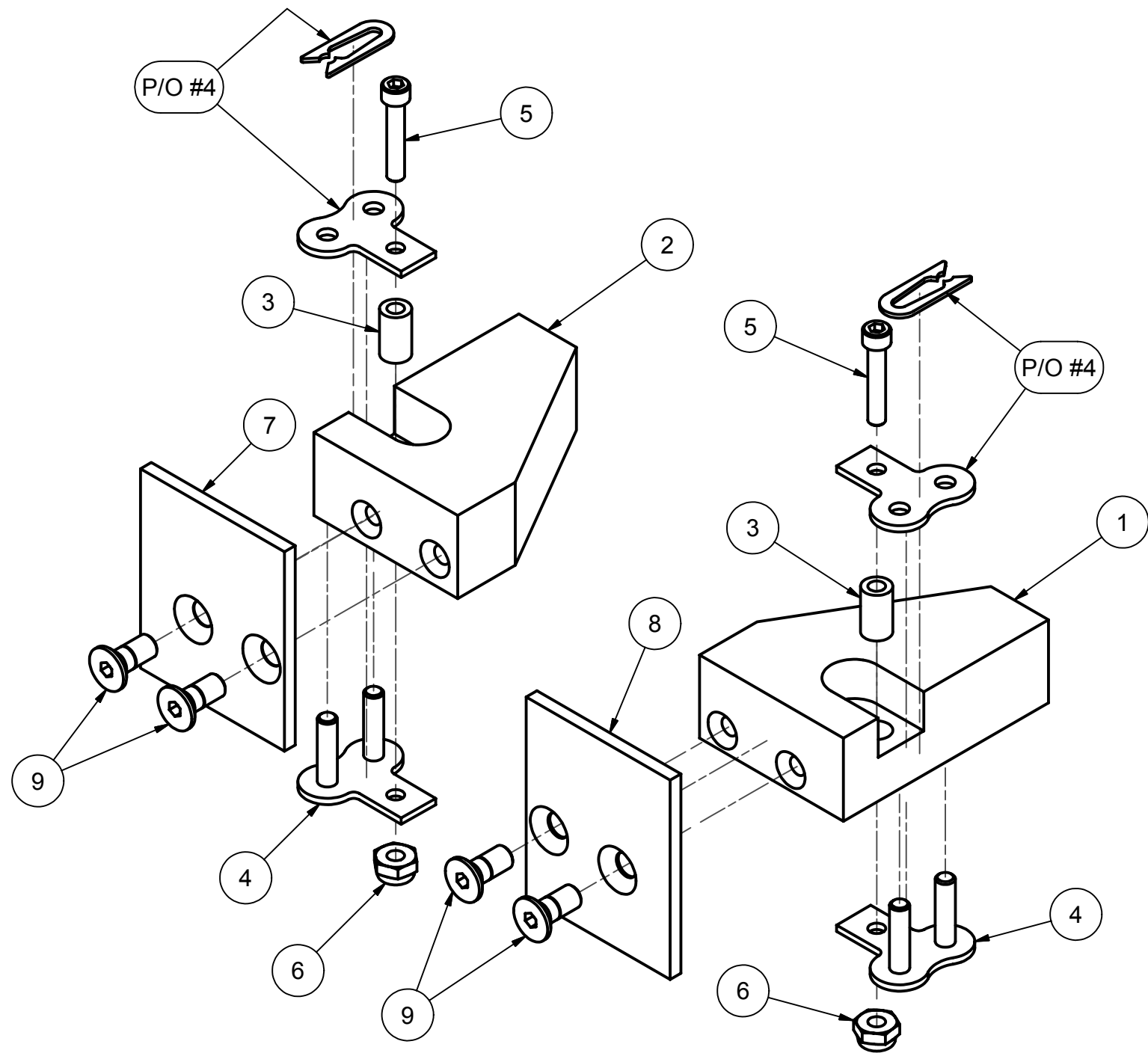


| REVISION HISTORY | | | |
|------------------|-------------|-----------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 9/10/2008 | KK |

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|---|--------|------------|--------------|---|--|
| MATL | PART # | CAD FILE | MDACF50B.idw | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an ITW Company RT. 296, SOUTH CANAAN, PA. |
| N/A | STD | PLOT DATE | 6/10/2010 | X = ±1.0mm INCH XX = ±0.015 .XXX = ±1.005 | |
| ST. ST | N/A | DRAWN DATE | 9/10/2008 | X = ±1.0mm METRIC XX = ±1.3mm .XXX = ±1.1mm | MAIN DRIVE ASSEMBLY DWG NO. MDACF50B MATERIAL N/A DRAWN KENK |
| STAINLESS - NO FINISH DO NOT SCALE PRINT | | | | MACH. FINISH FRACTIONS ± 1/64 | |

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.

| REVISION HISTORY | | | |
|------------------|-------------|-----------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 3/20/2007 | RM |



NOTE: EACH STANDARD MACHINE INCLUDES (2) ASSEMBLIES

| Parts List | | | |
|------------|--------|--------------|--------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | CF50-0100L-3 | PUSHER LUG, LEFT HAND |
| 2 | 2 | CF50-0100R-3 | PUSHER LUG, RIGHT HAND |
| 3 | 4 | CF50-0102-3 | CHAIN SPACER |
| 4 | 4 | 204143 | CHAIN LINK |
| 5 | 4 | FSHSA075B08 | SHCS, 6-32 X 0.75 LG |
| 6 | 4 | FNLNSAP | NYLOCK NUT 6-32 NC |
| 7 | 2 | CF50-0101R-3 | PUSHER PLATE, RIGHT HAND |
| 8 | 2 | CF50-0101L-3 | PUSHER PLATE, LEFT HAND |
| 9 | 8 | FFHMF012P10 | FHCS M5 X 0.8 X 12 LG. |
| NS | 24 FT. | 201765 | ROLLER CHAIN |

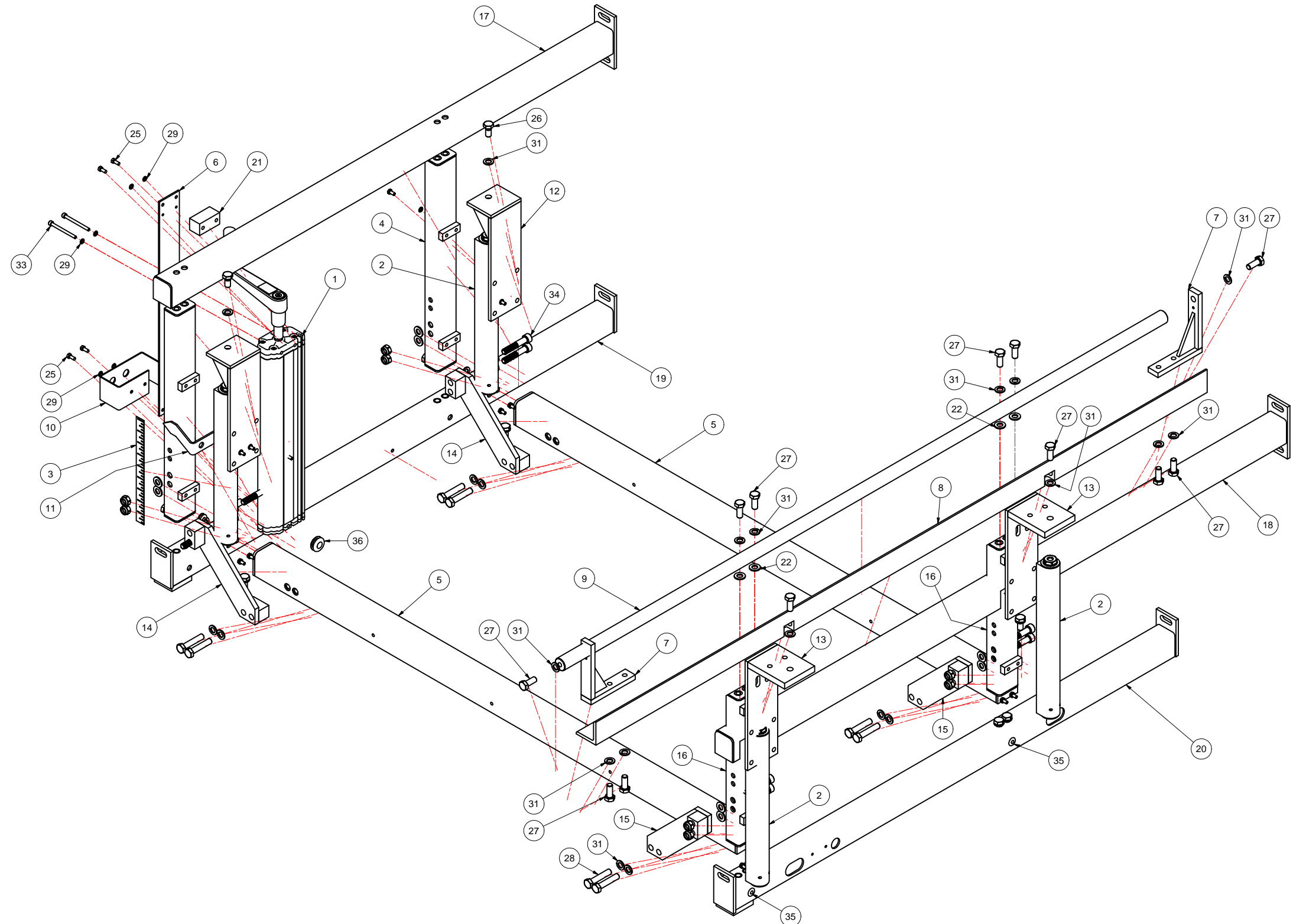
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|---|--------|---------------------------|
| MAT'L | PART # | CAD FILE .CHACF50.idw |
| | STD | PLOT DATE 3/20/2007 |
| ST. ST. | | DRAWN DATE 5/24/2006 |
| STAINLESS : NO FINISH | | DO NOT SCALE PRINT |
| <small>THIS DRAWING AND SUBJECT MATTER THEREON 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
 METRIC .XX = ±.3mm MACH. FINISH ✓
 .XXX = ±.1mm
 FRACTIONS ± 1/64

| | |
|---|----------|
| LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. | |
| TITLE DRIVE CHAIN ASSEMBLY | |
| DWG NO .CHACF50 | SCALE |
| MATERIAL | CHECKED |
| DRAWN RICHM | APPROVED |

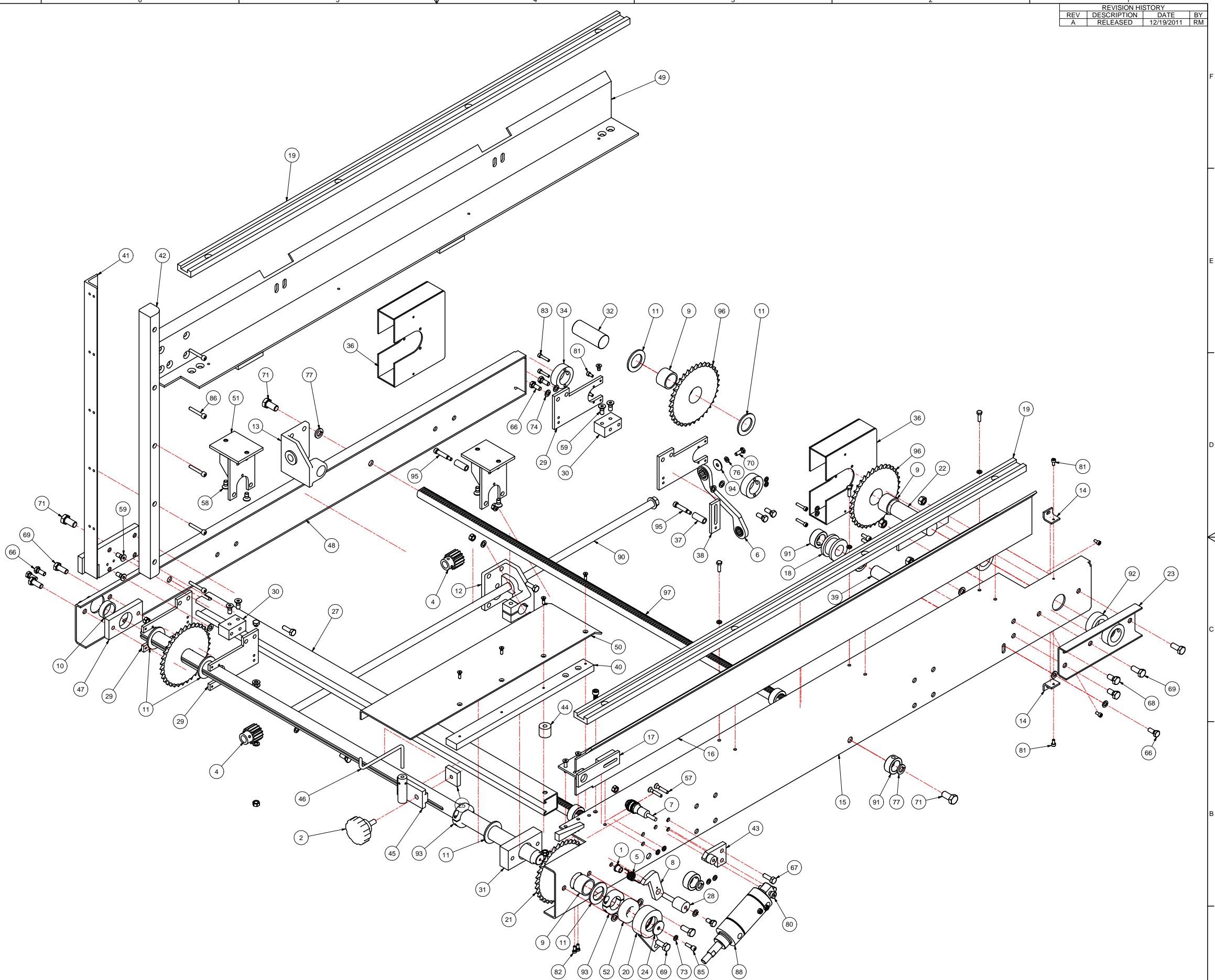
| Parts List | | | |
|------------|-----|--------------|---------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | 204738-1 | PUMP, HYDRAULIC |
| 2 | 4 | 204738-2 | CYLINDER, HYDRAULIC |
| 3 | 1 | 40-026-9 | SCALE, ADHESIVE |
| 4 | 2 | CF50-0059-4 | SIDE MEMBER, HOPPER FRAME |
| 5 | 2 | CF50-0064-4 | CROSS MEMBER, HOPPER |
| 6 | 1 | CF50-0065-4 | MOUNTING PLATE, HOPPER JACK |
| 7 | 2 | CF50-0116-4 | BRACKET, HOPPER RAIL |
| 8 | 1 | CF50-0117R-4 | ANGLE, HOPPER RAIL |
| 9 | 1 | CF50-0118-4 | SHAFT, HOPPER GATE |
| 10 | 1 | CF50-0124-4 | HOSE GUARD |
| 11 | 1 | CF50-0170-4 | POINTER, HOPPER |
| 12 | 2 | CF50-0356-4 | BRACKET, HOPPER LIFT, LEFT, XL |
| 13 | 2 | CF50-0357-4 | BRACKET, HOPPER LIFT, RIGHT, XL |
| 14 | 2 | CF50-0359L-5 | GUSSET, HOPPER, XL, LEFT |
| 15 | 2 | CF50-0359R-5 | GUSSET, HOPPER, XL, RIGHT |
| 16 | 2 | CF50-0364-4 | SIDE MEMBER, HOPPER FRAME, XL |
| 17 | 1 | CF50-0378-4 | TOP RAIL, HOPPER, XL (SHORT) |
| 18 | 1 | CF50-0379-4 | TOP RAIL, HOPPER, XL (LONG) |
| 19 | 1 | CF50-0380L-4 | RAIL, HOPPER, BOTTOM |
| 20 | 1 | CF50-0380R-4 | RAIL, HOPPER, BOTTOM |
| 21 | 2 | CF50-0431-3 | SPACER, HOPPER PUMP |
| 22 | 20 | FFWMIP | FLAT WASHER M10 |
| 23 | 2 | FHFNHMP | HEX NUT, M8 |
| 24 | 16 | FHHMF010P10 | HHCS M5 X 0.8 X 10 LG. |
| 25 | 4 | FHHMF012P10 | HHCS M5 X 12 |
| 26 | 25 | FHHM020P88 | HHCS M10 X 20 |
| 27 | 12 | FHHM025P88 | HHCS M10 X 25 |
| 28 | 8 | FHHM050P88 | HHCS M10 X 50 |
| 29 | 22 | FLWMFP | LOCK WASHER M5 |
| 30 | 2 | FLWMHP | LOCK WASHER M8 |
| 31 | 45 | FLWMIP | LOCK WASHER M10 |
| 32 | 8 | FNLNMIP | NYLOCK NUT M10 |
| 33 | 3 | FSHM060B08 | SHCS M5 X 60 |
| 34 | 8 | FSHM055B08 | SHCS M10 X 55 |
| 35 | 6 | SPH-1259 | GROMMET, RUBBER, 1/4" ID |
| 36 | 1 | SPH-1260 | GROMMET, RUBBER, 1/2" ID |

| REVISION HISTORY | | | |
|------------------|-------------|------------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 12/19/2011 | RM |



| | | | | |
|---|--------|-------------------------|--|---|
| MATL | PART # | CAD FILE .HFACF50XL.dwg | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an ITW Company RT. 296, SOUTH CANAAN, PA. TITLE HOPPER FRAME ASSEMBLY, CF50-TXL |
| ST. ST | STD | PLOT DATE 12/19/2011 | X = ±1.050 INCH .XX = ±0.015 .XXX = ±1.005 ANGLES ±1/2° | |
| STAINLESS - NO FINISH | | DO NOT SCALE PRINT | X = ±1.0mm METRIC .XX = ±1.3mm .XXX = ±1.1mm MACH. FINISH | DWG NO .HFACF50-XL |
| <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 |
| FRACTIONS ±1/64 | | | | CHECKED |
| | | | | DRAWN richm |
| | | | | APPROVED |

| ITEM | QTY | PART NUMBER | DESCRIPTION |
|------|-----|---------------|------------------------------------|
| 1 | 1 | 200623 | 3/8 FLANGE BUSHING |
| 2 | 1 | 201816 | KNOB, 3/8-16 |
| 3 | 1 | 202186 | 3/8 COLLAR |
| 4 | 2 | 202766-10 | SPUR GEAR |
| 5 | 1 | 202822-2 | SPRING, RIGHT HAND |
| 6 | 1 | 204823 | RATCHET HANDLE |
| 7 | 1 | 303526 | PHOTOELECTRIC SENSOR |
| 8 | 1 | B622583AG | FINGER, SPROCKET BACKSTOP |
| 9 | 3 | BSG-1074 | BUSHING |
| 10 | 1 | BSG-1074-XL | BUSHING |
| 11 | 6 | BSG-1092 | WASHER 1 1/4" X 2 X 1/8 |
| 12 | 1 | C170390-PG | LOCKING ELEVATOR MOUNT |
| 13 | 1 | C170477-PG | ELEVATOR MOUNT, NON-LOCKING |
| 14 | 2 | CF20-0123-3 | PANEL BRACKET |
| 15 | 1 | CF50-0024L-6 | CHANNEL, FIXED SIDE |
| 16 | 1 | CF50-0027L-5 | HOPPER GUIDE, FIXED SIDE |
| 17 | 1 | CF50-0031-4 | BRACKET, BLANK PROX |
| 18 | 3 | CF50-0032-3 | ROLLER, HOPPER CHAIN |
| 19 | 2 | CF50-0049-4 | CHAIN GUIDE, HOPPER |
| 20 | 1 | CF50-0053L-4 | CLUTCH HOUSING, HOPPER |
| 21 | 1 | CF50-0055-4 | DRIVE SPROCKET, HOPPER |
| 22 | 1 | CF50-0056-5 | IDLER SHAFT, HOPPER |
| 23 | 1 | CF50-0057-5 | IDLER BACKER, HOPPER |
| 24 | 1 | CF50-0058-3 | CLUTCH WASHER, HOPPER |
| 25 | 1 | CF50-0089-3 | NUT PLATE, REAR FLAP FOLDER |
| 26 | 1 | CF50-0115-3 | RAMP |
| 27 | 1 | CF50-0119-4 | CHANNEL, BOTTOM FINGER |
| 28 | 1 | CF50-0123-4 | SHAFT, SPROCKET BACKSTOP |
| 29 | 4 | CF50-0213-4 | FORK, HOPPER DRIVE |
| 30 | 2 | CF50-0214-3 | MOUNTING BLOCK, FORK |
| 31 | 1 | CF50-0215-4 | BLOCK, BUSHING |
| 32 | 1 | CF50-0216-3 | SHAFT, IDLER |
| 33 | 1 | CF50-0217A-5 | DRIVE SHAFT, HOPPER |
| 34 | 2 | CF50-0218-3 | COLLAR, IDLER SHAFT |
| 35 | 1 | CF50-0219-3 | DRIVE SPROCKET, ADJUSTABLE SIDE |
| 36 | 2 | CF50-0230-5 | GUARD, HOPPER SPROCKET |
| 37 | 3 | CF50-0273-3 | ROLLER, HOPPER CHAIN TENSIONER |
| 38 | 1 | CF50-0274-3 | BRACKET, HOPPER CHAIN TENSIONER |
| 39 | 1 | CF50-0275-3 | SHAFT, HOPPER CHAIN TENSIONER |
| 40 | 1 | CF50-0302-4 | BAR, WIDE BOX SUPPORT |
| 41 | 1 | CF50-0354-5 | BRACKET, HOPPER RETAINER |
| 42 | 1 | CF50-0355-5 | BAR, HOPPER RETAINER |
| 43 | 1 | CF50-0358-4 | BRACKET, HOPPER CYLINDER, XL |
| 44 | 1 | CF50-0360-3 | SPACER, FINGER CHANNEL, XL |
| 45 | 1 | CF50-0361-4 | BRACKET, BOTTOM FINGER, XL |
| 46 | 1 | CF50-0362-3 | FINGER, BOTTOM, XL |
| 47 | 1 | CF50-0366-3 | BLOCK, BUSHING, HOPPER XL |
| 48 | 1 | CF50-0374R-5 | CHANNEL, ADJUSTABLE SIDE, CF50T-XL |
| 49 | 1 | CF50-0375R-5 | GUIDE, ADJUSTABLE SIDE, CF50T-XL |
| 50 | 1 | CF50-0383-5 | PLATE, WIDE BOX SUPPORT |
| 51 | 2 | CF50-0434-4 | BRACKET, ADJUSTABLE GUIDE, XL |
| 52 | 1 | CL-1006 | CAM CLUTCH |
| 53 | 4 | FFHMF016P10 | FLAT HEAD CAP SCREW M5 X 16 LG. |
| 54 | 1 | FFHMG012P10 | FHCS M6x12 LG. |
| 55 | 4 | FFHMG025P10 | FLAT HEAD SCREW M6 X 25 |
| 56 | 2 | FFHMG030P10 | FHCS M6 X 30 |
| 57 | 2 | FFHMG035P10 | FHCS M6 X 35 |
| 58 | 4 | FFHM016P10 | FLAT HD. M8 X 16 |
| 59 | 8 | FFHM020P10 | FLAT HEAD CAP SCREW M8 X 20 |
| 60 | 7 | FFWMGP | FLAT WASHER M6 |
| 61 | 4 | FFWMHP | FLAT WASHER M8 |
| 62 | 7 | FHFNMHP | HEX NUT M8 |
| 63 | 4 | FHFNMIP | HEX NUT M10 |
| 64 | 3 | FHHMG020P10 | HHCS M6 X 20 |
| 65 | 1 | FHHMH016P10 | HHCS M8 X 16 |
| 66 | 10 | FHHMH020P10 | HHCS M8 X 20 |
| 67 | 6 | FHHMH025P10 | HHCS M8 X 25 |
| 68 | 2 | FHHMI020P88 | HHCS M10 X 20 |
| 69 | 6 | FHHMI025P88 | HHCS M10 X 25 |
| 70 | 1 | FHHSE075P08 | HHCS 1/4-20 X 3/4 |
| 71 | 4 | FHHSN100P05 | HHCS 1/2-13 X 1 |
| 72 | 2 | FLWMFP | LOCK WASHER M5 |
| 73 | 5 | FLWMGP | LOCK WASHER M6 |
| 74 | 17 | FLWMHP | LOCK WASHER M8 |
| 75 | 6 | FLWMIP | LOCK WASHER M10 |
| 76 | 1 | FLWSDP | LOCK WASHER 1/4 |
| 77 | 4 | FLWSHP | LOCK WASHER 1/2 |
| 78 | 11 | FNLNMGP | NYLOCK NUT M6 |
| 79 | 1 | FNLNMHP | NYLOCK NUT M8 |
| 80 | 1 | FSBSH100B05 | SHOULDER BOLT, 3/8 DIA X 1.0 |
| 81 | 6 | FSHMF010B10 | SHCS M5 X 10 |
| 82 | 2 | FSHMF012P10 | SHCS M5 X 12 |
| 83 | 4 | FSHMF025B10 | SHCS M5 X 25 |
| 84 | 2 | FSHMG016P10 | SHCS M6 X 16 |
| 85 | 1 | FSHMG020P10 | SHCS M6 X 20 |
| 86 | 5 | FSHMG040P10 | SHCS M6 X 40 |
| 87 | 1 | FSHMH040P10 | SHCS M8 x 40 |
| 88 | 1 | N401-241 | AIR CYLINDER |
| 89 | 1 | N483 | ROD CLEVIS |
| 90 | 1 | PA600010-44 | ROD |
| 91 | 6 | SC100 | 1" ID SHAFT COLLAR |
| 92 | 2 | SC125 | SET COLLAR |
| 93 | 2 | SPC-1005 | SPLIT COLLAR 1 1/4" |
| 94 | 1 | SPH-1206 | FENDER WASHER, 1/4" |
| 95 | 3 | SPH-1238 | SHOULDER BOLT, 5/16 DIA X 1.25 |
| 96 | 2 | SPK-0105 | SPROCKET |
| 97 | 2 | STD-077 45.00 | GEAR RACK |

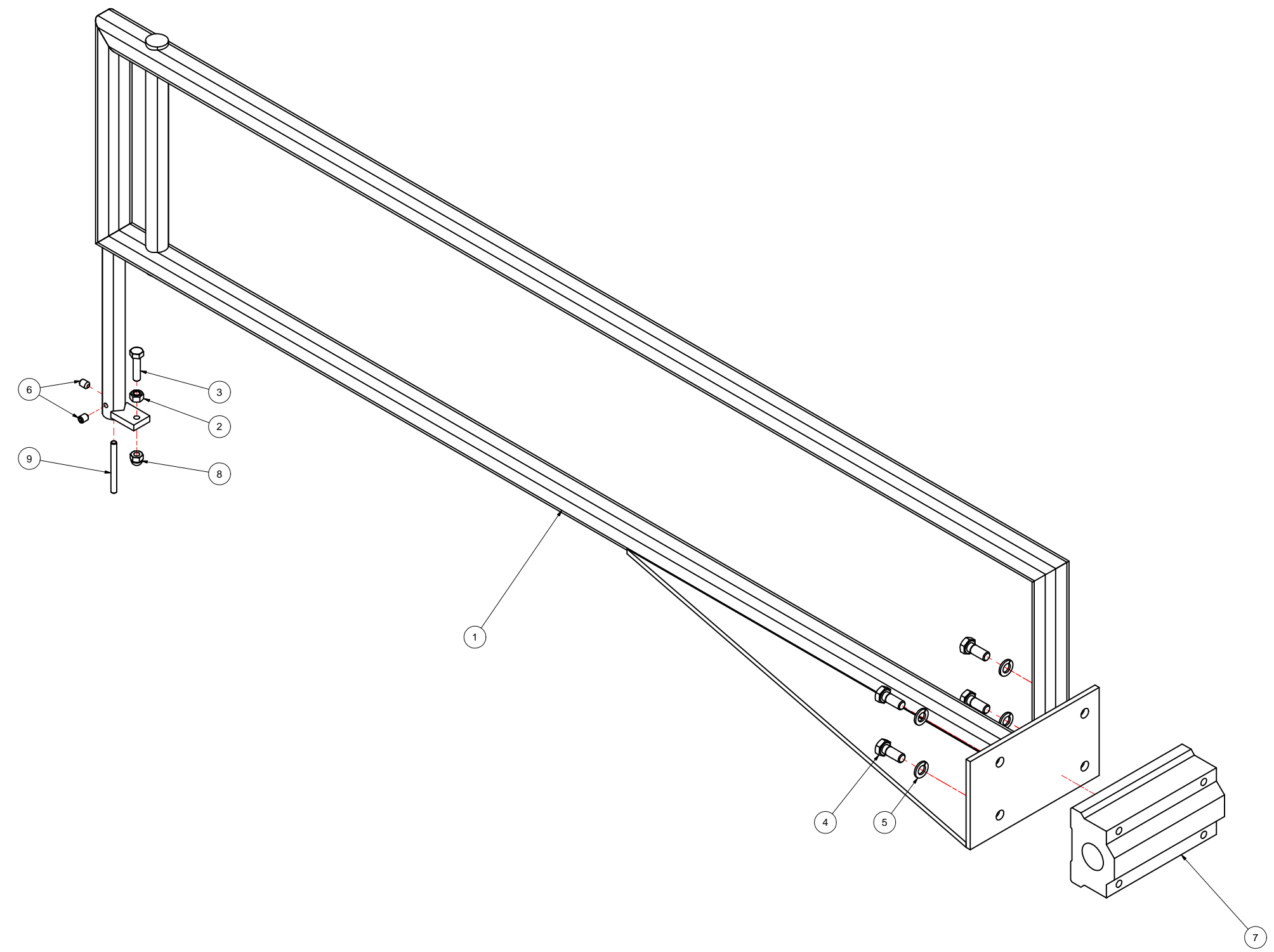


| REVISION HISTORY | | | |
|------------------|-------------|------------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 12/19/2011 | RM |

| | | | | | |
|---|--------|------------|---------------|---|---|
| MATL | PART # | CAD FILE | HDACF50-DC-XL | UNLESS OTHERWISE NOTED: | LOVESHAW an ITW Company RT. 296, SOUTH CANAAN, PA. HOPPER DRIVE ASSY, XL |
| STD | | PLOT DATE | 12/19/2011 | X = 1.000 NCH XXX = 2.015 ANGLS 1/12 XXX = 1.005 | |
| ST. ST. | | DRAWN DATE | 12/19/2011 | DO NOT SCALE PRINT X = 1.0mm MACH. FINISH METRIC XXX = 7.3mm XXX = 1.5mm | DWG NO. HDACF50-DC-XL SCALE MATERIAL DRAWN richm APPROVED |
| <small>THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW AND IS TO BE TREATED 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 OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF LOVESHAW AND WILL BE RETURNED TO LOVESHAW UPON REQUEST.</small> | | | | FRACTIONS ± 1/64 | |

| Parts List | | | |
|------------|-----|--------------|----------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | CF50-0367L-5 | HOPPER GATE, XL, STD |
| 2 | 1 | FHFNMGP | HEX NUT M6 |
| 3 | 1 | FHHMG025P10 | HHCS M6 X 25 |
| 4 | 4 | FHHMH020P10 | HHCS M8 X 20 |
| 5 | 4 | FLWMHP | LOCK WASHER M8 |
| 6 | 2 | FSSMG008B10 | SSCP M6 X 8 |
| 7 | 1 | PB25-SB-2 | LINEAR PILLOW BLOCK |
| 8 | 1 | SPH-1256 | ACORN NUT, M6 |
| 9 | 1 | SPH-1413 | PIN, HOPPER GATE |

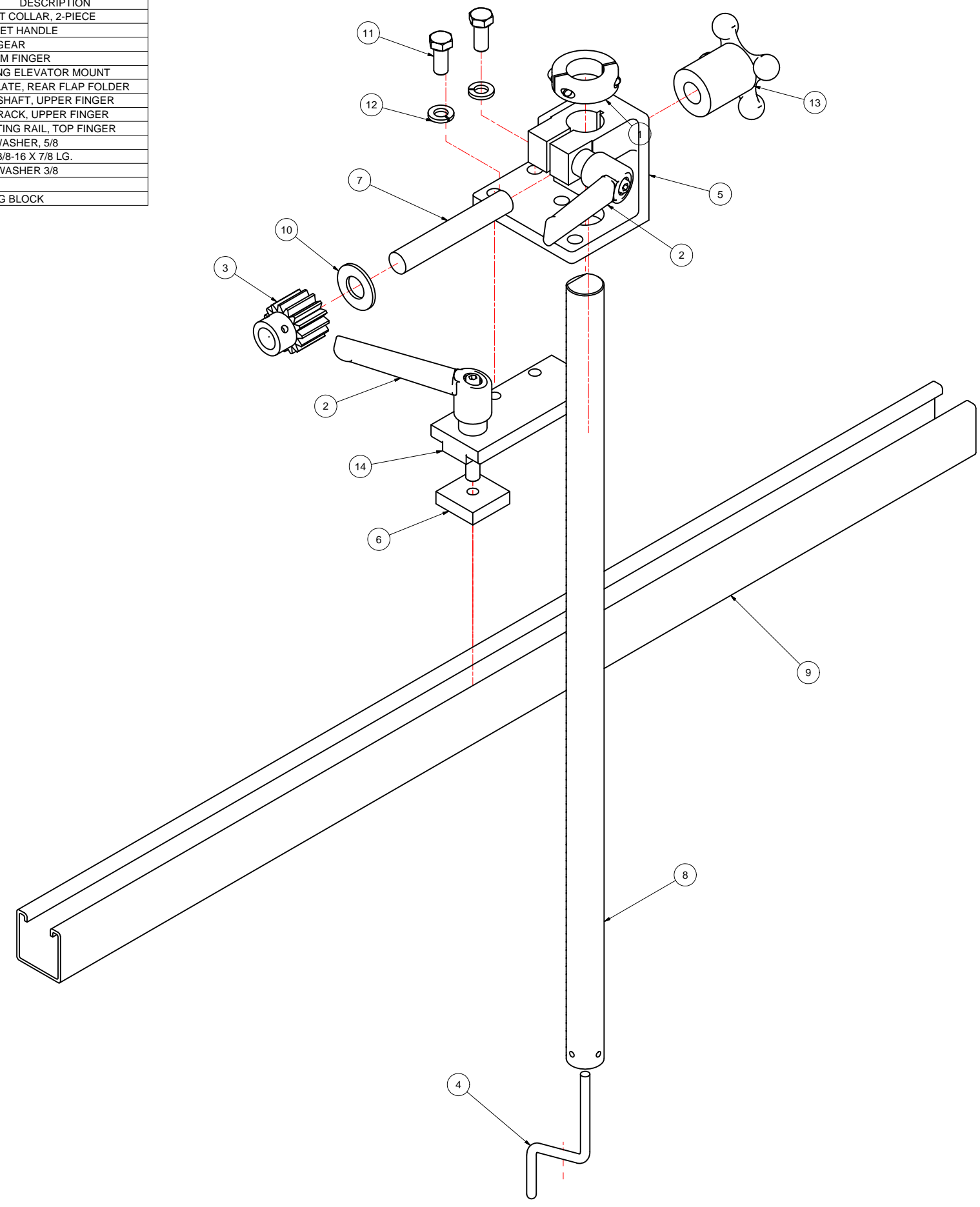
| REVISION HISTORY | | | |
|------------------|-------------|------------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 12/20/2011 | RM |



| | | | | |
|---|--------|-----------------------------|---|---|
| MATL | PART # | CAD FILE .BPACF50-DC-XL.dwg | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. |
| ST. ST | STD | PLOT DATE 12/20/2011 | X = ±1.050 INCH .XX = ±0.015 ANGLS ±1/2° .XXX = ±1.005 | |
| STAINLESS - NO FINISH | | DO NOT SCALE PRINT | X = ±1.0mm MACH. ✓ METRIC .XX = ±1.3mm FINISH ✓ .XXX = ±1.1mm | TITLE BOX PUSHER ASSEMBLY, XL |
| <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> | | | FRACTIONS ±1/64 | DWG NO .BPACF50-DC-XL SCALE 1/2:1 |
| DRAWN richm | | CHECKED | | APPROVED |

| Parts List | | | |
|------------|-----|--------------|-----------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | 202203 | 1" SPLIT COLLAR, 2-PIECE |
| 2 | 2 | 202669 | RATCHET HANDLE |
| 3 | 1 | 202766-10 | SPUR GEAR |
| 4 | 1 | A622966 | BOTTOM FINGER |
| 5 | 1 | C170390-PG | LOCKING ELEVATOR MOUNT |
| 6 | 1 | CF50-0089-3 | NUT PLATE, REAR FLAP FOLDER |
| 7 | 1 | CF50-0168-3 | GEAR SHAFT, UPPER FINGER |
| 8 | 1 | CF50-0174C-4 | GEAR RACK, UPPER FINGER |
| 9 | 1 | CF50-0384-4 | MOUNTING RAIL, TOP FINGER |
| 10 | 1 | FFWSIP | FLAT WASHER, 5/8 |
| 11 | 2 | FHHSJ088P05 | HHCS 3/8-16 X 7/8 LG. |
| 12 | 2 | FLWSFP | LOCK WASHER 3/8 |
| 13 | 1 | HC-1028 | KNOB |
| 14 | 1 | PB600417 | SLIDING BLOCK |

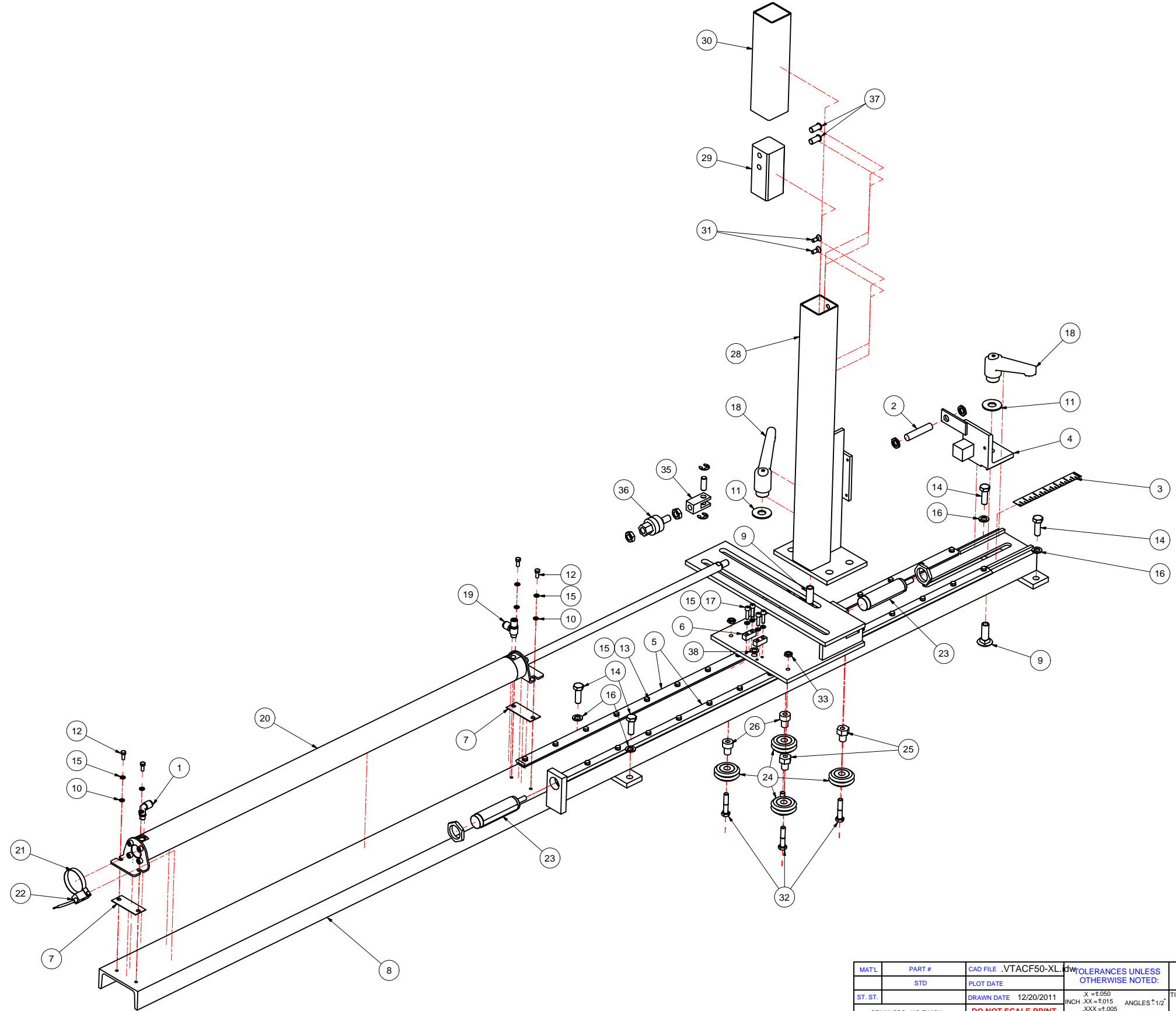
| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 3/30/2007 | AMYR |



| | | | | | |
|--|--------|------------|-------------|--|---|
| MATL | PART # | CAD FILE | .UFACF50-XL | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. |
| C.R.S. | STD | PLOT DATE | 3/29/2007 | X = ±1.050 INCH .XX = ±0.015 .XXX = ±1.005 ANGLES ±1/2° | |
| ST. ST. | | DRAWN DATE | 3/30/2007 | X = ±1.0mm METRIC .XX = ±1.3mm .XXX = ±1.1mm MACH. FINISH | TITLE |
| STAINLESS - NO FINISH | | | | DO NOT SCALE PRINT | UPPER FINGER ASSY |
| 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 | CF50T-XL |
| | | | | | DWG NO .UFACF50-XL |
| | | | | | SCALE |
| | | | | | CHECKED |
| | | | | | DRAWN AMYR |
| | | | | | APPROVED |

| Parts List | | | |
|------------|-----|--------------|--------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | 14441 | ELBOW, 1/4 TUBE X 1/8 NPT |
| 2 | 1 | 302575 | PROXIMITY SWITCH |
| 3 | 1 | 40-026-6 | SCALE |
| 4 | 1 | CF50-0072R-5 | TROLLEY STOP |
| 5 | 2 | CF50-0387-5 | VEE TRACK, XL |
| 6 | 2 | CF50-0399-3 | GUIDE, TROLLEY CLEVIS |
| 7 | 2 | CF50-0403-3 | SHIM, TROLLEY CYLINDER |
| 8 | 1 | CF50-0404-6 | CHANNEL, VACUUM TROLLEY |
| 9 | 2 | FCBSN150P05 | CARRIAGE BOLT, 1/2-13 X 1 1/2" |
| 10 | 4 | FFWMFP | FLAT WASHER M5 |
| 11 | 2 | FFWSHP | FLAT WASHER 1/2" |
| 12 | 4 | FHHMF012P10 | HHCS M5 X 12 |
| 13 | 30 | FHHMF016P10 | HEX HEAD M5 x 16 |
| 14 | 4 | FHHM030P88 | HHCS M10 X 1.5 X 30 |
| 15 | 38 | FLWMFP | LOCK WASHER M5 |
| 16 | 4 | FLWMIP | LOCK WASHER M10 |
| 17 | 4 | FSHMF020P10 | SHCS M5 X 20 |
| 18 | 2 | HC-1027 | RATCHET HANDLE |
| 19 | 1 | N400-201 | FLOW CONTROL, TAMPER PROOF |
| 20 | 1 | N401-347 | TROLLEY CYLINDER, XL |
| 21 | 1 | N595 | SWITCH BRACKET |
| 22 | 1 | N597 | REED SWITCH |
| 23 | 2 | SHK-007 | SHOCK ABSORBER |
| 24 | 4 | 204225 | VEE WHEEL |
| 25 | 2 | 204226 | BUSHING, ECCENTRIC |
| 26 | 2 | 204227 | BUSHING, CONCENTRIC |
| 27 | 1 | CF50-0071R-5 | CARRIER, VACUUM TROLLEY |
| 28 | 1 | CF50-0073-5 | VACUUM TREE |
| 29 | 1 | CF50-0075-3 | INSERT, VACUUM TREE |
| 30 | 1 | CF50-0076-4 | EXTENSION, VACUUM TREE |
| 31 | 2 | FFHMG016P10 | FHCS M6 X 16 |
| 32 | 4 | FHHMH040P10 | HHCS M8 X 40 |
| 33 | 4 | FHJNMHP | HEX JAM NUT, M8, PLATED |
| 34 | 1 | FHJNSMP | 7/16-20 HEX JAM NUT |
| 35 | 1 | N594 | ROD CLEVIS |
| 36 | 1 | N629 | FLOATING JOINT |
| 37 | 2 | SPH-1309 | SPRING PLUNGER |
| 38 | 2 | SPH-1454 | SHIM |

| REVISION HISTORY | | | |
|------------------|-------------|------------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 12/20/2011 | RM |

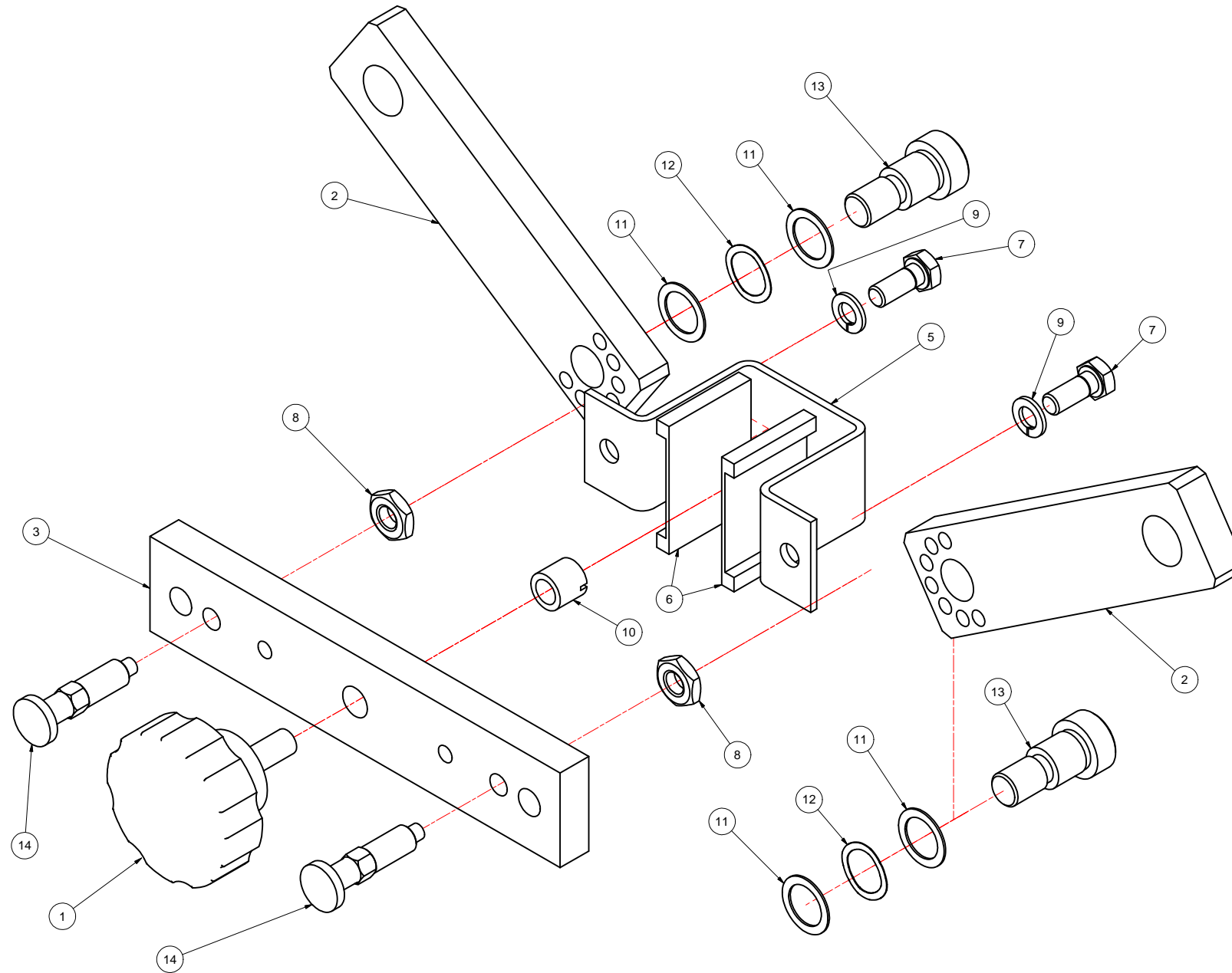


| | | | | |
|-----------------------|--------|--------------------------|---|--|
| MATL | PART # | CAD FILE .VTACF50-XL.dwg | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. TITLE VACUUM TROLLEY ASSY CF50-TXL |
| ST. ST | STD | PLOT DATE | X = ±1.050 INCH .XX = ±0.015 ANGLS ±1/2° .XXX = ±1.005 X = ±1.0mm MACH. ✓ METRIC .XX = ±1.3mm FINISH ✓ .XXX = ±1.1mm | |
| STAINLESS - NO FINISH | | DO NOT SCALE PRINT | FRACTIONS ± 1/64 | DWG NO .VTACF50XL SCALE MATERIAL DRAWN richm CHECKED APPROVED |

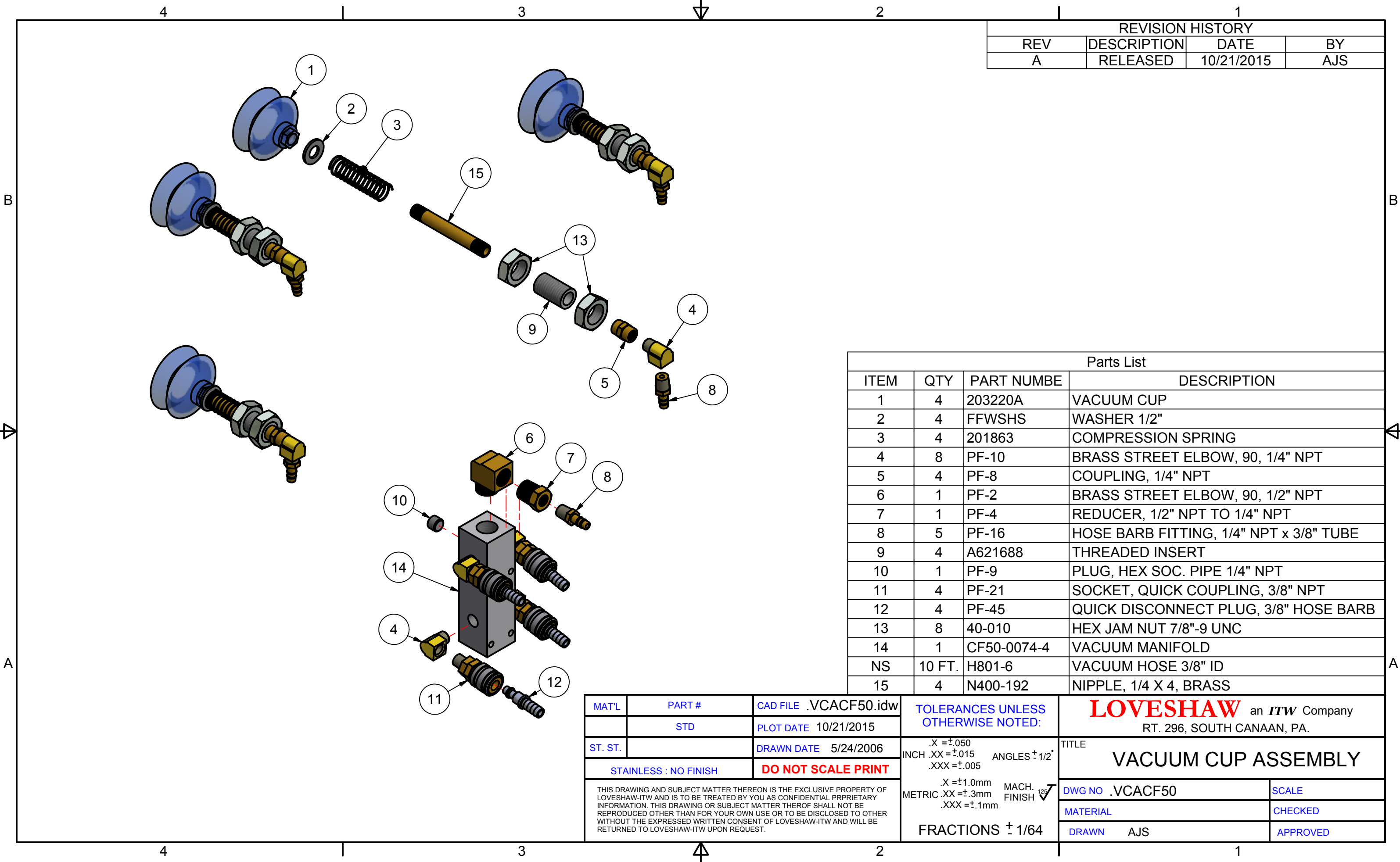
THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW-ITW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREOF SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHER WITHOUT THE EXPRESSED WRITTEN CONSENT OF LOVESHAW-ITW AND WILL BE RETURNED TO LOVESHAW-ITW UPON REQUEST.

| Parts List | | | |
|------------|-----|--------------|--|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | 201816 | KNOB, 3/8-16 |
| 2 | 2 | CF50-0078-4 | ARM, VACUUM CUP |
| 3 | 1 | CF50-0079-4 | BRACKET, VACUUM CUPS |
| NS | 1 | CF50-0079A-4 | BRACKET, VACUUM CUPS, LONG BOX |
| 5 | 1 | CF50-0175-4 | BRACKET, VACUUM TREE |
| 6 | 2 | CF50-0205-4 | SPACER, VACUUM BAR |
| 7 | 2 | FHHMH020P10 | HHCS M8 X 20 |
| 8 | 2 | FHJNMIP | HEX JAM NUT, M10, PLATED |
| 9 | 2 | FLWMHP | LOCK WASHER M8 |
| 10 | 1 | SPH-1219 | THREADED INSERT |
| 11 | 4 | SPH-1319 | SHIM |
| 12 | 2 | SPH-1320 | WAVE WASHER |
| 13 | 2 | SPH-1321 | SHLDR. BOLT 5/8" DIA. X 5/8" LG., 1/2-13 THRD. |
| 14 | 2 | SPH-1325 | SPRING PLUNGER, NON-LOCKING |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 9/25/2007 | AMYR |



| | | | | | | |
|---|--------|------------|--------------|---|---|---------------------|
| MATL | PART # | CAD FILE | .VBACF50-PIN | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. | |
| C.R.S. | STD | PLOT DATE | 9/9/2009 | X = ±1.000 INCH .XX = ±0.015 ANGLS ±1/2° .XXX = ±1.005 | | |
| ST. ST | N/A | DRAWN DATE | 9/25/2007 | X = ±1.0mm MACH. ✓ METRIC .XX = ±1.3mm FINISH ✓ .XXX = ±1.1mm | TITLE | |
| STAINLESS - NO FINISH | | | | DO NOT SCALE PRINT | FRACTIONS ±1/64 | VACUUM BAR ASSEMBLY |
| <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> | | | | | | DWG NO |
| | | | | | SCALE | N/A |
| | | | | | MATERIAL | N/A |
| | | | | | CHECKED | |
| | | | | | DRAWN | AMYR |
| | | | | | APPROVED | |



| REVISION HISTORY | | | |
|------------------|-------------|------------|-----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 10/21/2015 | AJS |

| Parts List | | | |
|------------|--------|-------------|---|
| ITEM | QTY | PART NUMBE | DESCRIPTION |
| 1 | 4 | 203220A | VACUUM CUP |
| 2 | 4 | FFWSHS | WASHER 1/2" |
| 3 | 4 | 201863 | COMPRESSION SPRING |
| 4 | 8 | PF-10 | BRASS STREET ELBOW, 90, 1/4" NPT |
| 5 | 4 | PF-8 | COUPLING, 1/4" NPT |
| 6 | 1 | PF-2 | BRASS STREET ELBOW, 90, 1/2" NPT |
| 7 | 1 | PF-4 | REDUCER, 1/2" NPT TO 1/4" NPT |
| 8 | 5 | PF-16 | HOSE BARB FITTING, 1/4" NPT x 3/8" TUBE |
| 9 | 4 | A621688 | THREADED INSERT |
| 10 | 1 | PF-9 | PLUG, HEX SOC. PIPE 1/4" NPT |
| 11 | 4 | PF-21 | SOCKET, QUICK COUPLING, 3/8" NPT |
| 12 | 4 | PF-45 | QUICK DISCONNECT PLUG, 3/8" HOSE BARB |
| 13 | 8 | 40-010 | HEX JAM NUT 7/8"-9 UNC |
| 14 | 1 | CF50-0074-4 | VACUUM MANIFOLD |
| NS | 10 FT. | H801-6 | VACUUM HOSE 3/8" ID |
| 15 | 4 | N400-192 | NIPPLE, 1/4 X 4, BRASS |

| | | |
|---|--------|-----------------------|
| MAT'L | PART # | CAD FILE .VCACF50.idw |
| | STD | PLOT DATE 10/21/2015 |
| ST. ST. | | DRAWN DATE 5/24/2006 |
| 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

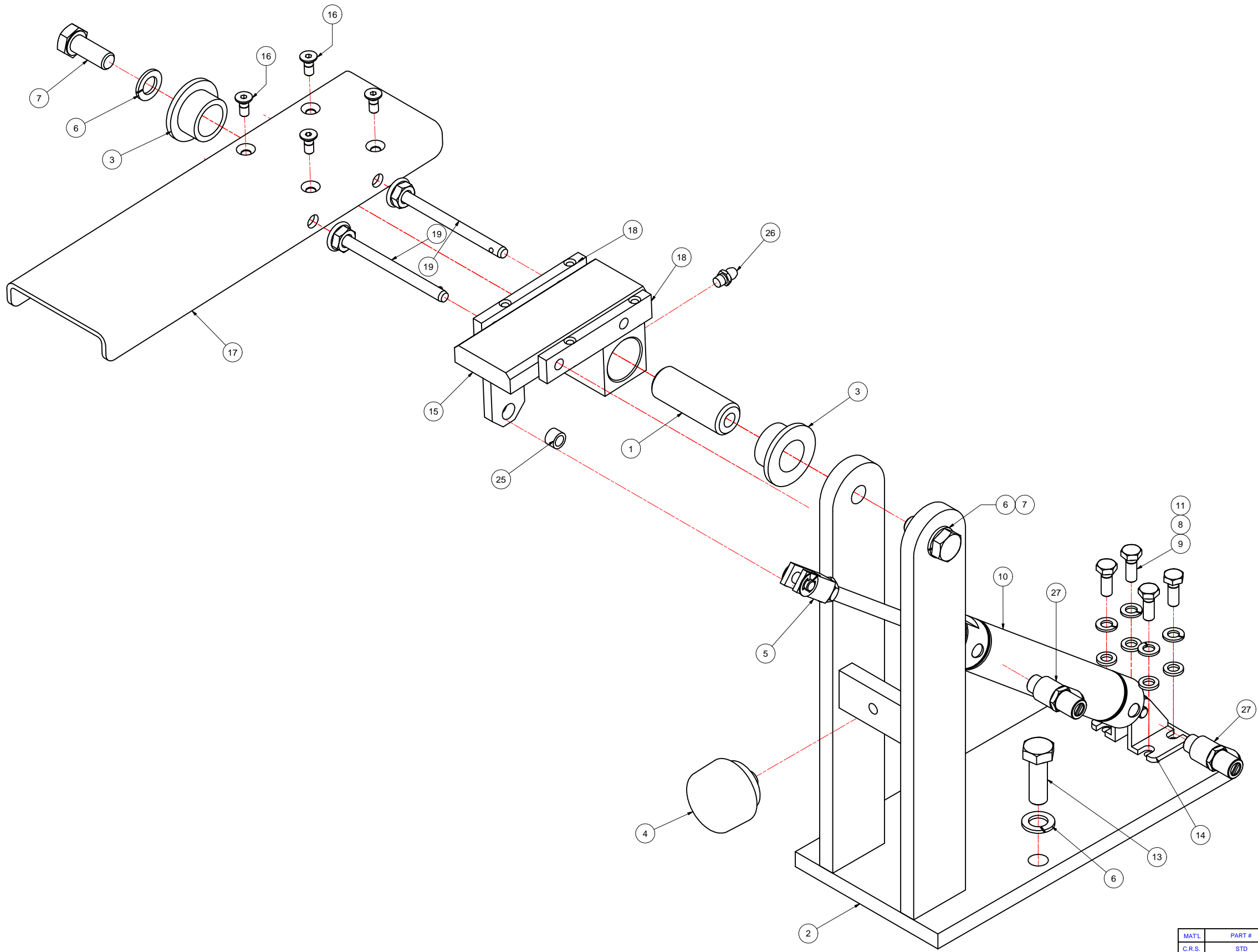
FRACTIONS ± 1/64

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

TITLE
VACUUM CUP ASSEMBLY

| | |
|-----------------|----------|
| DWG NO .VCACF50 | SCALE |
| MATERIAL | CHECKED |
| DRAWN AJS | APPROVED |

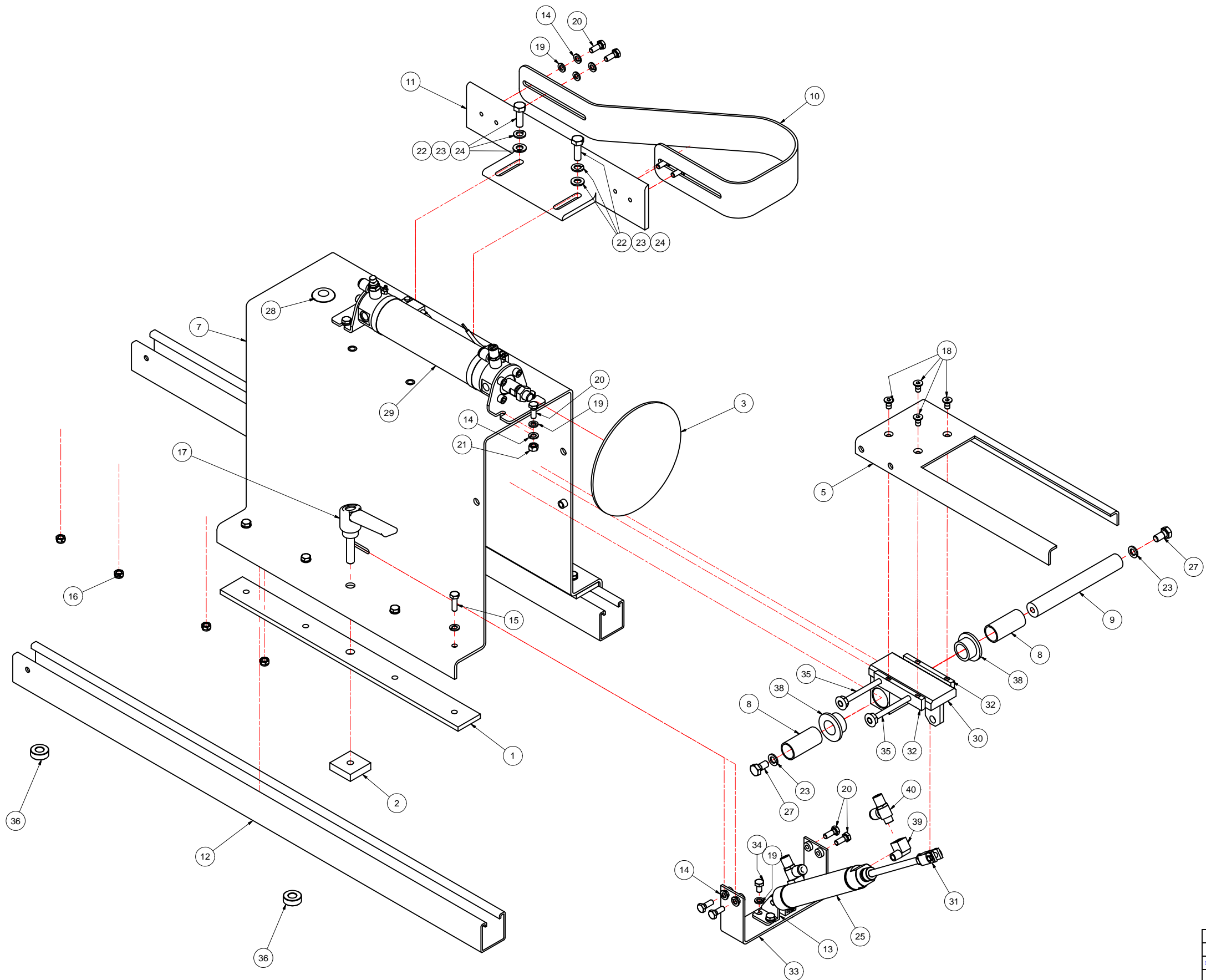
| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 7/31/2007 | AMYR |



| Parts List | | | |
|------------|-----|--------------|-------------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | CF50-0092-3 | PIVOT SHAFT, FRONT FLAP FOLDER |
| 2 | 1 | CF50-0095-5 | FRAME, FRONT FLAP FOLDER |
| 3 | 2 | 200241 | FLANGED BUSHING |
| 4 | 1 | 200287 | BUMPER |
| 5 | 1 | N559 | ROD CLEVIS |
| 6 | 4 | FLWMIP | LOCK WASHER M10 |
| 7 | 2 | FHHM025P88 | HHCS M10 X 25 |
| 8 | 4 | FLWMGP | LOCK WASHER M6 |
| 9 | 4 | FHHMG016P10 | HHCS M6 X 16 |
| 10 | 1 | N401-245 | CYLINDER, REAR FLAP FOLDER |
| 11 | 4 | FFWMGP | FLAT WASHER M6 |
| 13 | 2 | FHHM030P88 | HHCS M10 X 1.5 X 30 LG. |
| 14 | 1 | N472 | MOUNTING BRACKET |
| 15 | 1 | CF50-0231-4 | PIVOT, FFF, TOOLLESS |
| 16 | 4 | FFHMF012P10 | FHCS M5 X 0.8 X 12 LG. |
| 17 | 1 | CF50-0229A-4 | FOLDER, FRONT FLAP |
| - | 1 | CF50-0229B-4 | FOLDER, FRONT FLAP |
| 18 | 2 | CF50-0238_-3 | BRACKET, FLAP FOLDER, QUICK RELEASE |
| 19 | 2 | CF50-0237B-3 | PIN, FLAP FOLDER |
| 25 | 1 | BSG-1107 | BUSHING, PLAIN |
| 26 | 1 | SPH-1368 | GREASE FITTING, 1/4-28UNF |
| 27 | 2 | N400-201 | FLOW CONTROL, TAMPER PROOF |

| | | | | | |
|---|--------|------------|-------------|--|---|
| MATL | PART # | CAD FILE | .FFCF50-PIN | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an ITW Company RT. 296, SOUTH CANAAN, PA. |
| C.R.S. | STD | PLOT DATE | 9/8/2009 | X = ±1.050 INCH .XX = ±0.015 ANGLS ±1/2° .XXX = ±1.005 | |
| ST. ST | | DRAWN DATE | 7/31/2007 | X = ±1.0mm MACH. ✓ METRIC .XX = ±1.3mm .XXX = ±1.1mm | TITLE |
| STAINLESS - NO FINISH | | | | DO NOT SCALE PRINT | FRONT FLAP FOLDER TOOLLESS |
| <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> | | | | | DWG NO |
| | | | | | .FFCF50-PIN |
| | | | | | MATERIAL |
| | | | | | SCALE |
| | | | | | CHECKED |
| | | | | | DRAWN |
| | | | | | AMYR |
| | | | | | APPROVED |
| | | | | | FRACTIONS ±1/64 |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 7/31/2007 | AMYR |

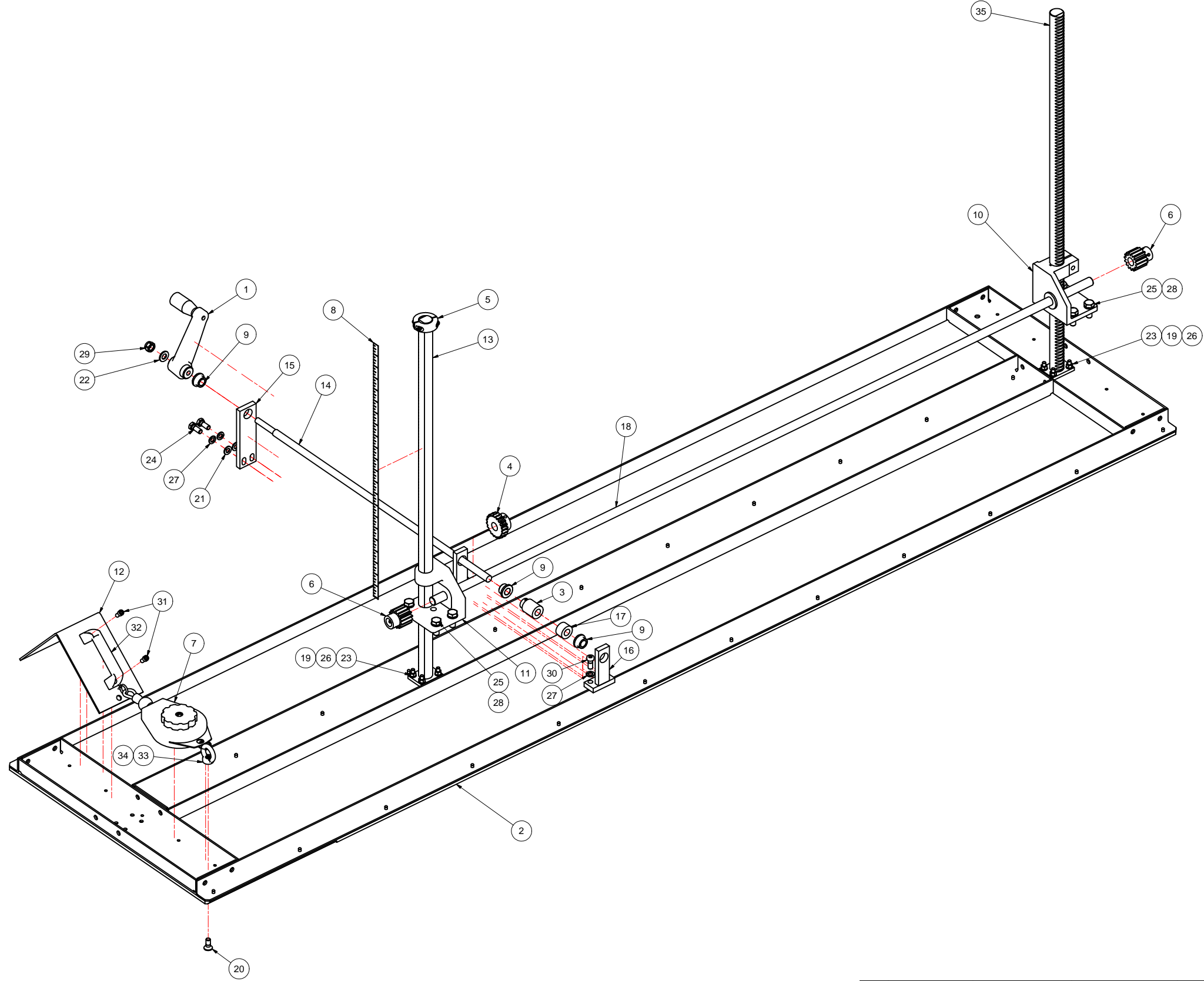


| Parts List | | | |
|------------|-----|--------------|--------------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 2 | C622344B | BEARING STRIP, REAR FLAP FOLDER |
| 2 | 2 | CF50-0089-3 | NUT PLATE, REAR FLAP FOLDER |
| 3 | 1 | CF50-0091-4 | DISK PUSHER, REAR FLAP FOLDER |
| 4 | 1 | CF50-0091A-4 | DISK PUSHER, REAR FLAP FOLDER, SMALL |
| 5 | 1 | CF50-0083-4 | FOLDING ARM, REAR FLAP FOLDER |
| 6 | 1 | CF50-0083A-4 | FOLDING ARM, REAR FLAP FOLDER, SMALL |
| 7 | 1 | CF50-0081-5 | FRAME, REAR FLAP FOLDER |
| 8 | 2 | CF50-0314-3 | PIVOT SPACER, REAR FLAP FOLDER |
| 9 | 1 | CF50-0313-3 | SHAFT, RFF PIVOT |
| 10 | 1 | CF50-0084-4 | FORMING BAR, REAR FLAP FOLDER |
| 11 | 1 | CF50-0085-4 | MOUNTING ANGLE, FORMING BAR |
| 12 | 2 | CF50-0082-4 | MOUNTING CHANNEL, REAR FLAP FOLDER |
| 13 | 1 | N472 | MOUNTING BRACKET |
| 14 | 20 | FLWMGP | LOCK WASHER M6 |
| 15 | 8 | FHHMG020P10 | HHCS M6 X 20 |
| 16 | 8 | FNLNMGP | NYLOCK NUT M6 |
| 17 | 2 | HC-1026 | RATCHET HANDLE |
| 18 | 4 | FFHMG012P10 | FHCS M6x12 LG. |
| 19 | 12 | FFWMGP | FLAT WASHER M6 |
| 20 | 12 | FHHMG016P10 | HHCS M6 X 16 |
| 21 | 4 | FHFNMGP | HEX NUT M6 |
| 22 | 2 | FFWMHP | FLAT WASHER M8 |
| 23 | 4 | FLWMHP | LOCK WASHER M8 |
| 24 | 2 | FHHMH025P10 | HHCS M8 X 25 |
| 25 | 1 | N401-245 | CYLINDER, REAR FLAP FOLDER |
| 26 | 1 | N590 | FLOW CONTROL, 1/8 NPT X 1/4 TUBE |
| 27 | 2 | FHHMH016P10 | HHCS M8 X 16 |
| 28 | 1 | SPH-1260 | GROMMET, RUBBER 1/2" ID |
| 29 | 1 | N401-264 | CYLINDER, CASE PUSHER |
| 30 | 1 | CF50-0231-4 | PIVOT, FFF, TOOLLESS |
| 31 | 1 | N559 | ROD CLEVIS |
| 32 | 2 | CF50-0238 -3 | BRACKET, FLAP FOLDER, QUICK RELEASE |
| 33 | 1 | CF50-0239-4 | MOUNTING BRACKET, RFF CYL |
| 34 | 4 | FHHMG010P10 | HHCS M6 X 10 |
| 35 | 2 | CF50-0237A-3 | PIN, FLAP FOLDER |
| 36 | 4 | SPH-1324 | WASHER, 8mm THICK |
| 37 | 1 | BSG-1107 | BUSHING, PLAIN |
| 38 | 2 | 200241 | FLANGED BUSHING |
| 39 | 2 | H146 | ELBOW |
| 40 | 3 | N400-201 | FLOW CONTROL, TAMPER PROOF |

| | | | | |
|---|--------|-----------------------|--|---|
| MATL | PART # | CAD FILE .RFFCF50-PIN | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. |
| C.R.S. | STD | PLOT DATE 9/9/2009 | $X = \pm 1.050$ $INCH \ XX = \pm 0.015$ ANGLES $\pm 1/2^\circ$ $XXX = \pm 1.005$ | |
| ST. ST | | DRAWN DATE 7/31/2007 | $X = \pm 1.0mm$ MACH. $\pm 1/2$ $METRIC \ XX = \pm 0.3mm$ $XXX = \pm 1.1mm$ FINISH | TITLE REAR FLAP FOLDER ASSY - TOOLLESS |
| STAINLESS - NO FINISH | | DO NOT SCALE PRINT | FRACTIONS $\pm 1/64$ | DWG NO .RFFCF50-PIN |
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| | | | | DRAWN AMYR |
| | | | | CHECKED |
| | | | | APPROVED |

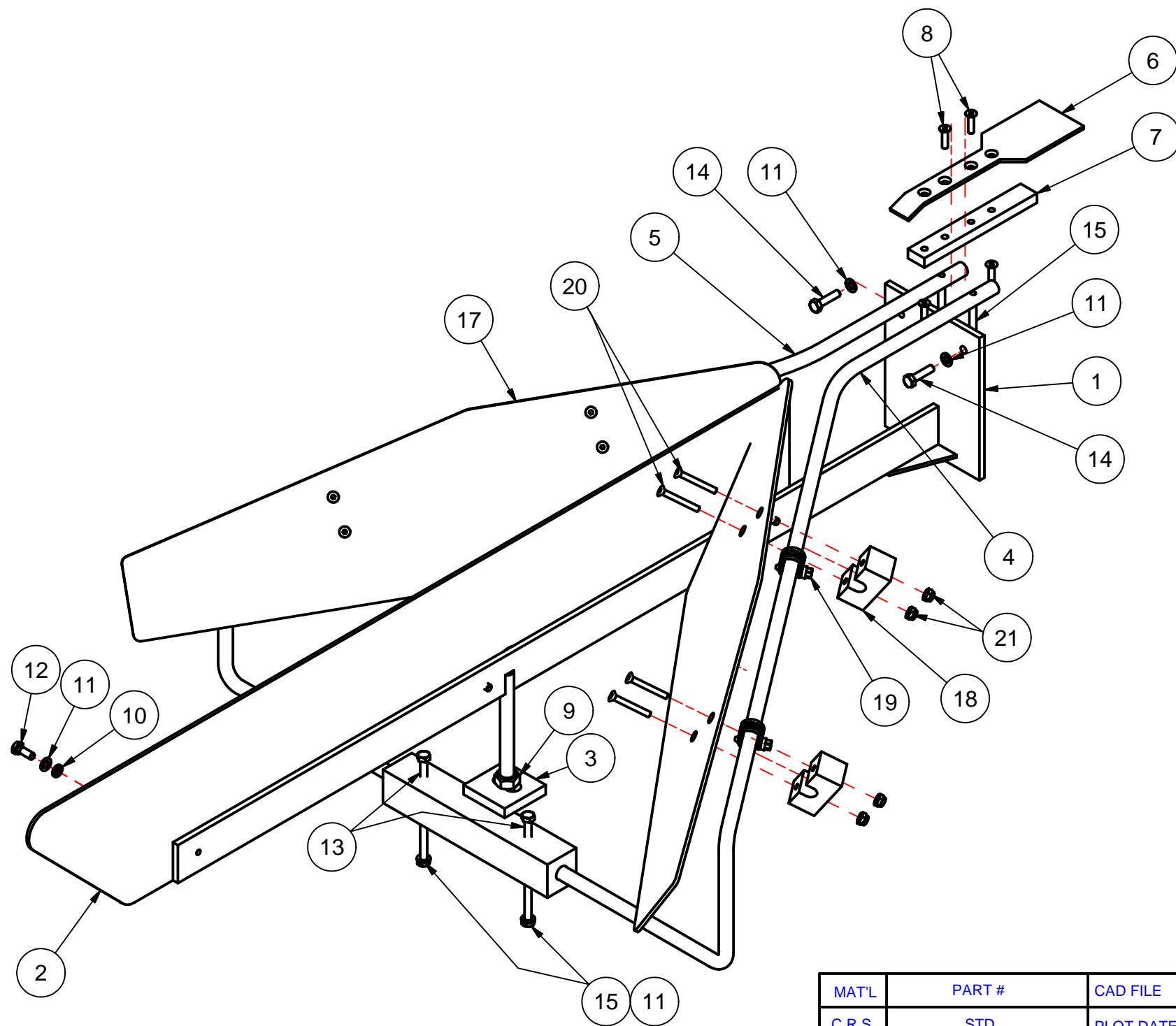
| Parts List | | | |
|------------|-----|--------------|-----------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | .HC-1034 | HANDLE, CRANK |
| 2 | 1 | .SLEDCF50/V | TOP SLED ASSEMBLY |
| 3 | 1 | .WG-1000A | WORM |
| 4 | 1 | .WG-1000B | WORM GEAR |
| 5 | 1 | 202203 | 1" SPLIT COLLAR, 2-PIECE |
| 6 | 2 | 202766-10 | SPUR GEAR |
| 7 | 1 | 204134 | BALANCER |
| 8 | 1 | 40-026 | SCALE |
| 9 | 3 | BSG-1095 | BUSHING, FLANGED |
| 10 | 1 | C170390-PG | ELEVATOR MOUNT, LOCKING |
| 11 | 1 | C170477-PG | ELEVATOR MOUNT, NON-LOCKING |
| 12 | 1 | C622626 | ANGLE, BLANK HOLD-UP |
| 13 | 1 | C622896B | GEAR RACK, w/SCALE, XL |
| 14 | 1 | CF50-0232A-4 | SHAFT, WORM |
| 15 | 1 | CF50-0233-4 | BRACKET, WORM SHAFT |
| 16 | 2 | CF50-0234-4 | BRACKET, WORM |
| 17 | 1 | CF50-0235-3 | SPACER, WORM |
| 18 | 1 | CF50-0240-3 | ROD, TOP SLED ADJUSTMENT |
| 19 | 8 | FFHMG030P10 | FHCS M6 X 30 |
| 20 | 1 | FFHMH020P10 | FHCS M8 X 20 |
| 21 | 2 | FFWMHP | FLAT WASHER M8 |
| 22 | 1 | FFWMIP | FLAT WASHER M10 |
| 23 | 8 | FHFNMGP | HEX NUT M6 |
| 24 | 2 | FHHMH020P10 | HHCS M8 X 20 |
| 25 | 6 | FHHM1025P88 | HHCS M10 X 25 |
| 26 | 8 | FLWMGP | LOCK WASHER M6 |
| 27 | 6 | FLWMHP | LOCK WASHER M8 |
| 28 | 6 | FLWMIP | LOCK WASHER M10 |
| 29 | 1 | FNLNMIP | NYLOCK NUT M10 |
| 30 | 4 | FSHMH020P10 | SHCS M8 X 20 |
| 31 | 2 | FSHSE050B08 | SHCS, 1/4-20 x 1/2" |
| 32 | 1 | HC-1004 | U-HANDLE |
| 33 | 1 | SPH-1477 | EYE NUT, M8 |
| 34 | 1 | SPH-1478 | RING |
| 35 | 1 | STD-013-31 | GEAR RACK - ELEVATOR, 31" |

| REVISION HISTORY | | | |
|------------------|-------------|------------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 12/21/2011 | RM |



| | | | | |
|---|--------|--------------------------|--|--|
| MATL | PART # | CAD FILE .TSACF50-XL.dwg | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. TOP SLED ASSEMBLY CF50T-XL |
| ST. ST. | STD | PLOT DATE | X = ±1.050 INCH .XX = ±0.015 ANGLES ±1/2° .XXX = ±1.005 X = ±1.0mm MACH. FINISH METRIC .XX = ±0.3mm .XXX = ±1.1mm | |
| STAINLESS - NO FINISH | | DO NOT SCALE PRINT | FRACTIONS ± 1/64 | DWG NO. .TSACF50XL SCALE MATERIAL DRAWN richm CHECKED APPROVED |
| <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> | | | | |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|------|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 3/27/2006 | AMYR |



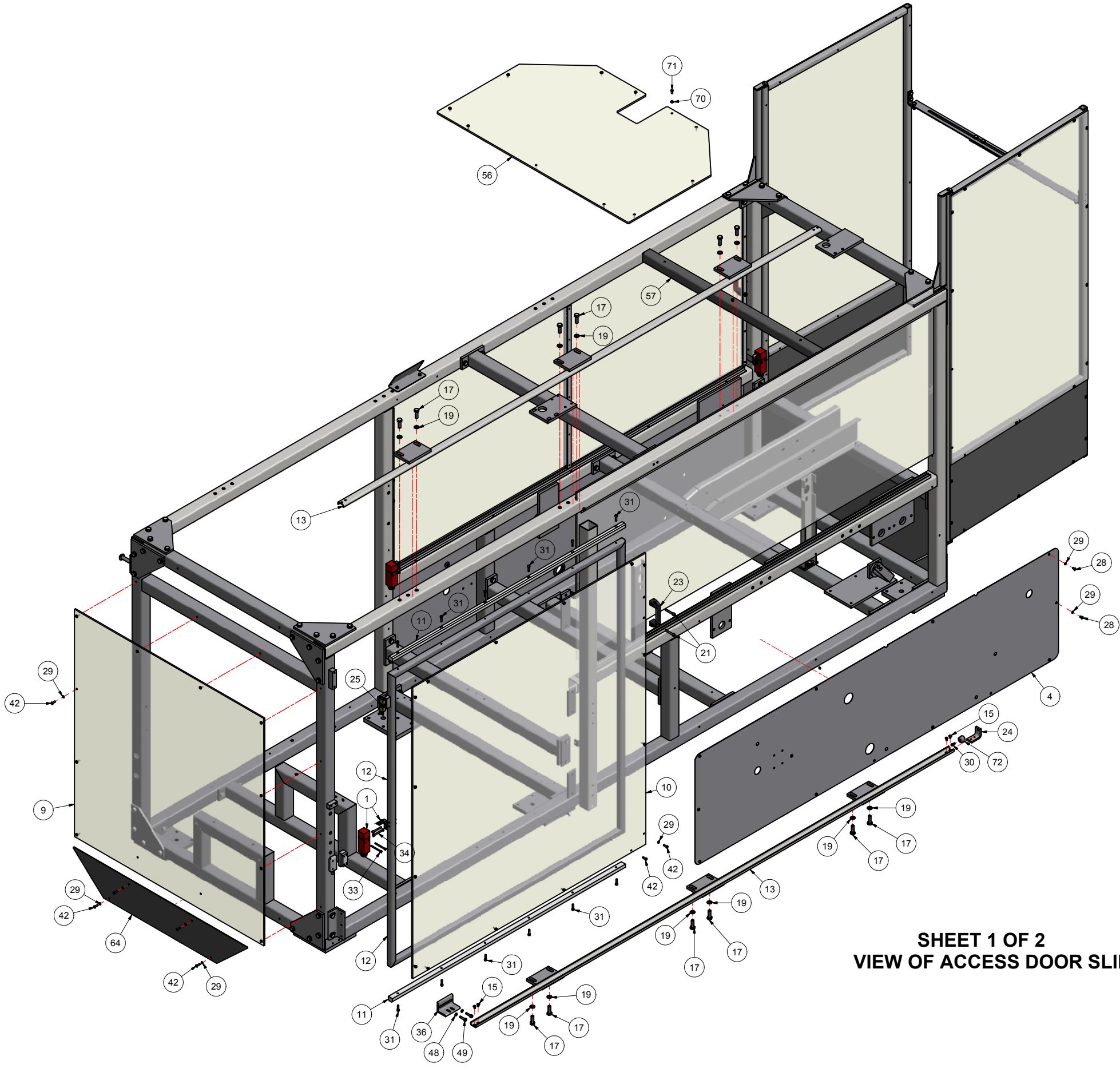
| Parts List | | | |
|------------|-----|--------------|--------------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | CF50-0096-5 | CENTER GUIDE PLATE MOUNT |
| 2 | 1 | CF50-0097-5 | CENTER GUIDE PLATE |
| 3 | 1 | CF50-0098-4 | PLOW BAR MOUNTING BLOCK |
| 4 | 1 | LD12B-1013-6 | FLAP FOLDER LEFT |
| 5 | 1 | LD12B-1014-6 | FLAP FOLDER RIGHT |
| 6 | 1 | CF50-0099-4 | MAJOR FLAP HOLDER PLATE |
| 7 | 1 | CF50-0077-3 | MAJOR FLAP HOLDER PLATE SPACER |
| 8 | 4 | FFHMF020P10 | FHCS M5 X 20 |
| 9 | 2 | FHFNMP | HEX NUT M12 |
| 10 | 3 | FFWMGP | FLAT WASHER M6 |
| 11 | 9 | FLWMGP | LOCK WASHER M6 |
| 12 | 3 | FHHMG016P10 | HHCS M6 X 16 |
| 13 | 2 | FHHMG030P10 | HHCS M6 X 30 |
| 14 | 2 | FHHMG025P10 | HHCS M6 X 25 |
| 15 | 4 | FHHMG060P10 | HHCS M6 X 60 |
| 16 | 1 | C622731-1 | PLATE-PREFOLD-RS |
| 17 | 1 | C622731-2 | PLATE-PREFOLD-LS |
| 18 | 4 | B622732 | BLOCK, PREFOLD PIVOT |
| 19 | 4 | H149A | CLAMP |
| 20 | 8 | FFHSD150P05 | FL. HD. CAP SCREW 10-32 X 1 1/2" LG. |
| 21 | 8 | FNLNSDP | 10-32UNF NYLOCK NUT |

| | | |
|--|--------|----------------------|
| MAT'L | PART # | CAD FILE .PBACF50 |
| C.R.S. | STD | PLOT DATE 9/11/2009 |
| ST. ST. | N/A | DRAWN DATE 3/27/2006 |
| STAINLESS : NO FINISH | | DO NOT SCALE PRINT |
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| | |
|------------------------------------|--------------------|
| TOLERANCES UNLESS OTHERWISE NOTED: | |
| .X = ±.050 | ANGLES ± 1/2° |
| INCH .XX = ±.015 | |
| .XXX = ±.005 | |
| .X = ±1.0mm | MACH. FINISH 125 ✓ |
| METRIC .XX = ±.3mm | |
| .XXX = ±.1mm | |
| FRACTIONS ± 1/64 | |

| | |
|---------------------------------------|-----------|
| LOVESHAW an <i>ITW</i> Company | |
| RT. 296, SOUTH CANAAN, PA. | |
| TITLE PLOW BAR ASSEMBLY | |
| DWG NO .PBACF50 | SCALE N/A |
| MATERIAL N/A | CHECKED |
| DRAWN AMYR | APPROVED |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|----------|
| REV | DESCRIPTION | DATE | APPROVED |
| A | RELEASED | 6/10/2015 | TONYS |



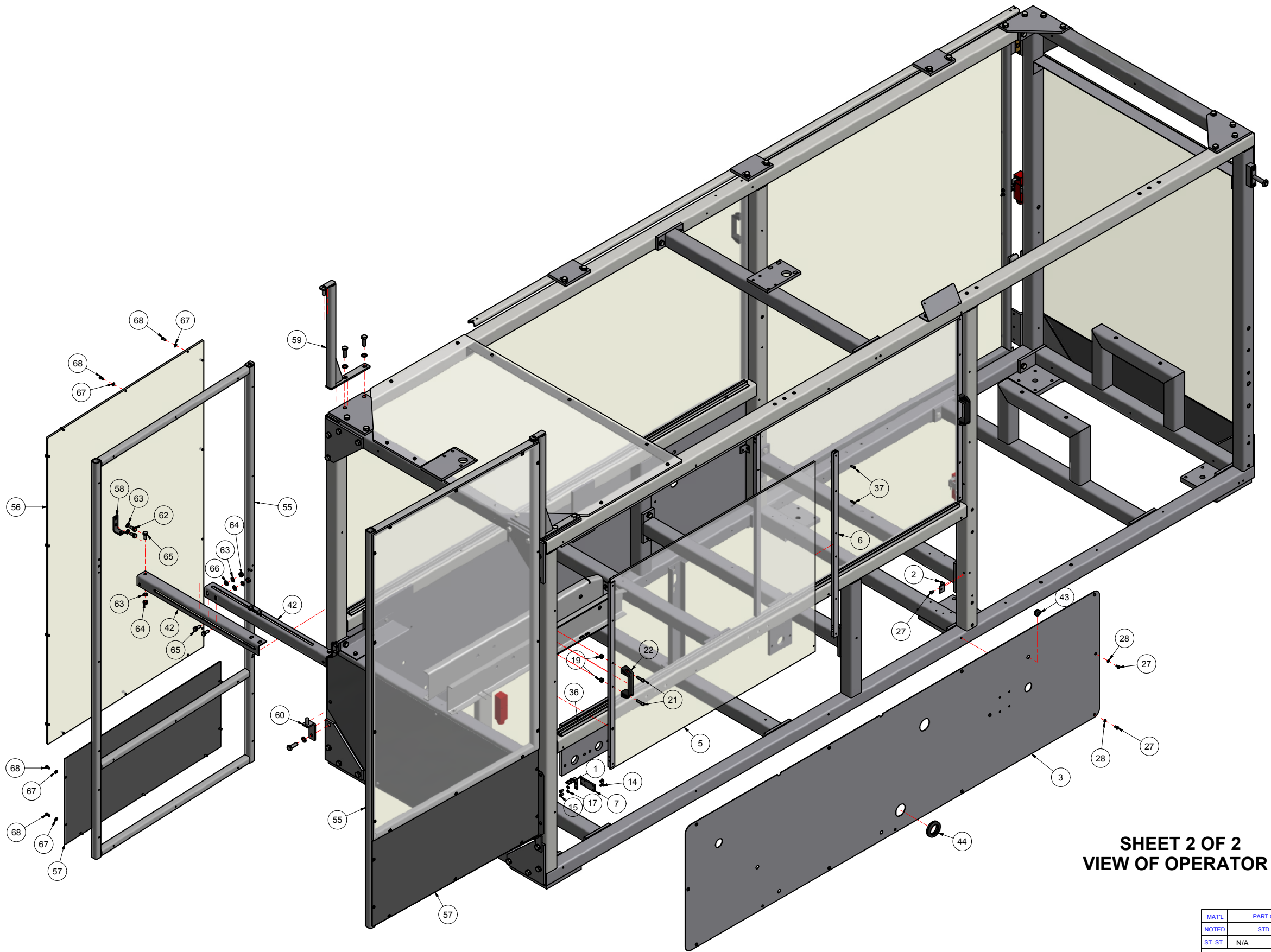
| Parts List | | | |
|------------|-----|-------------|------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 3 | A195SG-TM1 | SAFETY GATE SWITCH |
| 3 | 4 | CF20-0123-3 | PANEL BRACKET |
| 4 | 2 | CF50-0126-5 | LOWER GUARD PANEL |
| 5 | 1 | CF50-0130-4 | FRONT PANEL |
| 6 | 2 | CF50-0140-4 | SLIDING PANEL |
| 7 | 4 | CF50-0141-4 | SLIDING PANEL EDGE |
| 8 | 2 | CF50-0142-3 | KEY PLATE |
| 9 | 1 | CF50-0144-4 | BACK PANEL |
| 10 | 1 | CF50-0146-5 | DOOR PANEL |
| 11 | 2 | CF50-0147-4 | WEAR STRIP, GUARDING |
| 12 | 1 | CF50-0148-5 | FRAME, SLIDING DOOR |
| 13 | 2 | CF50-0149-5 | DOOR CHANNEL |
| 14 | 1 | CF50-0143-3 | SAFETY SWITCH SPACER |
| 15 | 8 | FFHMF010P10 | FHCS M5 X 0.8 X 10 LG. |
| 16 | 6 | FHHMF010P10 | HHCS M5 X 0.8 X 10 LG. |
| 17 | 14 | FHHM030P88 | HHCS M10 X 30 |
| 18 | 6 | FLWMFP | LOCK WASHER M5 |
| 19 | 14 | FLWMIP | LOCK WASHER M10 |
| 20 | 4 | FNLNSEP | NYLOCK NUT 1/4-20 |
| 21 | 2 | FSHMG040P10 | SHCS M6 X 1.0 X 40 LG. |
| 22 | 4 | FSHSE100B05 | SHCS 1/4-20 X 1.0 LG. |
| 23 | 3 | HC-1004 | U-HANDLE |
| 24 | 1 | CF50-0152-3 | DOOR STOP BRACKET |
| 25 | 1 | 204238 | DOOR LOCK |
| 26 | 2 | FFHMG016P10 | FHCS M6 X 1.0 X 16 LG. |
| 27 | 2 | FFHMF012P10 | FHCS M5 X 0.8 X 12 LG. |
| 28 | 31 | FBHMF010P10 | BHCS M5 X 0.8 X 10 LG. |
| 29 | 71 | FFWMFP | FLAT WASHER M5 |
| 30 | 11 | FSHMF012P10 | SHCS M5 X 0.8 X 12 LG. |
| 31 | 12 | FSHMF020P10 | SHCS M5 X 0.8 X 20 LG. |
| 32 | 4 | FSHME035P10 | SHCS M4 X 0.7 X 35 LG. |
| 33 | 2 | FSHME050S10 | SHCS M4 X 0.7 X 50 LG. |
| 34 | 2 | FSHMF040P10 | SHCS M5 X 0.8 X 40 LG. |
| 35 | 5 | FHFNMFP | HEX NUT M5 |
| 36 | 1 | CF50-0197-4 | SUPPORT BRACKET, DOOR RAIL |
| 37 | 4 | CF50-0195-5 | SLIDE, SAFETY GATE |
| 38 | 4 | SPH-1258 | RIVET, C'SUNK |
| 39 | 1 | CF50-0193-4 | GUARD, DRIVE CHAIN |
| 40 | 2 | FLWMGP | LOCK WASHER M6 |
| 41 | 2 | FHHMG012P10 | HHCS M6 X 12 |
| 42 | 40 | FBHMF016P10 | BHCS M5 X 16 |
| 43 | 2 | CF50-0211-4 | TIE BAR, SAFETY CURTAIN |
| 44 | 1 | SPH-1348 | GROMMET, RUBBER |
| 45 | 1 | SPH-1280 | GROMMET, RUBBER |
| 47 | 1 | CF50-0376-4 | STOP, SLIDING DOOR |
| 48 | 2 | FFWMGP | FLAT WASHER M6 |
| 49 | 2 | FHHMG025P10 | HHCS M6 X 25 |
| 55 | 1 | CF50-0127-5 | FIXED SIDE PANEL |
| 56 | 1 | CF50-0473-4 | TOP EXIT GUARD PANEL |
| 57 | 1 | CF50-0474-4 | TOP EXIT GUARD PANEL SUPPORT |
| 58 | 2 | CF50-0478-6 | EXIT GUARD FRAME |
| 59 | 2 | CF50-0481-4 | EXIT GUARD GLASS |
| 60 | 2 | CF50-0489-4 | EXIT GUARD BOTTOM |
| 61 | 2 | CF50-0469-3 | GUARD ANGLE BRKT. |
| 62 | 2 | CF50-0480-4 | EXIT GUARD HINGE PIN TOP |
| 63 | 2 | CF50-0479-4 | EXIT GUARD HINGE PIN |
| 64 | 1 | CF50-0465-4 | FILL PLATE BOTTOM FRAME |
| 65 | 4 | FHHMH016P10 | HHCS M8 X 16 |
| 66 | 10 | FETLWMHP | Lock Washer Ext. M8 |
| 67 | 6 | FHFNMHP | HEX NUT M8 |
| 68 | 6 | FHHMH020P10 | HHCS M8 X 20 |
| 69 | 4 | FFWMHP | FLAT WASHER M8 |
| 70 | 50 | FETLWMFP | EXT. LOCK WASHER M5 |
| 71 | 47 | FBHMF012P10 | HEX SOC. BUTT. HD. SCREW |
| 72 | 1 | F3MB | RUBBER BUMPER |

**SHEET 1 OF 2
VIEW OF ACCESS DOOR SLIDE**

| | | | | | |
|---|--------|------------|--------------------|--|--|
| MATL | PART # | CAD FILE | .SGACF50 rev 2.dwg | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW 2206 EASTON TPK., SOUTH CANAAN, PA. |
| NOTED | STD | PLOT DATE | 6/10/2015 | X = ±1.050 INCH XX = ±0.015 ANGLES ±1/2° .XXX = ±1.005 | |
| ST. ST. | N/A | DRAWN DATE | 6/10/2015 | X = ±1.0mm MACH. ✓ METRIC XX = ±1.3mm .XXX = ±1.1mm | TITLE |
| STAINLESS - NO FINISH | | | | DO NOT SCALE PRINT | SAFETY GUARD ASSEMBLY |
| THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW AND IS TO BE TREATED BY YOU AS CONFIDENTIAL PROPRIETARY INFORMATION. THIS DRAWING OR SUBJECT MATTER THEREON SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHER WITHOUT THE EXPRESSED WRITTEN CONSENT OF LOVESHAW, AND WILL BE RETURNED TO LOVESHAW UPON REQUEST. | | | | FRACTIONS ± 1/64 | DWG NO .SGACF50 rev 2 |
| | | | | | SCALE N/A |
| | | | | | CHECKED |
| | | | | | DRAWN tony |
| | | | | | APPROVED TONY |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|----------|
| REV | DESCRIPTION | DATE | APPROVED |
| A | RELEASED | 6/11/2015 | TONYS |

| Parts List | | | |
|------------|-----|--------------|-----------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 3 | A195SG-TM1 | SAFETY GATE SWITCH |
| 2 | 4 | CF20-0123-3 | PANEL BRACKET |
| 3 | 2 | CF50-0126-5 | LOWER GUARD PANEL |
| 4 | 1 | CF50-0130-4 | FRONT PANEL |
| 5 | 2 | CF50-0140-4 | SLIDING PANEL |
| 6 | 4 | CF50-0141-4 | SLIDING PANEL EDGE |
| 7 | 2 | CF50-0142-3 | KEY PLATE |
| 8 | 1 | CF50-0144-4 | BACK PANEL |
| 9 | 1 | CF50-0146-5 | DOOR PANEL |
| 10 | 2 | CF50-0147-4 | WEAR STRIP, GUARDING |
| 11 | 1 | CF50-0148-5 | FRAME, SLIDING DOOR |
| 12 | 2 | CF50-0149-5 | DOOR CHANNEL |
| 13 | 1 | CF50-0143-3 | SAFETY SWITCH SPACER |
| 14 | 8 | FFHMF010P10 | FHCS M5 X 0.8 X 10 LG. |
| 15 | 6 | FHHMF010P10 | HHCS M5 X 0.8 X 10 LG. |
| 16 | 14 | FHHM030P88 | HHCS M10 X 30 |
| 17 | 6 | FLWMFP | LOCK WASHER M5 |
| 18 | 14 | FLWMIP | LOCK WASHER M10 |
| 19 | 4 | FNLNSEP | NYLOCK NUT 1/4-20 |
| 20 | 2 | FSHMG040P10 | SHCS M6 X 1.0 X 40 LG. |
| 21 | 4 | FSHSE100B05 | SHCS 1/4-20 X 1.0 LG. |
| 22 | 3 | HC-1004 | U-HANDLE |
| 23 | 1 | CF50-0152-3 | DOOR STOP BRACKET |
| 24 | 1 | 204238 | DOOR LOCK |
| 25 | 2 | FFHMG016P10 | FHCS M6 X 1.0 X 16 LG. |
| 26 | 2 | FFHMF012P10 | FHCS M5 X 0.8 X 12 LG. |
| 27 | 31 | FBHMF010P10 | BHCS M5 X 0.8 X 10 LG. |
| 28 | 71 | FFWMFP | FLAT WASHER M5 |
| 29 | 11 | FSHMF012P10 | SHCS M5 X 0.8 X 12 LG. |
| 30 | 12 | FSHMF020P10 | SHCS M5 X 0.8 X 20 LG. |
| 31 | 4 | FSHME035P10 | SHCS M4 X 0.7 X 35 LG. |
| 32 | 2 | FSHME050S10 | SHCS M4 X 0.7 X 50 LG. |
| 33 | 2 | FSHMF040P10 | SHCS M5 X 0.8 X 40 LG. |
| 34 | 5 | FHFNMFP | HEX NUT M5 |
| 35 | 1 | CF50-0197-4 | SUPPORT BRACKET, DOOR RAIL |
| 36 | 4 | CF50-0195-5 | SLIDE, SAFETY GATE |
| 37 | 4 | SPH-1258 | RIVET, C'SUNK |
| 38 | 1 | CF50-0193-4 | GUARD, DRIVE CHAIN |
| 39 | 2 | FLWMGP | LOCK WASHER M6 |
| 40 | 2 | FHHMG012P10 | HHCS M6 X 12 |
| 41 | 40 | FBHMF016P10 | BHCS M5 X 16 |
| 42 | 2 | CF50-0211-4 | TIE BAR, SAFETY CURTAIN |
| 43 | 1 | SPH-1348 | GROMMET, RUBBER |
| 44 | 1 | SPH-1280 | GROMMET, RUBBER |
| 46 | 1 | CF50-0376-4 | STOP, SLIDING DOOR |
| 47 | 2 | FFWMGP | FLAT WASHER M6 |
| 48 | 2 | FHHMG025P10 | HHCS M6 X 25 |
| 51 | 1 | CF50-0416_-3 | SPACER, SAFETY GATE SWITCH, CAT 3 |
| 52 | 1 | CF50-0127-5 | FIXED SIDE PANEL |
| 53 | 1 | CF50-0473-4 | TOP EXIT GUARD PANEL |
| 54 | 1 | CF50-0474-4 | TOP EXIT GUARD PANEL SUPPORT |
| 55 | 2 | CF50-0478-6 | EXIT GUARD FRAME |
| 56 | 2 | CF50-0481-4 | EXIT GUARD GLASS |
| 57 | 2 | CF50-0489-4 | EXIT GUARD BOTTOM |
| 58 | 2 | CF50-0469-3 | GUARD ANGLE BRKT. |
| 59 | 2 | CF50-0480-4 | EXIT GUARD HINGE PIN TOP |
| 60 | 2 | CF50-0479-4 | EXIT GUARD HINGE PIN |
| 61 | 1 | CF50-0465-4 | FILL PLATE BOTTOM FRAME |
| 62 | 4 | FHHMH016P10 | HHCS M8 X 16 |
| 63 | 10 | FETLWMHP | Lock Washer Ext. M8 |
| 64 | 6 | FHFNMHP | HEX NUT M8 |
| 65 | 6 | FHHMH020P10 | HHCS M8 X 20 |
| 66 | 4 | FFWMHP | FLAT WASHER M8 |
| 67 | 50 | FETLWMFP | EXT. LOCK WASHER M5 |
| 68 | 47 | FBHMF012P10 | HEX SOC. BUTT. HD. SCREW |
| 69 | 1 | F3MB | RUBBER BUMPER |

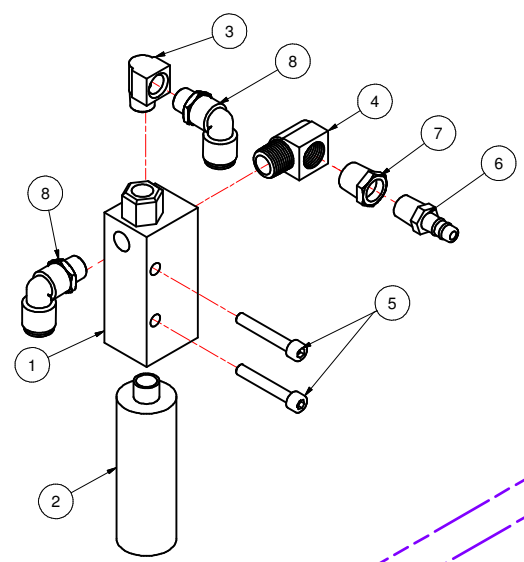


SHEET 2 OF 2
VIEW OF OPERATOR SIDE

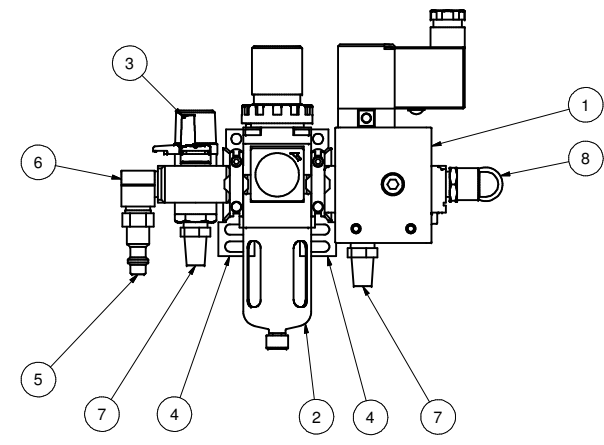
| | | | | | | | | |
|---|--------|------------|------------------------------|---|--|----------------|----------|---------|
| MATL | PART # | CAD FILE | .SGACF50 rev 2 operator side | OPERATOR SIDE UNLESS OTHERWISE NOTED: | LOVESHAW 2206 EASTON TPK., SOUTH CANAAN, PA. | | | |
| NOTED | STD | PLOT DATE | 6/11/2015 | | | | | |
| ST. ST. | N/A | DRAWN DATE | 6/11/2015 | X = ±.050 INCH XX = ±.015 ANGLS ±.1/2° .XXX = ±.005 X = ±1.0mm MACH. FINISH METRIC XX = ±.3mm .XXX = ±.1mm | TITLE | | | |
| STAINLESS - NO FINISH | | | | DO NOT SCALE PRINT | DWG NO | .SGACF50 rev 2 | SCALE | N/A |
| THIS DRAWING AND SUBJECT MATTER THEREON IS THE EXCLUSIVE PROPERTY OF LOVESHAW 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, AND WILL BE RETURNED TO LOVESHAW UPON REQUEST. | | | | FRACTIONS | ± 1/64 | MATERIAL | NOTED | CHECKED |
| | | | | | DRAWN | tonys | APPROVED | TONYS |

| REVISION HISTORY | | | |
|------------------|-------------|-----------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 5/24/2006 | RM |

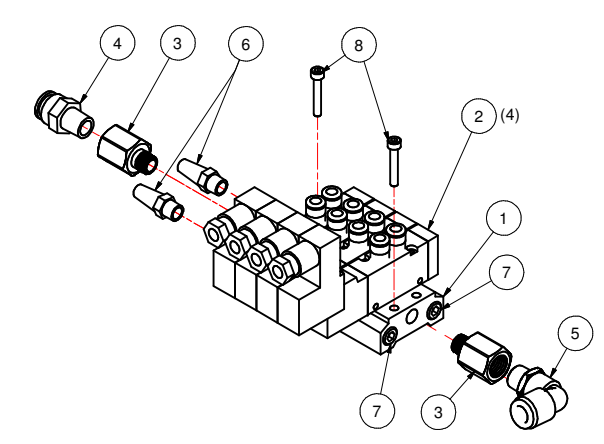
| VACUUM GENERATOR | | | |
|------------------|-----|-------------|---------------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | N576B | VACUUM GENERATOR |
| 2 | 1 | 402018 | MUFFLER |
| 3 | 1 | PF-10 | BRASS STREET ELBOW, 90, 1/4 NPT |
| 4 | 1 | PF-34 | STEET ELBOW, 3/8 NPT |
| 5 | 2 | FSHMG040P10 | SHCS M6 X 1.0 X 40 LG. |
| 6 | 1 | PF-16 | HOSE BARB FITTING, 1/4 NPT x 3/8 TUBE |
| 7 | 1 | PF-38 | REDUCER, 3/8 X 1/4 NPT, BRASS |
| 8 | 2 | PF-18 | ELBOW, 1/4NPT X 3/8 PUSHLOC |



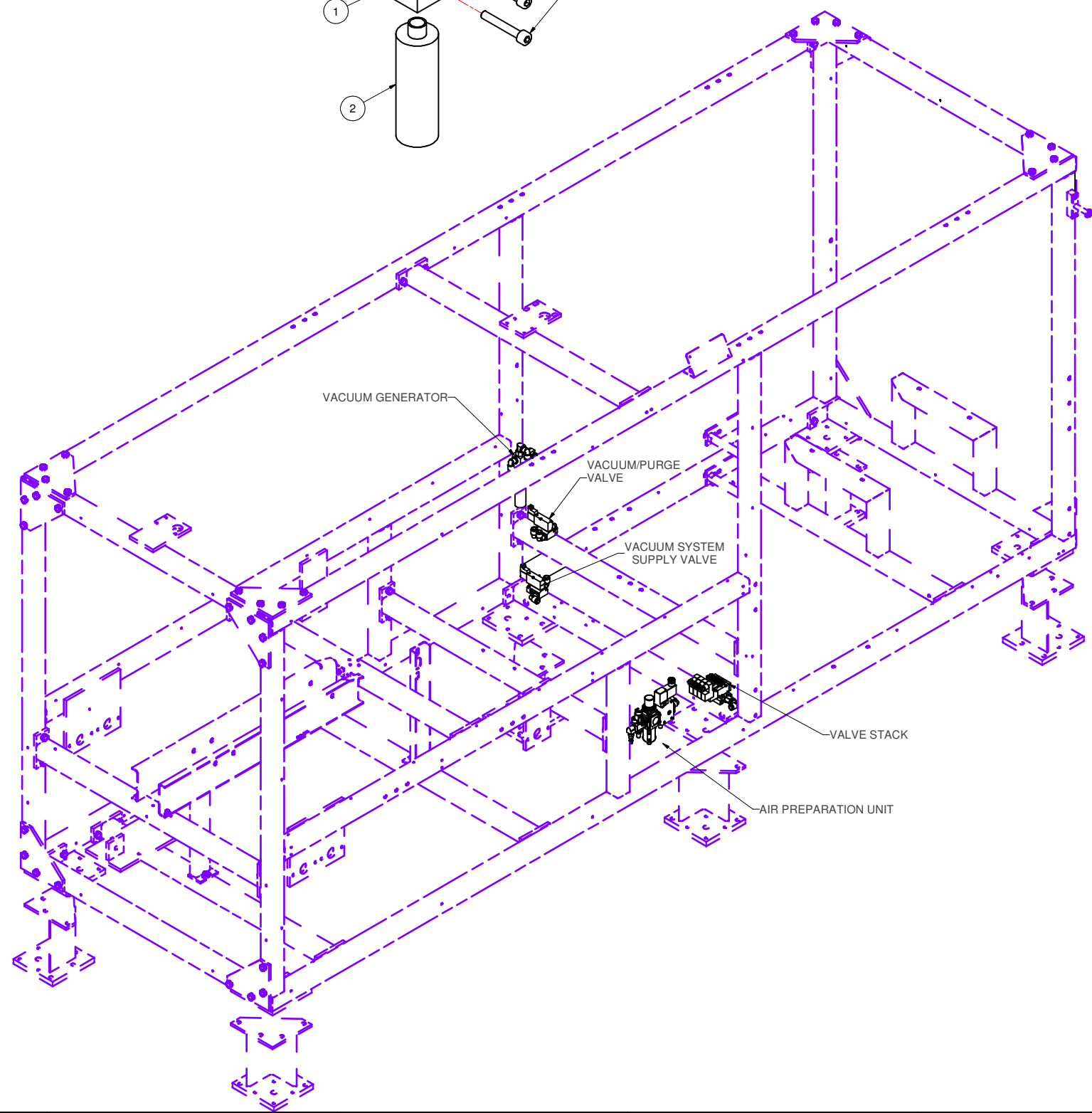
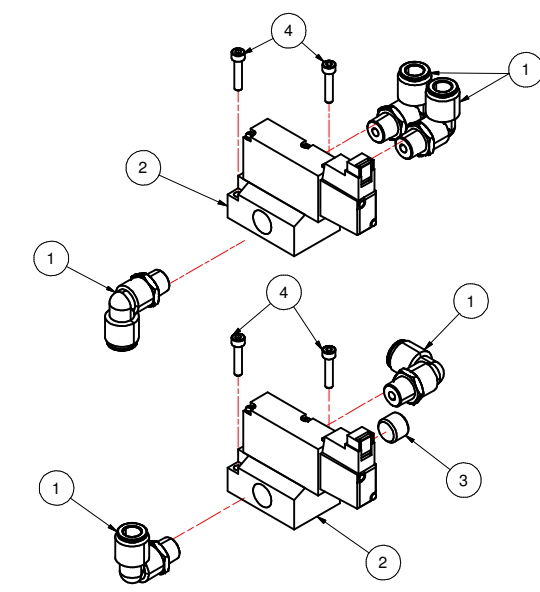
| AIR PREPARATION UNIT | | | |
|----------------------|-----|-------------|---------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | N402-100 | SOFT START VALVE |
| 2 | 1 | N578 | FILTER/REGULATOR |
| 3 | 1 | N402-101 | MANUAL SHUT OFF/RELIEF VALVE |
| 4 | 2 | N584 | BRACKET |
| 5 | 1 | PF-22 | QUICK DISCONNECT PLUG, 1/4 NPT |
| 6 | 1 | PF-10 | BRASS STREET ELBOW, 90, 1/4 NPT |
| 7 | 2 | N400-16 | MUFFLER |
| 8 | 1 | PF-18 | ELBOW, 1/4NPT X 3/8 PUSHLOC |



| VALVE STACK | | | |
|-------------|-----|-------------|-----------------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 1 | N402-98M | MANIFOLD |
| 2 | 4 | N402-97 | SOLENOID VALVE |
| 3 | 2 | PF-27 | PIPE ADAPTER, 1/4 X 1/8 |
| 4 | 1 | N400-8 | STR. CONN. 1/4 NPT X 3/8 PUSH LOC |
| 5 | 1 | PF-18 | ELBOW, 1/4NPT X 3/8 PUSHLOC |
| 6 | 2 | N400-17 | MUFFLER |
| 7 | 2 | N400-178 | SOCKET HEX PLUG, 1/8 NPT |
| 8 | 2 | FSHME025P10 | SHCS M4 X 0.7 X 25 LG. |

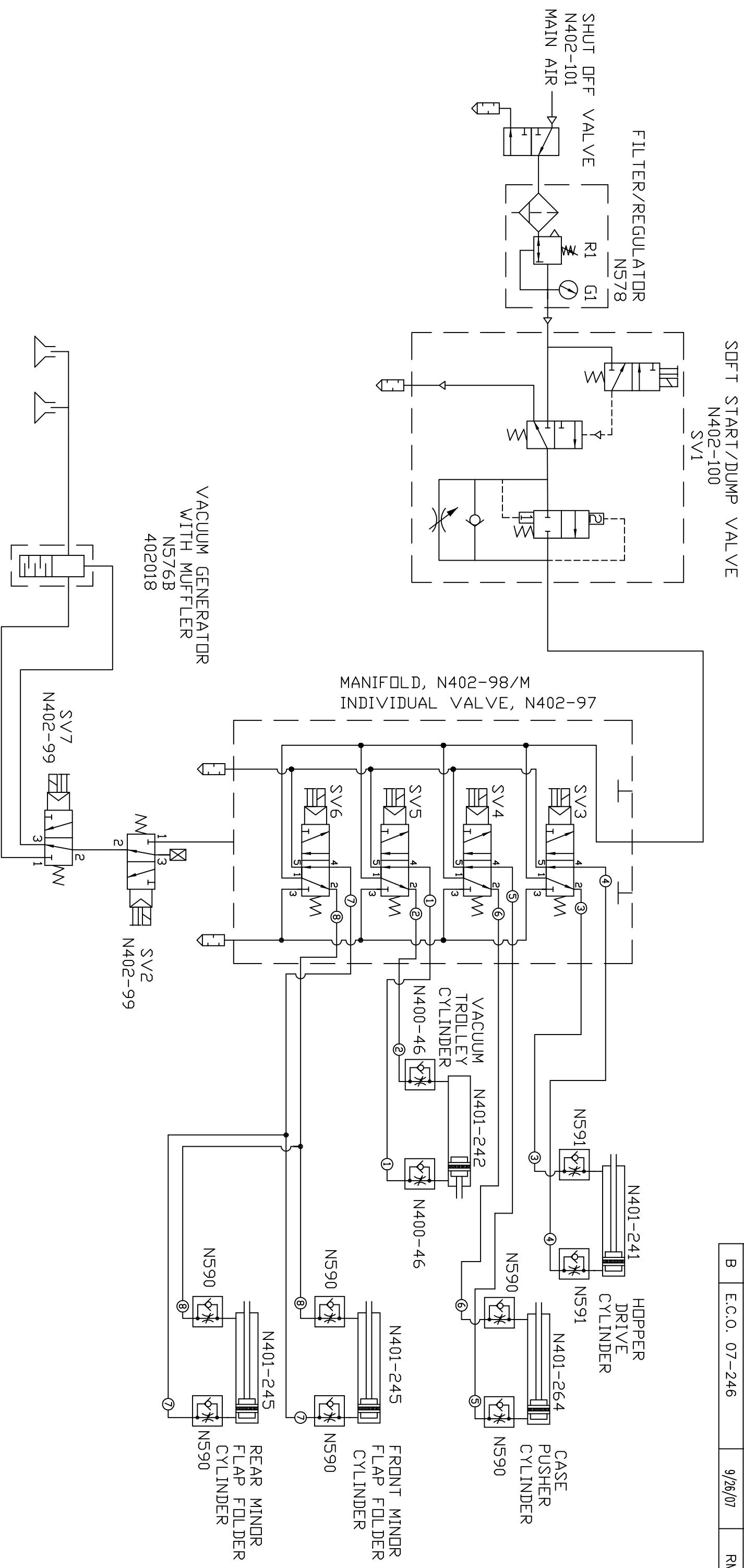


| VACUUM VALVES | | | |
|---------------|-----|-------------|-----------------------------|
| ITEM | QTY | PART NUMBER | DESCRIPTION |
| 1 | 5 | PF-18 | ELBOW, 1/4NPT X 3/8 PUSHLOC |
| 2 | 2 | N402-99 | VACUUM VALVE |
| 3 | 1 | PF-9 | PLUG, HEX SOC PIPE, 1/4 NPT |
| 4 | 4 | FSHME020P10 | SHCS M4 X 0.7 X 20 LG. |



| | | | | |
|---|--------|---------------------------|--|---|
| MATL | PART # | CAD FILE .PNEUCF50.idw | TOLERANCES UNLESS OTHERWISE NOTED: | LOVESHAW an <i>ITW</i> Company RT. 296, SOUTH CANAAN, PA. |
| ST. ST | STD | PLOT DATE 9/26/2007 | X = ±1.050 INCH XX = ±1.015 ANGLES ±1/2° XXX = ±1.005 | |
| | | DRAWN DATE 5/24/2006 | X = ±1.0mm MACH. 1:50 METRIC XX = ±1.3mm FINISH XXX = ±1.1mm | TITLE |
| STAINLESS - NO FINISH | | DO NOT SCALE PRINT | | PNEUMATIC COMPONENTS |
| <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> | | | | DWG NO .PNEUCF50 |
| FRACTIONS ± 1/64 | | | | SCALE |
| | | | | CHECKED |
| | | | | APPROVED |
| | | | | MATERIAL |
| | | | | DRAWN RICHM |

| REVISION RECORD | | | |
|-----------------|---------------|---------|----|
| REV | DESCRIPTION | DATE | BY |
| A | RELEASED | 3/23/07 | RM |
| B | E.C.O. 07-246 | 9/26/07 | RM |

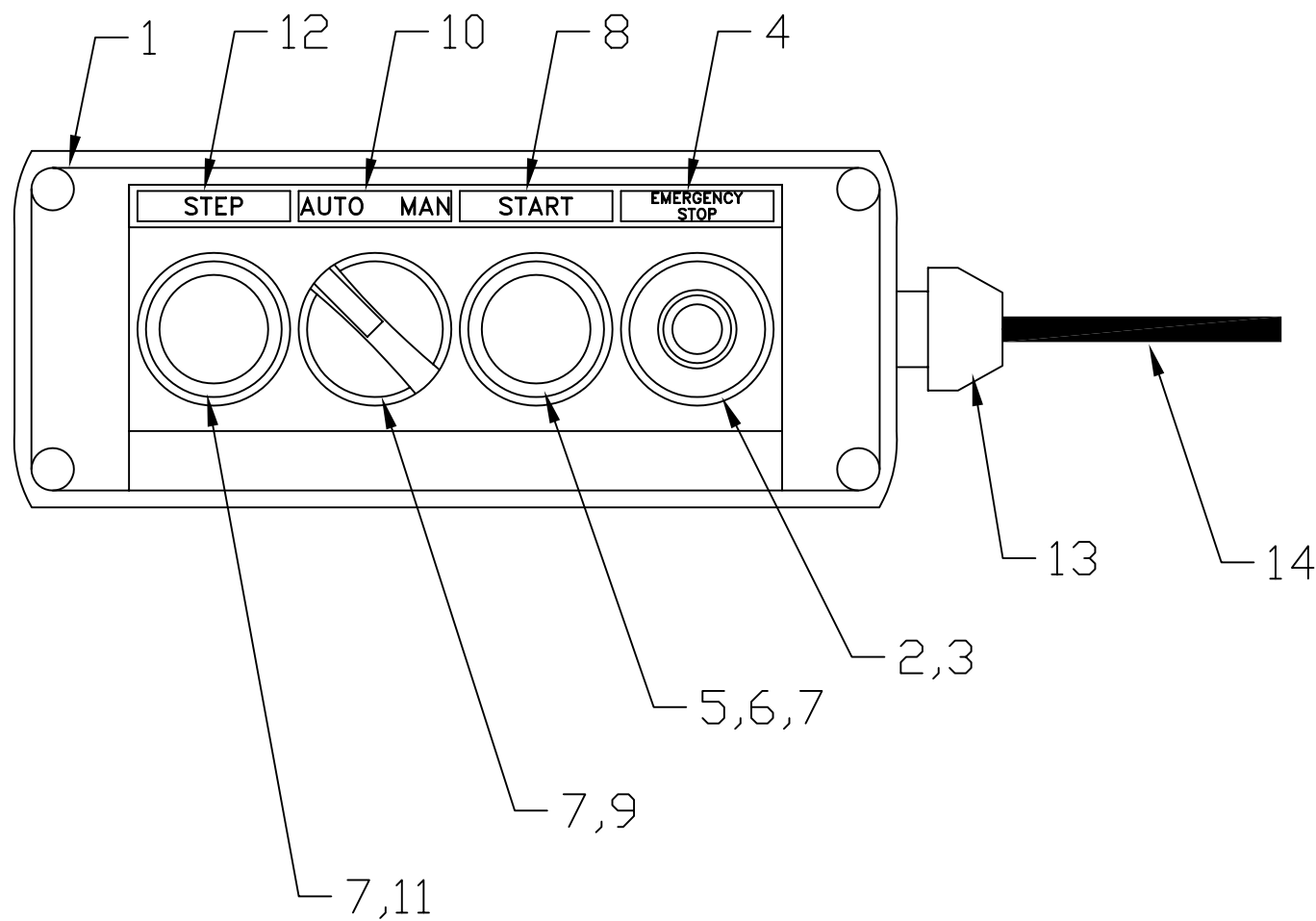
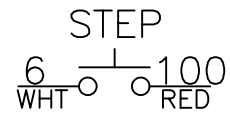
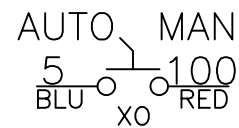
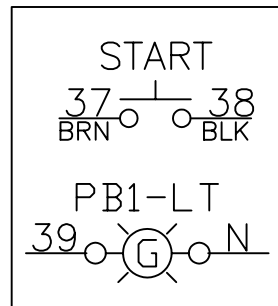


| | | | |
|------------|-----------|--------------------|---------|
| MAT'L | PART # | CAD FILE: | G81558 |
| | STD | PLOT DATE: | 9/26/07 |
| ST. ST. | | DRAWN DATE: | 3/23/07 |
| STAINLESS: | NO FINISH | DO NOT SCALE PRINT | |

| | |
|------------------------------------|--|
| TOLERANCES UNLESS OTHERWISE NOTED: | |
| INCH | .X = ±.050 .XX = ±.015 .XXX = ±.005 |
| METRIC | .X = ±1.0mm .XX = ±.5mm .XXX = ±.1mm |
| ANGLES ±1/2° FRACTIONS ±1/64 | |
| MACHINE FINISH | |

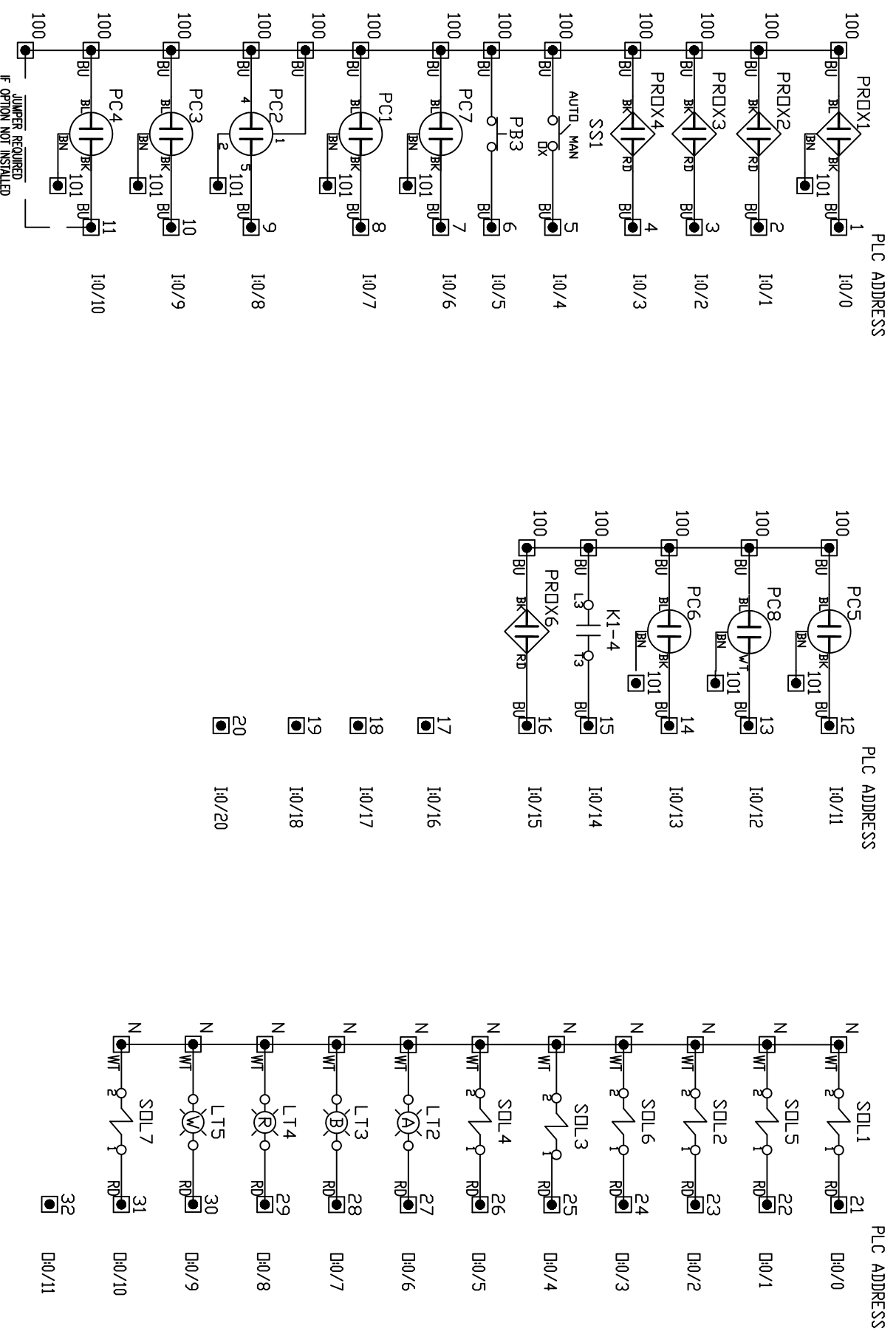
| | |
|---------------------------------------|-------------|
| LOVESHAW an <i>ITW</i> Company | |
| RT. 296, SOUTH CANAAN, PA. | |
| TITLE: | CF50T |
| PNEUMATIC SCHEMATIC | |
| DWG. #: | CF50-0189-4 |
| MATERIAL: | SCALE: |
| DESIGNED: RM | DRAWN: RM |
| APPRV'D: | |

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 SHALL NOT BE REPRODUCED OTHER THAN FOR YOUR OWN USE OR TO BE DISCLOSED TO OTHERS WITHOUT THE EXPRESS WRITTEN CONSENT OF LOVESHAW-ITW AND WILL BE RETURNED TO LOVESHAW-ITW UPON REQUEST.



| ITEM | PART No. | DESCRIPTION |
|------|-------------|-----------------------------------|
| 1 | A149-SQD-1 | 4 HOLE ENCLOSURE |
| 2 | A149-SQD-2 | E-STOP PUSH BUTTON SW. |
| 3 | A149-SQD-3 | N.C. CONTACT BLOCK |
| 4 | A149-SQD-4 | E-STOP LEGEND PLATE |
| 5 | A149-SQD-5 | GREEN PUSH BUTTON ILLUMINATED SW. |
| 6 | A149-SQD-6 | LIGHT MODULE |
| 7 | A149-SQD-7 | N.O. CONTACT BLOCK |
| 8 | A149-SQD-8 | "START" LEGEND PLATE |
| 9 | A149-SQD-9 | (2) POSITION SELECTOR SWITCH |
| 10 | A149-SQD-10 | AUTO / MAN LEGEND PLATE |
| 11 | A149-SQD-11 | BLACK FLUSH PUSH BUTTON SW. |
| 12 | A149-SQD-12 | "STEP" LEGEND PLATE |
| 13 | AH200-ARL-1 | STRAIN RELIEF |
| 14 | A18-8 | 18 AWG - 8 CONDUCTOR CABLE - 14FT |

| | | |
|----------------------------|--|----------------|
| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA. | |
| DECIMAL (3 PLC) +/- .005 | TITLE: OPERATOR ENCLOSURE ASSY. CF50T | |
| FRACTIONAL +/- 1/64 | DWG. NO. ED1795 | SCALE: 3 : 4 |
| ANG. - 1/2° | MATERIAL: COMMERCIAL | DATE: 03/05/07 |
| | DESIGNED: MENTA | DRAWN: WM |
| | | APPRVD: -- |



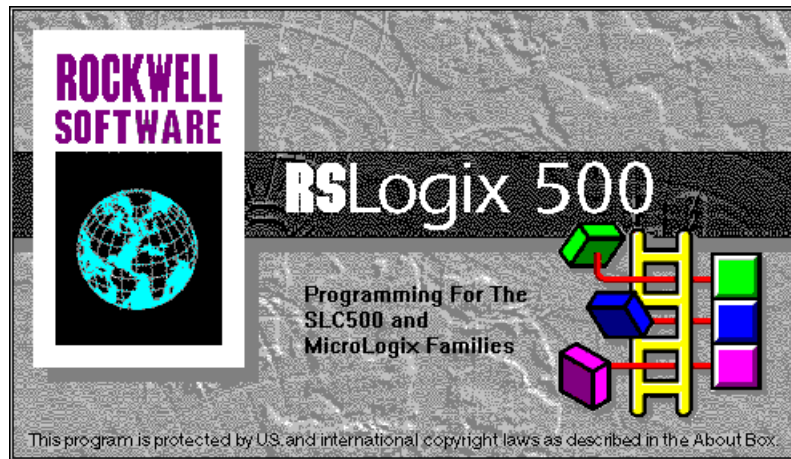
| SYMBOL | DEVICE | FUNCTION |
|--------|----------------------------|--|
| F3 | FUSE | 24 VDC CONTROL POWER PROTECTION |
| L12 | LIGHT | OPTIONAL - LOW TAPE ALARM (AMBER) |
| L13 | LIGHT | OPTIONAL - LOW HOPPER (BLUE) |
| L14 | LIGHT | OPTIONAL - CASE JAM (RED) |
| L15 | LIGHT | OPTIONAL - NO TAPE (WHITE) |
| K1 | MOTOR CONTACTOR | MAIN DRIVE MOTOR CONTACTOR |
| PB3 | PUSHBUTTON | STEP MODE PUSH BUTTON |
| PC1 | PHOTOCELL | CHAIN LUG DETECTOR |
| PC2 | PHOTOCELL | CASE DEMAND |
| PC3 | PHOTOCELL | HOPPER DEMAND |
| PC4 | PHOTOCELL | OPTIONAL - LOW TAPE DETECTION |
| PC5 | PHOTOCELL | OPTIONAL - CASE JAM (USED WITH PROX6) |
| PC6 | PHOTOCELL | OPTIONAL - NO TAPE DETECTION |
| PC7 | PHOTOCELL | OPTIONAL - CASE AT TAPE INSPECTION |
| PC8 | PHOTOCELL | OPTIONAL - LOW HOPPER |
| PROX1 | PROXIMITY SWITCH | VACUUM TROLLEY - HOME POSITION |
| PROX2 | PROXIMITY SWITCH (DN CYL.) | VACUUM TROLLEY - BLANK PICKUP POSITION |
| PROX3 | PROXIMITY SWITCH (DN CYL.) | CASE PUSHER - RETRACTED |
| PROX4 | PROXIMITY SWITCH (DN CYL.) | CASE PUSHER - EXTENDED |
| PROX6 | PROXIMITY SWITCH (DN CYL.) | OPTIONAL - CASE JAM (USED WITH PCS) |
| SDL1 | SOLENOID VALVE | MAIN AIR DUMP |
| SDL2 | SOLENOID VALVE | VACUUM SOLENOID |
| SDL3 | SOLENOID VALVE | BLANK HOPPER DRIVE |
| SDL4 | SOLENOID VALVE | CASE PUSHER |
| SDL5 | SOLENOID VALVE | VACUUM TROLLEY |
| SDL6 | SOLENOID VALVE | BOTTOM MINDR FLAP FOLDER |
| SDL7 | SOLENOID VALVE | VACUUM PURGE SYSTEM |
| SSI | SELECTOR SWITCH | MACHINE (AUTO - MANUAL) |

- WIRING NOTES:
1. WIRE COLORS ARE AS NOTED.
 2. AC CONTROL WIRE MIN. 18 AWG.
 3. DC CONTROL WIRE MIN 20 AWG.
 4. MOTOR WIRE MIN. 16 AWG.

| | | | |
|----------------------------|---------------------------------|----------------------|------------|
| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION | | |
| | RT 296, SOUTH CANAAN, PA. | | |
| DECIMAL (3 PLC) | TITLE: | ELECTRICAL SCHEMATIC | |
| +/- .005 | | CF50T - 120/1/60 | |
| FRACTIONAL | DWG. NO. ED1706B | SCALE: N/A | |
| +/- 1/64 | MATERIAL: N/A | DATE: 05/01/06 | |
| ANG. - 1/2° | DESIGNED: MENTA | DRAWN: WM | APPRVD: -- |

LOVESHAW CASE ERECTOR - MODEL CF50

CF50R1.RSS

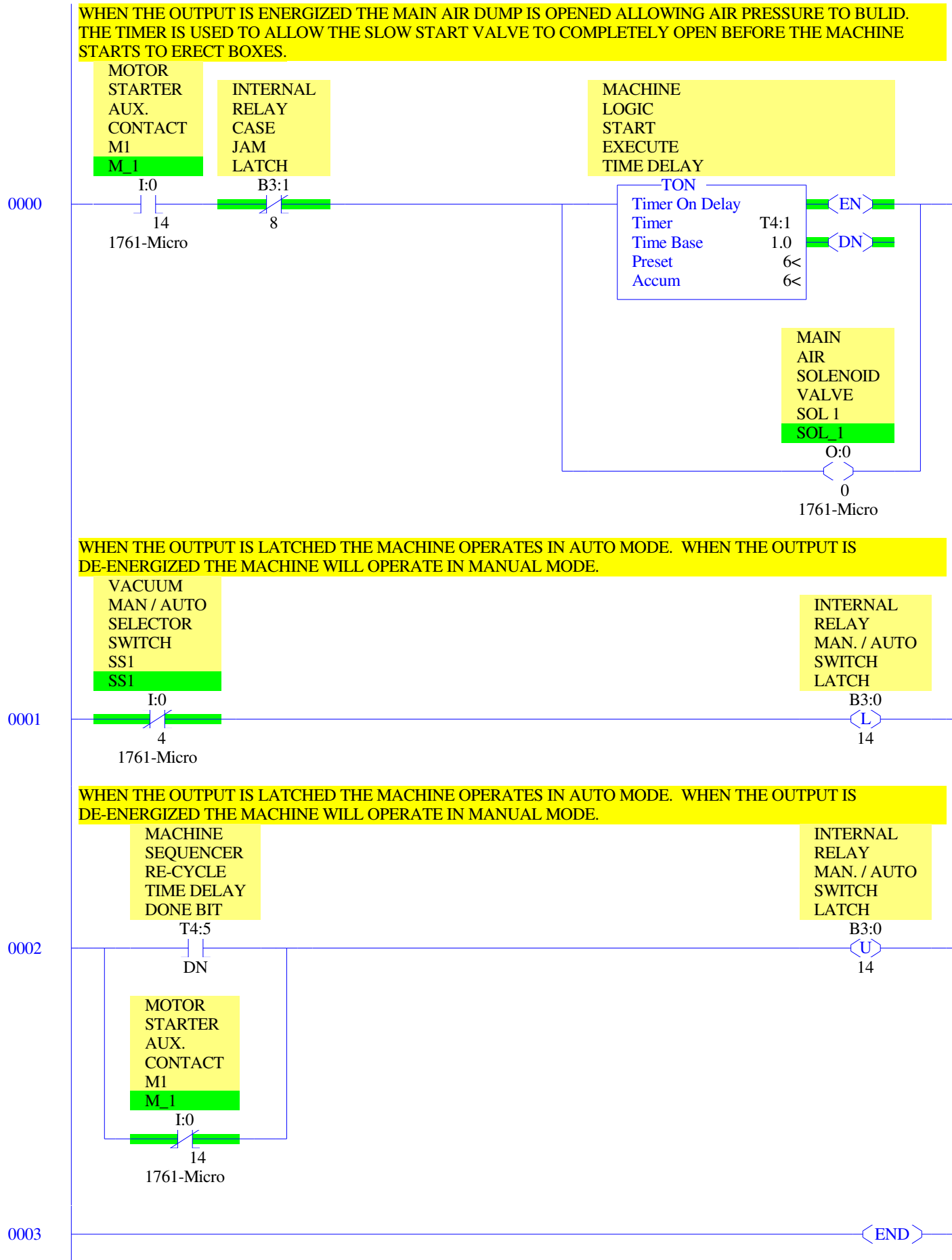


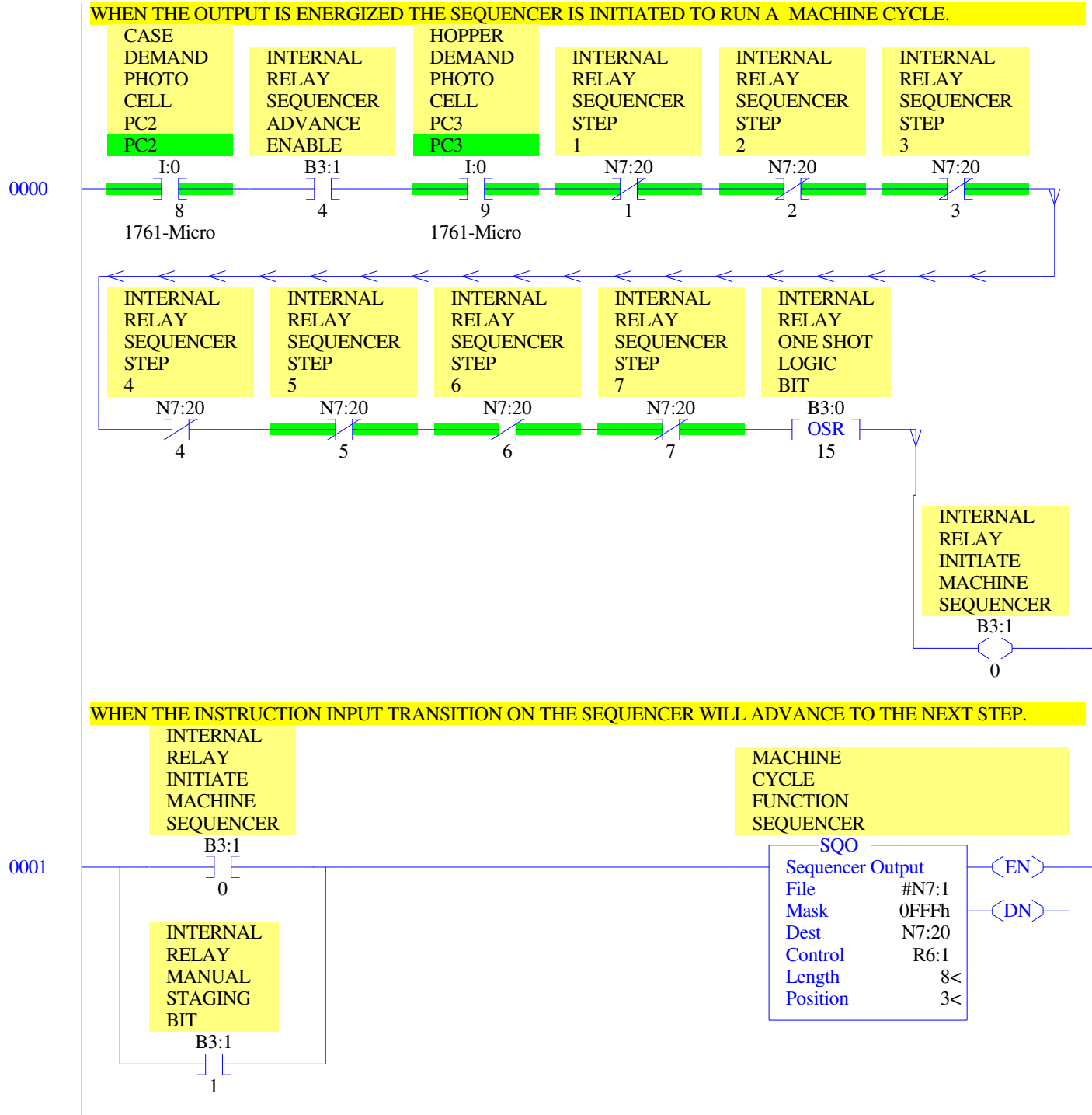
Program File List

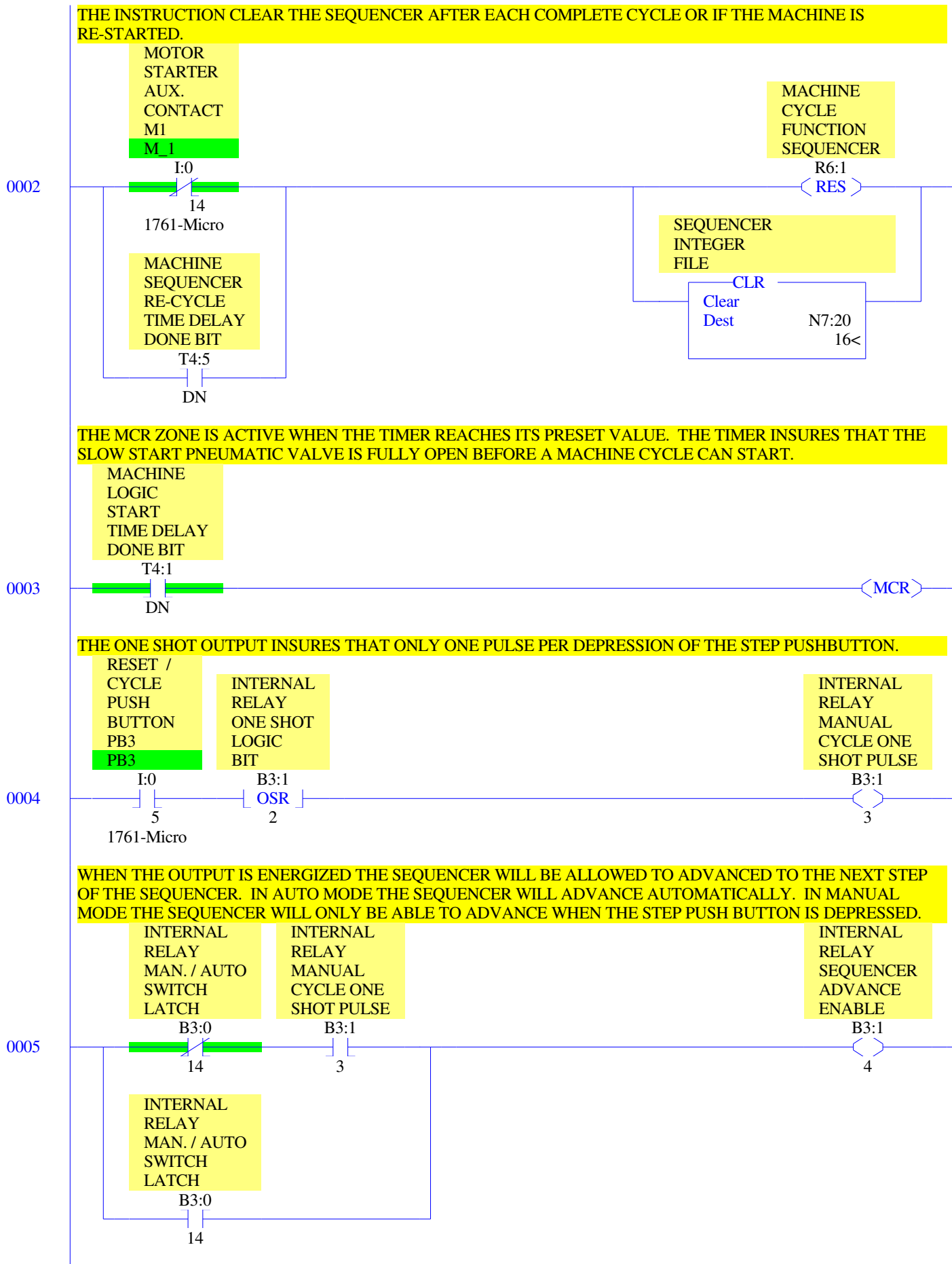
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|------------|--------|--------|-------|-------|-------|
| [SYSTEM] | 0 | SYS | 0 | No | 0 |
| | 1 | SYS | 0 | No | 0 |
| SUBROUTINE | 2 | LADDER | 13 | No | 111 |
| MACH START | 3 | LADDER | 4 | No | 84 |
| SEQUENCER | 4 | LADDER | 9 | No | 422 |
| VACUUM | 5 | LADDER | 4 | No | 75 |
| VAC TROLLY | 6 | LADDER | 4 | No | 80 |
| FLAP FOLD | 7 | LADDER | 4 | No | 52 |
| BOX PUSHER | 8 | LADDER | 4 | No | 73 |
| SEQ. TIMER | 9 | LADDER | 7 | No | 80 |
| HOPPER | 10 | LADDER | 7 | No | 141 |
| LOW TAPE | 11 | LADDER | 3 | No | 42 |
| LOW HOPPER | 12 | LADDER | 3 | No | 42 |
| BOX JAM | 13 | LADDER | 3 | No | 83 |
| BOX COUNT | 14 | LADDER | 5 | No | 107 |
| | 15 | LADDER | 1 | No | 3 |
| | 16 | LADDER | 1 | Yes | 3 |





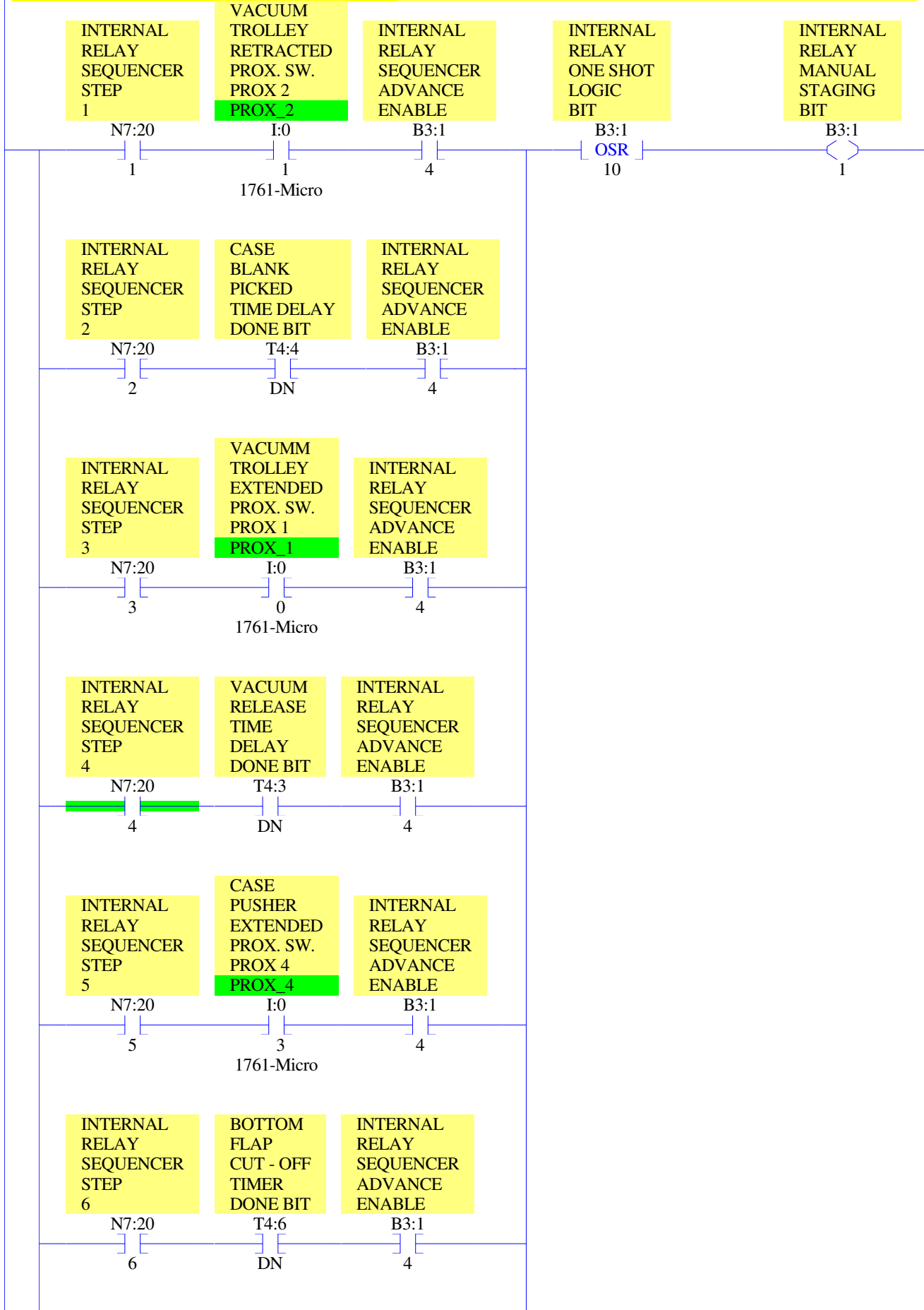


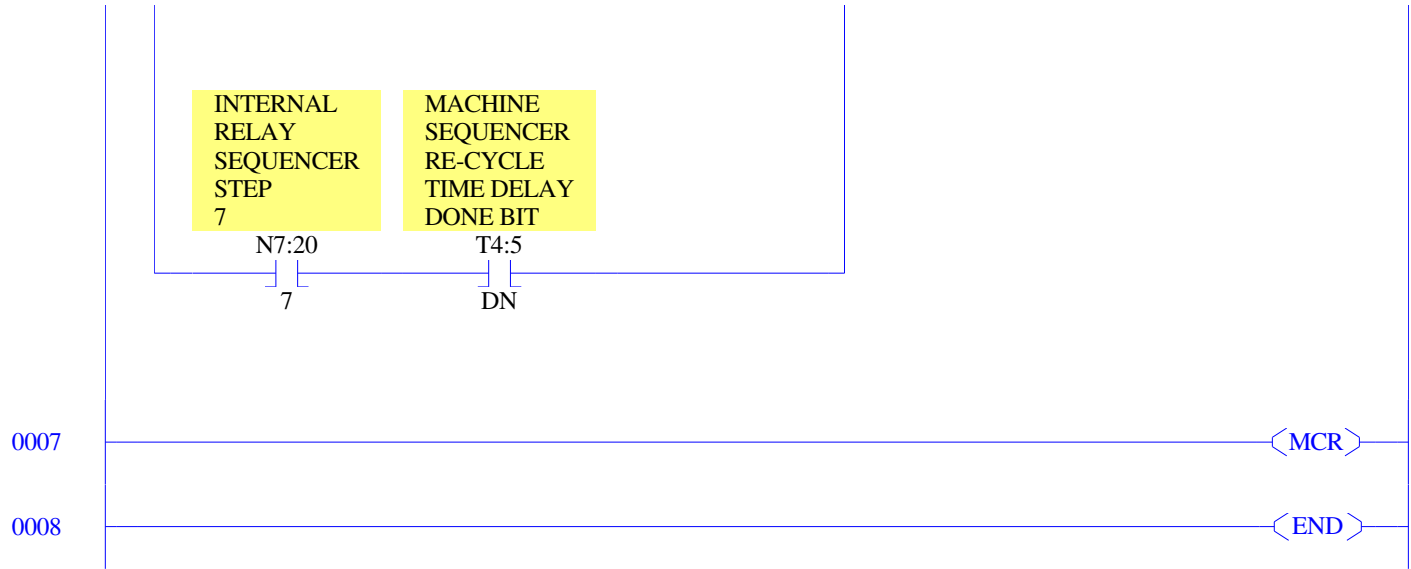


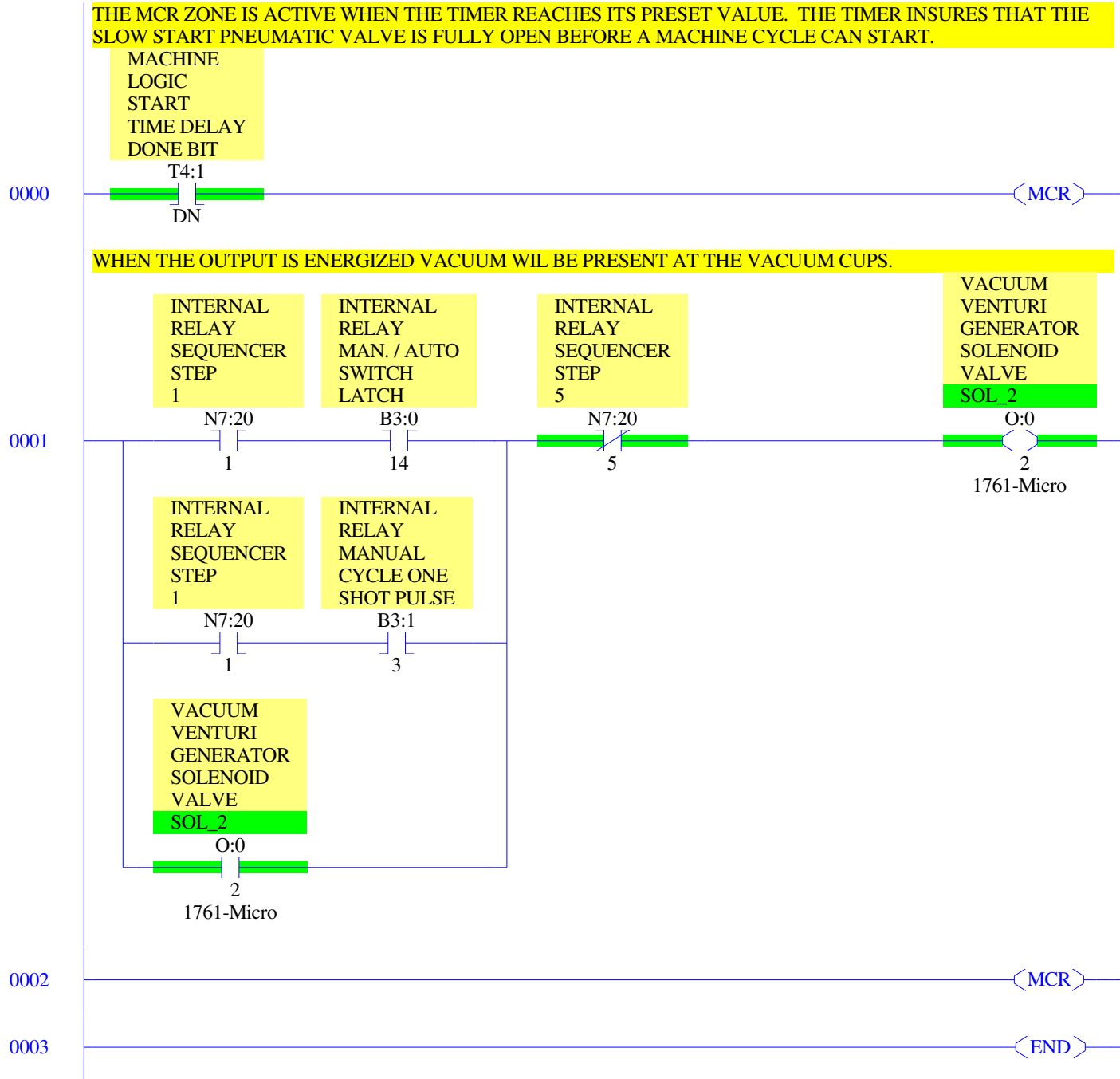


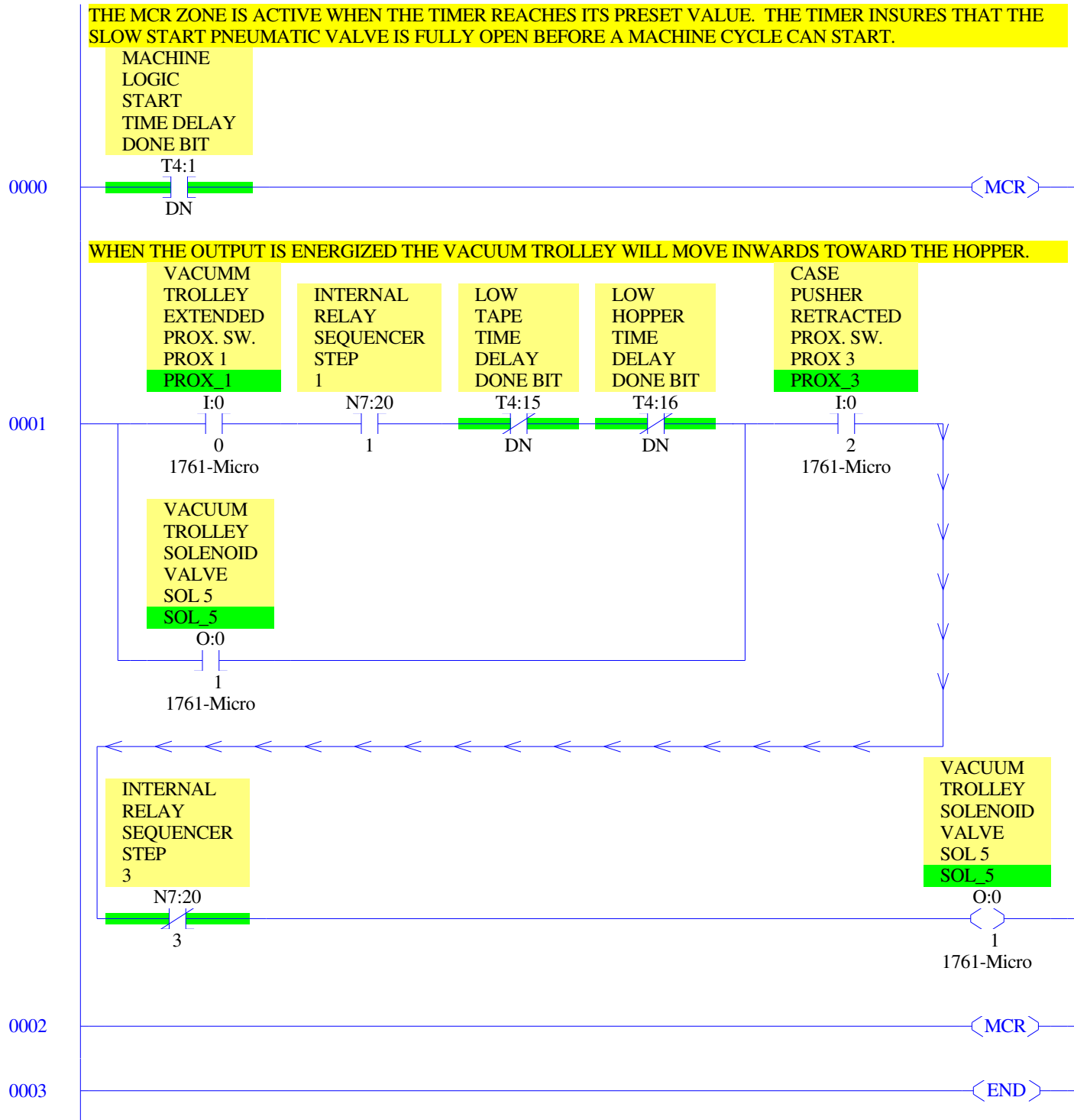
WHEN THE OUTPUT IS ENERGIZED THE SEQUENCER WILL MOVE TO THE NEXT STEP. THE SEQUENCER WILL AUTOMATICALLY ADVANCE IF B3:1/4 IS ENERGIZED. IF B3:1/4 IS DE-ENERGIZED THAN THE STEP BUTTON WILL ADVANCE THE SEQUENCER MANUALLY.

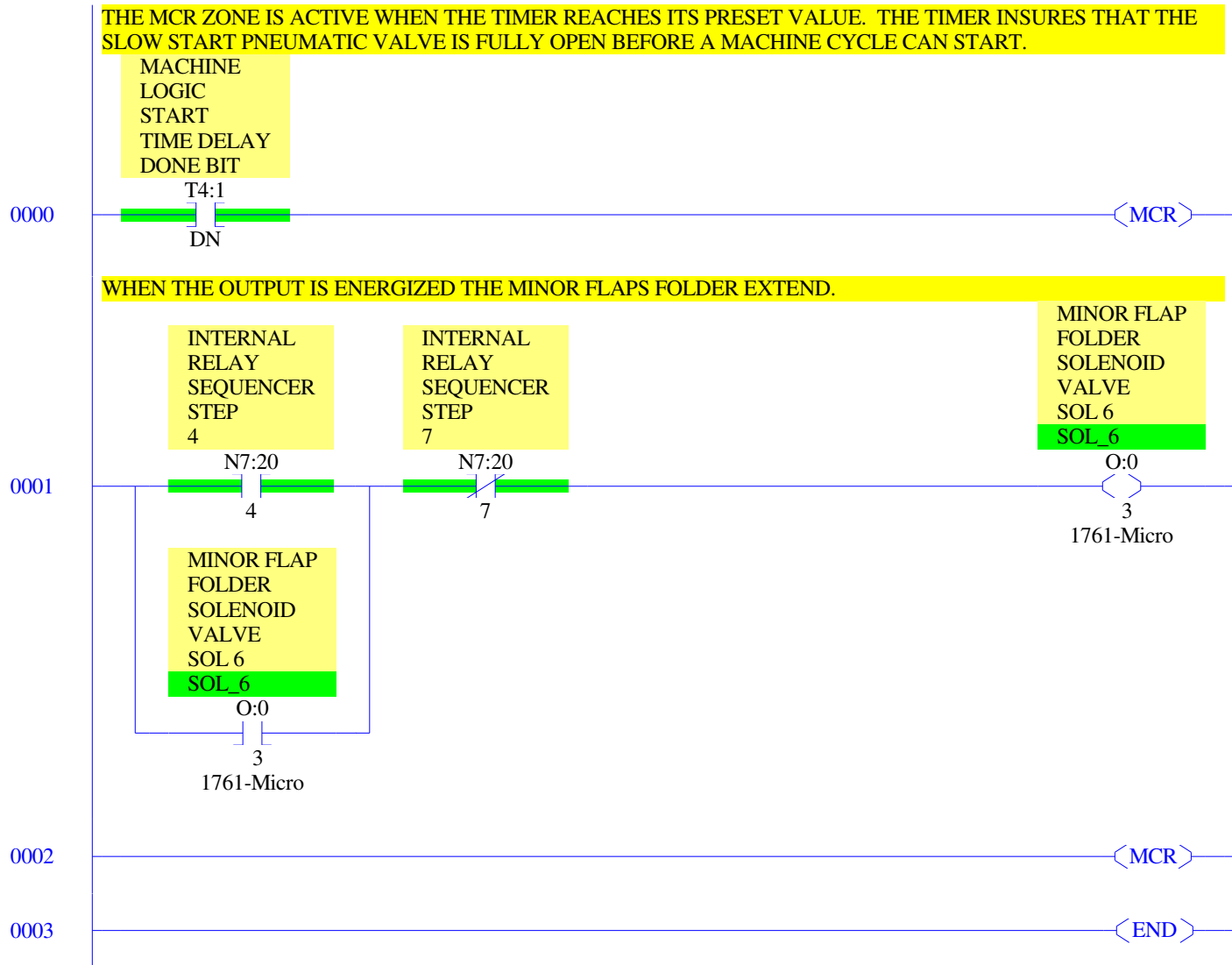
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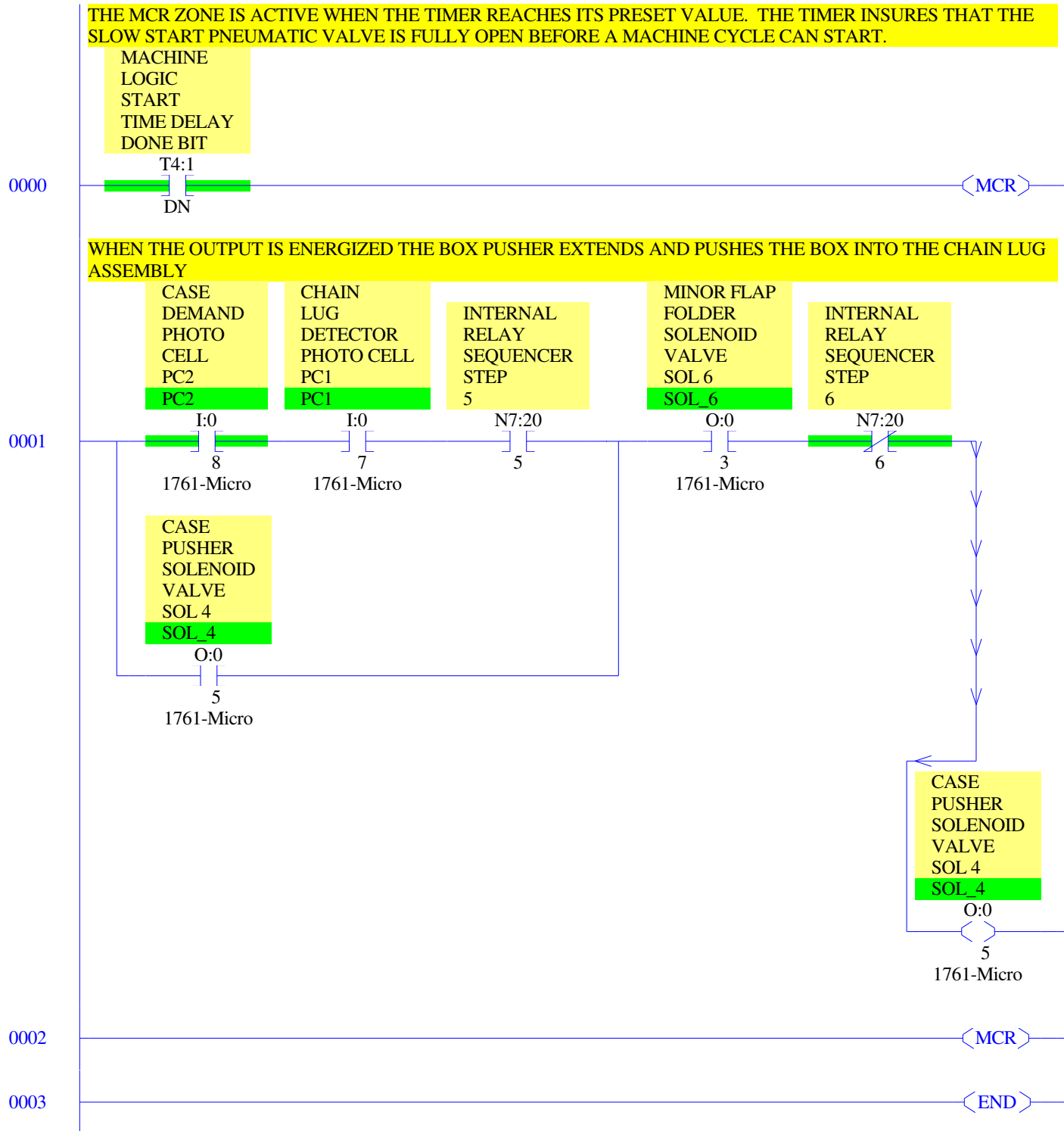


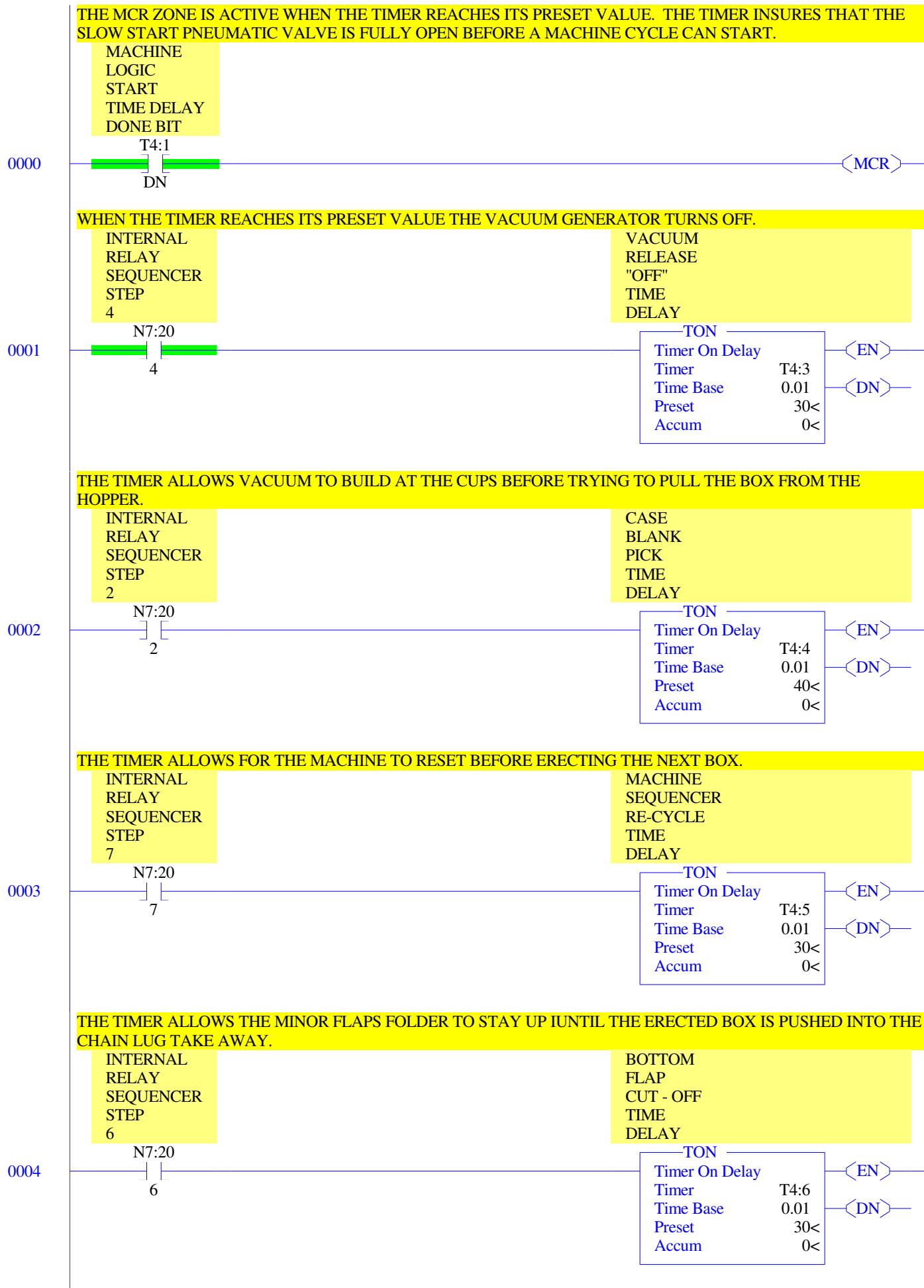


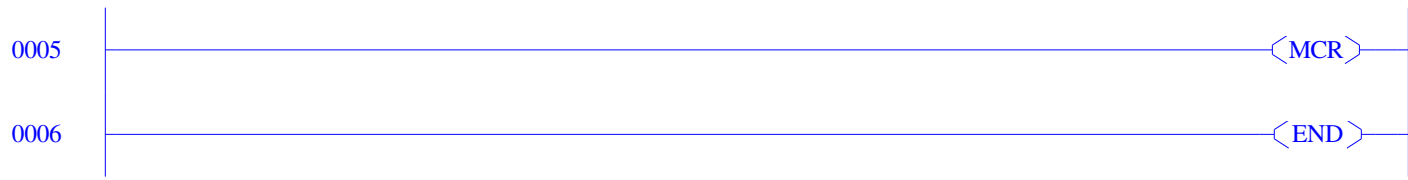


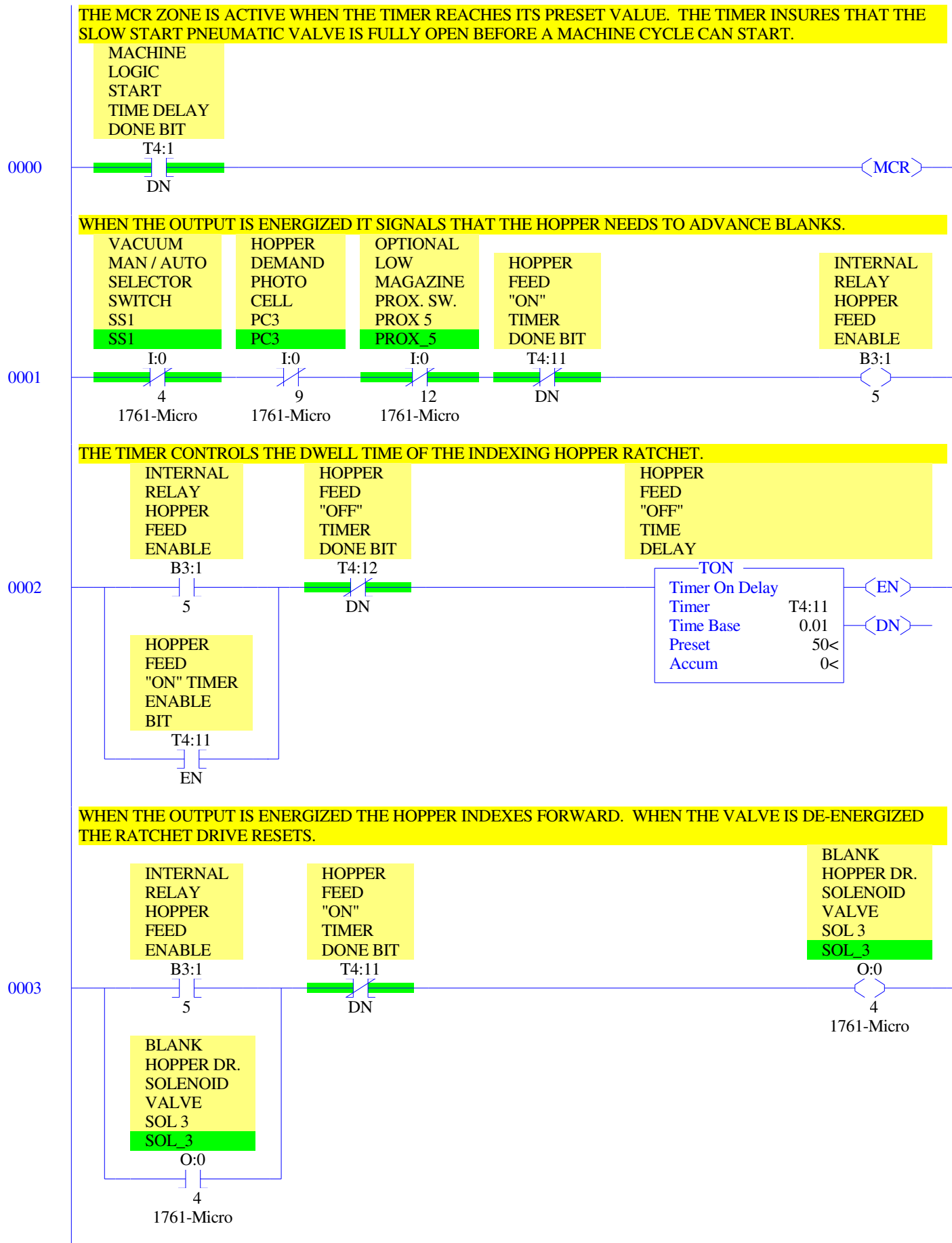


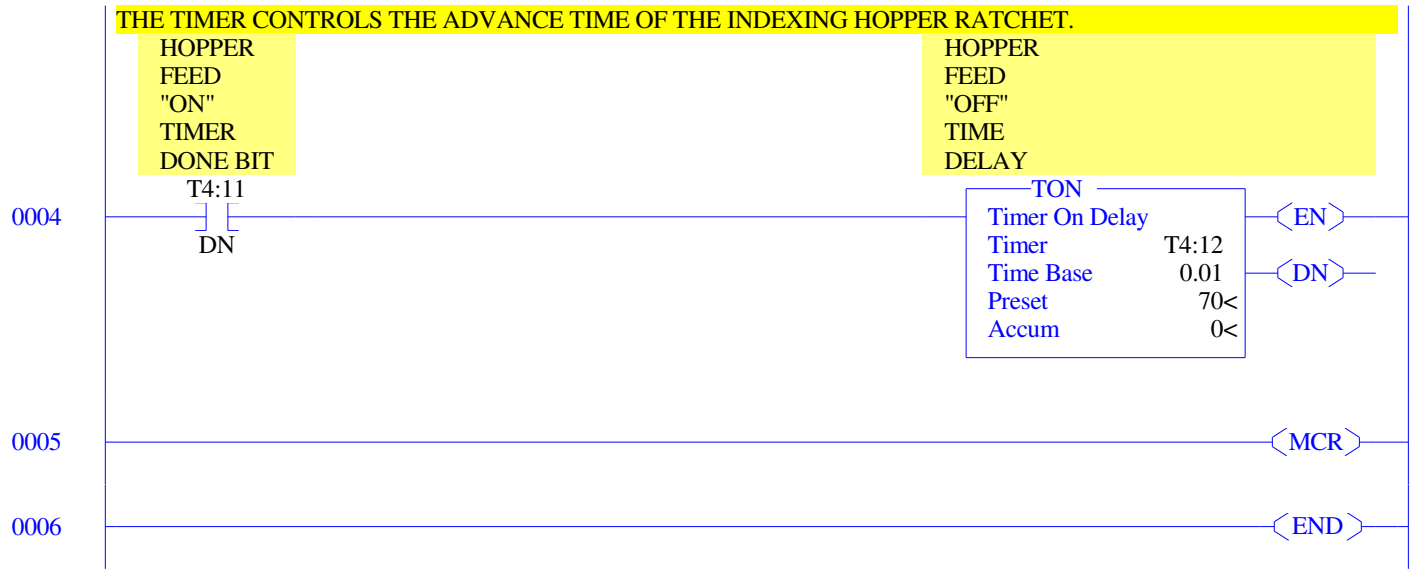


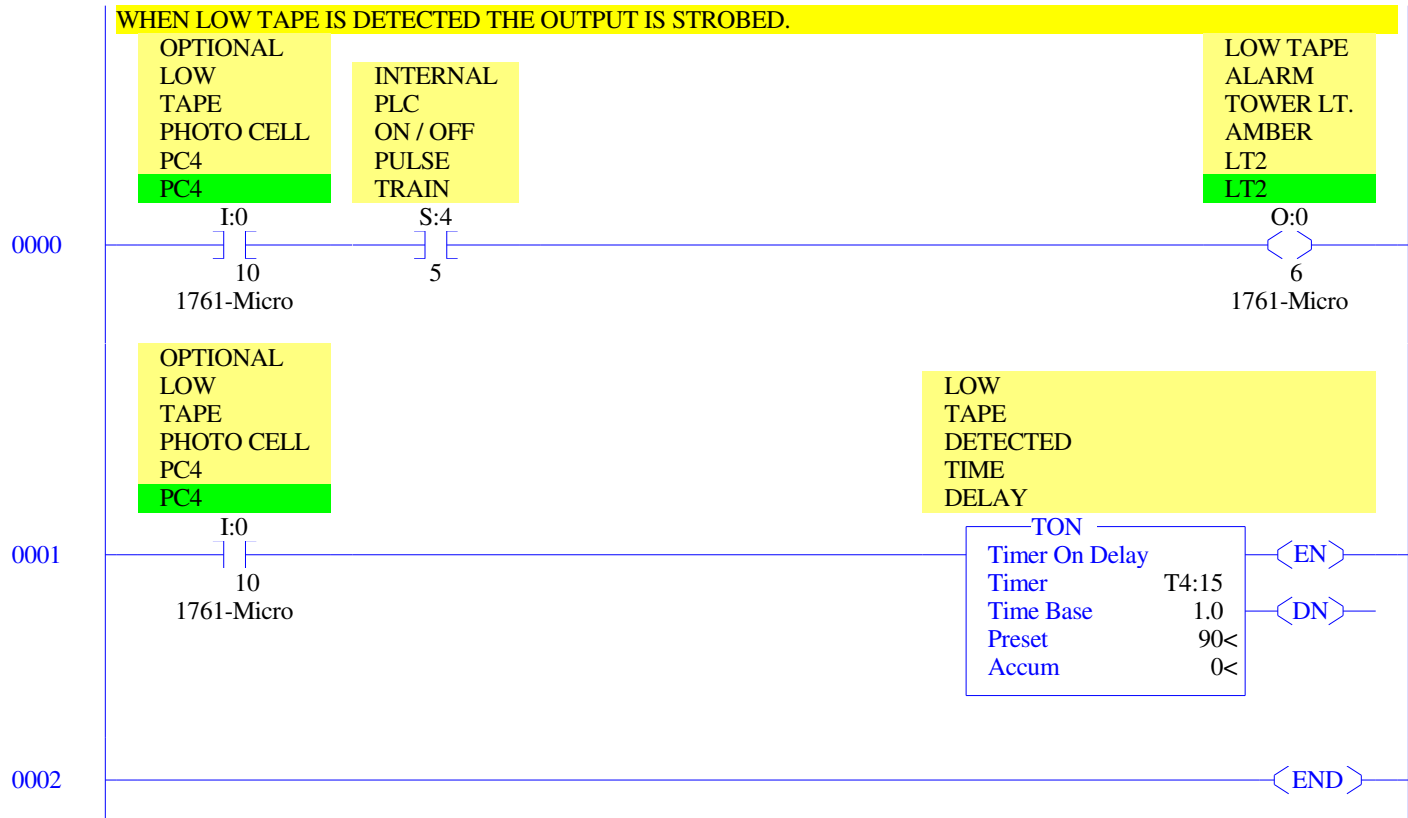


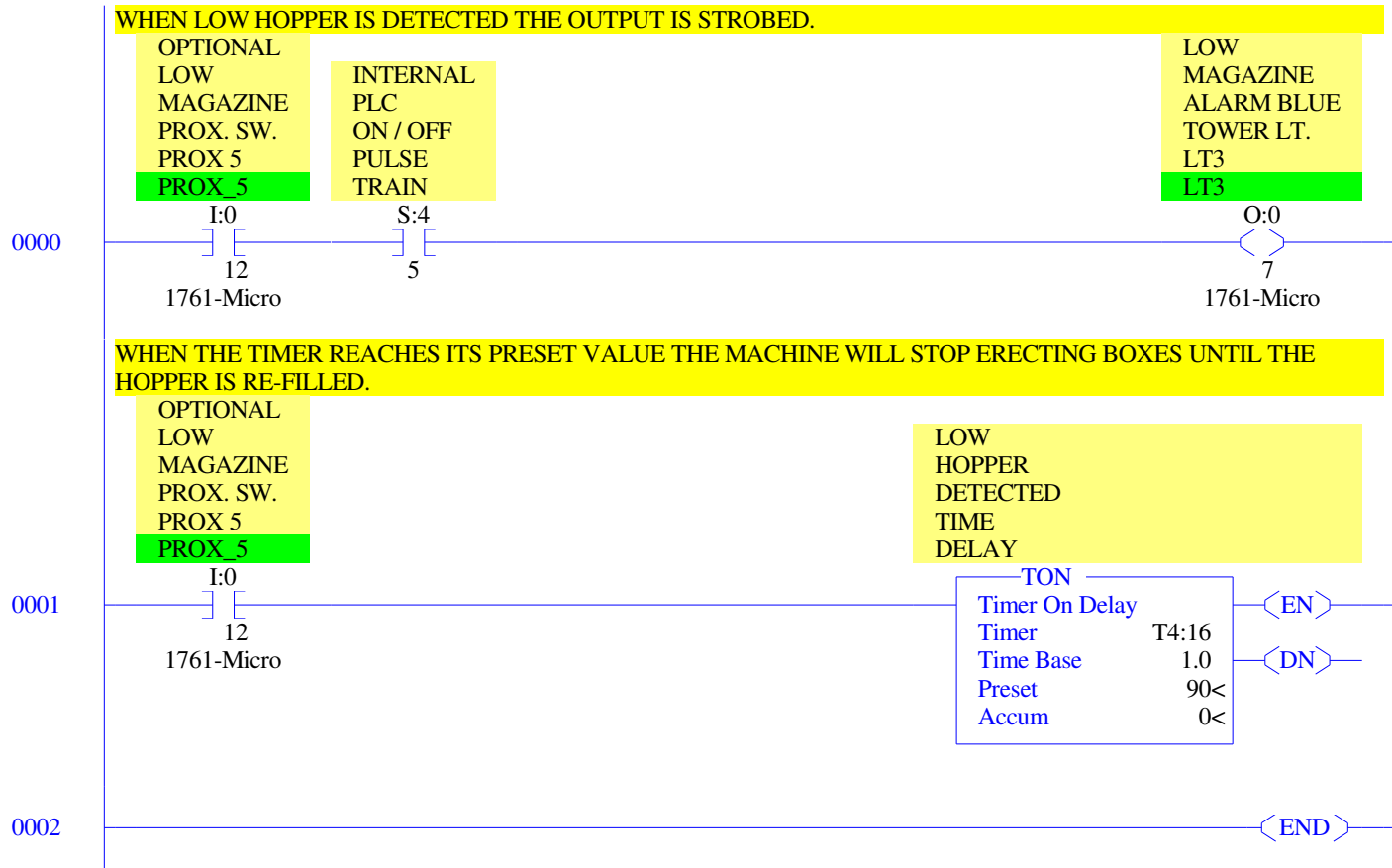


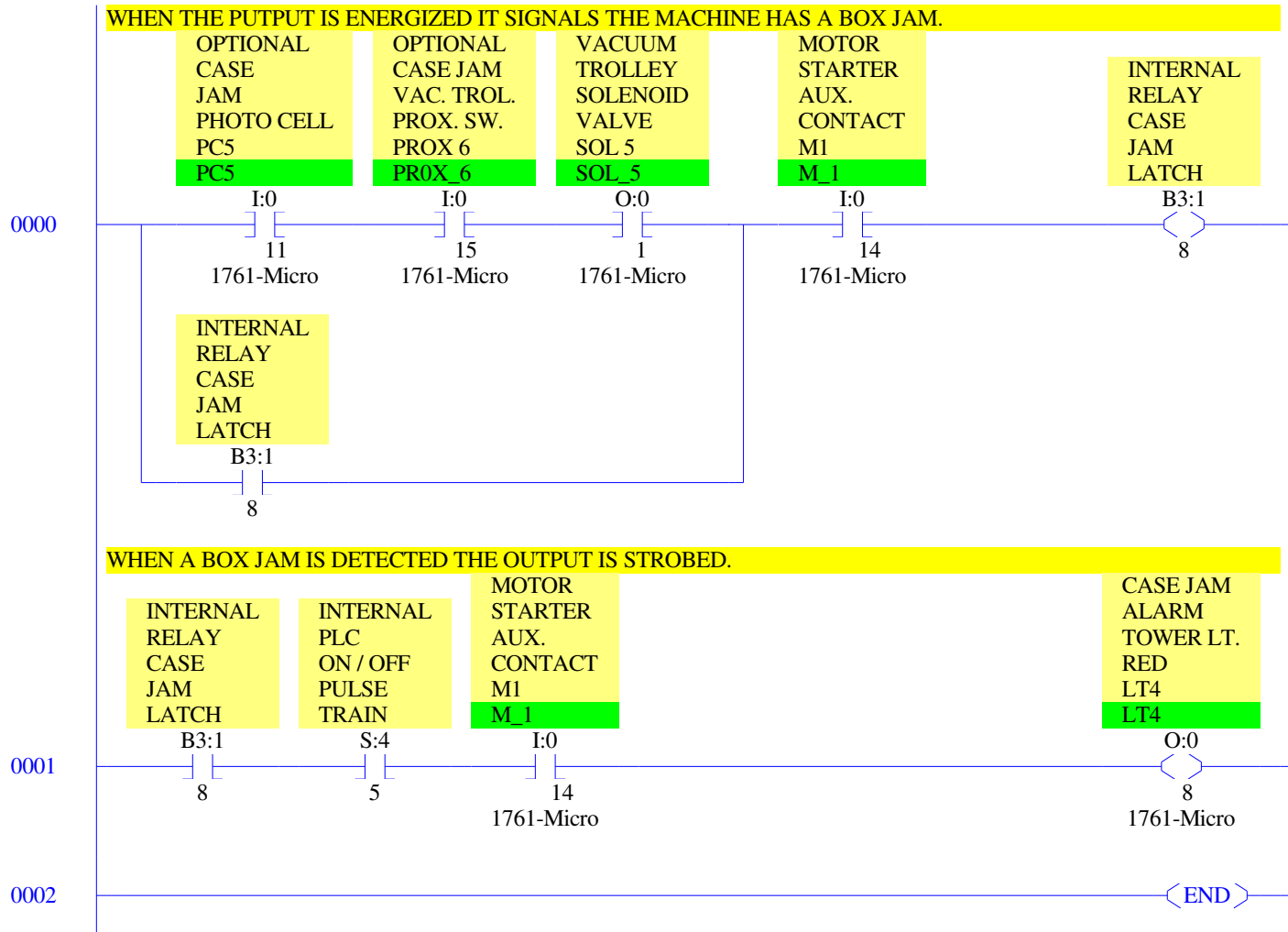












RSLogix 500 Cross Reference Report - Sorted by Address

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O:0/0      - {SOL_1} MAIN AIR SOLENOID VALVE SOL 1
           OTE - File #3 MACH START - 0
O:0/1      - {SOL_5} VACUUM TROLLEY SOLENOID VALVE SOL 5
           OTE - File #6 VAC TROLLY - 1
           XIC - File #6 VAC TROLLY - 1
           File #13 BOX JAM - 0
O:0/2      - {SOL_2} VACUUM VENTURI GENERATOR SOLENOID VALVE
           OTE - File #5 VACUUM - 1
           XIC - File #5 VACUUM - 1
           File #14 BOX COUNT - 0
O:0/3      - {SOL_6} MINOR FLAP FOLDER SOLENOID VALVE SOL 6
           OTE - File #7 FLAP FOLD - 1
           XIC - File #7 FLAP FOLD - 1
           File #8 BOX PUSHER - 1
O:0/4      - {SOL_3} BLANK HOPPER DR. SOLENOID VALVE SOL 3
           OTE - File #10 HOPPER - 3
           XIC - File #10 HOPPER - 3
O:0/5      - {SOL_4} CASE PUSHER SOLENOID VALVE SOL 4
           OTE - File #8 BOX PUSHER - 1
           XIC - File #8 BOX PUSHER - 1
O:0/6      - {LT2} LOW TAPE ALARM TOWER LT. AMBER LT2
           OTE - File #11 LOW TAPE - 0
O:0/7      - {LT3} LOW MAGAZINE ALARM BLUE TOWER LT. LT3
           OTE - File #12 LOW HOPPER - 0
O:0/8      - {LT4} CASE JAM ALARM TOWER LT. RED LT4
           OTE - File #13 BOX JAM - 1
I:0/0      - {PROX_1} VACUUM TROLLEY EXTENDED PROX. SW. PROX 1
           XIC - File #4 SEQUENCER - 6
           File #6 VAC TROLLY - 1
I:0/1      - {PROX_2} VACUUM TROLLEY RETRACTED PROX. SW. PROX 2
           XIC - File #4 SEQUENCER - 6
I:0/2      - {PROX_3} CASE PUSHER RETRACTED PROX. SW. PROX 3
           XIC - File #6 VAC TROLLY - 1
I:0/3      - {PROX_4} CASE PUSHER EXTENDED PROX. SW. PROX 4
           XIC - File #4 SEQUENCER - 6
I:0/4      - {SS1} VACUUM MAN / AUTO SELECTOR SWITCH SS1
           XIO - File #3 MACH START - 1
           File #10 HOPPER - 1
           File #14 BOX COUNT - 0
I:0/5      - {PB3} RESET / CYCLE PUSH BUTTON PB3
           XIC - File #4 SEQUENCER - 4
I:0/7      - {PC1} CHAIN LUG DETECTOR PHOTO CELL PC1
           XIC - File #8 BOX PUSHER - 1
I:0/8      - {PC2} CASE DEMAND PHOTO CELL PC2
           XIC - File #4 SEQUENCER - 0
           File #8 BOX PUSHER - 1
I:0/9      - {PC3} HOPPER DEMAND PHOTO CELL PC3
           XIC - File #4 SEQUENCER - 0
           XIO - File #10 HOPPER - 1
I:0/10     - {PC4} OPTIONAL LOW TAPE PHOTO CELL PC4
           XIC - File #11 LOW TAPE - 0, 1
I:0/11     - {PC5} OPTIONAL CASE JAM PHOTO CELL PC5
           XIC - File #13 BOX JAM - 0
I:0/12     - {PROX_5} OPTIONAL LOW MAGAZINE PROX. SW. PROX 5
           XIC - File #12 LOW HOPPER - 0, 1
           XIO - File #10 HOPPER - 1
I:0/14     - {M_1} MOTOR STARTER AUX. CONTACT M1
           XIC - File #3 MACH START - 0
           File #13 BOX JAM - 0, 1
           XIO - File #3 MACH START - 2
           File #4 SEQUENCER - 2
I:0/15     - {PROX_6} OPTIONAL CASE JAM VAC. TROL. PROX. SW. PROX 6
           XIC - File #13 BOX JAM - 0
S:4/5      - INTERNAL PLC ON / OFF PULSE TRAIN
           XIC - File #11 LOW TAPE - 0
           File #12 LOW HOPPER - 0
           File #13 BOX JAM - 1
B3:0/0     - INTERNAL RELAY ONE SHOT LOGIC INSTRUCTION
           OSR - File #14 BOX COUNT - 0
B3:0/1     - INTERNAL RELAY BOX TOTALIZER COUNT TRIGGER

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RSLogix 500 Cross Reference Report - Sorted by Address

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B3:0/14   OTE - File #14 BOX COUNT - 0
          XIC - File #14 BOX COUNT - 1
          - INTERNAL RELAY MAN. / AUTO SWITCH LATCH
          OTL - File #3 MACH START - 1
          OTU - File #3 MACH START - 2
          XIC - File #4 SEQUENCER - 5
            File #5 VACUUM - 1
          XIO - File #4 SEQUENCER - 5
B3:0/15   - INTERNAL RELAY ONE SHOT LOGIC BIT
          OSR - File #4 SEQUENCER - 0
B3:1/0    - INTERNAL RELAY INITIATE MACHINE SEQUENCER
          OTE - File #4 SEQUENCER - 0
          XIC - File #4 SEQUENCER - 1
B3:1/1    - INTERNAL RELAY MANUAL STAGING BIT
          OTE - File #4 SEQUENCER - 6
          XIC - File #4 SEQUENCER - 1
B3:1/2    - INTERNAL RELAY ONE SHOT LOGIC BIT
          OSR - File #4 SEQUENCER - 4
B3:1/3    - INTERNAL RELAY MANUAL CYCLE ONE SHOT PULSE
          OTE - File #4 SEQUENCER - 4
          XIC - File #4 SEQUENCER - 5
            File #5 VACUUM - 1
B3:1/4    - INTERNAL RELAY SEQUENCER ADVANCE ENABLE
          OTE - File #4 SEQUENCER - 5
          XIC - File #4 SEQUENCER - 0, 6
B3:1/5    - INTERNAL RELAY HOPPER FEED ENABLE
          OTE - File #10 HOPPER - 1
          XIC - File #10 HOPPER - 2, 3
B3:1/8    - INTERNAL RELAY CASE JAM LATCH
          OTE - File #13 BOX JAM - 0
          XIC - File #13 BOX JAM - 0, 1
          XIO - File #3 MACH START - 0
B3:1/10   - INTERNAL RELAY ONE SHOT LOGIC BIT
          OSR - File #4 SEQUENCER - 6
T4:1      - MACHINE LOGIC START EXECUTE TIME DELAY
          TON - File #3 MACH START - 0
T4:1/DN   - MACHINE LOGIC START TIME DELAY DONE BIT
          XIC - File #4 SEQUENCER - 3
            File #5 VACUUM - 0
            File #6 VAC TROLLY - 0
            File #7 FLAP FOLD - 0
            File #8 BOX PUSHER - 0
            File #9 SEQ. TIMER - 0
            File #10 HOPPER - 0
T4:3      - VACUUM RELEASE "OFF" TIME DELAY
          TON - File #9 SEQ. TIMER - 1
T4:3/DN   - VACUUM RELEASE TIME DELAY DONE BIT
          XIC - File #4 SEQUENCER - 6
T4:4      - CASE BLANK PICK TIME DELAY
          TON - File #9 SEQ. TIMER - 2
T4:4/DN   - CASE BLANK PICKED TIME DELAY DONE BIT
          XIC - File #4 SEQUENCER - 6
T4:5      - MACHINE SEQUENCER RE-CYCLE TIME DELAY
          TON - File #9 SEQ. TIMER - 3
T4:5/DN   - MACHINE SEQUENCER RE-CYCLE TIME DELAY DONE BIT
          XIC - File #3 MACH START - 2
            File #4 SEQUENCER - 2, 6
T4:6      - BOTTOM FLAP CUT - OFF TIME DELAY
          TON - File #9 SEQ. TIMER - 4
T4:6/DN   - BOTTOM FLAP CUT - OFF TIMER DONE BIT
          XIC - File #4 SEQUENCER - 6
T4:11     - HOPPER FEED "OFF" TIME DELAY
          TON - File #10 HOPPER - 2
T4:11/DN  - HOPPER FEED "ON" TIMER DONE BIT
          XIC - File #10 HOPPER - 4
          XIO - File #10 HOPPER - 1, 3
T4:11/EN  - HOPPER FEED "ON" TIMER ENABLE BIT
          XIC - File #10 HOPPER - 2
T4:12     - HOPPER FEED "OFF" TIME DELAY
          TON - File #10 HOPPER - 4

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RSLogix 500 Cross Reference Report - Sorted by Address

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T4:12/DN - HOPPER FEED "OFF" TIMER DONE BIT
          XIO - File #10 HOPPER - 2
T4:15    - LOW TAPE DETECTED TIME DELAY
          TON - File #11 LOW TAPE - 1
T4:15/DN - LOW TAPE TIME DELAY DONE BIT
          XIO - File #6 VAC TROLLY - 1
T4:16    - LOW HOPPER DETECTED TIME DELAY
          TON - File #12 LOW HOPPER - 1
T4:16/DN - LOW HOPPER TIME DELAY DONE BIT
          XIO - File #6 VAC TROLLY - 1
C5:0     - HUNDREDS BOX COUNTER 100
          CTU - File #14 BOX COUNT - 1
          RES - File #14 BOX COUNT - 2
C5:0/DN  - XIC - File #14 BOX COUNT - 2
C5:1     - THOUSANDS BOX COUNTER 100,000
          CTU - File #14 BOX COUNT - 2
          RES - File #14 BOX COUNT - 3
C5:1/DN  - XIC - File #14 BOX COUNT - 3
C5:2     - MILLIONS BOX COUNTER 100,000,000
          CTU - File #14 BOX COUNT - 3
R6:1     - MACHINE CYCLE FUNCTION SEQUENCER
          RES - File #4 SEQUENCER - 2
          SQO - File #4 SEQUENCER - 1
N7:1     - MACHINE CYCLE FUNCTION SEQUENCER
          SQO - File #4 SEQUENCER - 1
FILE N7:1 LEN:9 - SQO - File #4 SEQUENCER - 1
N7:20    - SEQUENCER INTEGER FILE
          CLR - File #4 SEQUENCER - 2
          SQO - File #4 SEQUENCER - 1
N7:20/1  - INTERNAL RELAY SEQUENCER STEP 1
          XIC - File #4 SEQUENCER - 6
           File #5 VACUUM - 1
           File #6 VAC TROLLY - 1
          XIO - File #4 SEQUENCER - 0
N7:20/2  - INTERNAL RELAY SEQUENCER STEP 2
          XIC - File #4 SEQUENCER - 6
           File #9 SEQ. TIMER - 2
          XIO - File #4 SEQUENCER - 0
N7:20/3  - INTERNAL RELAY SEQUENCER STEP 3
          XIC - File #4 SEQUENCER - 6
          XIO - File #4 SEQUENCER - 0
           File #6 VAC TROLLY - 1
N7:20/4  - INTERNAL RELAY SEQUENCER STEP 4
          XIC - File #4 SEQUENCER - 6
           File #7 FLAP FOLD - 1
           File #9 SEQ. TIMER - 1
          XIO - File #4 SEQUENCER - 0
N7:20/5  - INTERNAL RELAY SEQUENCER STEP 5
          XIC - File #4 SEQUENCER - 6
           File #8 BOX PUSHER - 1
          XIO - File #4 SEQUENCER - 0
           File #5 VACUUM - 1
N7:20/6  - INTERNAL RELAY SEQUENCER STEP 6
          XIC - File #4 SEQUENCER - 6
           File #9 SEQ. TIMER - 4
          XIO - File #4 SEQUENCER - 0
           File #8 BOX PUSHER - 1
N7:20/7  - INTERNAL RELAY SEQUENCER STEP 7
          XIC - File #4 SEQUENCER - 6
           File #9 SEQ. TIMER - 3
          XIO - File #4 SEQUENCER - 0
           File #7 FLAP FOLD - 1
U:3      - MACHINE START LOGIC SUBROUTINE
          JSR - File #2 SUBROUTINE - 0
U:4      - MACHINE CYCLE SEQUENCER LOGIC
          JSR - File #2 SUBROUTINE - 1
U:5      - VACUUM GENERATOR SUPPLY LOGIC
          JSR - File #2 SUBROUTINE - 2
U:6      - VACUUM TROLLEY TRAVEL LOGIC
          JSR - File #2 SUBROUTINE - 3

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RSLogix 500 Cross Reference Report - Sorted by Address

U:7 - MINOR FLAP FOLDER LOGIC
 JSR - File #2 SUBROUTINE - 4

U:8 - BOX CROSS PUSHER LOGIC
 JSR - File #2 SUBROUTINE - 5

U:9 - MACHINE CYCLE SEQUENCER TIMERS
 JSR - File #2 SUBROUTINE - 6

U:10 - BLANK HOPPER DRIVE LOGIC
 JSR - File #2 SUBROUTINE - 7

U:11 - LOW TAPE DETECTION LOGIC
 JSR - File #2 SUBROUTINE - 8

U:12 - LOW HOPPER DETECTION LOGIC
 JSR - File #2 SUBROUTINE - 9

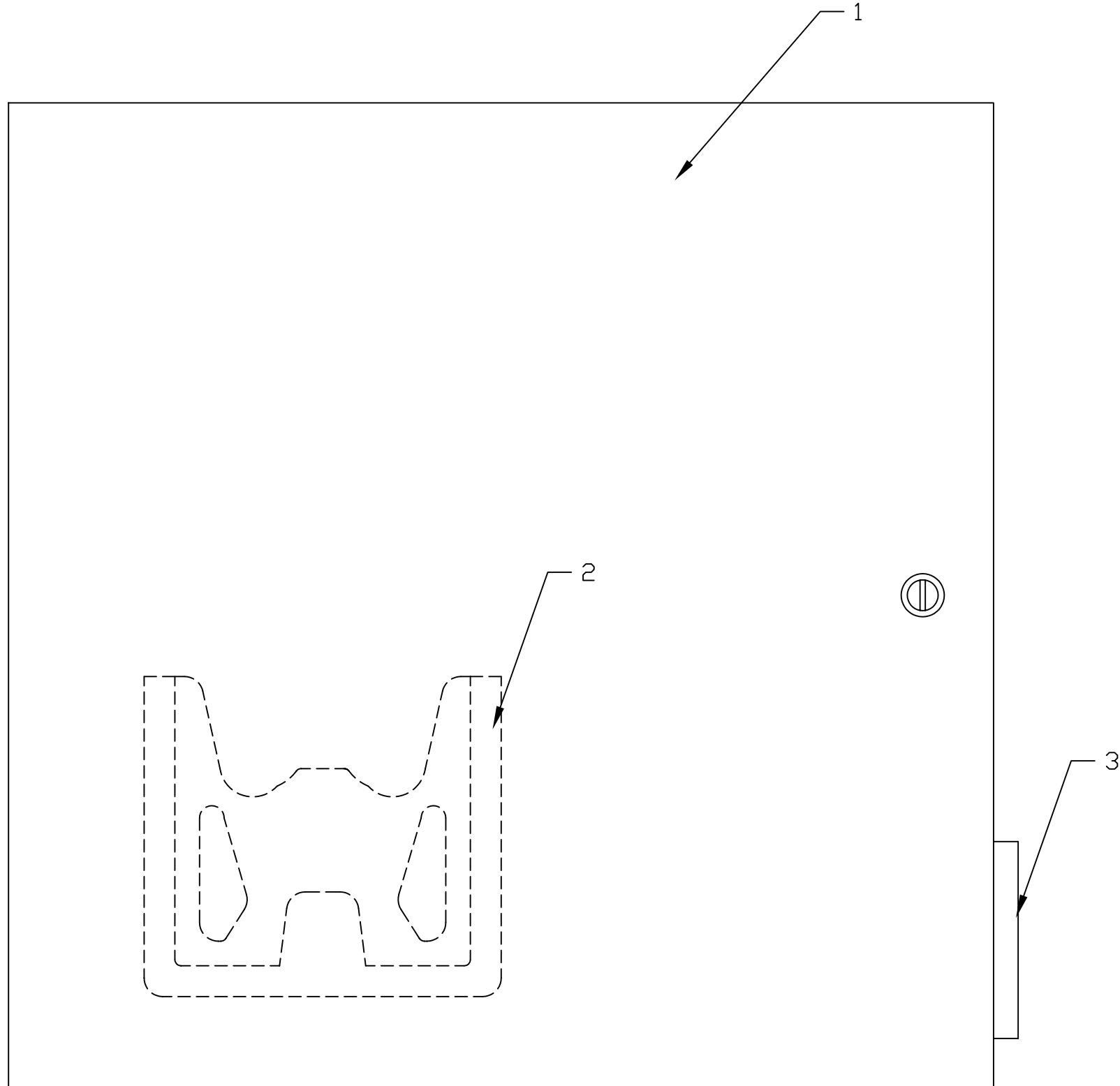
U:13 - BOX JAM DETECTION LOGIC
 JSR - File #2 SUBROUTINE - 10

U:14 - BOX COUNT TOTALIZER LOGIC PROTOTYPE
 JSR - File #2 SUBROUTINE - 11

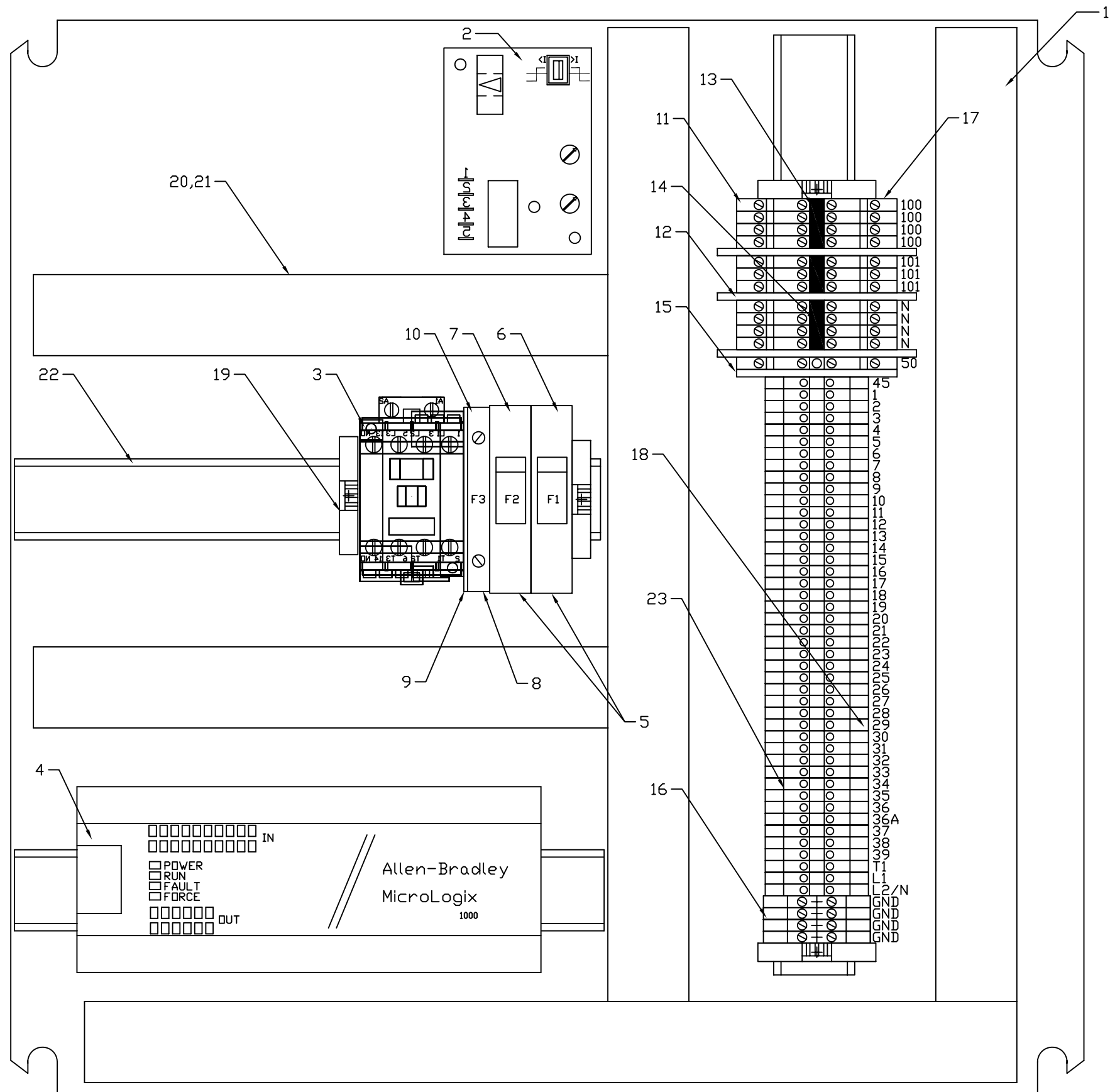
REVISION RECORD

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

| KEY | PART NO. | DESCRIPTION |
|-----|-----------------|-------------------|
| 1 | A100N-202006B-1 | ENCLOSURE |
| 2 | A100N-PP-HDF-1 | PRINT POCKET |
| 3 | AH-CEP-1 | CABLE ENTRY PLATE |



| | | |
|----------------------------|--|----------------|
| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA. | |
| DECIMAL (3 PLC) +/- .005 | TITLE: ELECTRICAL ENCLOSURE ASSEMBLY CF50T - 120/1/60 | |
| FRACTIONAL +/- 1/64 | DWG. NO. ED1703 | SCALE: 3 : 8 |
| ANG. - 1/2° | MATERIAL: COMMERCIAL | DATE: 04/27/06 |
| | DESIGNED: MENTA | DRAWN: WM |
| | | APPRVD: -- |



| KEY | PART NO. | DESCRIPTION |
|-----|-----------------|-----------------------|
| 1 | A100N-2020P-1 | PANEL |
| 2 | 303111 | OVER CURRENT RELAY |
| 3 | A106-AB-2A | CONTACTOR |
| 4 | A241AB-1000-1DC | PLC |
| 5 | A125BH-AB-DIN-3 | FUSE HOLDER |
| 6 | A125SB-10-R | FUSE, 10 AMP |
| 7 | A125SB-3-R | FUSE, 3 AMP |
| 8 | A125BH-AB-DIN | FUSE HOLDER |
| 9 | A128B-AB16 | FUSE BLOCK BARRIER |
| 10 | A125SB-2/10-312 | FUSE 2/10 AMP |
| 11 | A124-AB-JD3C | DOUBLE TERMINAL BLOCK |
| 12 | A128-AB-PPJD3 | PARTITION PLATE |
| 13 | A124-AB-CJ-4 | 4 POLE CENTER JUMPER |
| 14 | A124-AB-CJ-3 | 3 POLE CENTER JUMPER |
| 15 | A128-AB-EBJD3 | END PARRIER PLATE |
| 16 | A124-AB-JG4 | GROUND TERMINAL |
| 17 | A124-AB-MARK-DT | TERMINAL MARKER CARD |
| 18 | A124-AB-MARK-ST | TERMINAL MARKER CARD |
| 19 | A128-AB-ERL35 | TERMINAL ANCHOR |
| 20 | A250-H0F | WIREWAY |
| 21 | A250A-H0F | WIREWAY COVER |
| 22 | A209-AB-2 | DIN RAIL |
| 23 | A124-AB-J3 | SINGLE TERMINAL |

| | | |
|----------------------------|--|----------------|
| TOLERANCES EXCEPT AS NOTED | THE LOVESHAW CORPORATION RT 296, SOUTH CANAAN, PA. | |
| DECIMAL (3 PLC) +/- .005 | TITLE: ELECTRICAL PANEL ASSEMBLY CF50T - 120/1/60 | |
| FRACTIONAL +/- 1/64 | DWG. NO. ED1704 | SCALE: 1 : 2 |
| ANG. - 1/2° | MATERIAL: COMMERCIAL | DATE: 05/01/06 |
| | DESIGNED: MENTA | DRAWN: WM |
| | | APPRVD: -- |