Iconotech Optimizer
Shuttle Feed
Case Printer

June 2010

Operating Manual

Iconotech
Optimizer
Shuttle Feed Case Printer

Operating Manual

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Section 1

Installation

This section contains important installation instructions that must be followed to properly install and prepare the Case Printer for set-up and operation.

Pre-installation of Case Printer with Restacker & Roller Conveyor System

Following are the site requirements and basic layout (see sketch at the end of this section):

Electric Power 230 V AC, 60 Hz, single phase, 20 Amp. protected. (When ordered as a unit, the restacker is equipped with a connection into press, and roller conveyor is connected to restacker with standard plugs.) Main connection point is on right side of PRINTER control cabinet with a polarized, 4-prong push and twist connector.

Air System A clean source of dry shop air is required. Minimum 80 PSI at 20 CFM for press with air blow-off and restacker.
Air Line: Minimum 3/8" I.D. x 25" long.
Connections: 1/4" NPT T-fitting to printer filter-regulator-lubricator on right side of control cabinet. Bottom of the T-fitting is piped to junction box on outside of driven side. A quick-connect coupler is provided to plug in air hose from restacker. Restacker has it's own filter-regulator-lubricator.

Electric Power for Countries with 50 Hz
The printer, restacker, and conveyor are equipped with components capable of handling the local power: 240 V AC, 50 Hz, single phase, 20 Amp protection. Specific wiring requests and components must be included in order and quoted.

Before installing, check to ensure that the necessary supplies and accessories are enclosed. They should have been shipped with the printer, restacker, or conveyor.

CASE PRINTER

- User manual and instruction books
- Electrical wiring diagram
- Print cylinder lift bar
- 4 adjustable leveling pads
- 1 ink pad
- 1 ink container
- 1 ink inlet tube
- 1 ink outlet tube
- 1 thermal printer
- 1 LabelWorks software
- 1 Iconotech Printer Driver Software

RESTACKER and CONVEYOR

- Electrical diagram
- 2 caster wheels with V-grooves
- 2 caster wheels, plain
- 1 angle iron rail
- 1 Cable mast for conveyor
- 1 Power cable to conveyor electric motor with accessories

Installation of the Case Printing System with Restacker & Conveyor

Installation of a system should begin with locating restacker in proper position in designated area. Because restacker is fixed in place, moving on rail that is anchored to floor, it is of the utmost importance that rail be properly located. (See sketch at the end of this chapter.)

Installation of the Restacker

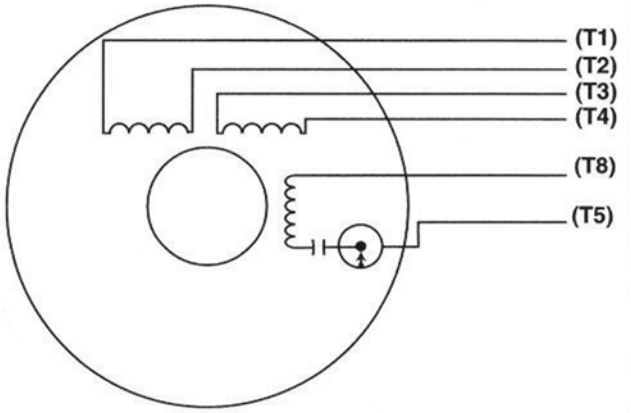
1. Unload restacker from crate and mount the 2 grooved casters on exit end of restacker and the 2 plain casters on entrance end.
2. Drop restacker down on angle iron rail with the two grooved casters riding on rail.
3. Move restacker back and forth on rail from resting notch, in operating position, to resting notch in service position, providing access to print cylinder. Restacker should roll freely and stay securely in both notch locations.
4. Carefully check whether restacker is level, both side-to-side and front-to-back. Although it is not sensitive to being absolutely level, it is somewhat dependent on floor level and care should be given to provide a level floor location. To level restacker, shims will have to be placed between caster mounting plate and bottom of restacker.
5. Anchor rail to floor in the appropriate place as both the conveyor and press will be aligned to the restacker.

Installation of Conveyor

1. Conveyor is shipped in two crates: 1.) 34" x 31" x 126" and 800 lbs. 2.) 52" x 31" x 108" and 1,000 lbs.
2. Uncrate and mount the legs as marked. Flip the sections over and mate them together, making sure that the sprocket halves for line shaft drive are lined up. Bolt sections together. Install the Deldrin chain couplings.
3. Move conveyor into location, allowing min. 3/4" space between restacker frame and conveyor frame, to allow restacker to roll back and forth.
4. Center of roller conveyor should be aligned with the "0" position on the measuring scale on restacker. Generally, the center support wheel on exit conveyor splined drive shaft is mounted in center position.
5. Make sure conveyor is properly located and properly elevated to the correct height, per sketch. Anchor both legs at ends of conveyor and all other legs in a staggered fashion. Make sure the single legs are anchored.
6. The conveyor is shipped in such a manor that the breather port on the gearbox is pointed up and thus retains the oil.
7. Drill for mast and install it at the starting end of the conveyor to allow the stacker to be moved back and forth.
8. Install the electrical cable by attaching the cable on the inside of the outside rail with cable ties. Wiring connections to the conveyor motor are as follows.

LINE	L1	L2	JOIN
MOTOR LEADS	T1	T4, T8	T2, T3, T5

CONVEYOR MOTOR



9. All controls for conveyor are located in control cabinet on restacker.
10. For proper operation, remove the o-ring drive belts on the first three rollers and the last four rollers of the conveyor.
11. Mount an "L" bracket (1 1/2" x 2 1/2" x 5 1/4" long) in the middle of the angle iron across the end of the conveyor, with the 2 1/2" side up. This will stop the cases from rolling off the end, as well as making it convenient to grab a stack.

Installation of the Printer

1. Uncrate printer and remove lag bolts in each corner that hold printer to skid.
2. Lift case printer off skid by using a forklift with long forks. Move forks in from driven side forward of midpoint. It might be necessary to lift driven side and block it up in order to get forks in. Put a board across fork ends underneath bottom pan, to distribute weight and protect paint.

WARNING
Keep hands and feet clear of machine base when lifting machine off skid. Do not work or place hands under machine base unless machine is securely supported at all four corners.

! NOTE !
Do not lift or attempt to maneuver the case printer into position using the control panel enclosure for support

3. With the printer lifted up, remove skid. Mount leveling feet at each Corner. Place printer in proper location allowing a 3" space between printer and restacker per layout print. Operator side is offset toward the operator 2 3/4" in relation to the side of the stacker. Using a long straight edge, check the alignment of the feeder side panel and the stacker side panel with both set at the same number on the measuring tape. Adjust the press side to side for correct line-up.
4. Make sure that machine leveling mounts are evenly adjusted. Level machine from side-to-side using low-end platform and the front cross shaft under Plexiglas cover as leveling surfaces. (Move O-rings out of the way.) It is of the utmost importance that printer be level for proper ink flow in print cylinder and for maintaining level printing on cases. Out of level can cause wrinkling of stencil and skewing of pad. Check level of print cylinder by aligning the level with one row of perforated holes. The print cylinder should be absolutely level.

5. With main power disconnect in off position (green field) connect the 230V, 60 Hz., single phase power to connecting twist plug.
6. Attach pneumatic supply line to inlet port of filter-lubricator-regulator assembly mounted on side of control panel enclosure. Air supply may be attached using appropriate quick-disconnect pneumatic fittings if desired. When quick-disconnect fittings are used, always install self-checking female fitting on air hose to prevent whipping of hose when air line is disconnected from FRL assembly. Set regulator gage to 70 PSI. Fill lubricator with 10 weight non-detergent oil. Set oil drip rate to minimum, per manufacturer's instructions.
7. Connect restacker air-electrical and signal wire to proper quick-connects in junction box on printer. Connect conveyor power plug to proper connector in the junction box on the inside lower exit corner of the stacker.

WARNING
READ USER'S MANUAL AND ALL SAFETY INSTRUCTIONS BEFORE ATTEMPTING TO START OR OPERATE CASE PRINTER.
Failure to read and follow all instructions may result in serious injury or damage to case printer

8. Perform visual checks of each of the following items before turning restacker, conveyor, and printer on for the first time, and correct items as required:

    - Drive chains are properly engaged with all sprockets.
    - Drive belts are properly seated on pulleys.
    - Pneumatic tubing fittings and connections are properly tightened and are leak-free.
    - Ink pump power cords are securely engaged.

9. READ ALL SAFETY INSTRUCTIONS AND USER'S MANUAL BEFORE PROCEEDING! All service personnel performing maintenance, adjustments, or repairs on the Case Printer must understand the operation of the machine before attempting to perform equipment service. After completing reading and review of these materials, return to Step #8 of the installation procedure.
10. Set filter-lubricator-regulator on Restacker to 60 PSI (located on driven side). With the main breaker on the press control cabinet in "ON" position, turn restacker selector switch to "ON" position. "ON" light should now be on and roller conveyor should be running.
11. Push "EJECT" button. Flipper arms should drop and return and eject conveyor should be running.
12. Turn power to Case Printer "ON" by turning main switch lever counterclockwise to "white" area on switch base.

    A. Set Speed to "10" by turning Speed selector knob dial.
    B. With no cases in magazine, start Case Printer by pressing "RUN" button on control panel. Press will run only three cycles and stop.
    C. Start press again and, immediately, press "E-STOP" (Emergency Stop) button on control panel. Machine must stop immediately. If machine continues to run, turn power off at main switch, and consult troubleshooting guide section of operating manual before proceeding.
    D. Pull "E-STOP" button back up, and restart case printer using "RUN" button. Go to the second "E-STOP" button on case in-feed side of machine, and press button. Machine must stop immediately. If machine continues to run, turn power off at main

switch, and consult troubleshooting guide section of operating manual before proceeding.

E. Turn pump selector switch to "MANUAL." Push "INK IN" button. The pump roller rotor should turn clockwise looking at it from the front of the pump. Turn selector switch to "OFF". Repeat for "INK OUT" pump.
F. Go to case out-feed side and, with machine running, lift Plexiglas cover up. Machine must stop immediately. If machine continues to run, turn power off at main switch, and consult troubleshooting guide section of operating manual before proceeding.
G. While holding down the "JOG" button and keeping the machine running, count the number of print cylinder revolutions per minute. Use the clamp area on the print cylinder as a reference point to count revolutions. Case Printer should run at speed set on speed selector knob. If Case Printer speed does not agree with Speed knob setting within a reasonable tolerance, consult troubleshooting guide. The frequency shown on the AC drive unit inside the cabinet should correspond to the RPM of the print cylinder.
H. Start the press and immediately press the "STOP" button. The shuttle feeder should stop after completing current cycle, and print cylinder and feed chain should continue for 3 more revolutions before stopping.
I. Press "Stop" button, and allow machine to come to a complete stop at "HOME" position.

13. Turn the Main Power Switch on the Control Panel to "OFF".
14. The Case Printer is now ready for mounting of the printing pad, inking, stencil loading, and running as described in the user's Manual.
15. Place the copy of the Electrical Wiring Diagram that was shipped with the machine in the control panel enclosure to help ensure availability in the event of a service call.
16. Do not attempt to make any adjustments. Modifying or altering control panel components will prevent the Case Printer from operating normally, and may lead to damage of other machine components, and unsafe operating conditions.
17. Do not attempt any repairs outside the scope of this operating manual. Doing so will void your warranty, and may lead to improper or unsafe operation, and damage to machine components.
18. Never attempt to use non-authorized or makeshift parts. Doing so will void your warranty, and may lead to improper or unsafe operation, and damage to other machine components.
19. For factory authorized service, contact Iconotech at 1-800-521-0194.

Check	Spec.	Tolerance	Procedure	Adjustment	Location
Drive Speed – Print Cylinder	10 RPM	±½ rpm	Count RPM	Call Service Technician	Call Service Technician
Drive Speed – Print Cylinder	60 RPM	± 1 rpm	Count RPM	Call Service Technician	Call Service Technician
Print Cylinder – Home Pos.	0° (12:00)	±1/8”	Observe Print Cylinder Lift Pin Position	Move “HOME” Proxy Switch	Electrical Cabinet
Fuse #110 – FNQ-R-10	10 Amps	N/A	Check FU110 Position	Replace	Electrical Cabinet
Fuse #111 – FNQ-R-10	10 Amps	N/A	Check FU111 Position	Replace	Electrical Cabinet
Fuse #125 – FNQ-R-3	3 Amps	N/A	Check FU125 Position	Replace	Electrical Cabinet
Fuse #201 – AGCI	1 Amp	N/A	Check FU201 Position	Replace	Electrical Cabinet
Clutch Operation	In/Out	N/A	Solenoid Shaft Retracts/Extends	Dry Lube Shaft	Clutch Solenoid Box
Drive Chains in Sync.	No Chattering	N/A	Listen for Unusual Noise/Chatter	Drive Side Sprocket Hub	Chain End Sprocket
Print Cylinder Up/Down Speed	No Banging	N/A	Raise/Lower Print Cylinder	Up/Down Flow Control	Left Air Solenoid Valve – Inside
Ink Pump Flow Rate – In	100 ml/minute	± 5 ml	Measure Output with Metric Measuring Cup	Check Pump Setup	Ink Pump – In
Ink Pump Flow Rate – Out	150	± 5 ml	Measure Output with Metric	Check Pump Setup	Ink Pump – Out

Check	Spec.	Tolerance	Procedure	Adjustment	Location
	ml/minute		Measuring Cup		
Ink Out Pump Tube Walking	Stationary	N/A	Ink Out, 1 notch on fork If Necessary	Use Forks On Pump	Ink Pump – Out
Ink In Pump Tube Walking	Stationary	N/A	Set Blue Clamp Tight Enough to Stop Walking	Use Blue Clamp	Ink Pump – In
Drive Belts	¼" Deflection	±1/8"	Squeeze At Midpoint Between Pulleys	Adjust Idlers	Idler Pulleys
Main Drive Belt	½" Deflection	±1/8"	Squeeze At Midpoint Between Pulleys	Adjust Tension	Main Motor Gear Box Platform
Stencil Load Feed Friction	Smoothes Stencil	N/A	Check For Positive Stencil Feed with Some Tension	Adjust ¼" SHCS in, to increase friction, out to decrease. Lock nut.	Bearing housing above shaft nut.
Hold-Down Nylon Screw on Cylinder Shaft Pin	Locks Tight	N/A	Tighten Screw Firmly – Shaft pin assembly must be locked tightly	Tighten/Inspect	Print Cylinder Shaft Pin Housings (each end)
Ink Pump Rotation	Clockwise	N/A	Look At Pump From Front	Reverse Wires	Control Cabinet (Only by Electrician)
Pusher Stop Points	No Bumping	N/A	Visually Check for Bottoming Out and Contact With Sides	Adjust Connecting Rod	Clutch Rod End
Pusher Motion	Free	N/A	Pushers Running Free	Loosen Housing	Pusher Housing
Overload Sensor	Trips as	.1 Sec.	Stops Drive Motor When Case	Call Service Technician	Call Service Technician

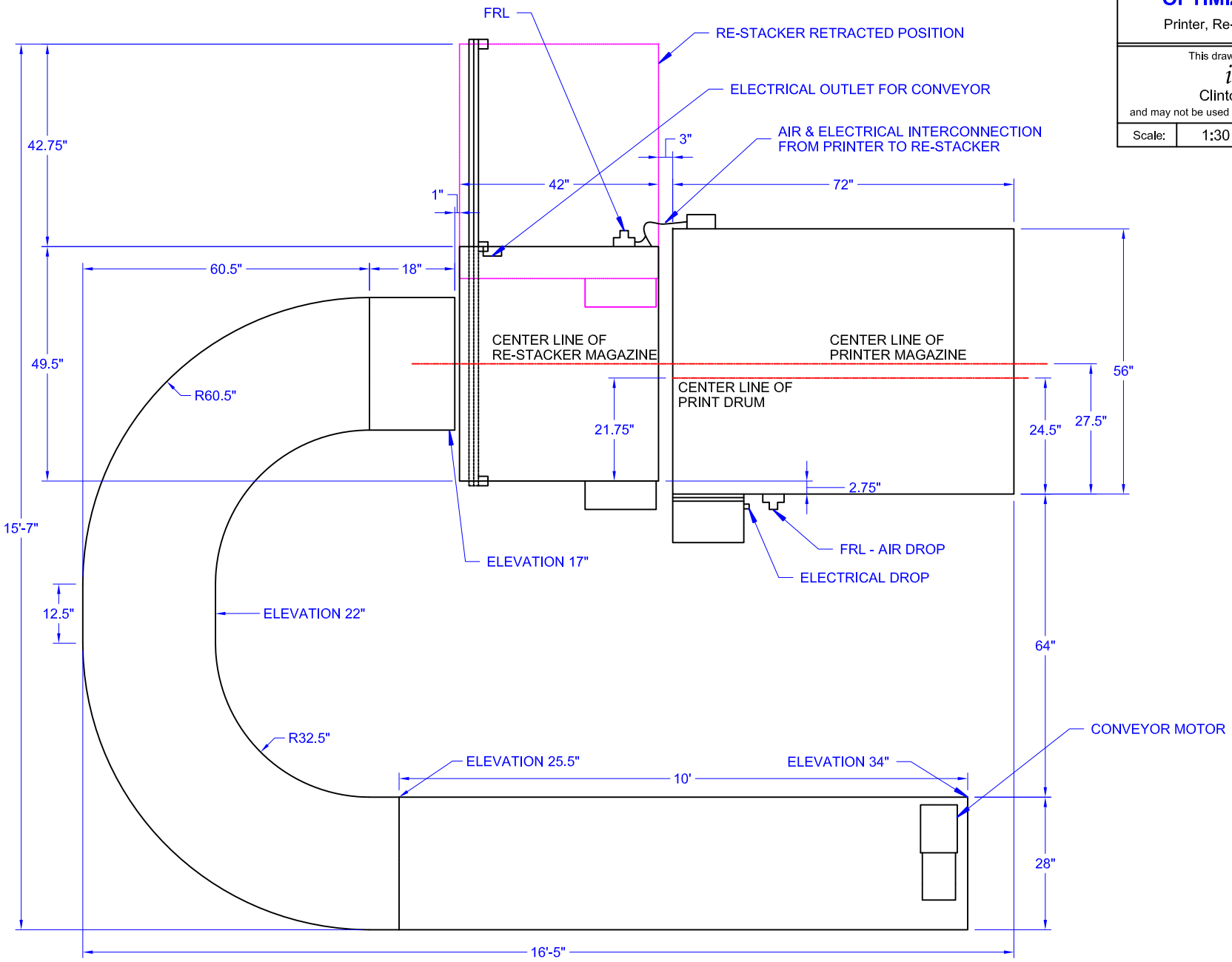
Check	Spec.	Tolerance	Procedure	Adjustment	Location
	Required		Jams		
Clutch Sensor Actuation	Dropping boxes into feed tray at 60 rpm		Adjust proxy switch clockwise to drop later, counterclockwise to drop earlier	Proximity Switch at 3 o'clock	Move Feeder Proxy Switch in Electrical Cabinet on round disk.

Note: See Sections 8 & 9 – Adjustment Procedures and Troubleshooting, for complete instructions on all major adjust procedures.

OPTIMIZER SYSTEM

Printer, Re-stacker & Conveyor

Scale: 1:30



Section 2

Safety Instructions

Operation/Service Safety

Machine Safety

OPERATION AND SERVICE SAFETY

The Iconotech Case Printer was designed with operator and service technician safety in mind. However, as with any type of powered machinery, it is absolutely essential that everyone that operates, adjusts, services, or works around the machine, read, understand, and obey all safety precautions.

Iconotech has placed specific safety instructions throughout this manual to alert you to situations that have the potential to cause personal injury.

In addition to the preceding safety alerts, which warn of the potential for personal injury, there are additional important instructions regarding machine installation, adjustment, and servicing procedures. These instructions provide information that, when followed correctly, will help prevent equipment damage that could be caused by the use of improper procedures.

General Safety

Safe operation, adjustment, and servicing of the Iconotech Case Printer is everyone's responsibility! Whether you are operating, servicing, or working around this machinery, always follow Iconotech's safety and operating instructions to protect yourself, the people around you, and the printer itself.

If you have a question regarding any of the precautions or procedures in this manual, or if you need to obtain service for a problem not covered in this operating manual, please call for factory authorized assistance at 800-521-0194.

MACHINE SAFETY INSTRUCTIONS

Iconotech has developed the following general safety instructions that apply to the Case Printer. These instructions are extremely important, and must always be followed to ensure your safety, as well as the safety of others working on or around the equipment.

1. ***Read the Operating Manual***

The operating and operating manuals contain specific operating and safety instructions concerning the installation, set-up, operation, adjustment, and repair of the Iconotech Case Printer.

Failure to follow these instructions may result in serious personal injury, as well as expensive damage to case printer components.

2. ***Never Operate Case Printer Unless All Guards Are In Place***

The guards on the case printer have been installed to prevent accidental contact with moving parts that could cause injury. Removing the guards will expose these moving parts, increasing the likelihood of accidental contact and injury to machine operators and service personnel.

3. ***Always Keep Hands And Clothing Away From Chains, Sprockets, Pulleys, And All Other Moving Parts***

While guards have been installed to the extent possible, some areas of the case printer must be left "open" to allow for case size adjustments as well as normal machine operation. Keep hands and clothing away from these areas while the machine is on or running. Contact with these areas while the machine is running may cause serious injury.

4. ***Never Alter, Modify, Or Tamper With Plexiglas Cover Interlock Switch***

The Plexiglas cover over the print cylinder area is interlocked with a switch that shuts the case printer off if the Plexiglas cover is opened while the machine is running. Altering the operation of this interlock switch in any way may result in serious injury to the machine operator and service personnel.

5. Always Disconnect Machine From Power Source Before Making Repairs Or Adjustments

Automatic machinery can start at any time unless power sources are disconnected. Working on the case printer while it is connected to an electrical power source may cause serious injury if the machine starts unexpectedly. Make sure the power cannot be inadvertently restored to the machine while it is being worked on. Use lockout devices on appropriate switches or power cords to prevent power from being restored accidentally.

6. *Never Allow Untrained Personnel To Operate, Adjust, Or Service The Case Printer*

Only trained personnel will be able to operate, adjust, or service the case printer safely and correctly. Untrained personnel could be seriously injured, or could cause extensive damage to the case printer. All machine operators must read and understand the operating manual. All service personnel must read and understand both the operating manual.

7. *Always Use Emergency Stop Buttons To Shut Machine Down Immediately In The Event Of An Accident Or Component Failure*

The case printer is equipped with two emergency stop buttons. One button is located on the operator control panel, and the other button is located on the feeder end of the machine where blank cases are loaded into the magazine. In the event of an accident or sudden component failure, use the emergency stop buttons immediately to shut the machine off.

8. *Never Attempt To Use Unauthorized Replacement Parts When Servicing Equipment*

Using unauthorized service parts may affect the safe and reliable operation of the case printer, and will void the manufacturer's warranty on any components damaged by using these unauthorized parts. Only parts and components that have been specifically designed or approved for use with the case printer must be used.

9. *Always Keep Work Area Around Case Printer Clear And Free Of Discarded Cases Or Other Debris*

Tripping, falling, or losing one's balance while around the machine may result in serious personal injury.

Section 3

Operating Instructions

Contents

The Iconotech Case Printer

The Iconotech Case Printer features the latest advances in direct printing technology for corrugated cases, providing easily produced, high resolution text, graphics, and bar codes that can be economically printed on a wide variety of cases.

Iconotech's advanced, yet easy-to-use design, combines the high quality of thermal transfer printing, the large message capability of Flexographic plate printing, and the economy of ink jet printing, into a single system with unparalleled flexibility.

Iconotech Case Printer Features

The Iconotech Case Printer has the following productivity-boosting features:

- Unified frame with a 15° inclined feed angle for comfortable loading height
- Variable speed single drive operates both print cylinder and case feeder
- Semi-automatic stencil loading
- Dual chain feed conveyor with flights for precise indexing between print cylinder and case feeding system
- Fully adjustable shuttle feeder driven by the variable speed motor and activated by electronic controls
- Totally self-contained ink system for maintaining correct ink level
- Removable and replaceable print cylinder and ink supply for easy color changeovers
- Simple electronic control panel with system overload protection

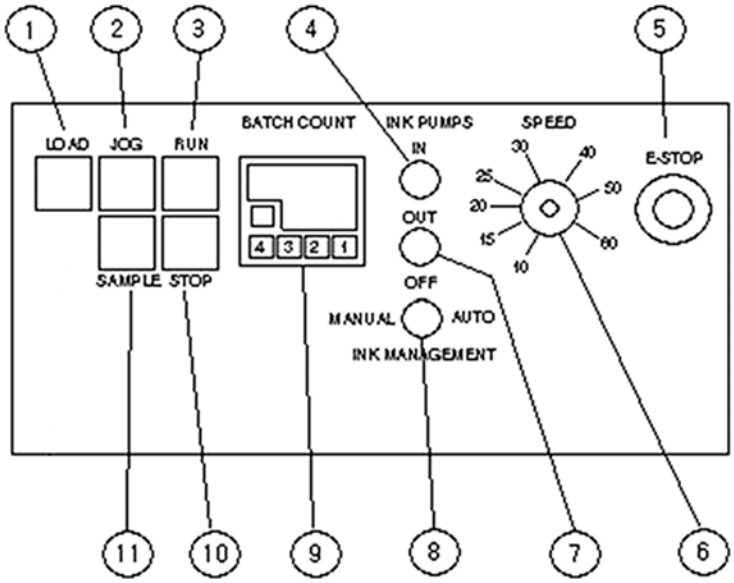
Model	DCP-3200
Dimensions	65" (1650 mm) Wide by 72" (1830 mm) long by 50" (1270 mm) high (Standard)
Weight	1500 Lbs. (685 kg.)
Loading Height	39" (1000 mm)
Exit Height	39" (1000 mm)
Print Rate	Variable, up to 60 case per minute
Feed Direction	Operator side - right to left
Capacities	Maximum case size - 36" W x 36" L (915 mm x 915 mm) Minimum case size - 10" W x 10" L (250 mm x 250 mm)
Allowable Case Thickness	1/16" to 3/4" (1.5 mm to 20 mm)
Print Area	11" x 32" (280 mm x 812 mm)
Ink System	Continuous, with automatic level control
Pump Type	Dual peristaltic
Ink Container	2 Gallons
Pad	Custom made by Iconotech
Electrical	230 VAC, 60 Hz., Single Phase, 20 Amp protection required. (1 kW power use)
Overload	Electronically controlled overload protection
Air	Minimum 80 PSI clean, dry shop air, 20 CFM with Case Blow-off Device

Power On - Off Control

Power is delivered to the PRINTER through a lockable circuit breaker located on the front side of the control console. The power is on when the switch is turned counterclockwise to the WHITE field.

Control Panel Layout

The Control Panel features the following easy-to-operate controls:



OPERATOR CONTROL PANEL

KEY	DESCRIPTION
1	LOAD BUTTON
2	JOG BUTTON
3	RUN BUTTON
4	INK PUMP IN BUTTON
5	EMERGENCY STOP BUTTON
6	SPEED SELECTOR, CASES PER MIN.
7	INK PUMP OUT BUTTON
8	INK MANAGEMENT SELECTOR SWITCH
9	CASE COUNTER
10	STOP BUTTON
11	SAMPLE BUTTON

CONTROL FUNCTIONS

1. ***LOAD BUTTON*:** Provides two different actions: 1) Starts stencil loading sequence. Rotates cylinder to load position from home position and opens clamping fingers. 2) Completes stencil load sequence. Fingers are activated and clamp stencil to cylinder. Cylinder rotates, loading stencil. Cylinder stops at home position.

2. ***JOG BUTTON*:** Activates drive motor and rotates only print cylinder and feed chain, not feeder mechanism. System runs at speed indicated on SPEED DIAL. Momentary contact button. With Plexiglas raised, the print cylinder can be moved in small increments by repeatedly pressing the JOG button.

3. ***RUN BUTTON*:** Starts print cylinder, feed chains, and feeder mechanism. Activates air cylinder lowering print cylinder to print position. RUN remains active until preset count is reached or until magazine runs out of cases.

4. ***INK PUMP*:** IN Starts the IN Ink Pump, which pumps ink into print cylinder.

5. ***INK PUMP OUT*:** Starts the OUT Ink Pump, which pumps ink out of the print cylinder.

6. ***SPEED DIAL***: Sets the speed of the case printer in cases per minute.

7. ***E-STOP*:** EMERGENCY STOP BUTTON. This button stops the printer immediately. A second E-STOP button is located at the feeder end of the printer. The E-STOP button is used to stop the printer in case of emergencies.

8. ***INK MANAGEMENT SELECTOR SWITCH*:** A selector switch with the following positions:
   - Manual - Ink pumps must be operated manually.
   - Off - Pumps off.
   - Automatic - Ink pumps start when RUN is pushed and stop when job is complete, STOP is pushed, or E-STOP is pushed. If IN pump is pushed while press is not running, IN pump runs for 7 minutes and then shuts off. If OUT pump is pushed while press is not running, OUT pump runs for 5 minutes and then shuts off.

9. ***CASE COUNTER*:** This is a four-digit counter with a reset button. Set the number of cases to be printed in a print run, and it counts down as cases are fed into print cycle. Resets only when print run is finished or when RESET is pushed.

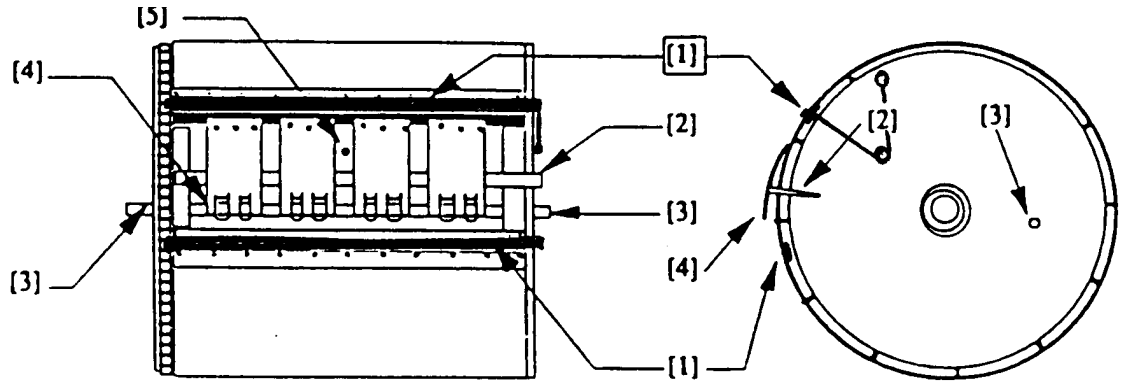
10. ***STOP BUTTON*:** Stops the press when pushed. First, the feeding mechanism is stopped immediately so that no further cases are fed into the print system. Then, press continues to run until the last case fed into the system has exited the press. Counter retains its current number and will resume counting when RUN is pushed.

11. ***SAMPLE BUTTON*:** Starts the printer at the preset speed and feeds one case from the magazine through the print system and stops the press. The counter is not activated by this cycle.

PRINT CYLINDER

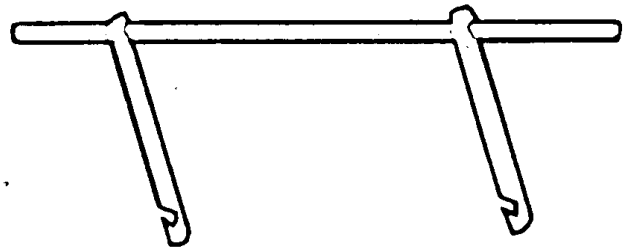
The print cylinder consists of endplates, an inner cylinder with holes in its surface, and an outer screen. The center shaft has ink lines though the center. When ink enters the cylinder, it passes through holes in the inner cylinder, to the screen, and onto the pad. During printing, the inner cylinder functions as an ink reservoir. Each end of the shaft inlet has a check-valve.

PRINT CYLINDER



Face of print cylinder contains 2 bars (1) for attaching the ink pad. The leading bar fits over two pins while the trailing bar is attached to two torsion springs to tension the pad. Parallel to these bars are several metal finger clamps (4) that hold stencil in place. These fingers are opened and closed by a half shaft (2) operated by cams, activated by air cylinders. Print cylinder endplates contain dual-purpose pins. Driven side pin is used to rotate cylinder. They are also used for lifting cylinder when removing it from the printer (3). A lifting bar has been provided to lift cylinder from printer.

LIFTING BAR



The cylinder has a drain plug located between the central finger clamps (5).

Retractable shaft-pins hold the cylinder in printing position. These shafts also function as the ink in and out connections. They contain check valves that prevent ink leakage when the cylinder is removed from the printer. It is of the utmost importance that the shaft pins be pushed in all the way and that the nylon lock-screw be screwed into the countersunk holes on the shaft pin.

The print cylinder has two stationary positions:

HOME Location when the center of the ink well (5) is at 6 o'clock – the standard stopping position to prevent ink leakage. (Lift pin at 12 o'clock)

LOAD Location when the clamping fingers (4) are at 10 o'clock (the position for loading the stencil)

Removing a Print Cylinder

To remove the print cylinder:

1 Close the Plexiglas lid.

2 Run the Shutdown sequence described later in this manual.

3 Prepare a storage area for the extracted cylinder.

4 The printer will stop with the cylinder in the home position. If not, use the JOG button to advance the cylinder until the lifting pins are in a 12 o'clock position. (Determine why the cylinder did not stop in the home position.)

5 Open the Plexiglas lid, remove the stencil loading device, and shut off power.

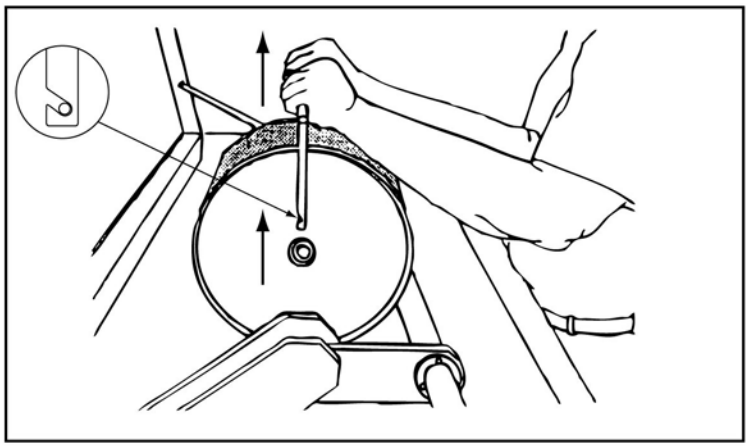
6 Unscrew nylon "hold down" screws out of recess in groove in shaft.

7 Pull retractable shafts out to end of groove at each end of cylinder.

8 Insert the lifting bar with the open slots facing the feeder end of the printer.

9 Engage the slots in the lifting pins and lift straight up.

10 Place the cylinder in your prepared storage area, or hang the cylinder in a rack that fits the lifting bar.



PRINT CYLINDER REMOVAL

INK SYSTEM

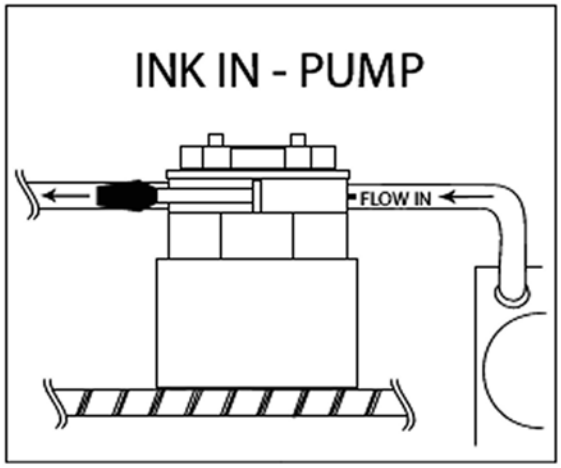
Inks are specially formulated for the Case Printer and are provided in one-gallon containers. Inspect all ink containers and follow all instructions carefully.

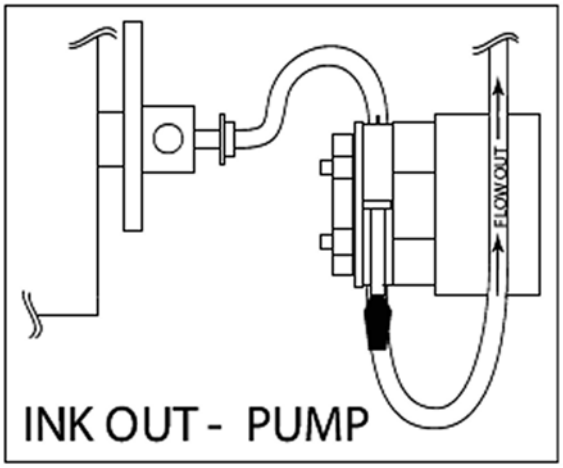
The ink delivery system employs two peristaltic ink pumps that supply and retrieve ink from the print cylinder. The pumps are identical with the exception of the tubing used. The ink in pump, located next to the ink supply container, is equipped with #15 special TYGON tubing. Ink is drawn from the supply container through a strainer, and is pumped up to the cylinder where it enters the cylinder through the drive side of the retractable shaft.

The ink out pump is located near the print cylinder on the operator side. It draws ink from the print cylinder through a tube attached to the central shaft and, through the shaft pin, and discharges it back into the ink supply container. This pump employs large diameter #24 special TYGON® tubing.

The two pumps work together to maintain the proper ink level. Once the cylinder and pad are completely inked, both pumps run at the same time to ensure an adequate ink level. No matter what print speed you choose, the appropriate level of ink is maintained in the print cylinder.

CAUTION
The ink pumps operate in one direction only, therefore it is critical to route the tubing in the proper direction through the pumps. Improper routing through the ink in pump will starve the print cylinder of ink producing light and eventually no print. Improper routing through the ink out pump will leave excess ink in the cylinder during printing and may cause ink leaks around the print pad. Note the proper routing per the diagrams below.





NOTE
If the printer's pumps are left on for an extended period in manual mode while not printing and the cylinder is in a HOME position, ink will be pumped out due to the 1/3 higher capacity of the ink out tubing as compared to the ink in tubing.

If the print cylinder is left for a period of time in an upside-down position, ink will come through the imaged area of the stencil, and also through the edges of the pad. Always return the cylinder to home position.

At the end of the day, release the clamping lever on the ink pumps to eliminate a "set" in the tubing.

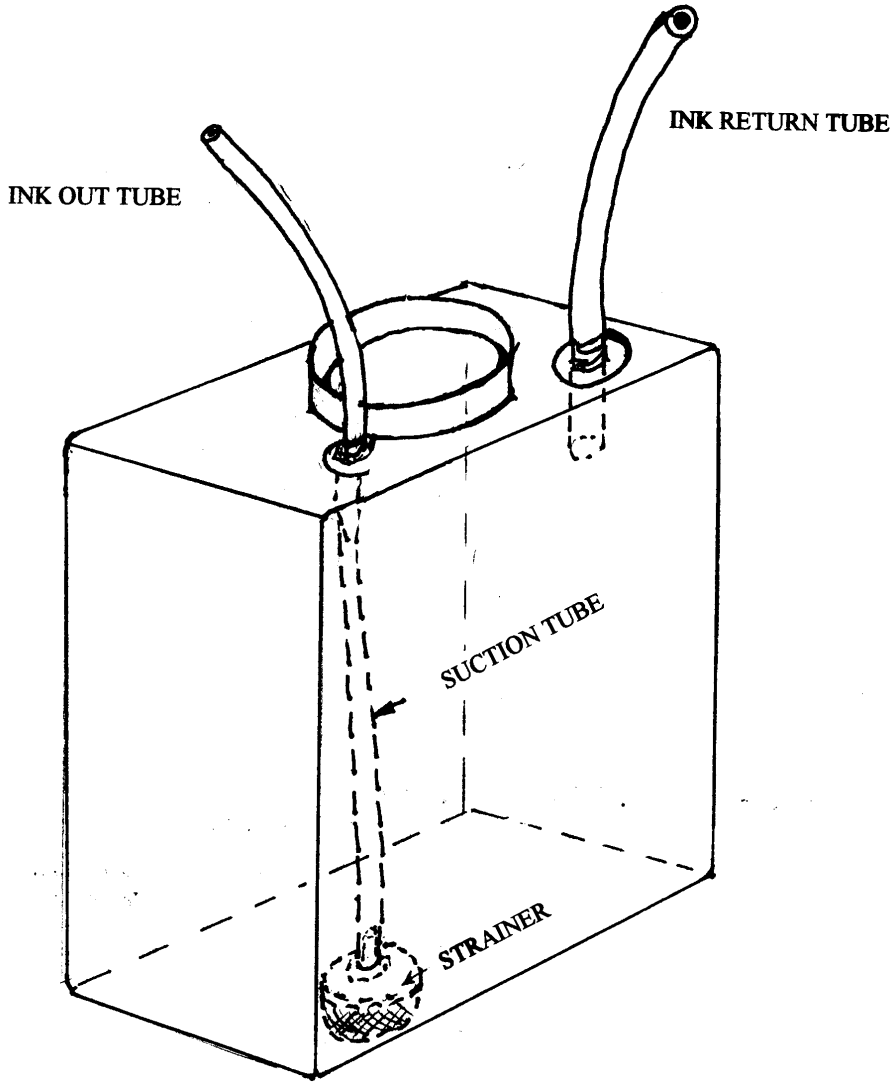
For each ink color change, replace all the following components with either new parts or parts used previously with the different color ink:

ITEM

- Print Cylinder
- Retractable Shaft-pins
- Ink Supply Container
- TYGON® Tubing for ink-in and ink-out

Ink Bottle with Strainer

In order to keep fibers from being drawn into the suction tube and into the print cylinder, there is a strainer at the end of the suction tube. Over a period of time, fibers could accumulate in the bottom of the ink bottle, and eventually reduce the flow of ink to the cylinder. We recommend the strainer be checked for fiber build up every two months. If substantial, the bottle should be emptied (when ink is at a low level) and wiped out or washed out. Also, the strainer should be cleaned before putting it back into service.



ICONOTECH INK PADS

Ink pads for the Case Printer are made by Iconotech specifically for our ink and print cylinder design. They consist of two parts, a felt body and a silk screen top. Each pad has a sealed border that keeps the ink from leaking when held tightly against the print cylinder. There is a loop at each end to hold the tensioning bars.

Installing a New Pad on a Clean or New Cylinder

1 Bring the print cylinder to HOME position.

2 Fill the ink container with 1 gallon of ink.

3 Remove the stencil loading device.

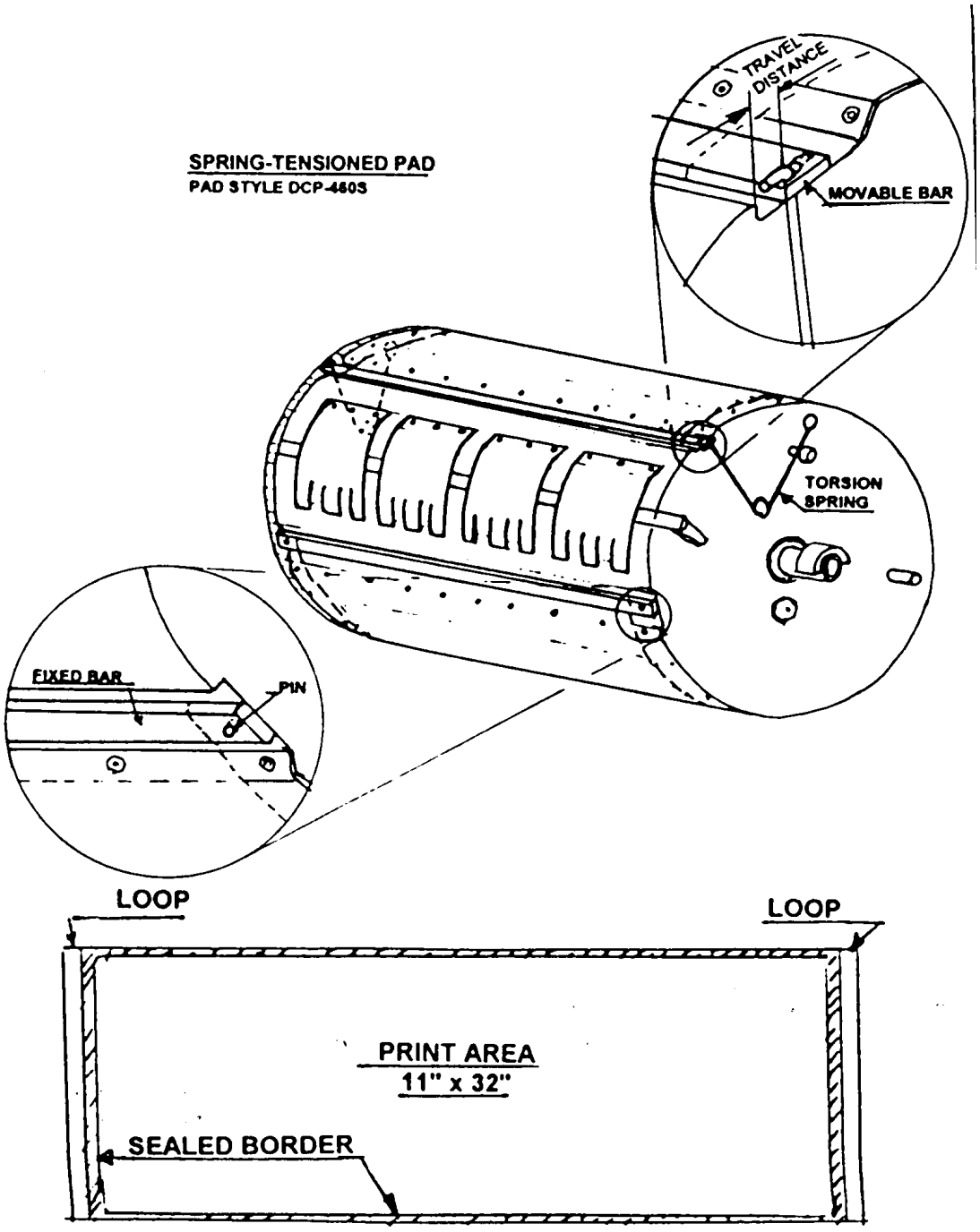
4 Jog cylinder until the leading edge bar is at the 11 o'clock position.

5 Put the bar with round holes through the loop at one end of the pad. Center it and put the bar on the two pins. Rotate the cylinder while keeping tension on the pad, to keep the bar from falling off the pins, until the trailing loop is at the 11 o'clock position. Insert the bar with slotted holes through the loop. Center the pad. Tilt the bar to insert the spring hooks. With hooks inserted, make sure the bar lays flat. Lift the spring over the screw on both sides, giving tension to the pad. Make sure the bar is free to move and that the pad is straight and centered all around the cylinder.

6 Reinstall the stencil loading device.

7 Put on a new imaged stencil. (It will be necessary to tape the free trailing end to keep it in place.) Set the speed knob to 10, and hold the "JOG" button for 15 seconds or more, which will cause the print cylinder to rotate continuously until "STOP" is pushed. Set the "INK MANAGEMENT" switch to "MAN" and push the "INK IN" and "INK OUT" buttons. In general, for a new or clean cylinder, allow 1/2 hour to fill the print cylinder with ink.

8 If an ink leak develops, make sure the spring loaded end of the pad is free to move, and that the bar has not reached the end of its possible travel.



Spring Tensioned Pad – Part # DCP - 460S (12" cylinder)

Removing a Used and Installing a New Ink Pad

1 With the print cylinder in HOME position and the ink selector switch on MANUAL, pump ink out of the cylinder by pushing the INK OUT button and letting it run until the return flow into the ink jug is air bubbles. Normally this should take about 10 minutes unless there is excess ink in the cylinder.

2 Remove the stencil loading device. Put a used corrugated box under the print cylinder to catch any dripping ink.

3 Rotate print cylinder 180º from HOME position so the stencil clamping area is up.

4 Leave the stencil on the pad. Lift the torsion springs off the tensioning screws and remove movable bar from pad.

5 Lift the fixed bar from the two pins (three pins for the 24" print cylinder) and remove it from the pad. Note the pins are set at an angle and the holes in the bar are also drilled at an angle. Set the bar down so the right and left sides are in the same orientation as when the bar was on the cylinder. Start rolling up the old pad by rolling it inward with the stencil out to clear the area near the pins that hold the fixed bar.

6 Put the fixed bar through the loop at one end of the new pad maintaining the right and left orientation explained in the previous step. Note the holes in the end of the bar should be at the same angle as the pins so that the bar can lay flat on the cylinder. Center the pad on the bar and put the bar on the two pins (three pins on the 24" print cylinder).

7 With one hand, keep tension on the new pad by pulling down on its free end while you slowly JOG the print cylinder around. Continue to roll up (inward with the stencil out) the old pad. Make sure the new pad goes on straight.

8 When the print cylinder has completed a revolution, discard the rolled up old pad. While maintaining tension on the new pad, insert the movable bar through the pad loop. Center the pad on the bar. Tilt the bar to insert the torsion spring hooks in the bar slits. With hooks inserted, make sure the bar lays as flat possible. Lift the spring over the tensioning screw on both sides, giving tension to the pad. Make sure the bar is free to move and that the pad is straight and centered all around the cylinder. The movable bar may not lay totally flat in its slot on the print cylinder until the pad is inked. Wipe off edges and clamping fingers if necessary.

Maintaining the Pad

Every so often, check the pad for cuts or tears. If you observe any, replace the pad. Check weekly that the pad is under sufficient tension and that the tensioning bar has not reached the end of its possible travel. The life of the pad is dependent on those two things.

Inking the New Pad

1 Place the core containing a new imaged stencil in the stencil loader and load it onto the print cylinder. Because there is no ink in the new pad for the stencil to adhere to, it will be necessary to tape the trailing end of the stencil to the finger clamping plate with cellophane tape. When the pad is inked, taping is not necessary. NOTE: always remove the tape before removing stencil.

2 Turn INK MANAGEMENT SELECTOR SWITCH to MANUAL and start the ink IN pump.

3 Set the speed to 10 CPM. Push JOG button down and hold for 15 seconds. The printer will stay running without activating the feeder. Normal filling cycle and inking of a new pad requires approximately 30 minutes.

4 After 25 minutes, or when the new pad is inked up almost to its full width, start the ink OUT pump. Run both pumps for another 5 minutes, then push STOP to stop the cylinder rotation. Finally, turn off both ink pumps. Run SAMPLE cycle to bring the cylinder to HOME position.

5 Use a sample case, preferably 36" long, and send it through the print cycle by pushing SAMPLE. This will help distribute the ink in the pad evenly and iron out the imaged stencil against the pad. Because the diameter of a newly applied pad is larger than a pad that has been used, wrinkles may appear on the stencil. By running a couple of sample cases, this condition will disappear and the stencil will be smooth and wrinkle free. The wrinkles can also be reduced by manually stretching the stencil.

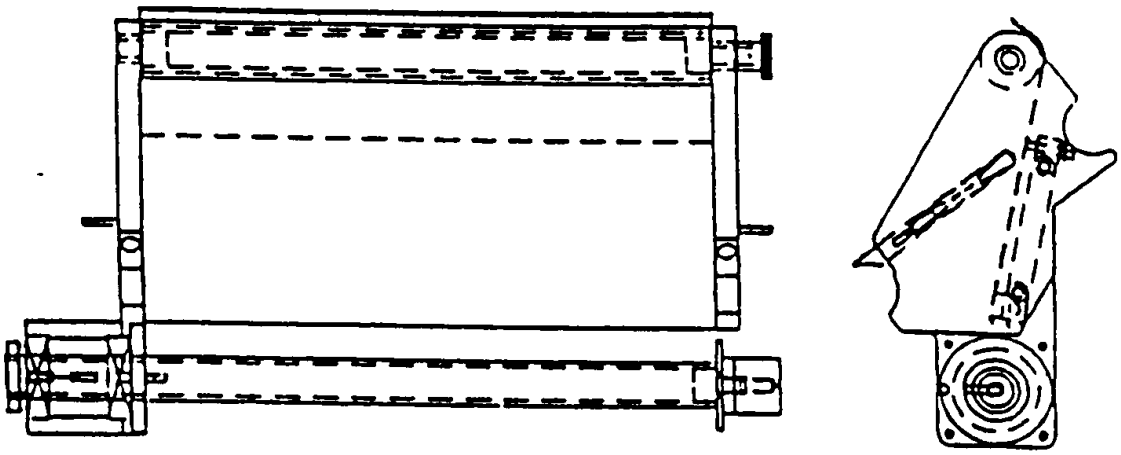
6 The pad is now fully inked, and the printer is ready to start printing.

7 With the INK MANAGEMENT SELECTOR SWITCH on AUTO, both ink IN and ink OUT pumps will start when operation starts and stop at the end of a print run, or if the magazine runs out of cases. They also stop on E-STOP.

8 With the 24" print cylinder, follow the above procedure except double the filling time.

THE STENCIL LOADING SYSTEM

A semiautomatic stencil loader is included as part of the system. It allows you to load stencils onto the print cylinder under proper tension with the Plexiglas cover in place. You can begin the loading process when you receive a stencil rolled onto a paper core.



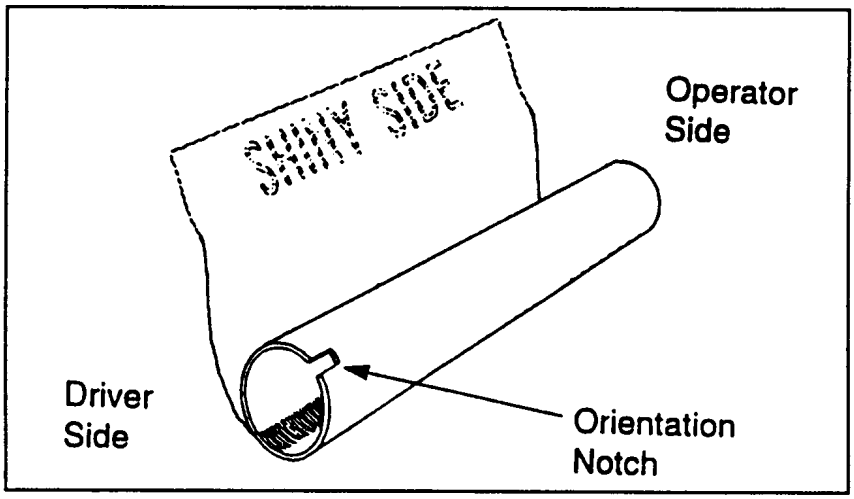
STENCIL LOADER

Loading the Stencil

1 Remove the used stencil from a previous run from the print cylinder. See Stencil Removal.

2 Push LOAD to bring the print cylinder into the proper position and then open the Plexiglas top of the printer.

3 Unscrew the knob (A) with the end plate (Note: left-hand threads), and push the core and stencil onto the shaft. Make sure the groove in the end of the core is on the inside and fits onto the pin at the bearing end. The imaged stencil should be unrolled from the bottom of the core with the shiny side up. See illustration on following page.



STENCIL POSITION

4 Screw the knob with the end plate back on. If the imaged stencil is uneven on the core, remove the core, tap it and stencil on a flat surface to align, and then return the core to the loading device.

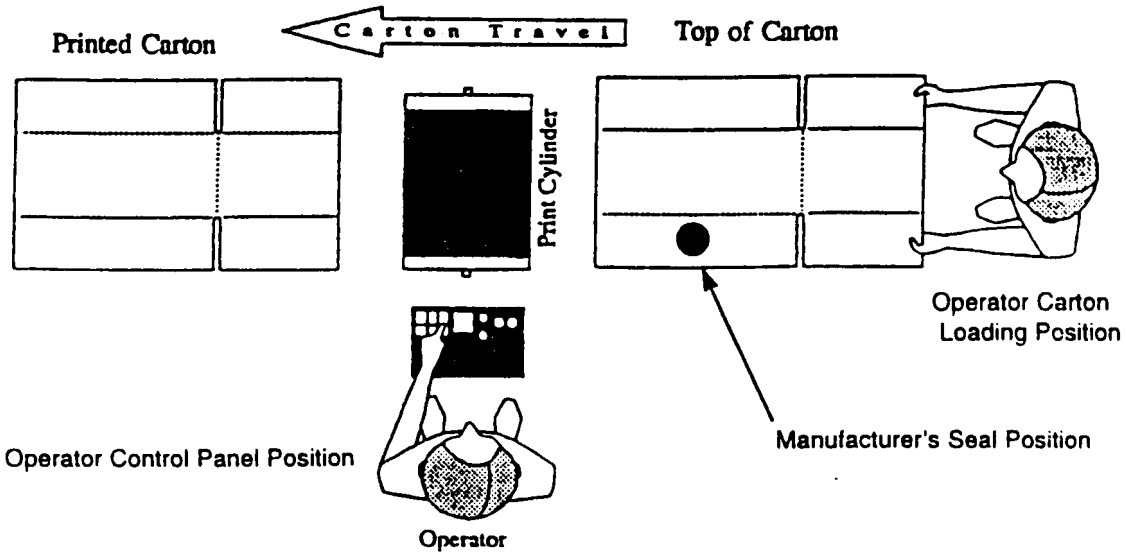
5 Remove the tape from the end of the stencil.

6 Pull the stencil far enough for the leading edge to reach the rubber roller next to the print cylinder.

7 Advance the stencil using the knob on the rubber roller (B). Continue to advance the stencil with the roller until the leading end is under the clamping fingers of the print cylinder. Make sure the leading end advances to the crease in the fingers. If the stencil is unevenly inserted and shows wrinkles, hold the paper core end of the stencil and rotate roller to increase the tension on the stencil. This generally will iron out the unevenness in the stencil.

8 Close the Plexiglas cover and push LOAD button. The finger clamps will close on the stencil and the cylinder will rotate slowly. This will occur with the stencil under tension so that the stencil goes onto the cylinder smoothly with few wrinkles. A small amount of wrinkling is not unusual and will disappear as the stencil irons out during the print run.

9 Check the orientation of the image on the print cylinder before printing a case. The "top" of the image should be on the drive side, the image should read as a mirror image, and the leading edge of the image should make first contact with the case as it passes under the cylinder.



CASE ORIENTATION ILLUSTRATION

10 If you accidentally touch or smudge an imaged area, run a few discarded cases to clean the stencil before beginning the print job.

11 Even if your system has the air blow-off device, cases can still have a large amount of dust, causing the imaged area to become clogged. Using a soft paper towel, wipe the imaged area, then follow number 10 above.

12 Larger case particles, blocking a bar in a barcode can be simply removed with a Q-tip or cotton swab.

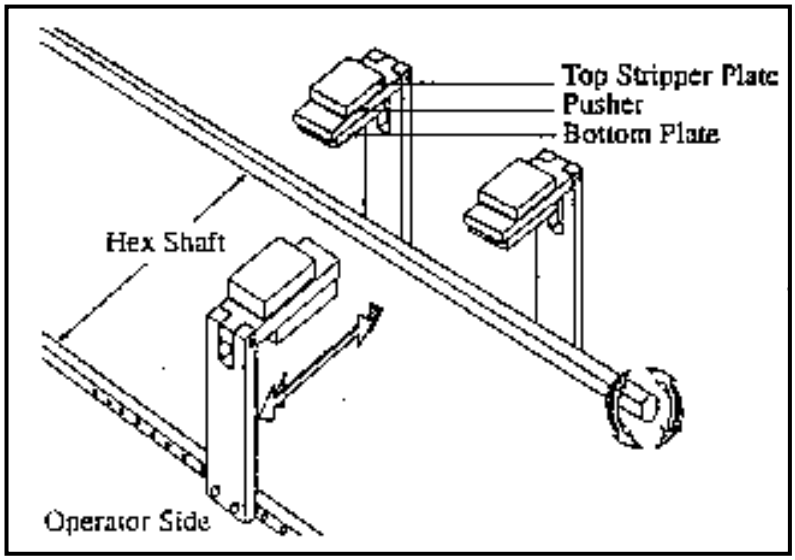
Stencil Removal

Used stencil is removed from the print cylinder manually by jogging the cylinder so that the clamping fingers are at 11 o'clock and exposed above the stencil loading device. Turn the lever on the right side of the hold down clamp lift bar towards the back of the printer to lift the clamp fingers. When the end of the stencil has been released from the clamp fingers, pull it out from the fingers and away from the surface of the print cylinder. Hold the end of the stencil in your left hand while jogging the cylinder a complete revolution with your right hand. While the cylinder is rotating, pull the stencil up and away from the cylinder until it is free when it can be disposed of. After the stencil has been removed, jog the cylinder back to home position.

PRINTER SHUTTLE FEEDER SYSTEM

The Case Printer has a shuttle feeder that drops one case at a time onto the feed chain conveyor by shuttling the bottom case in the magazine from side to side.

Two vertical chrome plated panels, mounted on the feed chain track assembly, form the case containment magazine. Each assembly is independently adjustable from the operator side by hand wheels to accommodate cases of varying widths, and to position the cases for proper tracking under the print cylinder.



PUSHER ASSEMBLY

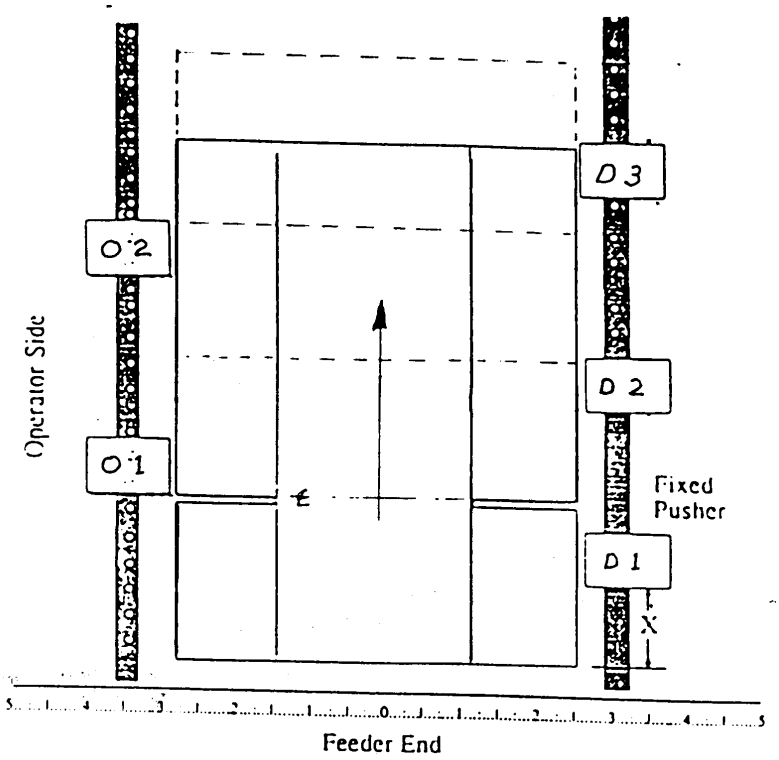
The printer is equipped in standard configuration with five pushers, three on the driven side and two on the operator side. The cases are assumed to be a mixture of "B" and "C" flute corrugated board. The printer is equipped with "B" flute pushers in order to run either style.

***NOTE*:** For double wall and single sheet feeding, contact Iconotech.

The standard pushers are made to handle both "C" and "B" flute. However, we have experienced crushed "B" flute, which is thinner than our pushers. In such cases, it will be necessary to replace the standard pushers with thinner once, in order to feed successfully. Some adjustments can also be made to the stripper plate to improve feeding. See "Adjustment of Stripper Plate" in the adjustment section.

Location of Pushers

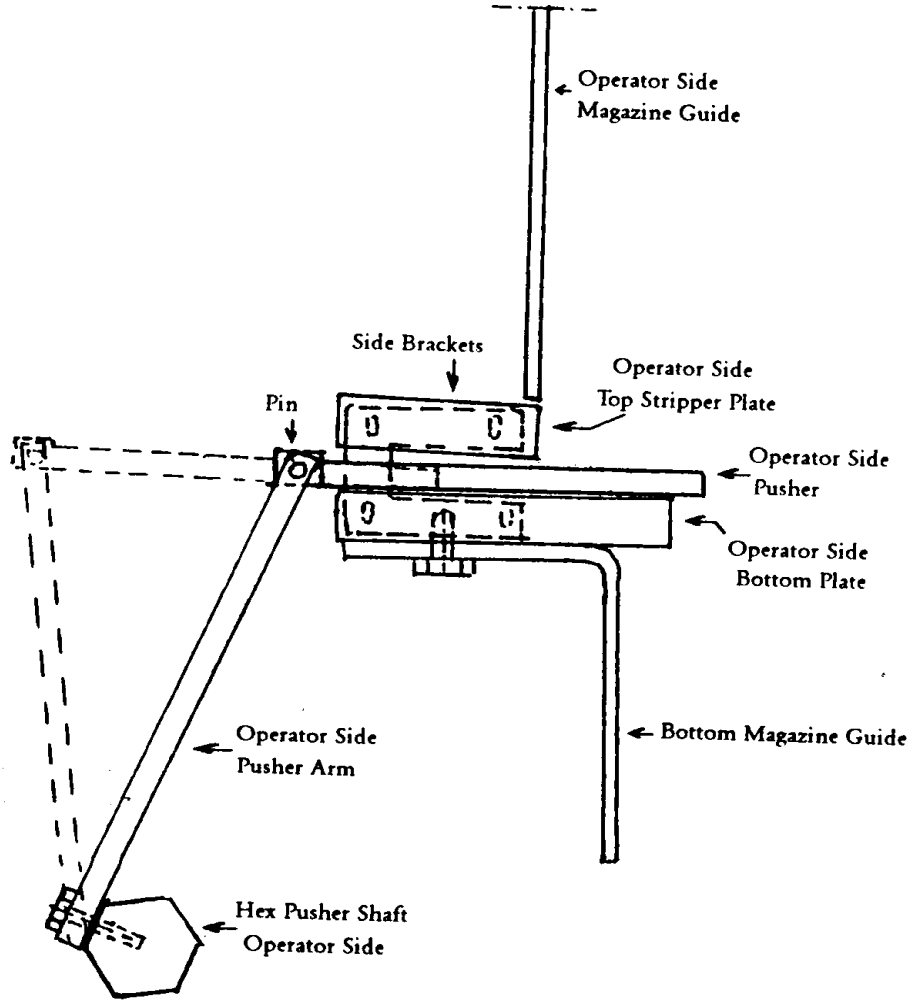
In most cases, the pushers can be arranged to handle a number of different sized boxes without having to be moved. Thus, the shortest boxes (less than 18" in the direction of travel) are set up to be handled by three pushers – "O1", "D1", and "D2". "D1" is at the low end of the box on the driven side, and "O1" would be located forward of the centerline on the box. Medium sized boxes are handled by those three pushers plus "O2", located toward the forward end of the box, on the smallest medium sized box. Longer boxes would use those four pushers plus "D3", located at the forward end of the box. Some adjustments may have to be made in order to have trouble-free feeding. It is particularly important to avoid having pushers located over the cut between the flaps.



Pusher Assembly Location

NOTE: It is important, when tightening the screws holding the housings on the driven side, to have the housings straight and perpendicular to the magazine sides. It is also important to maintain the same distance from the side of the magazine to the tip of the lower bottom plate. An incorrect position of the bottom plate can leave one corner protruding further out under the stack of cases and delay drop-off at that point, as the pushers are shifting the case toward the operator side. Also, cases that have a skewed manufacturer's joint have a tendency to hang up and not drop off when shuttled, creating a jam in the feeder.

Adjustment of Stripper Plate



The pusher housing adjustment on the operator side is the key to successful operation.

Pusher Housing Adjustment

The stripper plate must be adjusted with sufficient opening to allow one case to be pushed in to the slot between the top stripper plate and the bottom plate, as the pusher on that side retracts. The stripper plate will hold back the case above the case being shuttled into the slot.

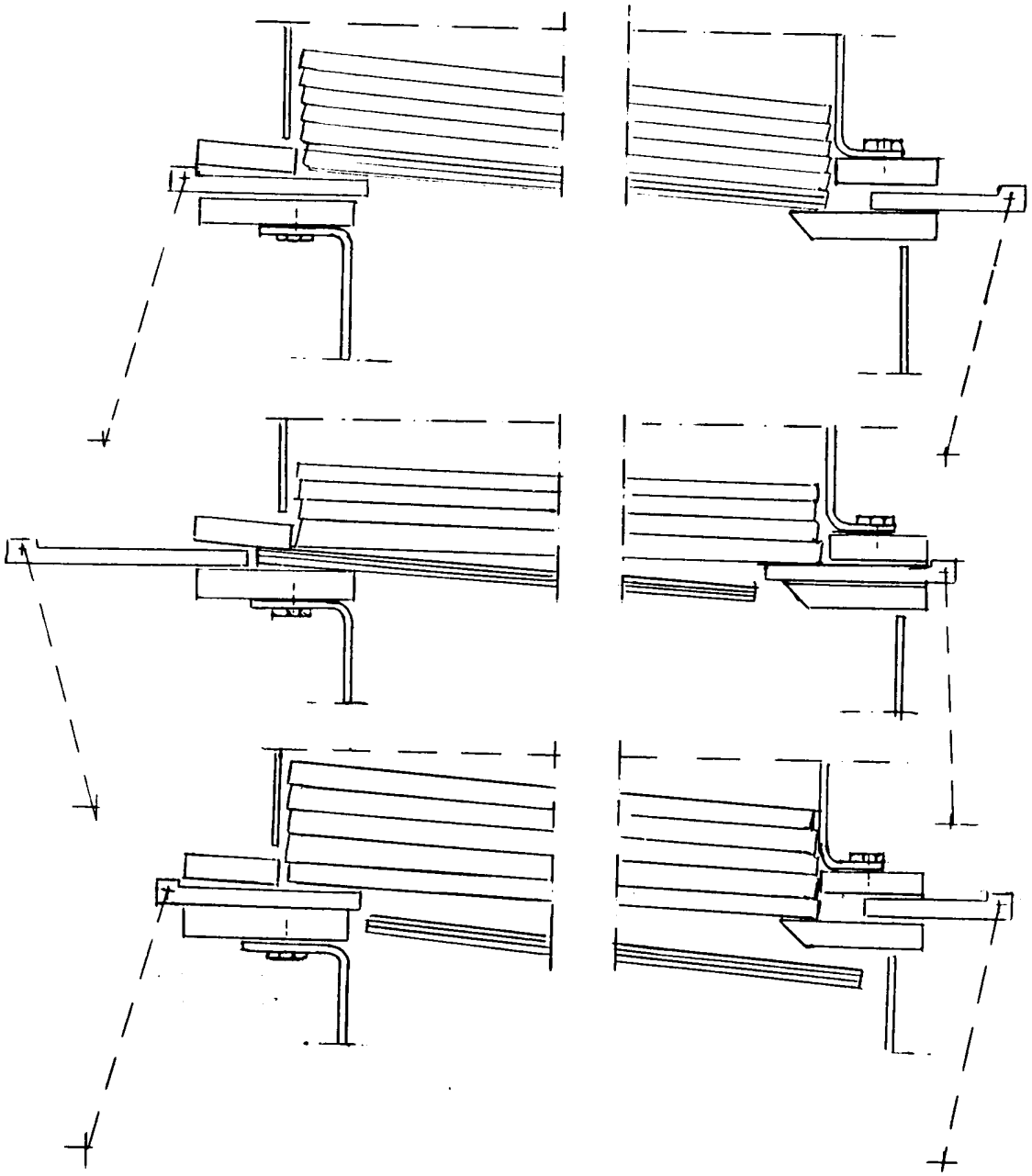


Diagram of Cases Being Shuttled

When adjusting the top stripper plate, it is important that the adjustment not be too tight at the inside to allow easy passage of the case into the slot. A good rule is the thickness of the case + 1/16".

Because the pusher forms an arc in its motion back and forth, sufficient height must be allowed at the outside opening between the top stripper plate and the bottom plate to avoid binding.

After the adjustment has been made, it is necessary to manually go through the pusher motion in order to detect any binding between the pusher arm and the top stripper plate. Turn off the electrical interlock switch. On the driven side, inside the machine, locate the spring clutch and activating solenoid. Release the spring clutch by pushing in the solenoid core. The crank plate at

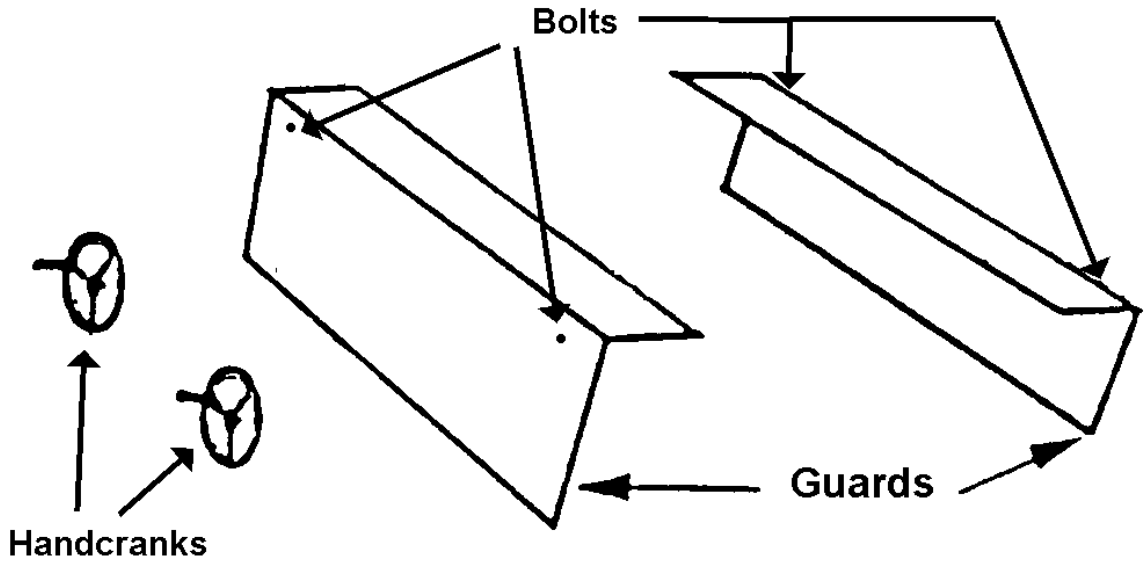
the end of the shaft can then be rotated through the pusher sequence. With the pushers all the way to the operator side, stop and insert a case to be run into the pocket between upper stripper plate and lower plate on the operator side. The case should be easy to insert but not so easy that two cases could be forced in. In such a case, when both "B" and "C" flute cases are being printed, the stripper plate should be adjusted to the "C" flute size, with a little tighter setting, so as not to permit two "B" flute boxes to be pushed into the slot.

To adjust the stripper plate, loosed the screws on the side brackets of the pusher assembly, adjust accordingly, and tighten the screws.

Setting Up The Feeder

1. Turn the power OFF on the power switch on the side of the control console.

2. Adjust the magazine panels with the hand cranks on the operator side to accommodate the cases to be printed. Use the measuring tape affixed at the feeding end of the printer to position the case for correct printing. The zero mark on the tape indicates the center of the print cylinder.



Guard Removal

3. To test correct placement of pushers and panels, place a case in the magazine and push the SAMPLE button.

4. If the printing is not positioned correctly, adjust as follows until it is correct:
   - Top-to-bottom: Use hand cranks on operator side to move magazine.
   - Side-to-side: Move print objects in layout software.

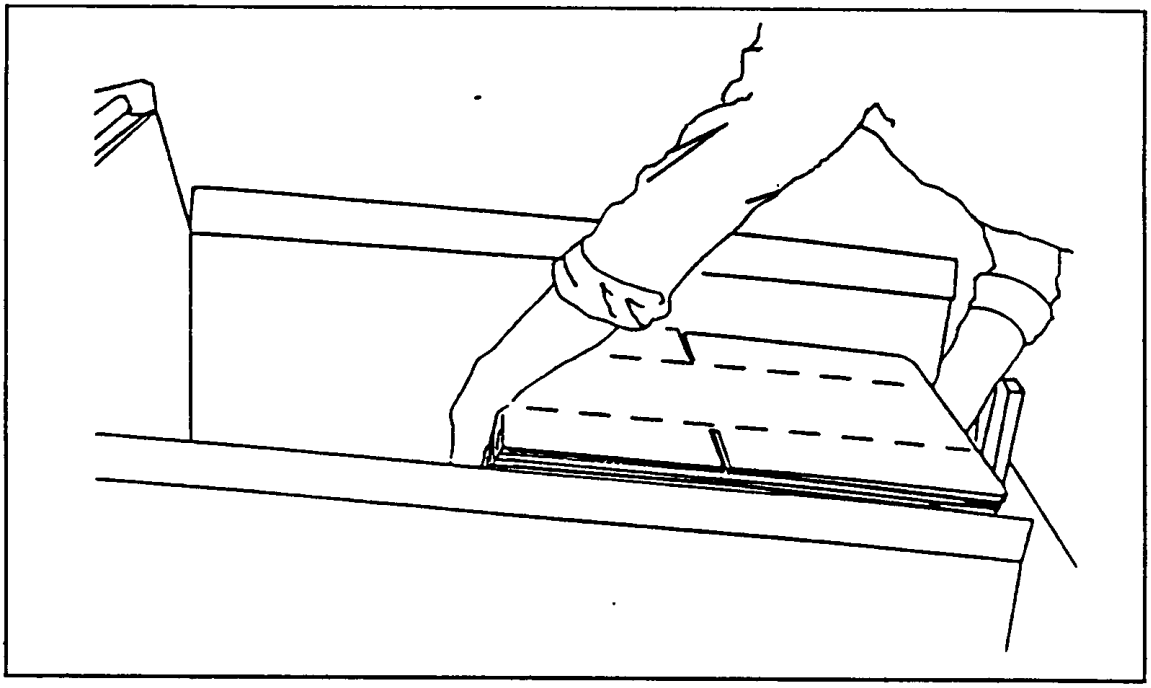
5. When making adjustments to the magazine side panels, make sure the same adjustments are made on the restacker side panels to avoid a jam.

CASE PRINTER OPERATION

Loading Cases

1 Load flat cases into the magazine.

2 Load from the front or side and make sure that all cases are oriented correctly.



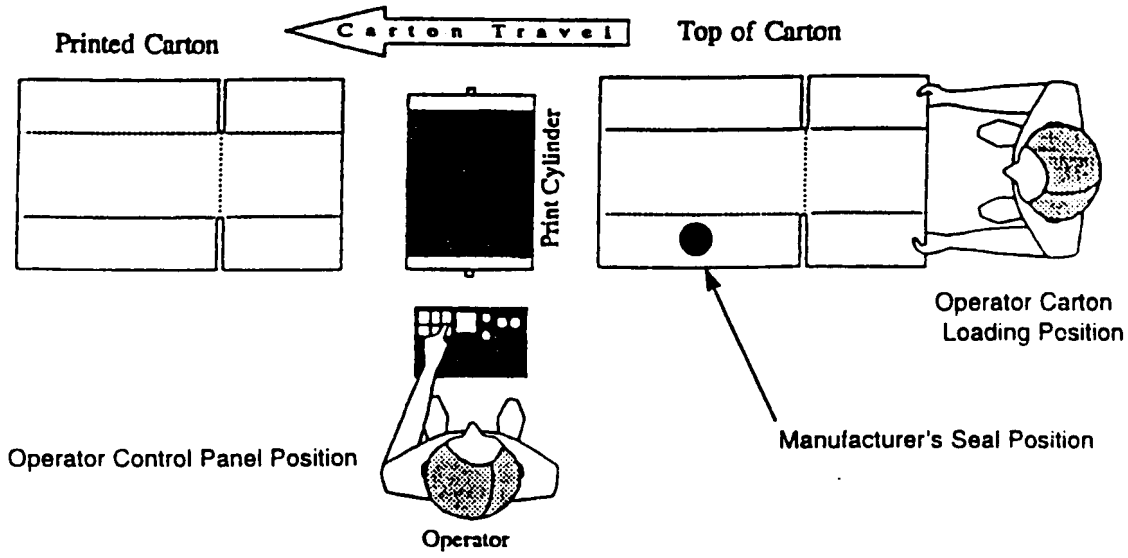
LOADING CASES

3 Load cases with the manufacturer's seal oriented toward the operator side of the printer.

NOTE!

To avoid case jams during print runs, always load cases into the magazine before it becomes empty. In case of a jam, empty the magazine, run SAMPLE cycle to cause the feed mechanism to stop in the correct position and to return the cylinder to the HOME position in order to avoid ink leakage. Then, refill the magazine and begin to print again.

4 Check to see that the image of the stencil has been loaded on the drum with its top toward the drive side.



CASE ORIENTATION

5 Activate the feeder by pushing either the SAMPLE or RUN buttons.

NOTE!

The printer and shuttle feeder is equipped with electronic overload protection. Cases damaged in bundling can cause jams in the printer. Overload protection shuts off the printer when a jam occurs. Remove cases from magazine and press SAMPLE to return the feeder and cylinder to their correct positions.

6 As you load cases during a print run, lay them down gently. Dropping cases into the magazine can flex the cases on the bottom of the stack and cause them to jam in the feeder, particularly larger cases.

7 The magazine is equipped with an electric eye sensor to detect each case being fed into the machine and also to signal the counter. If no cases are detected, the printer will shut off.

Printing On The Back Side Of Cases

It takes approximately three minutes for a printed case to arrive at the end of the Return Conveyor after it has been printed. This time is necessary for the ink to dry sufficiently so that the cases can be reprinted if necessary. Printing sooner might cause transfer of the ink to the impression roller and then, as a shadow, to the already printed side of the case.

To print on both sides of a case, provided the case has the same image, front and back, proceed as follows:

1. Facing the case(s) from the operator side, lift and flip the cases over counter-clockwise. Do not rotate them. This will ensure that the printing on the opposite side of the case matches in print orientation.

2. Reload the case(s) to print the second two panels.

3. Activate the feeder by pushing either the SAMPLE or RUN buttons.

4. When completely full, the conveyor and restacker will hold about 200 middle sized cases or eight bundles of 25 cases. For most efficient operation, that number of cases can be run continuously and then re-skidded when both sides have been printed. The operator begins another set of 200 cases as the first group is proceeding along the return conveyor.

CASE PRINTER START-UP

The following procedure should be followed every time the printer is started after having been shut down as described in the following section.

1. Start the printer by turning on power and the air supply. If the ink pad needs to be replaced, refer to the instructions for installing and inking the pad.

2. NOTE: If the printer has set idle for more than 3 to 4 days, lift the Plexiglas cover and wipe the ink pad with paper towels or lint free rags while rotating the cylinder by pressing the JOG button repeatedly. Wipe from end to end by holding the towel against the pad while it rotates. This will remove oil from the ink that might have accumulated while it was idle.

3. Move the ink tubing from its previous position in the ink pumps and close the clamps on it. Close the Plexiglas cover.

4. Push and hold the JOG button for 20 seconds with the speed set to 10 cpm.

5. With the INK MANAGEMENT switch set to AUTO, push the ink IN button. It will run for 7 minutes to replenish the ink that was drained out at previous shut down. Push the ink IN button again to repeat the cycle. When the ink filling has completed, push the STOP button to stop the cylinder rotation.

6. NOTE: If the printer has sat idle for an extended time period, measured in weeks, it is a good procedure to now print a case, preferably 32" or more long, or corrugated dunnage to see that you get complete ink lay down without any blank spots that would be most likely caused by oil. If some oil spots show up you can perform another wipe down as outlined in #3 and print another box until you get complete print.

7. Load a new stencil onto the cylinder as explained in the Stencil Loading section.

8. Adjust hand cranks on the operator side of the feeder for correct case size.

9. If necessary, adjust the pusher guide blocks as described in the Shuttle Feed section.

10. Air pressure holds the print cylinder against the case during printing. Pressure is set in the air pressure regulator to the right of the control cabinet. Generally a setting of 70 to 90 PSI gives the proper print. Never set it lower than 60 PSI. To set the pressure start at the lower end of the range and gradually increase until the cylinder maintains contact with the box during printing.

11. Set the print speed. Load cases into the feeder. The ink IN and ink OUT pumps will automatically start and stop when the printer starts and stops.

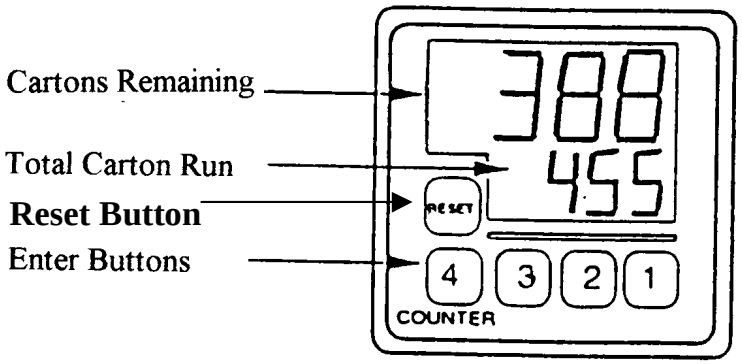
12. Run a sample case. Check for correct printing. If it is satisfactory, set the counter and run the desired number of cases. If not, make adjustments, run another sample to check the adjustments, and then proceed with the run.

13. While running the sample case, observe the upward deflection of the print cylinder when the case passes under it. The deflection or vertical movement of the print cylinder when rolling

onto and off of a case should be no more than 1/8". The amount of deflection is controlled with the STOP ADJUSTMENT SCREW that is mounted on the exit end of the printer, close to the drive side plate. Adjust to have the smallest deflection while maintaining complete print. Having a large deflection will not improve printing. Turn the SCREW clockwise to reduce the amount of deflection or counter-clockwise to increase the deflection.

14. As a general rule, printing at higher speeds deposits less ink on the case. Running at 40 CPM and below will deposit more ink. The absorption rate of the case face sheet plays a role in the ink drying time. Set the running speed at the highest speed that provides full coverage for best printing results.

Setting The Counter



CASE COUNTER

1. Enter the total number of cases to be printed with the four pushbuttons at the bottom of the counter. Each time a button is pushed, it increments by one. Enter from right to left. For example, to set the count of 455 shown above, you would push button 1 five times, button 2 five times, and then button 3 four times.

2. To change case run counts or remedy input errors, reenter the correct count, and push the RESET button on the counter, to reset the total.

3. Sample runs do not affect the counter.

CASE PRINTER SHUT DOWN

Follow these procedures at the end of each day of printing:

1. Remove and discard the stencil as explained in the Stencil Removal section.

2. After discarding the stencil, leave the cylinder with the trailing end of the ink pad at the 11 o'clock position and wipe away any excess ink at the trailing end of the pad.

3. Return the print cylinder to the HOME position.

4. With the INK MANAGEMENT SELECTOR SWITCH set to AUTO and the print cylinder in the HOME position, push the ink OUT button. The ink out pump will run for 5 minutes and stop automatically. Push the ink OUT button again to repeat the cycle.

5. Unclamp both ink pumps by lifting the levers to release pressure on the TYGON® tubing and close Plexiglas cover.

6. If the machine will be idle for more than 3 or 4 days, put an old case under the print cylinder to catch any dripping.

7. Turn off power and air.

Section 4

Electrical Information

ELECTRICAL SYSTEM

The electrical controls and control panel of the Iconotech Case Printer are designed for durability and ease of operation.

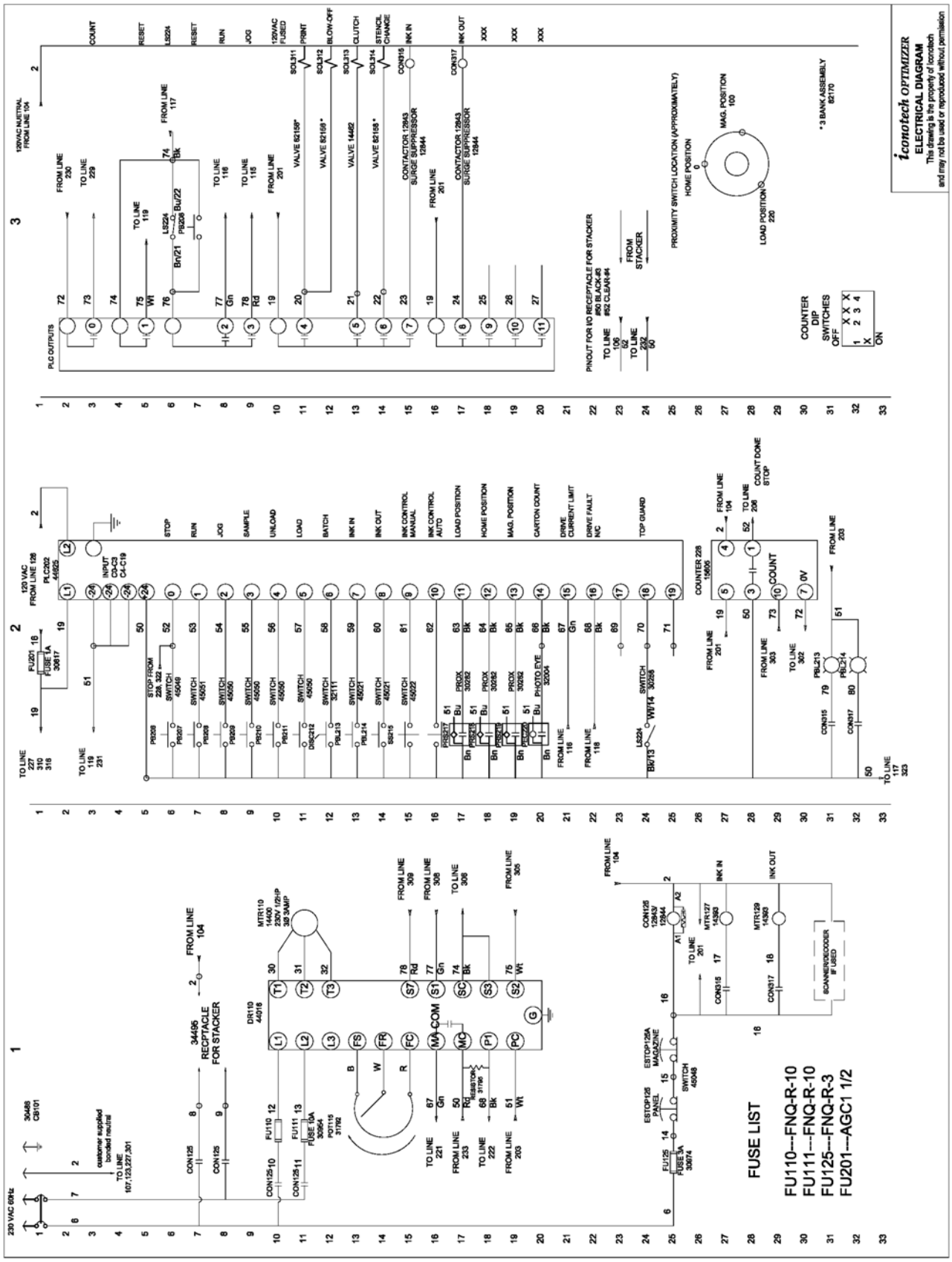
The operator control panel is conveniently located at the right front side (referred to in the manual as the "operator side") of the case printer, and contains all the controls necessary to operate the case printer.

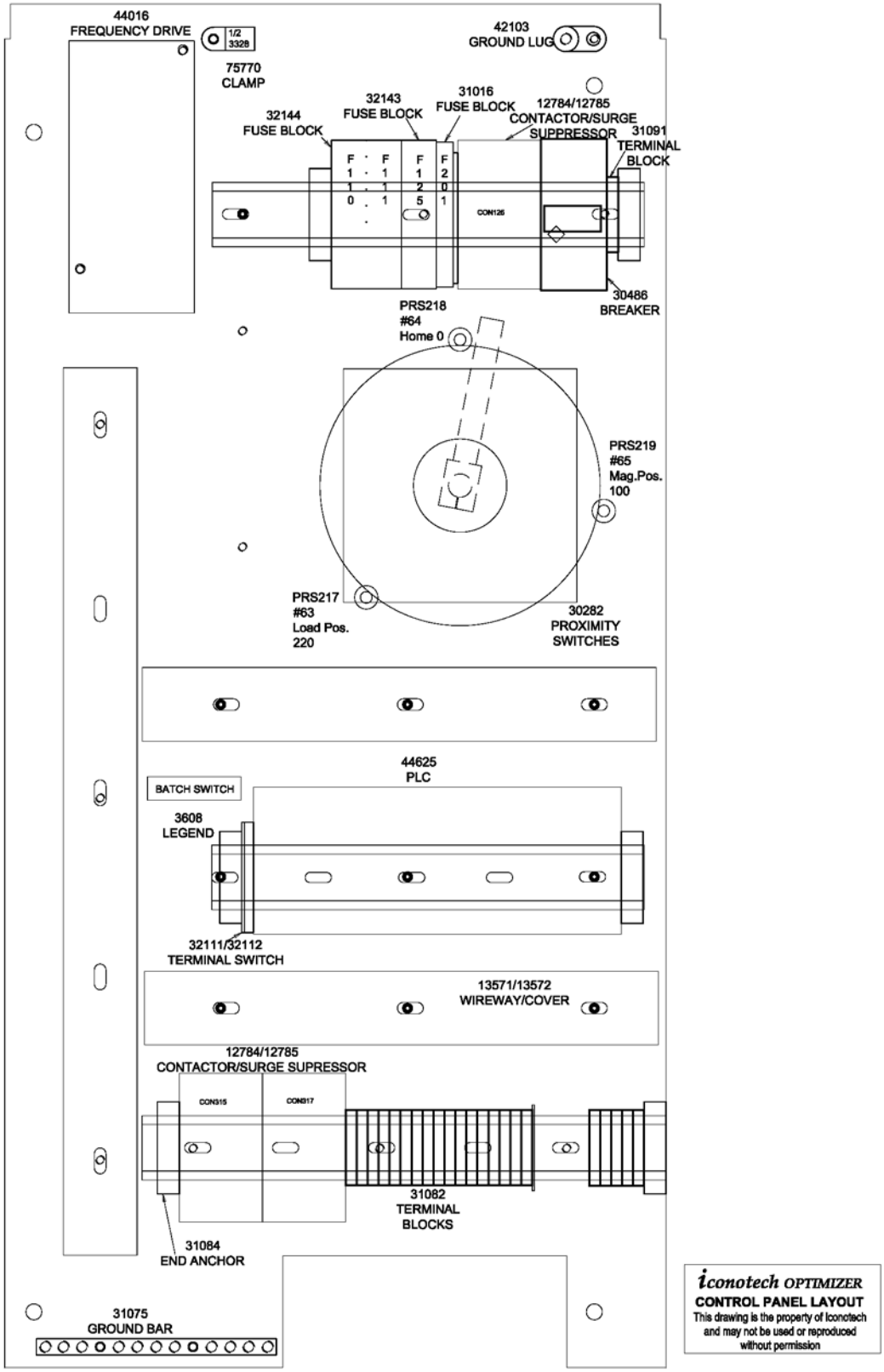
The main electrical panel enclosure is located directly underneath the operator control panel, and contains the electrical components required to power and control the machine drive components.

Included in the control panel enclosure is a programmable logic controller, which has been pre-programmed at the factory to operate the case printer in the correct sequence.

! NOTE !
Do not attempt to re-program or adjust the programmable controller unless you have been authorized by the factory to do so. Altering the PLC may prevent the case printer from operating normally, and could result in damage to other components!

! DANGER !
HIGH VOLTAGE! **AUTOMATIC EQUIPMENT CAN START** **AT ANY TIME!**
· Do not attempt to service the operator control panel unless you are a qualified electrician and have read and understand the operating manual. · Always disconnect the machine from power and use an appropriate lock-out device when performing service on the case printer.
Failure to follow these instructions may result in serious or fatal injury to yourself or others working on machine.


iconotech OPTIMIZER
ELECTRICAL DIAGRAM
This drawing is the property of iconotech
and may not be used or reproduced without permission
FUSE LIST
FU110---FNQ-R-10
FU111---FNQ-R-10
FU125---FNQ-R-3
FU201---AGC1 1/2
120 VAC FROM LINE 126
230 VAC 60Hz
PLC OUTPUTS
COUNTER DIP SWITCHES
PROXIMITY SWITCH LOCATION (APPROXIMATELY)
HOME POSITION
LOAD POSITION
MAG. POSITION
* 3 BANK ASSEMBLY
82170
34495
RECPTACLE
FOR STACKER
customer supplied bonded neutral
SCANNER/DECODER
IF USED


44016
FREQUENCY DRIVE
1/2
3328
42103
GROUND LUG
75770
CLAMP
32143
FUSE BLOCK
31016
FUSE BLOCK
12784/12785
CONTACTOR/SURGE
SUPPRESSOR
32144
FUSE BLOCK
31091
TERMINAL
BLOCK
F11-10
F11-1
F125
F201
CON126
30486
BREAKER
PRS218
#64
Home 0
PRS219
#65
Mag.Pos.
100
PRS217
#63
Load Pos.
220
30282
PROXIMITY
SWITCHES
44625
PLC
BATCH SWITCH
3608
LEGEND
32111/32112
TERMINAL SWITCH
13571/13572
WIREWAY/COVER
12784/12785
CONTACTOR/SURGE SUPRESSOR
CON315
CON317
31082
TERMINAL
BLOCKS
31084
END ANCHOR
31075
GROUND BAR
iconotech OPTIMIZER
CONTROL PANEL LAYOUT
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Section 5

Pneumatic Information

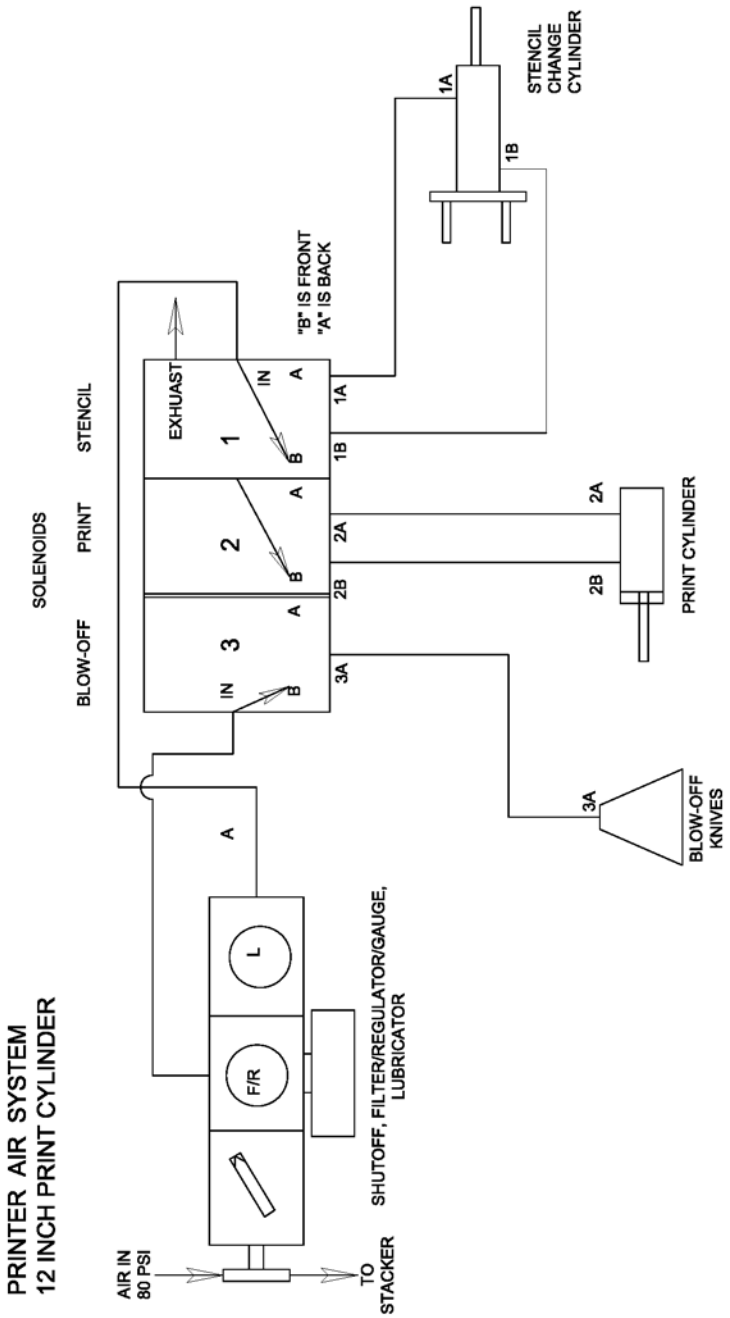
PNEUMATIC SYSTEM

The Iconotech Case Printer utilizes a series of compact pneumatic cylinders for certain aspects of machine operation. The Pneumatic schematic on the following page provides the necessary pneumatic circuit information required for troubleshooting or servicing the case printer

Before attempting to troubleshoot the pneumatic system, be sure to check the following items:

- Air supply to machine is turned on completely
- Air supply pressure gauge reading is 80 PSI - 120 PSI maximum
- Air supply hose is not kinked or otherwise restricted
- Air supply hose is properly connected to inlet port of FRL assembly
- Pressure gage of FRL mounted on machine is set to 70 PSI
- Pressure gage of FRL is working properly

! NOTE !
• Use only 10 weight non-detergent oil designed for use with pneumatic systems in lubricator. • Use of detergent oils can cause foaming of oil and may adversely affect the operation of pneumatic components.


PRINTER AIR SYSTEM
12 INCH PRINT CYLINDER
AIR IN
80 PSI
TO
STACKER
SHUTOFF, FILTER/REGULATOR/GAUGE,
LUBRICATOR
F/R
L
A
SOLENOIDS
BLOW-OFF
PRINT
STENCIL
EXHUAST
IN
1
2
3
A
B
"B" IS FRONT
"A" IS BACK
1A
1B
2A
2B
3A
STENCIL
CHANGE
CYLINDER
PRINT CYLINDER
BLOW-OFF
KNIVES

Section 6

Preventative Maintenance

PREVENTIVE MAINTENANCE

Iconotech suggests that regular preventive maintenance checks and procedures be performed to help extend the life of machine components and keep the case printer running at peak performance.

The following preventive maintenance procedures should be performed at the intervals indicated:

Daily

Move ink in and out tubing to new location to new clamp point in pump.

Weekly

Lubricate Cam Followers (2 places, feeder motion, make sure grease is in the track)

Check pressure gauges on FRL assemblies (press and restacker) and adjust accordingly - setting should be 60 PSI on the restacker, 70 PSI on the press unless a different setting provides better print quality.

Check emergency stop buttons and Plexiglas lid interlock switch for operation. Tag machine if case printer does not stop immediately, and repair as required before using machine.

Check for noises that may indicate loose belts, or chattering caused by low chain tension. Adjust as required.

Ink in and out tubing for wear (move to new location)

Lubricate cam-follower tracks, lifting print cylinder, in side plates.

Monthly

Check oil level in FRL lubricant reservoir, and fill if necessary

Inspect belts for excess wear and replace as required.

Lubricate bearings -- each end -- on connecting rod (by the clutch)

6 Months

Change lubricant in gear box. Gear box comes filled with non-synthetic lubricant. Manufacturer recommends this be changed every 250 hours or 6 months. Switching to a synthetic lubricant extends this time period to 5000 hours thereafter. Conveyor has the same gear box.

Inspect and lubricate main chain drives.

Lubricate sprocket bearings.

Check hardware for tightness at non-adjustable mounting points and tighten as necessary.

Check gas springs supporting the top cover. Replace if ineffective with the rod end pointing down.

Annually Inspect sprockets and pulleys, and service as required.

Visually check major components for signs of excessive wear or impending failure, and replace or repair as required.

Check belts in conveyor.

! NOTE !
The following instructions must be followed to ensure that reassembly practices conform to the original machine assembly requirements.
1. Use Loctite "242" (removable) to secure all hardware. 2. Use "Neverseaze" compound on all metal-to-metal surfaces that may require disassembly. This includes shafts, bolts, and contact between dissimilar metals such as steel and aluminum. 3. All "Split Bearing Housings" are machined as single units, and are marked at one end with a letter on both the lower and upper halves. These housings must be reassembled with the letters on the same side. 4. Tighten all screws, bolts, and nuts securely. Excessive force may make later removal difficult or impossible, particularly if Allen sockets are stripped. Do not reuse hardware that is damaged or marginally acceptable.

General Maintenance

For best performance, keep the case printer clean. Use compressed air to blow corrugated particles and other debris out of machine at the end of each shift.

Keep the area around the case printer clean to prevent dangerous trip and fall accidents, and to keep debris away from machine components.

Section 7

Adjustments

Contents

SETTING RELATIONSHIP BETWEEN PRINT CYLINDER AND FLIGHTS

Purpose Of Adjustment

The purpose of the adjustment is to cause the print cylinder and the flights to have the proper relationship so that the images created on the computer will print in the correct location when that image is run on the press.

Adjustment Location

Flights on main drive chain, print cylinder, and drive side fiber gear, and small pulley

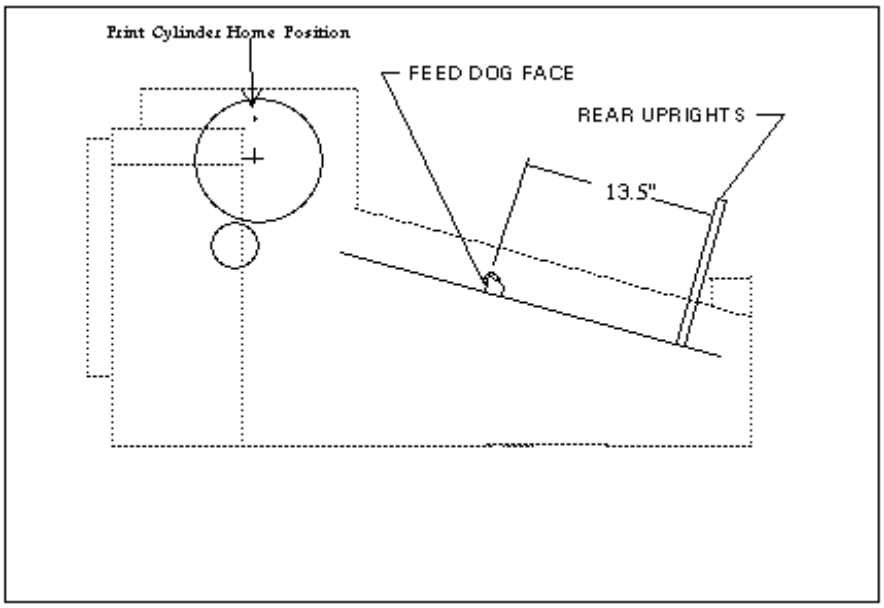


Figure 1

1. In Fig. 1, with print cylinder in "Home" position, lift pin at 12 o'clock, the distance from the front of the flight to the front of the uprights in the feeder magazine should be 13.5". This basic setting should result in the condition shown in Fig. 2. The print cylinder has a drill point mark on the operator side end plate, indicating the end of the perforations at the trailing end of the screen. This is also the end of the 32" printable area. The printer is set up in such a manner that a case being fed under the print cylinder will have the trailing edge of the case and the drill point mark coincide. This setup is necessary both for print registration and so that the case will force excess ink back into the print cylinder at all points where the screen is perforated.

   Example 1: If the drill point on the print cylinder coincides with the case 1/2" before the trailing end of the case, that difference will not be available for printing.

   Example 2: If the drill point on the print cylinder coincides with the case 1/2" after the trailing end of the case, the case will not roll over the final few perforations of the print cylinder. Ink will build up at the trailing end of the pad, possibly causing leakage. If differences exceed plus or minus 1/8", it should be corrected as described below.

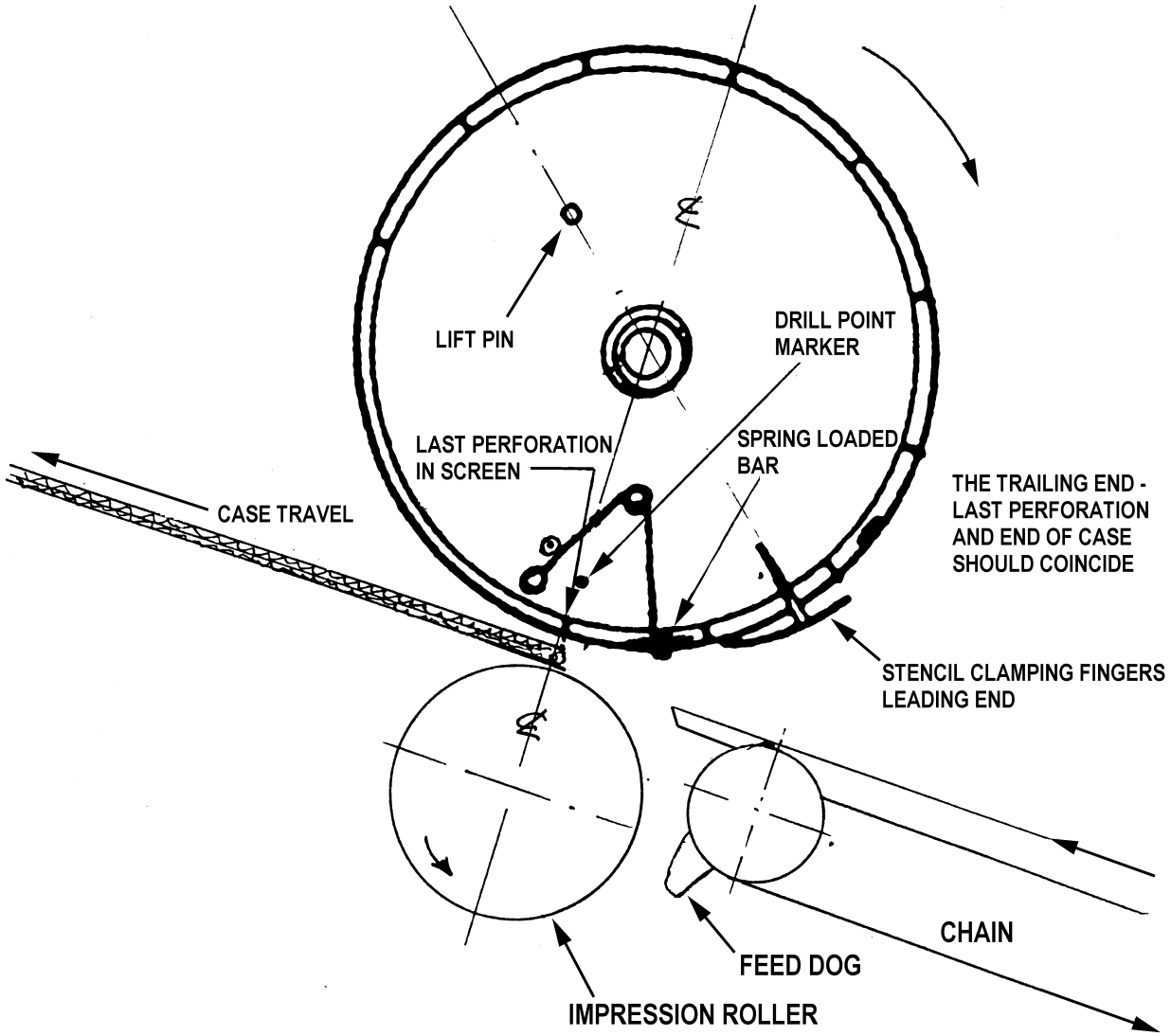


Figure 2

2. In order to align the drill point and the end of the case:
   a. Run Sample Cycle
   b. Shut off electrical interlock
   c. After checking the 13.5" distance from the flight to the upright, loosen belt tightener on timing belt inside of operator side plate. Mark locations on timing belt and pulleys.
   d. Remove large e-clip on shaft holding fiber gear and small drive pulley
   e. Pull out gear and pulley to clear the gear below, mounted on the main drive shaft.
   f. Rotate the print cylinder either forward or backward as required to make the correction.
   g. Slip the gear pulley assembly back in place, engaging the gear below.
   h. Put e-clip back on shaft.
   i. Carefully retighten the timing belt tightener, without rotating the print cylinder.
   j. Run a check to test the case location as shown in Fig.2. If still not correct, make further adjustments until the proper operating conditions obtain. If at any point in the machine's life a belt of chain must be replaced, this procedure will be necessary for setting the relationship between the flights and the print cylinder.

CLUTCH BRAKE

Purpose Of Adjustment

The purpose of this adjustment is to ensure that after clutch activation by the proxy switch, that it continues to feed cases at the same point in the feed cycle under all conditions.

Adjustment Location

The drag brake housing is attached to the clutch assembly on the driven side of the machine with the brake plunger continuously in contact with the round crank plate.

Adjustment Procedure

1. The spring clutch is equipped with a drag brake (see assembly drawing in section VI). This prevents the clutch from springing forward under heavy loads. If cases begin to drop earlier and earlier, and eventually you experience double feed, the clutch brake needs adjustment.

2. If the condition described above arises, adjust the hex cap screw in, as the plunger wears down. The spring will provide sufficient pressure.

3. When no more adjustment is available, replace plastic plunger.

DRIVE CHAIN ADJUSTMENT & SYNCHRONIZATION

Purpose Of Adjustment

The purpose of this adjustment procedure is to ensure that the Drive Chains are synchronized with each other and that the flights are parallel. Drive Chains that are not synchronized cause chattering and may wear prematurely. Flights that are not parallel will feed the cases at an angle, depending on the amount of excess opening of the side plate in the feeder, with resulting angled print.

Adjustment Location

Drive Chains are synchronized by repositioning the driven side chain on the main drive shaft so that the links of opposing chains are aligned. The operator side chain drive is fixed. It also drives the clutch that activates the feed cycle.

Adjustment Procedure

1. Use a large square, placed against the face of the two flights. The other leg of the square should be aligned with the chain enclosure track, or adjustable side plate

2. Loosen the three screws on the main drive shaft sprocket, and rotate the chain and dogs until the dogs of the two chains are aligned. The lower end of the driven side chain drive is free wheeling.

3. Retighten the three screws on the main drive shaft sprocket.

4. Check both chains for proper tension. If uneven, adjust tensioners.

FEEDER CLUTCH ACTIVATION ADJUSTMENT

Purpose Of Adjustment

Correct adjustment of the proxy switch that activates the feed clutch assures that cases drop onto the feed rails at the correct time in the operating cycle. It should be noted that clutch activation is not mechanically linked to the feed mechanism, but is controlled by a proxy switch in the electrical cabinet. While the flights always remain synchronized with the print cylinder, when cases are dropped onto the feed rails depends on when the proxy switch tells the clutch to activate. This procedure ensures that cases drop at the correct time in that cycle.

Adjustment Location

The proxy switch activating the feeder clutch is located inside the electrical control cabinet on the fixed disc located on the back wall of the cabinet in about the center of the cabinet.

Adjustment Procedure

1. On the fixed disc in the electrical cabinet are located three proxy switches: "HOME" position, "CLUTCH ACTIVATION", and "LOADING" position. These switches can be moved on the disc. Behind the disc is an arm rotating at the same speed as the print cylinder. See Fig. 1.

2. The clutch activating proxy switch should be set and tested with a box being fed through the shuttle feeder and onto the feed rails.

3. Set the run speed at 60 CPM.

4. Run a sample and observe the case being fed. During the feeding procedure, the leading edge of the case may rest momentarily on top of one of the driven side flights. They are designed to roll under the cases. The case should drop off of the operator side pusher assemblies and land on the feed rails in time to be picked up by the next set of flights when the machine is operating at full speed. If the case is not completely flat on the feed rails by the time the following flight hits it, the proxy switch needs to be adjusted.

5. If the clutch is activated too early in the feed cycle, a box may fall of the driven side pushers before the flight has cleared the falling box's flap slit. That flight may catch on that slit and cause a jam. If the clutch is activated too late in the feeding cycle, the box may fall after the flight has passed the trailing end of the case, again possibly causing a jam and double feed.

6. To alter the point of clutch activation, move the proxy switch counterclockwise to activate case drop earlier, and clockwise to activate case drop later in the feeding cycle. Long boxes fed at maximum speed require precise adjustment.

7. Check the correctness of clutch activation at maximum speed. Fill the magazine with a bundle of cases and run. Observe the feeding cycle. If longest cases feed reliably at full speed, the adjustment is correct.

STENCIL LOADING FEED FRICTION

Purpose Of Adjustment

The purpose of this adjustment procedure is to ensure that the proper amount of friction is applied to the stencil so that positive stencil feed occurs during manual stencil loading.

Adjustment Location

Stencil load in-feed friction is adjusted by setting the (5) #10-32 set screws on the bottom plate of the Stencil Loading Device so that there is light tension between the rubber loading roller and the stencil during stencil feed.

The friction brake is located on the bearing housing and consists of a 1/4” Socket Head Screw, a spring and plastic plunger, riding against a friction plate. Increasing the spring pressure by turning the screw clockwise, will increase the friction on shaft with stencil core.

Adjustment Procedure

1. Remove Stencil Loading Device from case printer.
2. Loosen the (5) #10-32 hex nuts that "lock" the (5) #10-32 screws in position on the Stencil Load Device bottom. (These screws control the curved bottom plate position relative to the roller, thereby increasing [adjust for less clearance] or decreasing [adjust for more clearance] the tension on the Stencil as it is fed through the roller.)
3. Adjust (2) outside screws to provide light tension between rubber loading roller and plate, using a strip of Stencil material to determine if tension is sufficient for positive stencil feed.
4. Adjust center screw and (2) outside screws to maintain even tension setting along length of rubber loading roller. (Use strip of Stencil to ensure correct tension has been set.) Adjust the two remaining screws snug against the plate.
5. Load test Stencil, and make sure stencil feeds forward without crinkling or curling.
6. Readjust screws if stencil does not feed forward, or if excessive tension causes stencil to pull out of feed fingers on print cylinder when stencil is loaded.
7. The final loading tension on the stencil is set with the brake adjustment screw on the bearing housing. A nylon plug asserts friction against the rotating flange on the core shaft. Turning the screw in, clockwise, increases friction and backing the screw out decreases the friction. The tension should be set so as not to cause the stencil to pull out of the clamping fingers during loading.

INK PUMP FLOW RATE – "OUT"

Purpose Of Adjustment

The purpose of this procedure is to verify sufficient ink outflow at the Print Cylinder.

Adjustment Location

The Ink Pump Flow Rate - Out check is performed at the out-feed end of the ink return tube that is connected to the ink supply bottle. The ink return tube is larger in diameter than the ink supply tube.

Adjustment Procedure

1. With the case printer and Ink Pumps turned off, disconnect ink return tube at supply bottle. Place the loose end of the ink delivery tube into a metric measuring cup calibrated to show milliliters, and hold the tubing in place to avoid spillage of ink when the "OUT" Ink Pump is turned on.

2. Turn the "OUT" Ink Pump on with selector switch in manual position by depressing the Ink Pump "OUT" Switch on the Operator Control Panel**.** The print cylinder must be in "Home" position and there must be the normal running amount of ink inside print cylinder.

3. Allow "OUT" Ink Pump to run for one minute.

4. Carefully remove tubing end from measuring cup, and reattach to ink supply bottle**.** Be sure to install tubing properly.

5. Check measuring cup to determine actual liquid flow during one-minute run time. Cup should contain 150 milliliters of ink, ±5 ml. (7.5 ounces ±1/16 ounce). (Could vary with temperature.) (Note: This test is based on new tubing. Normal wear of the tubing will result in reduced flow. When flow rate is reduced 50%, replace tubing.)

6. If ink flow rate is not within this flow specification, check troubleshooting guide for additional information.

7. Pour ink from measuring cup into ink supply bottle.

8. Change both in "IN" and "OUT" tubing at the same time.

INK PUMP FLOW RATE – "IN"

Purpose Of Adjustment

The purpose of this procedure is to verify that ink delivery to the Print Cylinder will be sufficient to allow consistent printing at all operating speeds.

Adjustment Location

The Ink Pump Flow Rate - In check is performed at the out-feed end of the ink delivery tube that is connected to the Print Cylinder ink input nipple on the shaft pin.

Adjustment Procedure

1. With the case printer and Ink Pumps turned off, disconnect the ink delivery tube at the Print Cylinder ink input nipple. Place the loose end of the ink delivery tube into a metric measuring cup calibrated to show milliliters, and hold the tubing in place to avoid spillage of ink when the "IN" Ink Pump is turned on.

2. Turn the "IN" Ink Pump on with selector switch in manual position by depressing the Ink Pump "IN" Switch on the Operator Control Panel.

3. Allow "IN" Ink Pump to run for one minute, then shut "IN" Ink Pump off.

4. Remove tubing end from measuring cup, and reattach to Print Cylinder ink input nipple. Be sure to push tubing on completely.

5. Check measuring cup to determine actual liquid flow during one-minute run time. Cup should contain 100 milliliters of ink, ±5 ml. (5 ounces ± 1/16 ounce). (Could vary with temperature) (Note: This test is based on new tubing. Normal wear of the tubing will result in reduced flow. When flow rate is reduced 50%, replace tubing.)

6. If ink flow rate is not within this flow specification, check troubleshooting guide for additional information.

7. Pour ink from measuring cup back into ink supply bottle.

INK PUMP STOP SETTINGS

Purpose Of Adjustment

The purpose of this adjustment is to prevent the ink tubing from "walking" through the pump and to prevent the ink flow from being restricted.

Adjustment Location

Ink Pump tubing stop settings are made by positioning the Ink Pump hold-down forks one notch on each side of pump. A blue ramp tubing clamp is provided on the INK-IN tube at the entrance to the INK IN PUMP.

Adjustment Procedure

1. The INK OUT tubing does not "walk" under normal circumstances. If it should "walk," advance the hold-down forks on the INK OUT PUMP one notch. The tubing should be moved under the pump rotors 3" every 40 to 50 runtime hours to avoid premature wear and to maintain integrity of ink delivery.

2. A blue ramp tubing clamp is supplied for use on the INK-IN tube. It is placed between the ink reservoir and the INK IN PUMP. Set tight enough to prevent "walking" but not so tight as to restrict the flow of ink. When relocating the INK IN tubing, the clamp must be moved the same distance (about 3").

PRINT CYLINDER GAP ADJUSTMENT

Purpose Of Adjustment

The purpose of this adjustment is to provide constant contact between the case and the print cylinder. Too small a gap causes excessive deflection of the print cylinder that can result in premature stencil and pad wear. Too large a gap can result in weak or no print. It is important for the print cylinder to maintain constant, uniform contact with the case as it is printed. The most desirable operation is for the deflection to be the minimum necessary to maintain that constant contact with the case. The deflection as the print cylinder rolls on and off the case should not exceed 1/8". Excessive deflection will not increase print pressure, nor will it improve print quality.

Adjustment Location

The location of this adjustment is at the exit end of the press on the drive side. The adjustment knob extends through the guard.

Adjustment Procedure

1. Adjust the knob when the cylinder is in the "up" position.

2. Turning the knob clockwise (when facing the knob) increases the gap between the print cylinder and the impression roller. Turning it counterclockwise decreases that distance.

3. Run a sample case. Start with a small deflection and decrease (turn counterclockwise) the gap until you have complete print. If the deflection exceeds 1/8" in order to get complete print, you most likely need to increase the air pressure.

4. When changing cases, particularly from "B" to "C" flute cases, or vice versa, the gap must be adjusted.

NOTE: Adjusting to a larger deflection than 1/8" will not increase print pressure. Only by adjusting the air pressure on the regulator will you increase the print pressure.

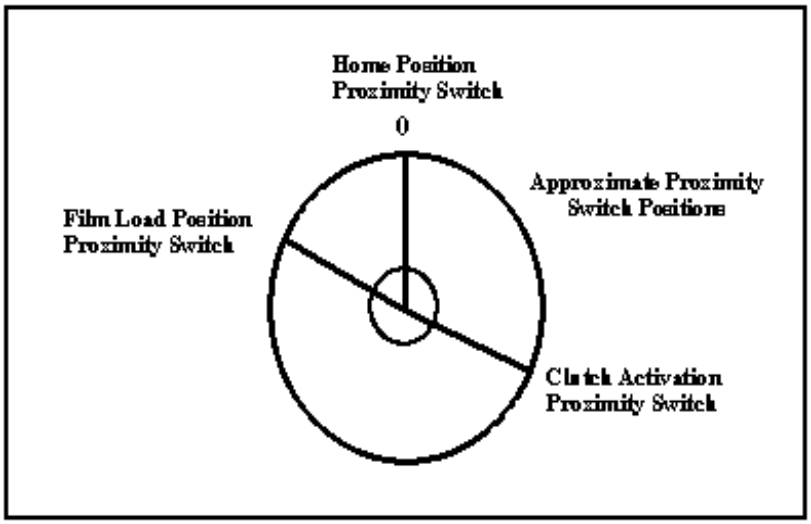
PRINT CYLINDER HOME POSITION

Purpose Of Adjustment

The Print Cylinder home position adjustment is performed to ensure that the Print Cylinder stops with the lift pins in the 12:00 position (0° rotation). This adjustment ensures proper 6 o'clock home position of the ink reservoir in the Print Cylinder, and helps facilitate Print Cylinder removal by orienting the lift pins in their uppermost position.

Adjustment Location

The Print Cylinder home position adjustment is made on the Round Sensor Plate located in the main Electrical Panel Enclosure. The Print Cylinder Home Position Proximity Sensor location is at 0°, 12 o'clock. Moving the sensor clockwise stops the print cylinder further forward and moving the sensor counterclockwise stops the print cylinder earlier. Check the stopping position, and make appropriate adjustment.



SENSOR LOCATIONS

PRINT CYLINDER UP/DOWN SPEED

Purpose Of Adjustment

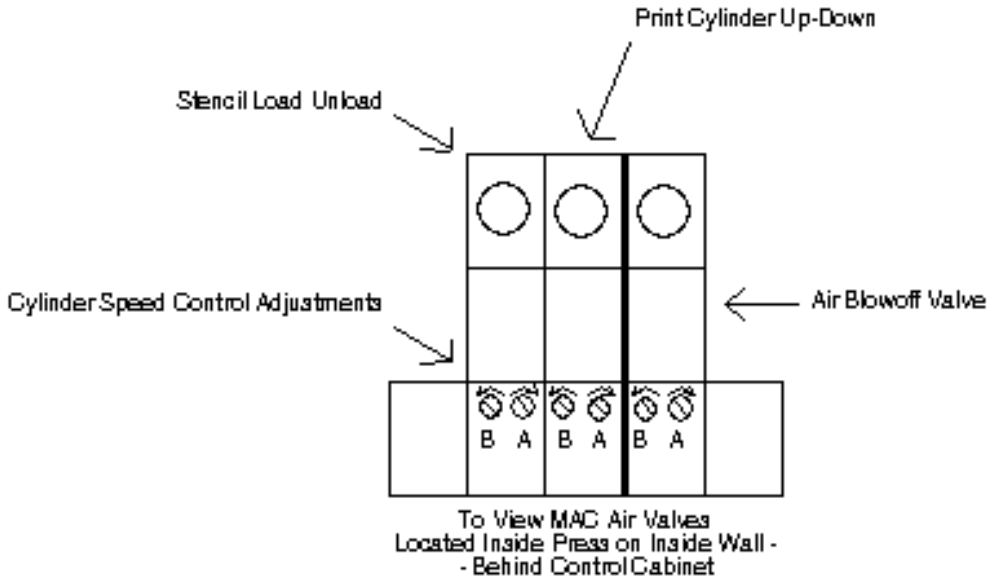
The purpose of this adjustment procedure is to ensure that the Print Cylinder moves into both its raised and lowered positions smoothly and without abrupt stopping or "banging". The adjustments are always made on "exhausting" air.

Adjustment Location

Print Cylinder Up/Down speed adjustments are made on the pneumatic flow control valve on the center Solenoid Valve, which is located inside the press behind the Electrical Panel Enclosure.

Adjustment Procedure

1. Turn off main Electrical Disconnect Switch on case printer, and locate left Solenoid Valve. (See illustration below)



Print Cylinder Flow Control Adjustment

2. To slow Print Cylinder positioning speed, adjust the flow control by turning it clockwise. Make adjustments in 1/8 turn increments until positioning speed is acceptable. Turn case printer on and check Print Cylinder positioning speed. Re-adjust the flow control as required to achieve proper movement.

3. To increase Print Cylinder positioning speed, adjust the flow control by turning it counterclockwise. Make adjustments in 1/8 turn increments until positioning speed is acceptable. Print Cylinder must not "bang" into position. Turn case printer on and check Print Cylinder positioning speed. Re-adjust flow control as required to achieve proper movement.

4. If flow control adjustment does not restore Print Cylinder movement to acceptable speed, check pressure gage on air inlet port to ensure that available air pressure to

the case printer FRL assembly is a minimum of 60 PSI

5. Also check the flow control screw on each end of the air cylinder, if so equipped. Again, counter-clockwise speeds up the motion, clockwise slows it down.

Section 8

Troubleshooting Guide

SYMPTOM	PROBLEM	CORRECTIVE ACTION
PRINT CYLINDER/INK DELIVERY PROBLEMS		
Poor Print	Ink bottle empty Ink-in hose blocked Ink-in tubing worn out Wrong type/size tubing Ink-in tubing installed wrong backwards in ink-in pump Ink delivery shaft pin not pushed completely into cylinder Wrong ink (non-Iconotech) being used	Fill ink bottle Check for obstructions and clear Replace tubing Replace tubing – use only Iconotech type tubing Check tubing installation per adjustment procedure Push shaft in all the way to open check valves, and lock nylon screw Discard and use only Iconotech ink. Clean cylinder and use new pad.
Excessive Ink	Ink-out hose blocked Ink-out tubing worn out Ink-out tubing cut or cracked Wrong type/size tubing Ink-out tubing installed backwards in ink-out pump Ink shaft pin not pushed in completely	Check for obstructions and clear Replace tubing Replace tubing Replace tubing – use only Iconotech type tubing Check tubing installation per adjustment procedure Push shaft in all the way to open check valves and lock nylon screw.
Ink flow through pad poor	Wrong ink (non-Iconotech) being used	Discard and use only Iconotech ink. Clean cylinder and use new pad. Use correct Iconotech pad
Excessive ink at trailing end of pad and stencil	Case not rolling over trailing end of pad	Adjust leader in printer driver to move image further towards trailing end. Adjust flights so end of cylinder perforations and end of case meet.
Ink leaking out at either end of pad	Loose pad Wrong ink (non-Iconotech) being used	Make sure the bar with spring loading is free to move and not at end of travel Discard and use only Iconotech ink. Clean cylinder and use new pad.

SYMPTOM	***PROBLEM***	***CORRECTIVE ACTION***
STENCIL LOAD PROBLEMS		
Stencil pulls out of fingers during stencil loading	Loading device feed tension too high Fingers not gripping properly	Reduce friction on brake Replace feed fingers
CASE FEEDER PROBLEMS		
Cases do not feed	Case feed not activated	Check spring clutch solenoid. Lubricate with WD-40
Cases land on top of flights	Proxy switch in electrical cabinet not adjusted right	Adjust per procedure in “feeder clutch activation adjustment”
Two cases feed at once	Check thickness of cases. Could be crushed “B” flute	Adjust stripper plate per instructions
Cases jam on start-up	Shuttle feeder not at starting position	Unload cases. Cycle printer and feeder by pushing sample run button. Reload cases in proper position.
Cases flip up as they exit case printer	Hold-down rollers set too low	Adjust rollers higher

SYMPTOM	PROBLEM	CORRECTIVE ACTION
DRIVE SYSTEM PROBLEMS		
Drive chains make excessive noise	Drive chain not properly adjusted on drive side Drive chains not synchronized Drive chain tension too tight Feed end drive chain sprockets not aligned with chain track in feed rails	Adjust out-feed end sprocket per adjustment procedure Synchronize drive chains per adjustment procedure Reduce chain tension Align sprockets with chain track per procedure
Excessive gear noise at out-feed end of printer	Case printer not leveled	Level case printer by adjusting leveling pads
Case printer will not start	Plexiglas lid interlock switch malfunctioning Emergency stop switch contact open Fuse blown	Repair or replace switch Check switch contacts and repair or replace as required Replace fuse
Air cylinder hissing	Air leakage	Replace air cylinder
Print cylinder will not raise	Air pressure too low Sticking valve	Make sure air supply to case printer is 60 PSI minimum. If system pressure intermittently drops below 60 PSI, connect case printer to air system with minimum pressure setting of 80 PSI. Replace valve

For specific adjustment procedures regarding these troubleshooting tips, consult the “Adjustment Procedures” in Section 7.

Section 9

Restacker
&
Return Conveyor

RESTACKER FUNCTION AND OPERATION

In the installation of a case printing system, the restacker is the key part due to the fixed location of the rail on which the restacker rolls (see sketch in Section 1, Installation). The case printer as well as the return roller conveyor is positioned based on the position of the restacker when parked in the operating indentation. The "0" position of the measuring tape on the restacker must correspond to the "0" position of the printer (the center of the print cylinder as well as the "0" mark on the tape measure). The center of the rollers on the return conveyor must be at this position as well.

Because the side guides of the printer magazine are adjusted to specific numbers on the printer's tape measure when operating, it is very important that the operator be able to rely on the exact positioning of the press and restacker so that the side plates of the restacker can be set at those same numbers plus 1/4" to 1/2" additional on each side. This extra space is to ensure that the cases touch nothing on their way into the restacker. If they make contact with the side plates of the restacker, the case will twist under the print cylinder. This will wrinkle the stencil and can even cause the pad to shift sideways.

Set-Up Procedure

1. Set air pressure on filter-regulator-lubricator to 60 PSI, located on driven side.
2. Turn circuit breaker switch to "ON".
3. Turn selector switch to "ON".
4. Set stacking indicator to "5" (25 cases in stack)
5. Crank adjustment wheels to set side plates to same settings as printer + 1/2".
6. Set stop plate to same length as case, + 1/2".

Start printer and run sample case. Observe whether case enters restacker without interference. If necessary, adjust side plates. Run cases. As the cases enter the restacker, an electric eye senses them and accumulates 5 on the flipper arms. This group of 5 is then dropped onto the eject conveyor below. After 5 groups are dropped (25 cases), the eject conveyor will start up and drive the stack out onto the roller conveyor for return to the operator.

At the end of the roller conveyor is a stop plate to prevent stacks from rolling off the end. If stacks are not removed but are allowed to accumulate on the conveyor back to the end of the 180 degree curve, they will eventually walk off to the outside of the conveyor.

Shut-Down Procedure

1. Push "CLEAR". Any cases on the flipper arms will be dropped, and the stack ejected onto the conveyor.
2. Turn the selector switch to "OFF".

RESTACKER SPECIFICATIONS

General Specifications

Restacker Dimensions:	Width:	48" (1220 mm)
	Length:	42.5" (1080 mm)
	Height:	50" (1270 mm)
	Weight:	600 lbs. (275 kg) (est.)

Stacking Capacities

Maximum Case Size:	36" (915 mm) wide by 36" (915 mm) long
Minimum Case Size:	10" (250 mm) wide by 10" (250 mm) long
Maximum Stacking Height:	12.5" (317 mm)
Stacking Rate:	Up to 60 cases per minute
Exit Height of Restacker:	17" (430 mm)

Controls

Stacking Indicator:	Displays number of groups of 5 cases to be accumulated into a stack before ejection
Control Panel Buttons:	"On-Off" and "Clear"

Operating Requirements

Electrical:	230 Volt AC, 50-60 Hz., Single Phase. 20 amp protection through printer
Air Supply:	Minimum 80 PSI clean shop air

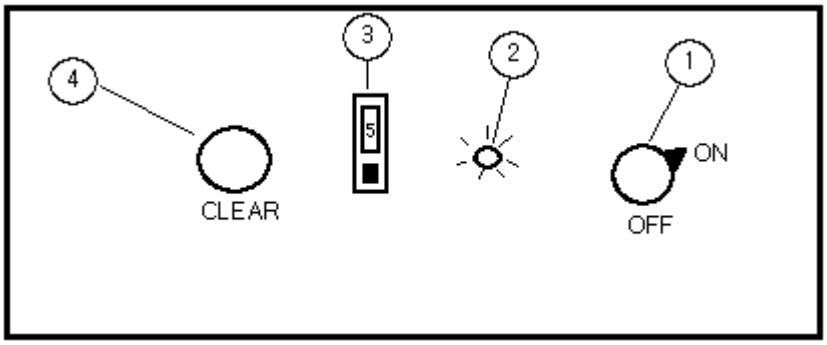
RESTACKER CONTROL PANEL

Power On-Off Control

Power for the restacker is supplied through the printer. On the driven side of the printer is a junction box with a plug-in for the power connection to the restacker and conveyor. There is also a screw connection for the signal from the restacker to stop the line. Also, the quick air connection is located in the same junction box.

The power is fed to a lockable circuit breaker on the stacker control cabinet. The power is on when the switch is turned clockwise.

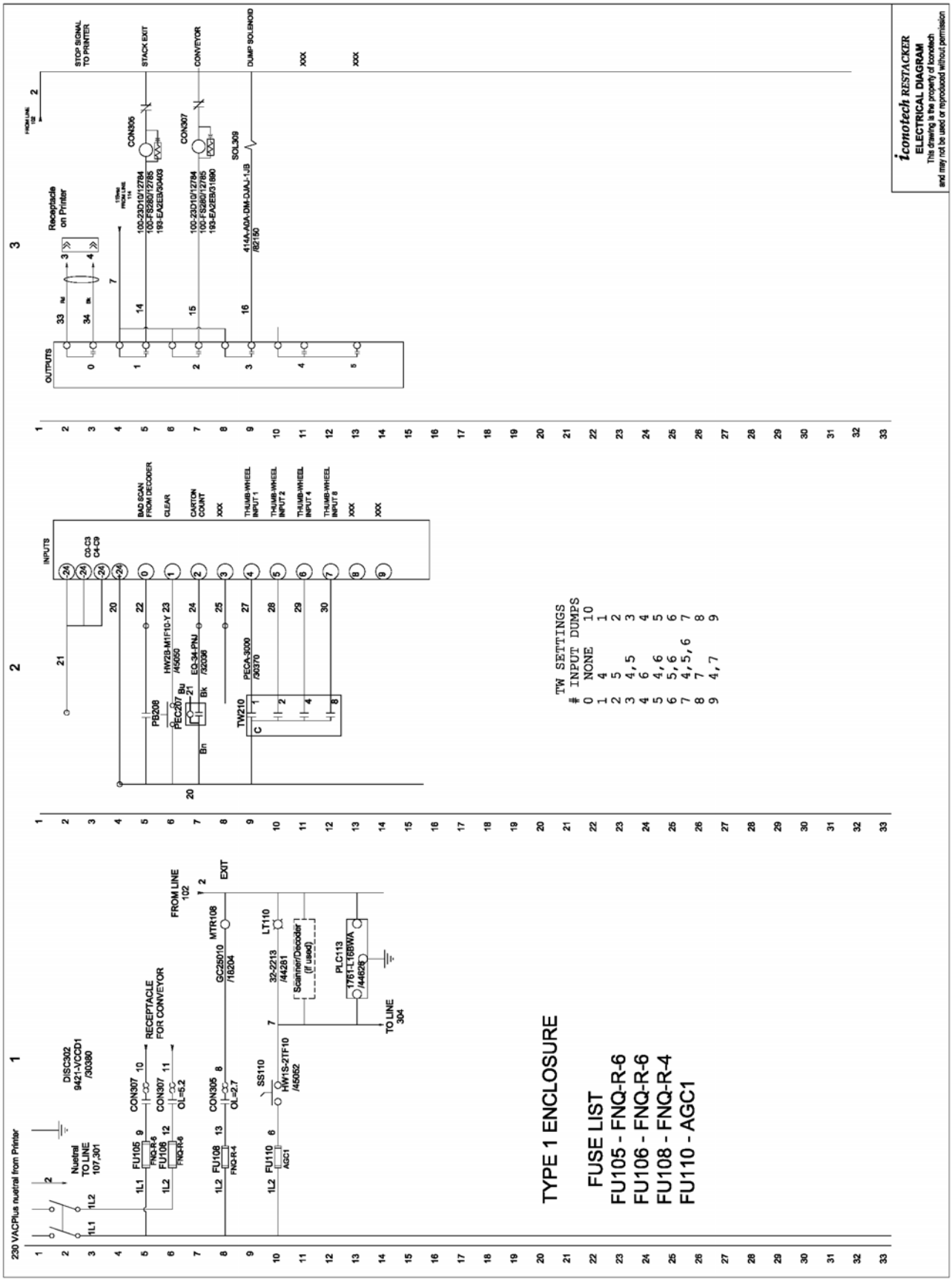
Control Panel Layout

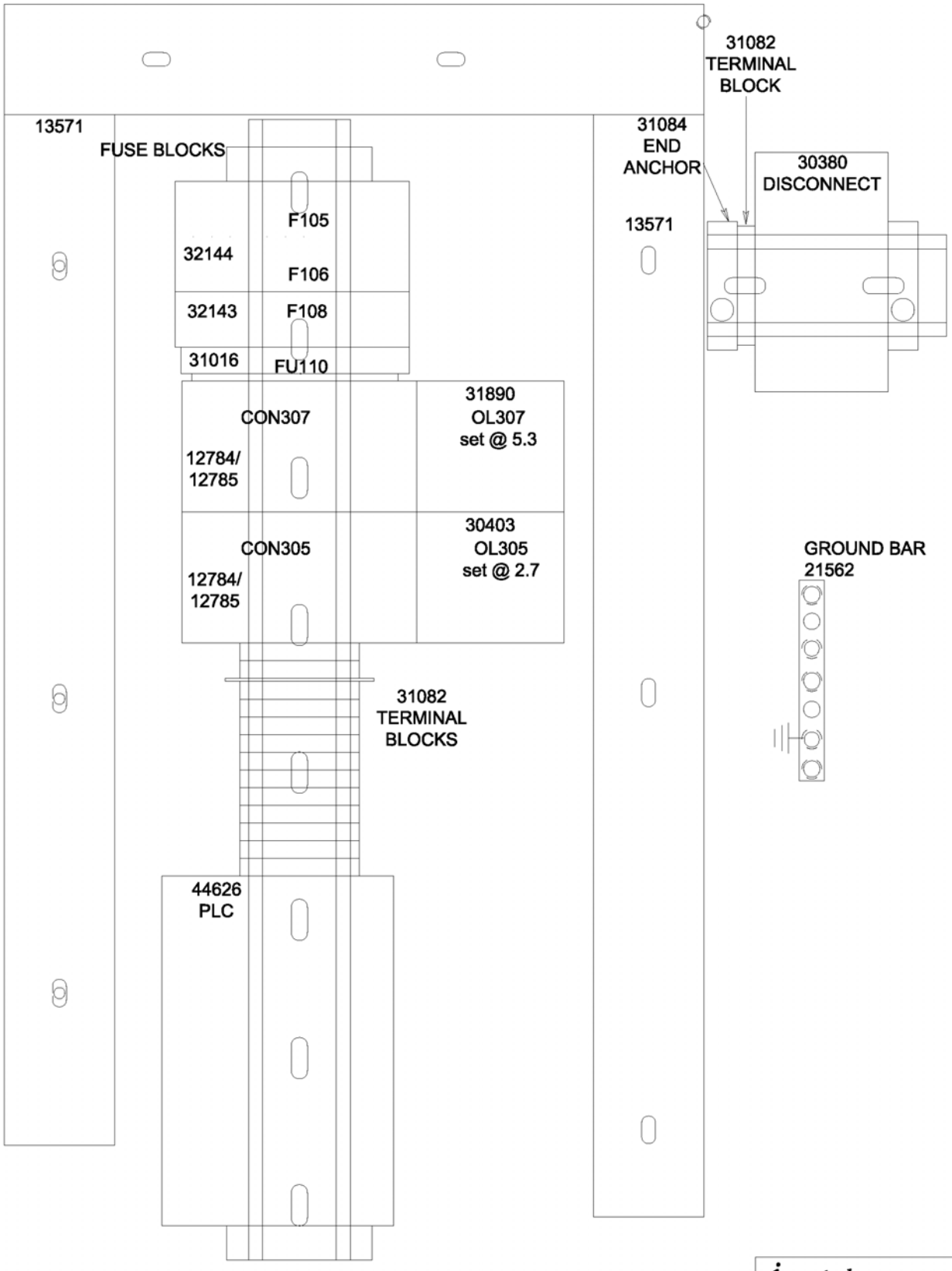


Operator Control Panel

Key	*Name*	*Description*
1	ON-OFF	Powers up the restacker and starts the roller conveyor
2	Indicator Light	Shows power on or off
3	Stacking Indicator	Sets the number of groups of 5 cases to be dropped into the stack before ejecting. Maximum 9 groups, restricted by stop bar height. Minimum number must allow cases to proceed far enough on return conveyor to allow next bundle to completely exit the Restacker
4	Clear	Dump any cases remaining in upper chamber and ejects the stack onto the conveyor

Note: Circuit Breaker is on Front of Control Cabinet (not shown)


iconotech RESTACKER
ELECTRICAL DIAGRAM
This drawing is the property of Iconotech and may not be used or reproduced without permission
TYPE 1 ENCLOSURE
FUSE LIST
FU105 - FNQ-R-6
FU106 - FNQ-R-6
FU108 - FNQ-R-4
FU110 - AGC1
TW SETTINGS
INPUT DUMPS
0 NONE 10
1 4 1
2 5 2
3 4,5 3
4 6 4
5 4,6 5
6 5,6 6
7 4,5,6 7
8 7 8
9 4,7 9
230 VACPlus nuetral from Printer
Nuetral TO LINE 107,301
DISC302 9421-VCCD1 /30380
RECEPTACLE FOR CONVEYOR
FROM LINE 102
EXIT
TO LINE 304
Scanner/Decoder (if used)
Receptacle on Printer
STOP SIGNAL TO PRINTER
STACK EXIT
CONVEYOR
DUMP SOLENOID
BAD SCAN FROM DECODER
CLEAR
CARTON COUNT
THUMB-WHEEL INPUT 1
THUMB-WHEEL INPUT 2
THUMB-WHEEL INPUT 4
THUMB-WHEEL INPUT 8
INPUTS
OUTPUTS

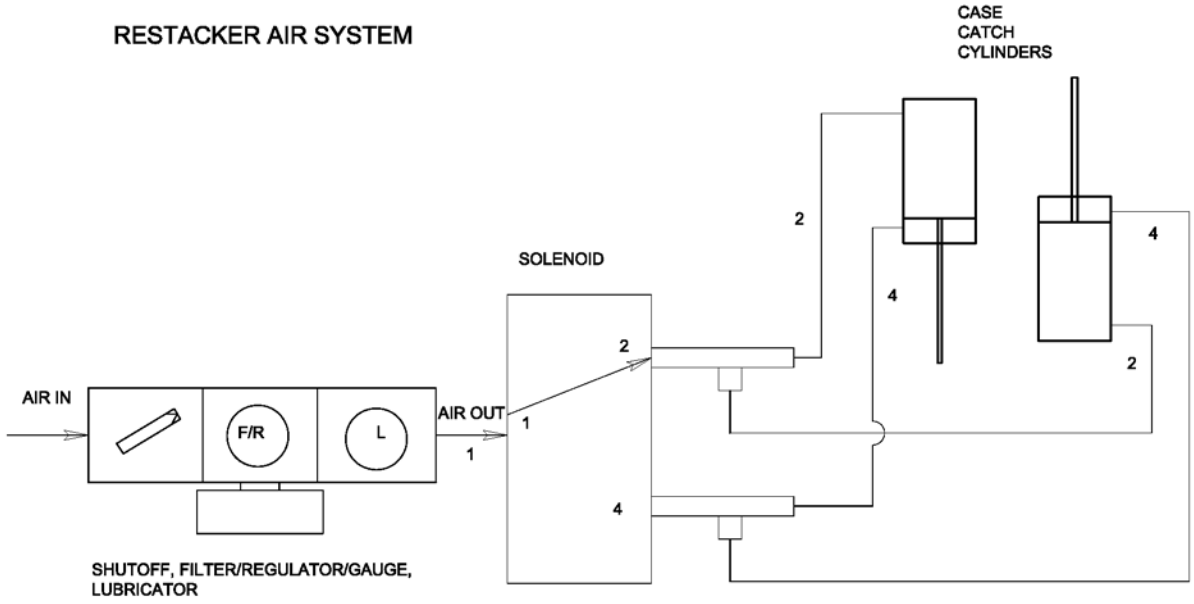


iconotech OPTIMIZER
Restacker
CONTROL PANEL LAYOUT

RESTACKER AIR CONTROL SYSTEM

The flipper arms in the restacker are operated by the air cylinders. They are controlled by a single, solenoid-operated air valve.

The air is controlled by a filter-regulator-lubricator on the driven side of the stacker. Air connection is made through a flexible tube and connected via a quick-disconnect coupling at the junction box on the driven side of the printer. (This is true when the restacker is installed with the printer. If the restacker is installed at a later date, air must be connected directly to its air filter-regulator-lubricator.)



RETURN ROLLER CONVEYOR

The unit has 24" wide rollers and an overall width of 28". It consists of 18" of straight section at the eject end of the restacker, a 180 degree curve, and a 10 foot straight section.

It has a line shaft drive with individual O-ring belts driving each roller. The drive motor gearbox is mounted at the end of the 10-foot section right after the 180 degree turn.

The conveyor elevation is 17" at the restacker end and increases to 34" at the opposite end.

The conveyor should be anchored to the floor.

All electrical controls are contained in the restacker electrical control enclosure. Connection from restacker to conveyor is on the driven side of the restacker with conventional twist plug for the 230 Volt, Single Phase, AC connection.

See instructions in the beginning of the manual under Installation.

Section 10

Parts Lists & Assembly Drawings

Contents

Parts Lists

Assembly Drawings

The following pages contain information concerning the components and assemblies that make up the Iconotech Case Printer. These pages may be consulted to identify the location, quantity, and part number of the various components used on the machine. In addition, each manufactured part is stamped with a part number

When placing an order for spare or replacement parts, be sure to note the serial number of the machine to help ensure that the correct parts are shipped.

If you encounter difficulties when attempting to install new parts on your case printer, call Iconotech before proceeding with any modifications to the parts or case printer.

We have identified four categories of spares parts as described below. Parts in the first two groups are based on normal wear and what we know will happen within certain maintenance intervals. The third group is parts that will not exhibit wear until they fail in a catastrophic manner. The last group is an exhaustive bill of material.

The first list titled IMPORTANT PARTS contains parts in the first three categories indicating which of the three they fall into. The EXTENDED PARTS list follows these more critical parts.

Consumable Parts
These parts are required or recommended to be changed every 6 months or about 1.5 million prints depending on productivity and operating conditions.

Wear Items
These are parts expected to be changed, due to normal wear and tear, over a 1-2 year period depending on productivity and operating conditions. These parts will not cause catastrophic failures but instead retard productivity due to the machinery slowly falling out of adjustment. These conditions will cause modified and time consuming operating procedures to ensure reasonable print quality and throughput.

Critical Up Time Parts
These are parts recommended to have on hand in order to assure maximum up time. A failure of any of these parts will be a catastrophic failure, rendering the machine unable to operate and preventing production until the part has been replaced.

Extended Parts List
A complete list or bill of material of the printer and restacker relevant to the extended lifetime of the equipment.

IMPORTANT PARTS			
Part #	**Description**	**Qty**	**Type**
	Printing and Ink Management		
16840	SPRING, INK PAD TENSION	2	Critical
85329	TUBING, INK SUPPLY -15, 10FT	1	Consume
85328	TUBING, INK RETURN -24, 7FT	1	Consume
16006	CLAMP, INK TUBING	1	Wear
14391	INK PUMP	2	Critical
14393	MOTOR, INK PUMP	2	Critical
4976	SHAFT PIN ASSEMBLY, INK-IN	1	Wear
15743	O-RING, CHECK VALVE	2	Wear
15747	O-RING, SHAFT PIN SEAL	2	Wear
0200100	PRINT CYLINDER, 12 INCH	1	Critical
	Feeder		
14461	CLUTCH, WRAP SPRING	1	Critical
14462	ACTUATOR HEAVY-DUTY	1	Critical
3217	FRICTION BLOCK WEAR BLOCK	1	Wear
1898	CAM FOLLOWER CONTAINMENT BLOCK	2	Wear
11704	BEARING BRONZE FLANGE 1/2 X 5/8 X 1/2	4	Wear
12459	CAM FOLLOWER BEARING	2	Wear
1882.1	POKER GUIDE TOP OPERATOR SIDE	3	Wear
1883.1	POKER GUIDE BOTTOM OPERATOR SIDE	3	Wear
1884.1	POKER GUIDE TOP DRIVE SIDE	3	Wear
1885.3	POKER GUIDE BOTTOM DRIVE SIDE	3	Wear
1988.2	POKER FINGER OPERATOR SIDE	3	Wear
2242.2	POKER FINGER DRIVE SIDE	3	Wear
2371.2	FLIGHT W/ROLLER	3	Wear
1652.2	FLIGHT	3	Wear
	Electrical		
32004	PHOTO EYE, MAGAZINE	1	Critical
34089	REFLECTOR	1	Critical
30282	SWITCH, PROXIMITY IF5764	3	Critical
45021	INK PUMP SWITCHES	2	Critical

Part #	IMPORTANT PARTS Description	Qty	Type
30278	INK PUMP BULB	2	Wear
45022	SWITCH, INK SELECTOR	1	Critical
45048	SWITCH, E-STOP PP RED	2	Critical
44625	PLC, PRINTER (FQPN10WD)	1	Critical
44016	FREQUENCY DRIVE, CIMR-V7AM20P71	1	Critical
30974	FUSE, FNQ-R-3	1	Critical
30950	FUSE, FNQ-R-4	1	Critical
30946	FUSE, FNQ-R-6	2	Critical
30954	FUSE, FNQ-R-10	2	Critical
30817	FUSE, AGC1	2	Critical
	Pneumatic		
82158	VALVE, SOLENOID, 45A-LAD-DAAJ-1KD	2	Critical
82156	VALVE, SOLENOID, 45A-LAC-DAAJ-1KD	1	Critical
83160	CYLINDER, AIR C-171.5-DP	1	Critical
83133	CYLINDER, AIR C-041-DXDE	1	Critical
	Drive		
14400	MOTOR, MAIN AC 240 VAC 1/2 HP	1	Critical
14098	GEAR BOX	1	Critical
16160	BELT, MAIN DRIVE 480H100	1	Critical
16100	BELT, INTERMEDIATE 240H100	1	Critical
16052	BELT, PRINT CYL DRIVE 300H100	1	Critical
4946	DRIVE SHAFT ASSEMBLY, PRINT CYL	1	Wear
15052	BELTING, 1/4" PRINTER EXIT DRIVE	1	Wear
	Restacker		
44626	PLC, RESTACKER (STACKER7)	1	Critical
32036	PHOTO EYE, RESTACKER	1	Critical
15054	BELTING, 1/2" RESTACKER EXIT	2	Wear
82150	VALVE, SOLENOID, 414A-AOA-DM-DJAJ-1JB	1	Wear
83136	CYLINDER, AIR, C-092-DXP	2	Wear

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
12843	CONTACTOR	3	ELECTRIC
12844	CONTACTOR SURGE SUPPRESSOR	3	ELECTRIC
14393	INK PUMP MOTOR 66 RPM 115V	2	ELECTRIC
14400	MOTOR AC 240 VAC 1/2 HP	1	ELECTRIC
14405	INK PUMP MOTOR FAN BLADE	2	ELECTRIC
14628	KNOB (SPEED POT)	1	ELECTRIC
15605	COUNTER	1	ELECTRIC
30189	INK PUMP LENS	2	ELECTRIC
30258	SWITCH LIMIT	1	ELECTRIC
30278	INK PUMP BULB	2	ELECTRIC
30282	SWITCH PROXIMITY	3	ELECTRIC
30483	BREAKER HANDLE (ROTARY)	1	ELECTRIC
30484	BREAKER HANDLE (FIXED W/SHAFT)	1	ELECTRIC
30486	BREAKER 2 POLE 20 AMP	1	ELECTRIC
30817	FUSE 1A	1	ELECTRIC
30954	FUSE 10A	2	ELECTRIC
30974	FUSE 3A	1	ELECTRIC
31792	POTENTIOMETER 5K	1	ELECTRIC
31795	RESISTOR 2.00 KX	1	ELECTRIC
32004	PHOTO EYE	1	ELECTRIC
34089	REFLECTOR	1	ELECTRIC
44016	DRIVE FREQUENCY 1HP	1	ELECTRIC
44625	PLC	1	ELECTRIC
45021	INK PUMP SWITCHES	2	ELECTRIC
45022	SWITCH SELECTOR	1	ELECTRIC
45048	SWITCH PP, RED	2	ELECTRIC
45049	SWITCH PB RED	1	ELECTRIC
45050	SWITCH PB YELLOW	4	ELECTRIC
45051	SWITCH PB GREEN	1	ELECTRIC
82170	VALVE, 3 BANK	1	ELECTRIC
84912	FRL W/ SHUTOFF	1	ELECTRIC
1707	STENCIL LOAD NESTED SIDE PLATES	1	STENCIL LOAD
1708.1	STENCIL LOAD SIDE PLATES SPACER PLATES	1	STENCIL LOAD
1711.1	STENCIL LOAD SHEET SPRING SPACER	1	STENCIL LOAD
2105	STENCIL LOAD MOUNTING BRACKET LOCK PIN	2	STENCIL LOAD
2108	STENCIL LOAD SHEET SPRING	1	STENCIL LOAD
2116.1	STENCIL LOAD DRUM FEED ROLLER	1	STENCIL LOAD
2126	STENCIL LOAD DRUM FEED ROLLER HANDKNOB	1	STENCIL LOAD
2283	STENCIL LOAD CORE MOUNT SHAFT KNOB	1	STENCIL LOAD
2284	STENCIL LOAD CAM	1	STENCIL LOAD
2285	STENCIL LOAD CAM FRONT	1	STENCIL LOAD
2286.1	STENCIL LOAD CORE MOUNTING SHAFT (CRS)	1	STENCIL LOAD

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
2287	STENCIL LOAD BEARING HOUSING	1	STENCIL LOAD
2289	STENCIL LOAD FRICTION DISC	1	STENCIL LOAD
2290	STENCIL LOAD FRICTION PIN	1	STENCIL LOAD
3356	NO5 BEARING LOCK NUT	1	STENCIL LOAD
11692	BEARING BRONZE FLANGE 3/8 X 5/8 X 1/2 X 7/8	2	STENCIL LOAD
12550	BEARING BALL	2	STENCIL LOAD
16711	SPRING COMPRESSION	1	STENCIL LOAD
16713	SPRING COMPRESSION	2	STENCIL LOAD
75483	COLLAR CLAMP 1-1/4 ID	2	STENCIL LOAD
83133	BIMBA CYLINDER C-041-DXDE	2	STENCIL LOAD
1873	SPLINE SHAFT SUPPORT BLOCK	2	MAGAZINE
1874	SPLINE SHAFT HUB RETAINER	2	MAGAZINE
1876	SLIDE BAR BOTTOM OPERATOR BACK SIDE	1	MAGAZINE
1878	SLIDE BAR BOTTOM DRIVE SIDE	1	MAGAZINE
1880	LEAD SCREW MOUNT OP & DRIVE SIDE FRONT	1	MAGAZINE
1882.1	POKER GUIDE TOP OPERATOR SIDE	3	MAGAZINE
1883.1	POKER GUIDE BOTTOM OPERATOR SIDE	3	MAGAZINE
1884.1	POKER GUIDE TOP DRIVE SIDE	3	MAGAZINE
1885.3	POKER GUIDE BOTTOM DRIVE SIDE	3	MAGAZINE
1889	LEAD SCREW OP SIDE WITHOUT HANDWHEEL	1	MAGAZINE
1891	LEAD SCREW ADJUSTMENT SPROCKETS 5/8 DIA	4	MAGAZINE
1893	5/8 DIA HANDWHEEL	2	MAGAZINE
1896	POKER DRIVE SHAFT OPERATOR SIDE	1	MAGAZINE
1897	HEX SHAFT ARM	4	MAGAZINE
1898	CAM FOLLOWER CONTAINMENT BLOCK	2	MAGAZINE
1986	POKER ARM OPERATOR SIDE	3	MAGAZINE
1988.2	POKER FINGER OPERATOR SIDE	3	MAGAZINE
1990.2	CRANK PLATE FOR CLUTCH	1	MAGAZINE
1991.1	CONNECTING ROD	1	MAGAZINE
1994.2	MAGAZINE SIDE PLATE TOP DRIVE SIDE	1	MAGAZINE
1996	CAM FOLLOWER SPACER	2	MAGAZINE
2001.1	POKER AXLE	6	MAGAZINE
2002	WRAP SPRING ROD END SPACER	1	MAGAZINE
2224.1	CLUTCH SOLENOID COVER	1	MAGAZINE
2233	POKER DRIVE SHAFT DRIVE SIDE	1	MAGAZINE
2236.1	SIDE MOUNT BRACKET OPERATOR SIDE	6	MAGAZINE
2237.1	SIDE MOUNT BRACKET DRIVE SIDE	6	MAGAZINE
2241	POKER ARM DRIVE SIDE	3	MAGAZINE
2242.2	POKER FINGERS DRIVE SIDE	3	MAGAZINE
2375	LEADSCREW HANDWHEEL SPACER 5/8 Ø	2	MAGAZINE
2385	MODIFIED CLUTCH (PSI-6)	1	MAGAZINE
3026	MAGAZINE SIDE PLATE TOP OPERATOR SIDE	1	MAGAZINE

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
3072	ADJUSTABLE CASE BACKSTOP OPERATOR SIDE	1	MAGAZINE
3073	ADJUSTABLE CASE BACKSTOP DRIVE SIDE	1	MAGAZINE
3074	ADJUSTABLE BACKSTOP SPACER OPERATOR SIDE	1	MAGAZINE
3075	ADJUSTABLE BACKSTOP SPACER DRIVE SIDE	1	MAGAZINE
3077	SPLINE SHAFT ADJUSTABLE CLAMP ARM	1	MAGAZINE
3078	SPLINE SHAFT ADJUSTABLE CLAMP ARM SLIDE	1	MAGAZINE
3098	SLIDE BAR UPPER DRIVE SIDE	1	MAGAZINE
3214	FRICTION BLOCK	1	MAGAZINE
3216	FRICTION BLOCK WASHER	2	MAGAZINE
3217	FRICTION BLOCK WEAR BLOCK	1	MAGAZINE
3545	MAG SUPPORT MOUNT OPERATOR SIDE FRONT	1	MAGAZINE
3546	MAGAZINE SUPPORT MOUNT OPERATOR SIDE BACK	1	MAGAZINE
3547	MAGAZINE SUPPORT MOUNT DRIVE SIDE	1	MAGAZINE
3548	MAGAZINE SUPPORT MOUNT DRIVE SIDE	1	MAGAZINE
3549.1	MAGAZINE SIDE PLATE BOTTOM OP SIDE NARROW	1	MAGAZINE
3550	MAG SIDE PLATE BOTTOM DRIVE SIDE NARROW	1	MAGAZINE
3551	OPERATOR SIDE MAGAZINE SPACER	2	MAGAZINE
3552.1	MAGAZINE GUARD OPERATOR SIDE	1	MAGAZINE
3553.1	MAGAZINE GUARD DRIVE SIDE	1	MAGAZINE
3554	MAGAZINE SPACE BAR DRIVE SIDE	2	MAGAZINE
3618	GROB HUB WITH ARM	2	MAGAZINE
3619	SPLINE SHAFT	1	MAGAZINE
3621	LEAD SCREW DRIVE SIDE	1	MAGAZINE
3622	LEAD SCREW CHAIN GUARD	1	MAGAZINE
3623	LEAD SCREW CHAIN GUARD DRIVE SIDE	1	MAGAZINE
3624	SLIDE BAR TOP DRIVE SIDE FRONT	1	MAGAZINE
3625	SLIDE BAR TOP OPERATOR SIDE FRONT	1	MAGAZINE
3626	SLIDE BAR TOP DRIVE SIDE BACK	1	MAGAZINE
3627.1	SLIDE BAR TOP OPERATOR SIDE BACK	1	MAGAZINE
3628	PSI-6 CLUTCH GUARD	1	MAGAZINE
3629	ADJUSTABLE CASE BACKSTOP	2	MAGAZINE
3630	LEAD SCREW OPERATOR SIDE WITH HANDWHEEL	1	MAGAZINE
3631	SLIDE BAR BOTTOM OPERATOR FRONT SIDE	1	MAGAZINE
3707	LEAD SCREW MOUNT OPERATOR SIDE FRONT	1	MAGAZINE
3708	LEAD SCREW BLOCK OPERATOR SIDE FRONT	1	MAGAZINE
4161	LEAD SCREW DRIVE FRONT	1	MAGAZINE
11063	ROD END	1	MAGAZINE
11147	ROD END	1	MAGAZINE
11562	BEARING BRONZE SLEEVE 1-1/2 X 1-3/4 X 3/4	2	MAGAZINE
11704	BEARING BRONZE FLANGE 1/2 X 5/8 X 1/2	4	MAGAZINE
11756	BEARING BRONZE FLANGE 1 X 1-1/4 X 3/4	4	MAGAZINE
12002	BEARING FLANGE TWO BOLT	5	MAGAZINE

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
12004	BEARING FLANGE TWO BOLT	1	MAGAZINE
12276	BEARING BALL	1	MAGAZINE
12459	BEARING CAM FOLLOWER	2	MAGAZINE
12901	CHAIN ROLLER	14'	MAGAZINE
13359	CHAIN OFFSET LINK	3	MAGAZINE
13373	CHAIN CONNECTOR LINK	3	MAGAZINE
14462	ACTUATOR HEAVY-DUTY	1	MAGAZINE
14586	SPRING, COMPRESSION	1	MAGAZINE
14645	ADJUSTABLE HANDLE STUD TYPE	2	MAGAZINE
15603	TAPE MYLAR 1/2" R TO L	1	MAGAZINE
15604	TAPE MYLAR 1/2" L TO R	1	MAGAZINE
28478	MAGAZINE E-STOP BOX	1	MAGAZINE
79786	MAGAZINE HAND ADJUSTMENT CHAIN TIGHTENER	2	MAGAZINE
1638	ER-16 BEARING BLOCK	2	MAIN
1641.1	DISCHARGE ROLLER	1	MAIN
1648	FLIGHT CHAIN SUPPORT SHAFT	2	MAIN
1652.2	FLIGHT	3	MAIN
1659.2	REDUCER MOUNT	1	MAIN
1664.1	MAGAZINE DRIVE SHAFT	1	MAIN
1672	SINGLE REVOLUTION SHAFT BEARING BLOCK	1	MAIN
1690	SINGLE REVOLUTION SHAFT SENSOR BRACKET BAR	1	MAIN
1693	MAGAZINE DRIVE CHAIN TIGHTENER BRACKET	1	MAIN
2003.1	WRAP SPRING ACTUATOR MOUNT	1	MAIN
2013	WRAP SPRING MOUNT SPACER	1	MAIN
2123	FLIGHT CHAIN IDLER SPACER	4	MAIN
2218	CHAIN ROLLER #60 X 39.75" LG W/ R/L EACH END	6	MAIN
2227	FRONT ROLLER BELT PULLEY	1	MAIN
2291.2	INK PUMP MOTOR MOUNT	1	MAIN
2292.1	INK PUMP MOUNT	1	MAIN
2370	FLIGHT ROLLER	3	MAIN
2371.2	FLIGHT WITH ROLLERS	3	MAIN
2381.2	IMPRESSION ROLLER SHAFT	2	MAIN
2384.2	INK PUMP MOTOR COVER	1	MAIN
3081	ROLLER IDLER GEAR, FIBER	1	MAIN
3082	IDLER GEAR AXLE	1	MAIN
3083.2	FLIGHT CHAIN GUIDE RAIL, DRIVE SIDE	1	MAIN
3085.2	FLIGHT CHAIN GUIDE RAIL, OPERATOR SIDE	1	MAIN
3105	SINGLE REVOLUTION SHAFT BEARING BLOCK	1	MAIN
3237	TAPER LOCK BUSHING	1	MAIN
3238	TAPER LOCK BUSHING	1	MAIN
3240	TAPER LOCK BUSHING	1	MAIN
3241	TAPER LOCK BUSHING	1	MAIN

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
3242	PULLEY TAPERLOCK GEAR BELT	1	MAIN
3243	PULLEY TAPERLOCK GEAR BELT	1	MAIN
3244	IDLER SPROCKET - #60	4	MAIN
3245	IDLER SPROCKET - #50	1	MAIN
3246	TAPER LOCK SPROCKET - 54 TOOTH	1	MAIN
3247	TAPER LOCK SPROCKET - 18 TOOTH	1	MAIN
3318	ENCLOSURE MOUNT STUDS	4	MAIN
3329	IMPRESSION ROLLER FREE WHEELING	1	MAIN
3350	SINGLE REVOLUTION SHAFT SENSOR BRACKET	1	MAIN
3568	LEG ASSEMBLY	4	MAIN
3577	ER-16 BEARING BLOCK FRONT	2	MAIN
3578	ER-16 BEARING BLOCK BRACKET	2	MAIN
3580	ROLLER DRIVE GEAR	1	MAIN
3581	HEADSHAFT DRIVE GEAR	1	MAIN
3582	HEADSHAFT DRIVE GEAR SPACER	1	MAIN
3583	FLIGHT TAILSHAFT BEARING MOUNT	1	MAIN
3584	FLIGHT CHAIN TAILSHAFT FLOATER MOUNT	1	MAIN
3585.2	FLIGHT CHAIN TAIL SHAFT	1	MAIN
3586	MAGAZINE DRIVESHAFT SUPPORT DRIVE SIDE	1	MAIN
3587	MAGAZINE DRIVESHAFT SUPPORT OPERATOR SIDE	1	MAIN
3588	FRONT END COVER	1	MAIN
3589	INK PUMP DRIP PAN	1	MAIN
3590	SINGLE REVOLUTION SHAFT	1	MAIN
3591	SINGLE REVOLUTION DRIVE SPROCKET	1	MAIN
3592	SINGLE REVOLUTION DRIVEN SPROCKET	1	MAIN
3593	SINGLE REV DRIVE CHAIN TIGHTENER BRACKET	1	MAIN
3596	BACK END COVER	1	MAIN
3597	FLOATER SPROCKET	1	MAIN
3599	FLIGHT HEAD SHAFT BEARING MOUNT BRACKET	2	MAIN
3601	IDLER SPROCKET	1	MAIN
3602	DRIVE CHAIN GUARD	1	MAIN
3603	MAGAZINE DRIVE CHAIN GUARD	1	MAIN
3604	FLIGHT CHAIN SUPPORT RAIL, DRIVE SIDE	1	MAIN
3605	FLIGHT CHAIN SUPPORT RAIL, OPERATOR SIDE	1	MAIN
3606	FLIGHT CHAIN IDLER TAKE-UP	2	MAIN
3610	SINGLE REVOLUTION SHAFT MOUNT	1	MAIN
3616.1	MAIN MACHINE SIDE PLATE DRIVE SIDE	1	MAIN
3617.1	MAIN MACHINE SIDE PLATE, OPERATOR SIDE	1	MAIN
3751	BELTING, 1/4" PRINTER EXIT DRIVE	1	MAIN
3774	ONE REV PROX ARM	1	MAIN
11756	BEARING BRONZE FLANGE 1 X 1-1/4 X 3/4	2	MAIN
12009	BEARING FLANGE TWO BOLT	1	MAIN

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
12272	BEARING BALL	4	MAIN
12317	BEARING CARTRIDGE 1	7	MAIN
12326	BEARING CARTRIDGE 1-1/2	3	MAIN
12330	BEARING CARTRIDGE	2	MAIN
12593	BEARING PILLOW BLOCK 1-1/2	2	MAIN
12901	CHAIN ROLLER SINGLE WIDTH	3'	MAIN
12903	CHAIN ROLLER SINGLE WIDTH	5'	MAIN
13373	CHAIN CONNECTOR LINK	1	MAIN
13375	CHAIN CONNECTOR LINK	1	MAIN
13913	PROX MOUNT	3	MAIN
14098	GEAR BOX WORM REDUCER	1	MAIN
14391	INK PUMP	1	MAIN
14679	LATCH FOR ELECTRICAL ENCLOSURE	3	MAIN
16160	BELT MAIN DRIVE 480H100	1	MAIN
17818	CHAIN CONNECTOR LINK SPRING CLIP	6	MAIN
20482	MAGAZINE FRONT BLANK GUIDE	1	MAIN
25854.1	AIR TO STACKER SPACER	1	MAIN
28478	MAGAZINE E-STOP BOX	1	MAIN
35076.1	BOX JUNCTION TO STACKER	1	MAIN
38650	ONE REVOLUTION SHAFT SPACER	1	MAIN
38651	FLIGHT CHAIN TENSIONER IDLER BOLT	2	MAIN
38652	FLIGHT CHAIN TENSIONER IDLER BOLT	2	MAIN
75481	RULLAND COLLAR	3	MAIN
75529	RULLAND COLLAR	4	MAIN
80071	FITTING, AIR, TEE PIPE, 1/4, 2224P-4	1	MAIN
80089	FITTING, AIR, MALE STRAIGHT, 1/4X1/8, W68PL-4-2	1	MAIN
80092	FITTING, AIR, MALE ELBOW, 1/4X1/8, W169PLNS-4-2	1	MAIN
80143	FITTING, AIR, MALE STRAIGHT, 3/8X1/4, W68PL-6-4	1	MAIN
80494	VALVE, BULKHEAD SHUTOFF, QC, 394P-6-6	1	MAIN
80507	FITTING, AIR, MALE ELBOW, 1/4X1/4, W169PLNS-4-4	1	MAIN
82156	VALVE, SOLENOID, 45A-LAC-DAAJ-1KD	1	MAIN
82158	VALVE, SOLENOID, 45A-LAD-DAAJ-1KD	2	MAIN
85328	TUBING INK OUT	7'	MAIN
85329	TUBING INK IN	10'	MAIN
100670	FLIGHT CHAIN HEAD SHAFT	1	MAIN
100671	FLIGHT CHAIN HEAD SHAFT BEARING MOUNT	2	MAIN
100672	ADJUSTABLE HEX HUB SPROCKET	1	MAIN
100673	ADJUSTABLE HEX HUB	1	MAIN
1334	SPRING LIFTER	1	PRT CYL
1335.2	CLAMP/LIFT SPRING	4	PRT CYL
1364	DISCONNECT NEEDLE	2	PRT CYL
2277.2	VACUUM RELIEF HOUSING	1	PRT CYL

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
3314	MOVABLE PAD MOUNT BAR	1	PRT CYL
3315.1	FIXED PAD MOUNT BAR	1	PRT CYL
3348	CLAMP DRUM SHAFT COLLAR KEYED	1	PRT CYL
15743	O-RING 7/16 ID 5/8 OD 3/32	2	PRT CYL
15760	O-RING NITRILE 11/16 X 7/8	2	PRT CYL
16706	SPRING COMPRESSION SS	2	PRT CYL
16840	12" PAD HOLD DOWN SPRING	2	PRT CYL
73202	SCREW FLAT HD CAP SS 5-40 X 3/8	20	PRT CYL
74067	SCREW BUTTON HD CAP SS 5-40 X 1/4	34	PRT CYL
75599	RETAINING E-RING EXTERNAL 1", X5133-98H	1	PRT CYL
75680	PIN DOWEL SS 3/8 X 2-1/2	1	PRT CYL
75683	PIN DOWEL SS 3/8 X 1-1/4	1	PRT CYL
75689	PIN SPRING SS 3/32 X 3/8	1	PRT CYL
75690	PIN ROLL SS 3/32 X 3/4	2	PRT CYL
76024	SCREW, SHOULDER BOLT 1/4 X 1/4	4	PRT CYL
80049	PLUG BRASS 3/8-18 NPT	1	PRT CYL
1364	DISCONNECT NEEDLE	2	TOP END
1365.2	DRUM MOUNT PIN	1	TOP END
1366.2	DRUM REST / PIN HOUSING	1	TOP END
1431.2	DRUM MOUNT PIN	1	TOP END
1432.2	DRIVE SHAFT	1	TOP END
1433.1	PIN HOUSING	1	TOP END
1640	ER-20S BEARING BLOCK	2	TOP END
1698	DRUM MOUNT SPACER TUBE	1	TOP END
1699.1	SHAFT	1	TOP END
1703	DRUM DRIVE MOUNT SPACERS	2	TOP END
1704	PULLEY MODIFICATION	2	TOP END
1706	PULLEY MODIFICATION	1	TOP END
1710.1	DRUM LIFT HANDLE	1	TOP END
1714.1	DRUM LIFT SHAFT	1	TOP END
1716	OUTER PLATE SUPPORT ROD STENCIL LOAD MOUNT	1	TOP END
1718	DRUM PIVOT STOP	1	TOP END
1719	OUTER PLATES SUPPORT ROD	1	TOP END
2007	TRANSFER GEAR 20HB100 MODIFICATIONS	1	TOP END
2008	TRANSFER GEAR NFS1272A SPUR GEAR DRIVEN FIBER	1	TOP END
2009.1	TRANSFER GEAR AXLE	1	TOP END
2104	NIP ROLLER	2	TOP END
2109	DISCHARGE NIP ROLLER BRACKET SPACER	2	TOP END
2110	DISCHARGE NIP ROLLER BRACKET	2	TOP END
2111	PLAIN IDLER PULLEY	2	TOP END
2112	GEAR/PULLEY SPACER	1	TOP END
2113.2	FRONT GUARD	1	TOP END

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
2114.2	DISCHARGE GUARD	1	TOP END
2115.1	GUARD HINGE WITH BRACKETS	1	TOP END
2117	HINGED GUARD	1	TOP END
2119	DRUM LIFT SPRING SHOULDER BOLT	1	TOP END
2291.1	INK PUMP MOTOR MOUNT	1	TOP END
2292.1	INK PUMP MOUNT	1	TOP END
2384.2	INK PUMP MOTOR COVER	1	TOP END
3211	AIR KNIFE SUPPORT ROD	1	TOP END
3212	AIR KNIFE MOUNT SUPPORT	2	TOP END
3213.1	AIR KNIFE MOUNT	2	TOP END
3248	TAPER LOCK BUSHING	2	TOP END
3249	TAPER LOCK BUSHING	1	TOP END
3352	DISCHARGE NIP ROLLER SHAFT	1	TOP END
3555	DRUM DRIVE MOUNT	1	TOP END
3556	DRUM DRIVE MOUNT	1	TOP END
3557	DRUM DRIVE BELT TENSIONER	1	TOP END
3574	AIR CYLINDER MOUNT	1	TOP END
3575	AIR CYLINDER CAPTURE PLATE	1	TOP END
3634	DRUM LIFT SHAFT DRIVE ARM	1	TOP END
3635	DRIVE SIDE PRINT SECTION SIDE PLATE	1	TOP END
3636.1	OPERATOR SIDE PRINT SECTION SIDE PLATE	1	TOP END
3637	PLATE NESTING LAYOUT FOR P/N'S 3088 & 2103	1	TOP END
3638	GAS SPRING MOUNT MODIFICATIONS	2	TOP END
3705	DRUM MOUNT	1	TOP END
3713	DRUM HEIGHT SCREW	1	TOP END
3714	DRUM LEVEL ADJUSTMENT SPLINE	1	TOP END
3715	DRUM LEVEL BALL PLUNGER MOUNT	1	TOP END
3716.1	DRUM LEVEL SCREW BLOCK	1	TOP END
4105	DRUM DRIVE BELT TIGHTENER	1	TOP END
6135	MODIFIED CAM FOLLOWER	1	TOP END
6143	DRUM MOUNT PIN THUMB SCREW	2	TOP END
11112	ROD END	1	TOP END
11764	BEARING BRONZE FLANGE 1-1/4 X 1-1/2 X 1/2 LG	2	TOP END
12278	BEARING BALL 3/4	4	TOP END
12283	BEARING BALL 1"	2	TOP END
12321	BEARING CARTRIDGE 1-1/4	7	TOP END
12516	BEARING 3/4 X 7/8 X 1" LG DX	2	TOP END
14391	INK PUMP	1	TOP END
14648	HANDLE 1/4-20 X .78	2	TOP END
15736	O-RING 5/32 ID X 9/32 OD	16	TOP END
15743	O-RING NITRILE 7/16 ID 5/8 OD 3/32	2	TOP END
15778	O-RING NITRILE 1-1/4 ED 1-1/2	4	TOP END

EXTENDED PARTS LIST			
PART #	**DESCRIPTION**	**QTY**	**SECTION**
16052	BELT DRUM DRIVE 300H100	1	TOP END
16100	BELT INTERMEDIATE 240H100	1	TOP END
16702	SPRING EXTENSION	1	TOP END
16708	GAS SPRING	2	TOP END
74138	SPRING PLUNGER 3/8-16 X 5/8	1	TOP END
75471	BOLT TAP 3/8-16 NC X 1-3/4 LG FULL THD	1	TOP END
75549	COLLAR ALUMINUM CLAMP 3/4	4	TOP END
75580	RETAINING E-RING EXTERNAL 3/4, SHAFT	2	TOP END
75581	RETAINING E-RING EXTERNAL 1", SHAFT	2	TOP END
75780	CLAMP HOSE	2	TOP END
77113	RETAINING RING EXTERNAL 1-1/4, SHAFT	2	TOP END
80091	FITTING, AIR, TEE TUBE, 1/4, 164PL-4	1	TOP END
80092	FITTING, AIR, MALE ELBOW, 1/4X1/8, W169PLNS-4-2	2	TOP END
80122	FITTINGS NYLON STRAIGHT	2	TOP END
80459	FITTING, AIR, FEMALE STRAIGHT, 1/4X1/4, 66PL-4-4	2	TOP END
81025	AIR BLOWER FAN NOZZLE	2	TOP END
83160	BIMBA CYLINDER C-171.5-DP	1	TOP END

EXTENDED PARTS LIST		
PART #	**DESCRIPTION**	**QTY**
3409	STACKER STOP	1
3505	STACKER STOP	1
3506	BELT ADJUST SCREW	1
3507	BELT ADJUST SCREW	1
3508	BELT ADJUST SCREW	1
3509	BELT ADJUST SCREW	1
3510.1	CONVEYOR HEADSHAFT PULLEY	1
3511.1	HEX SHAFT HEADSHAFT	1
3515	POINTER OPERATOR SIDE	2
3516	POINTER OPP. OPERATOR SIDE	4
3521	TRANSFER RAIL	1
3522	TOP CROSSMEMBER	2
3567	CORD HOLDER	2
3607	STACKER JUNCTION BOX TO CONVEYOR	1
3611	MAGAZINE FINGERS MOUNTING PLATE	2
3612	MAGAZINE FINGERS MOUNTING PLATE	1
3614	MAGAZINE SUPPORT FRONT	1
3717	MAIN SIDE PLATE RIGHT	1
3719.1	MAIN SIDE PLATE LEFT	1
3786	WHEEL MOUNT	1
3803	CONVEYOR MOUNT BAR	1
3804	CONVEYOR MOUNT BAR	1
3805	MAGAZINE SUPPORT FRONT	1
3806	BEARING MOUNT	1
3807	BEARING SPACER	2
9151.1	MAGAZINE FINGERS ROD END MOUNT	1
9152.2	MAGAZINE FINGERS AIR CYLINDER MOUNT	1
9389.1	LEAD SCREW SPROCKETS 5/8 DIA	1
9390.1	HANDWHEEL 6" WITH 5/8 DIA BORE	1
9586	CONVEYOR TAILSHAFT PULLEY	2
9603	CONVEYOR SLIDE MOUNTS	1
9605	CONVEYOR SLIDE BLOCK	2
9612.2	TOP SIDE PLATE SUPPORT	1
11110	ROD END 5/16 DIA FEMALE R.H.	2
11699	BUSHING, FLANGE	4
12028.2	HANDWHEEL MOUNT SHAFT	1
12029.1	TAPPED FLANGE BEARING	1
12030	CHAIN TENSIONER	1
12031	CHAIN TENSIONER NUT BLOCK	1
12032.1	ADJUSTABLE SCREW SPACER	1
12317	BEARING, CARTRIDGE 1"	2

EXTENDED PARTS LIST		
PART #	**DESCRIPTION**	**QTY**
12621	BEARING PB 1-1/8	2
12784	CONTACTOR - 120V	2
12785	CONTACTOR SURGE SUPPRESSOR	2
12902	CHAIN	25'
13043	CHAIN TENSIONER	2
13046	STACKER STOP	2
13052	WHEEL SHAFT	1
13294	SCREW BLOCK	1
13360	CHAIN OFFSET	2
13374	CHAIN, CONNECTOR LINKS	5
13535	CONTACTOR OVERLOAD 1.0-5.0A	1
13536	CONTACTOR OVERLOAD 3.2-16A	1
13788	CHAIN TENSIONER DISK	1
14604	HANDLE, ADJUSTABLE STUD TYPE	1
14643	WHEELS, V-GROOVED	2
14668	WHEELS, CASTER	2
14679	LATCH - ELECTRICAL ENCLOSURE	2
15603	TAPE, MYLAR R TO L	1
15604	TAPE, MYLAR L TO R	1
17660	ADJUSTABLE STOP	1
17665	MAGAZINE FINGER	1
17666	CONVEYOR BELT SLIDES	1
17667	CONVEYOR BELT SLIDES	1
17668	TAIL SHAFT	1
17669	TAIL SHAFT	2
17864.1	AIR CYLINDER GUARD	1
17865.1	AIR CYLINDER GUARD	1
17866	MAGAZINE SIDE PLATE	2
17867	MAGAZINE SIDE PLATE	1
17868	MAGAZINE SIDE PLATE	1
17869	MAGAZINE SIDE PLATE	2
17871	DISCHARGE BELT	2
17872	HOLD UP WHEELS	2
18204	GEARMOTOR	1
18866	MAIN DRIVE MOTOR SPROCKET	2
20471	CHAIN TENSIONER PLATE	2
20472	CHAIN TENSIONER SPACER	7
20475	BOTTOM CROSSMEMBER	2
20476	CONVEYOR MOUNT TUBE	2
20481	CROSS SHAFT	4
20483	STACKER GUIDE TRACK	1
21562	GROUND BAR MODIFIED 31075	2

EXTENDED PARTS LIST		
PART #	**DESCRIPTION**	**QTY**
24179	CROSS BRACE	2
24194	MAIN DRIVE DRIVEN SPROCKET	9
24197	GUARD NUT BLOCK	2
24198	CHAIN GUARD	2
24615	CHAIN GUARD	3
24616.1	MOTOR MOUNT	1
24617.1	HAND WHEEL SPROCKETS 5/8 DIA	1
24618	CONVEYOR BELT SUPPORT RIGHT SIDE	2
24619	CONVEYOR BELT SUPPORT LEFT SIDE	2
25738	BOTTOM CROSSMEMBER	4
28464.1	EYE MOUNT	5
30370	SWITCH, THUMBWHEEL	1
30371	SWITCH, THUMBWHEEL END PLATE	1
30372	SWITCH, THUMBWHEEL END PLATE	1
30380	DISCONNECT	1
30817	FUSE 1A	1
30946	FUSE 6A	2
30950	FUSE 4A	1
32036	PHOTO EYE	1
32483	MAGAZINE FINGERS AIR CYL MOUNT CLAMP PLATE	1
33675	TOP CROSSMEMBER	2
33677	MOUNT TAB	1
33678	TOP MOVABLE STOP MOUNT	1
34335	PLUG, DC CONTROL	1
34491	PLUG, POWER CORD 125/ 250 VAC 20 AMP	1
34492	RECEPTACLE 250VAC	1
34494	BOX COVER	1
34581	BACKSHELL CLAMP DC CONTROL	1
34627	PIN, DC CONTROL	2
35006	PHOTO EYE CORDSET	1
44281	INDICATOR, AMBER NEON	1
44626	PLC	1
45050	SWITCH PUSH BUTTON 1N.O.	1
45052	SWITCH SELECT 2 POSITION	1
80089	FITTING, AIR, MALE STRAIGHT, 1/4X1/8, W68PL-4-2	2
80092	FITTING, AIR, MALE ELBOW, 1/4X1/8, W169PLNS-4-2	2
80093	FITTING, AIR, ELBOW, 3/8 X 1/4 169PLNS-6-4	1
80094	FITTING, AIR, MALE RUN T SWIVEL, 1/4X1/8, W171PL-4-2	2
80456	FITTING, AIR, MALE STRAIGHT, 3/8X1/8, W68PL-6-2	1
80495	FITTING, AIR MALE ELBOW SWIVEL, 3/8X1/4, W169PL-6-4	1
82006	VALVE, FLOW CONTROL BIMBA, FCP-2	4
82150	SOLENOID 414A-AOA-DM-DJAJ-1JB	1

EXTENDED PARTS LIST		
PART #	**DESCRIPTION**	**QTY**
83136	CYLINDER, AIR BIMBA, C-092-DXP	2
84909	MUFFLER 1/8"	2
84912	FILTER REGULATOR LUBRICATOR COMBO W/GUAGE	1

DRAWINGS

Optimizer Shuttle Feed

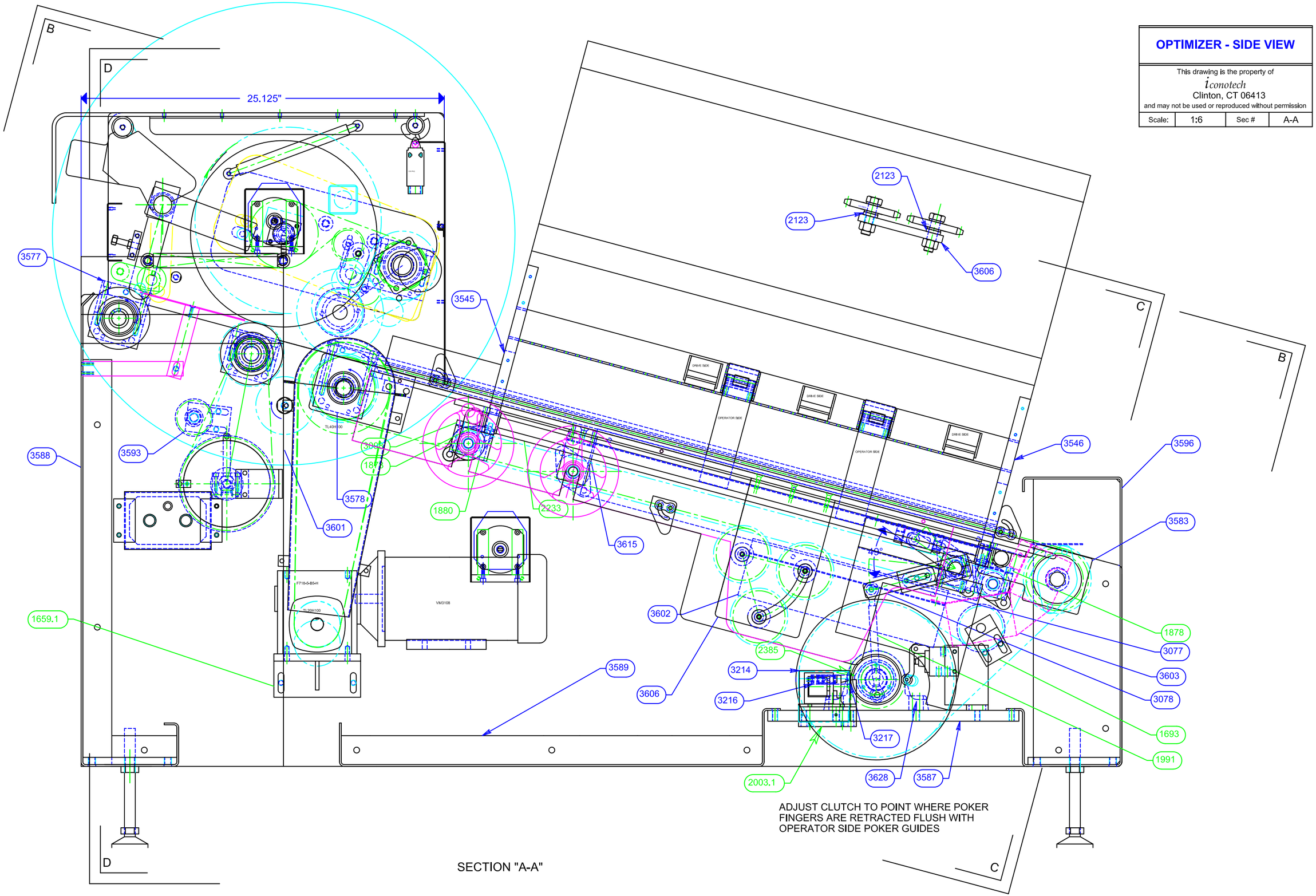
Side View, Section “A-A”
Top View, Section “B-B”
Front View, Section “C-C”
Rear View, Section “D-D”
Top Assembly – Main View
Top Assembly – Side View
Top Cover
Print Cylinder
Print Cylinder – Ink In/Out
Ink Pump Assy
Stencil Loading Device
Wrap Spring Clutch

Restacker

Rear View
Side View
Top View

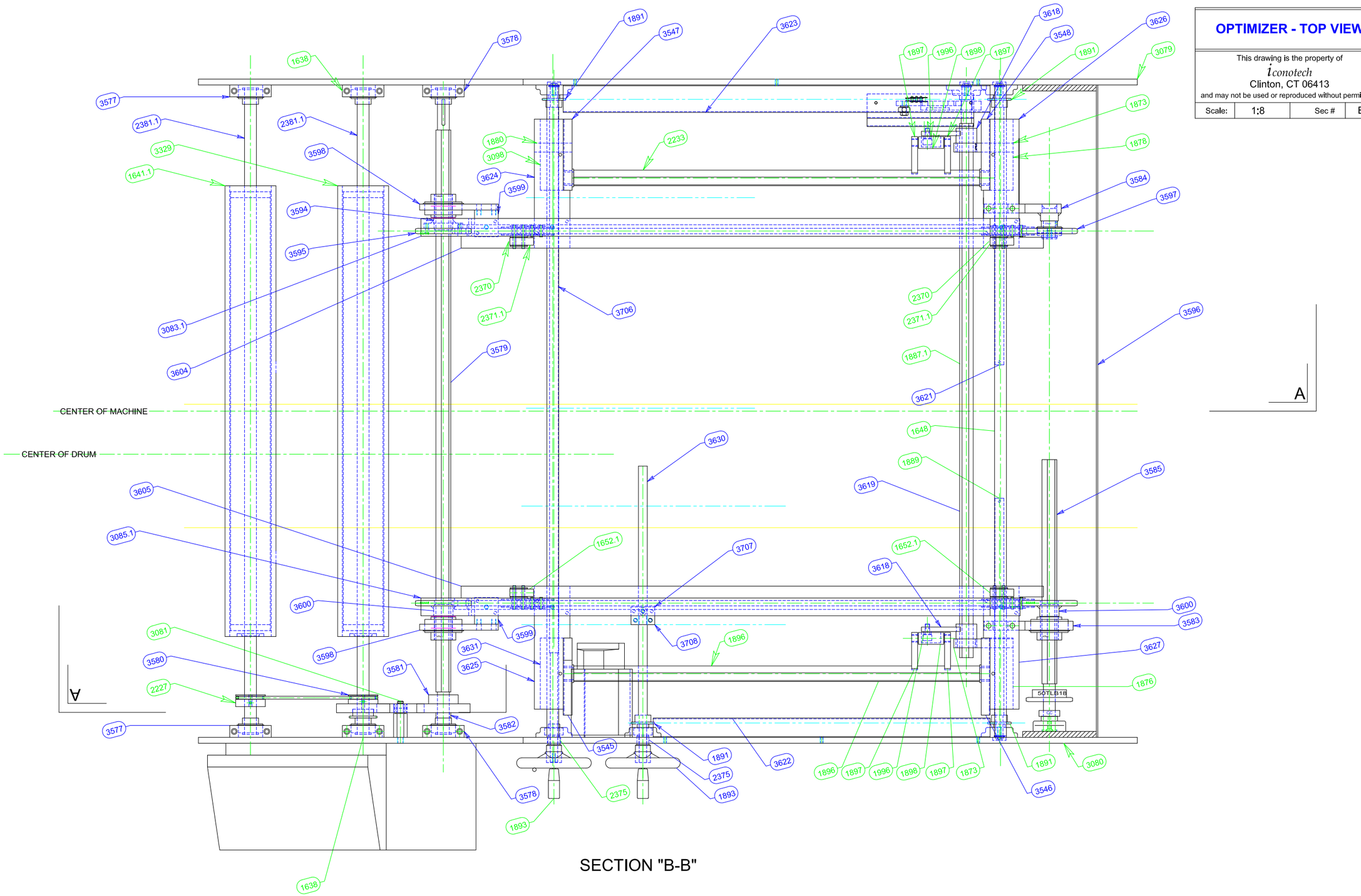
OPTIMIZER - SIDE VIEW

Scale:	1:6	Sec #	A-A



OPTIMIZER - TOP VIEW

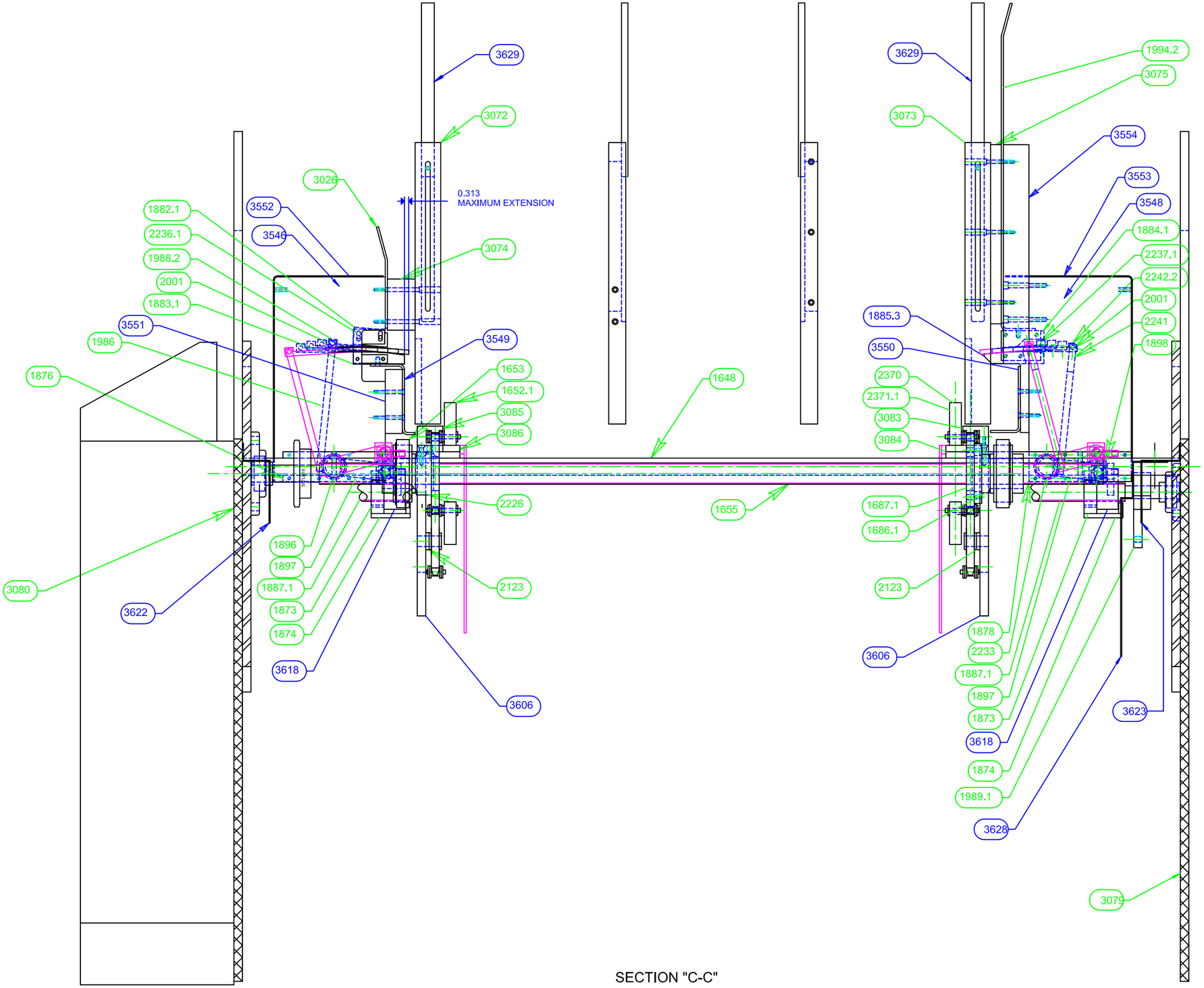
Scale:	1:8	Sec #	B-B



SECTION "B-B"

OPTIMIZER - FRONT VIEW

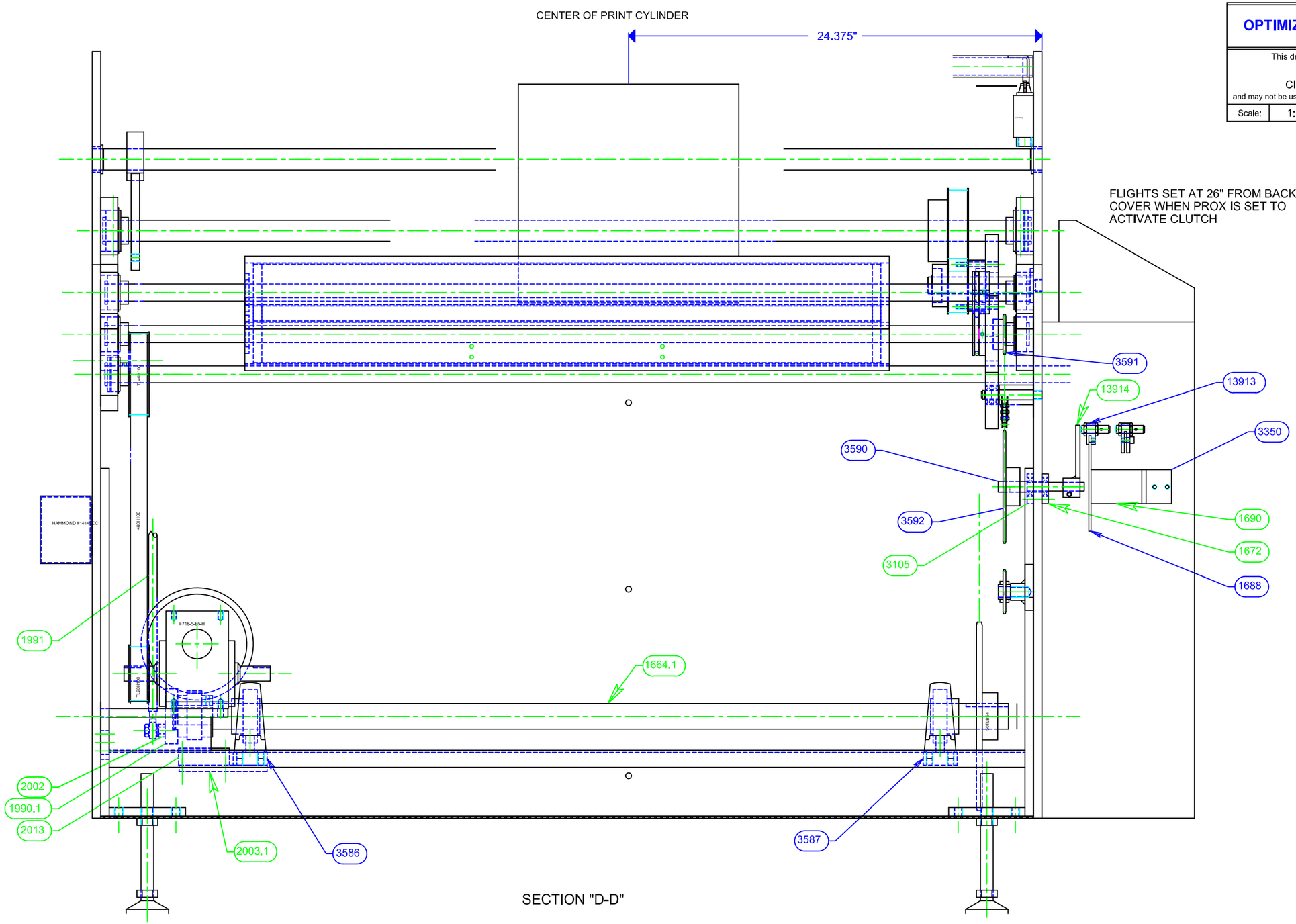
Scale:	1:6	Sec #	C-C



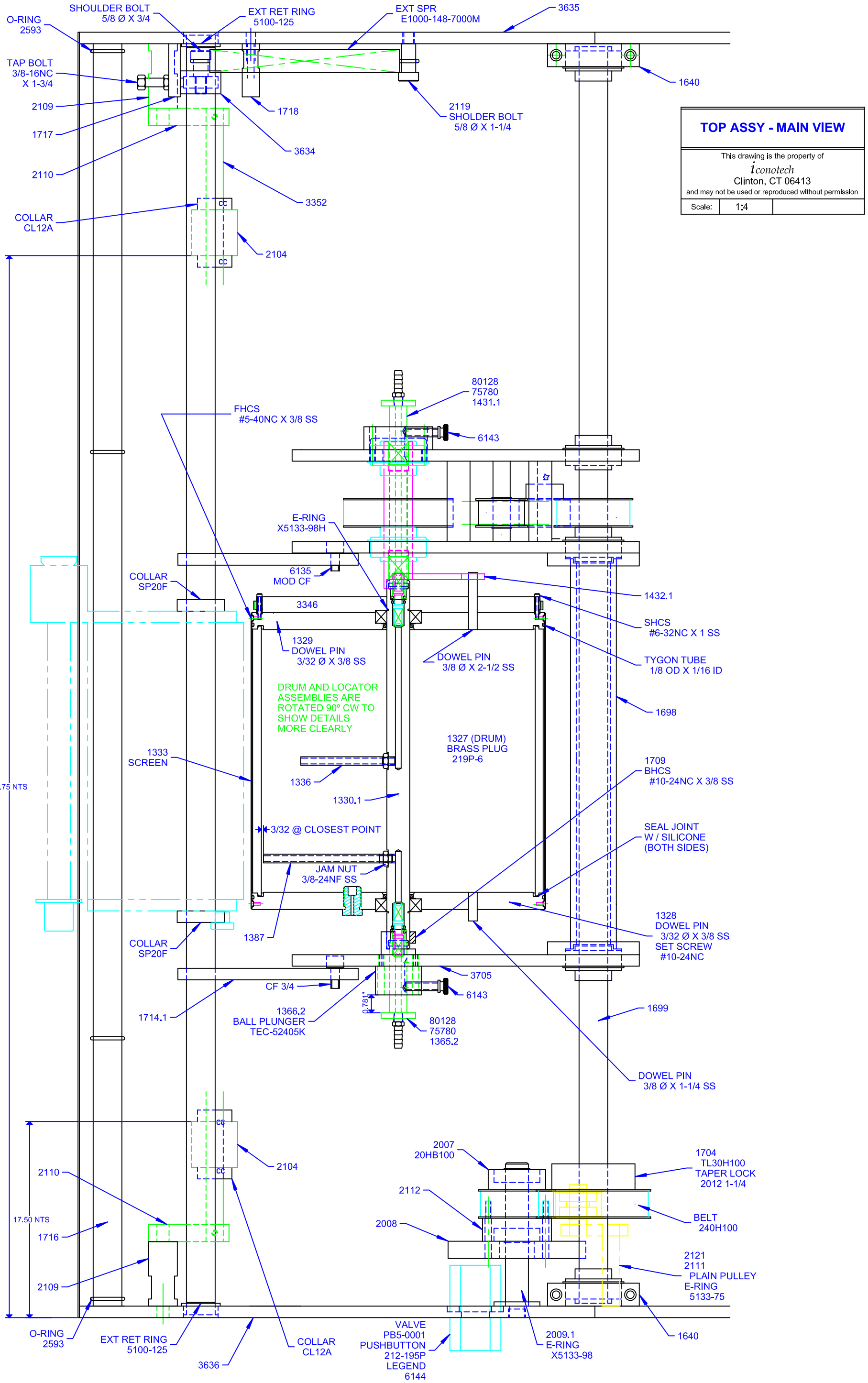
SECTION "C-C"

OPTIMIZER - REAR VIEW

Scale:	1:6	Sec #	D-D

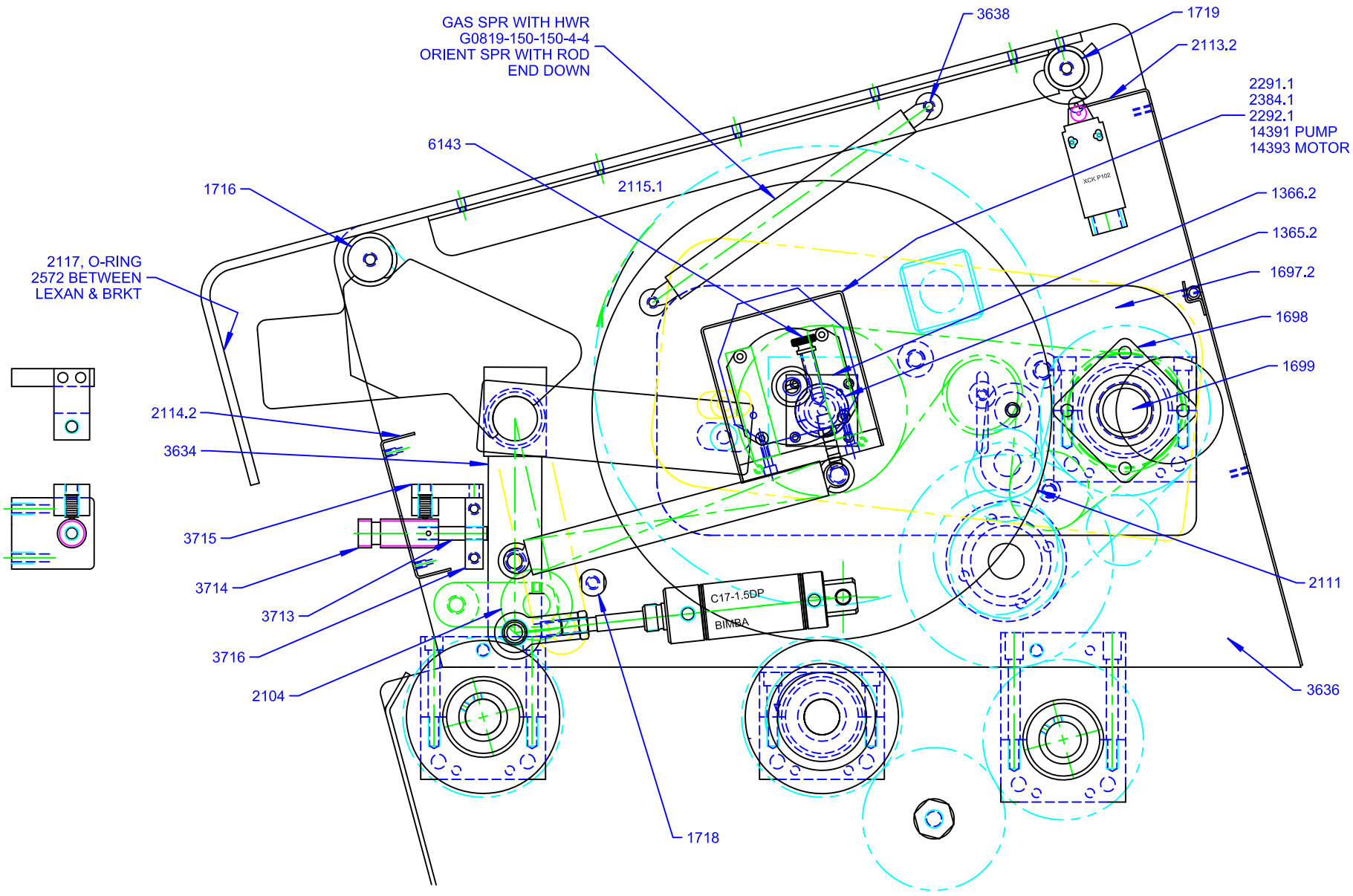


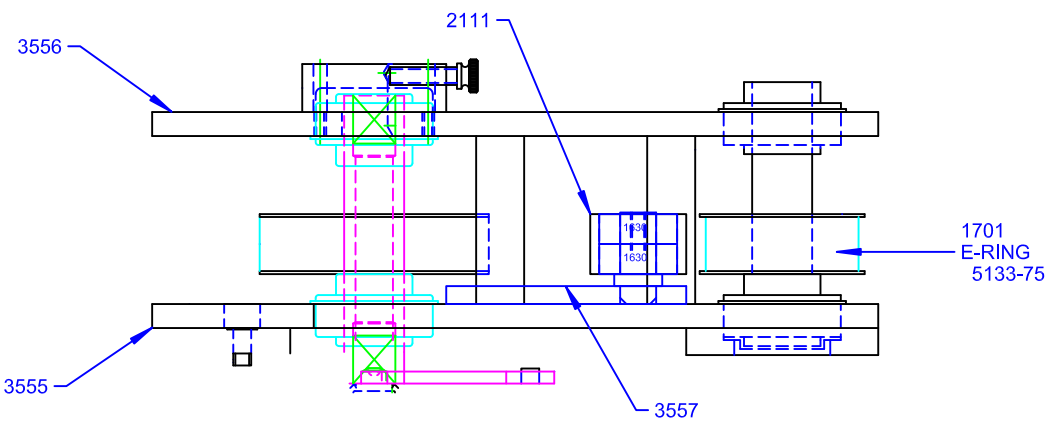
SECTION "D-D"

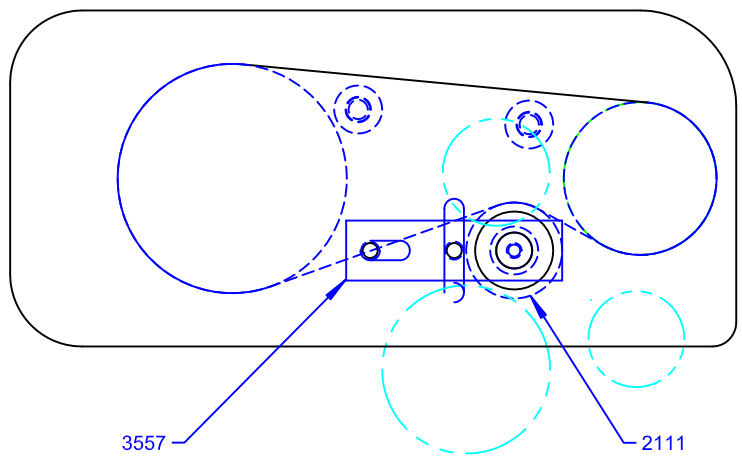


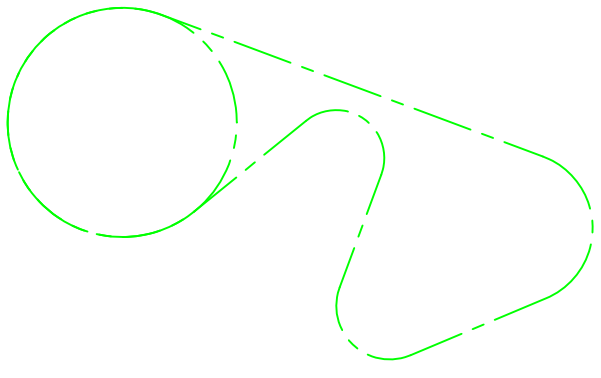
TOP ASSY - MAIN VIEW

Scale:	1:4	



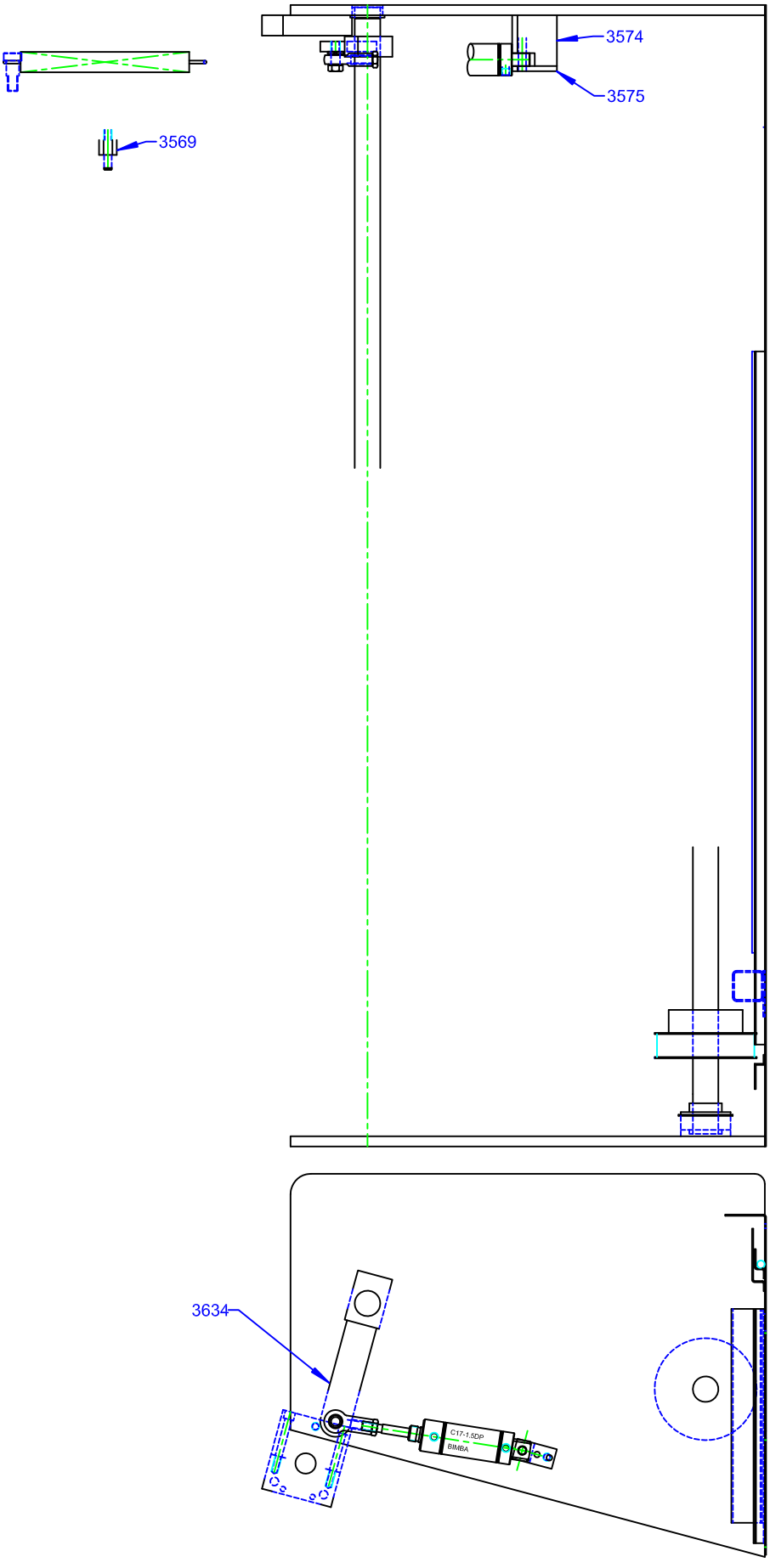






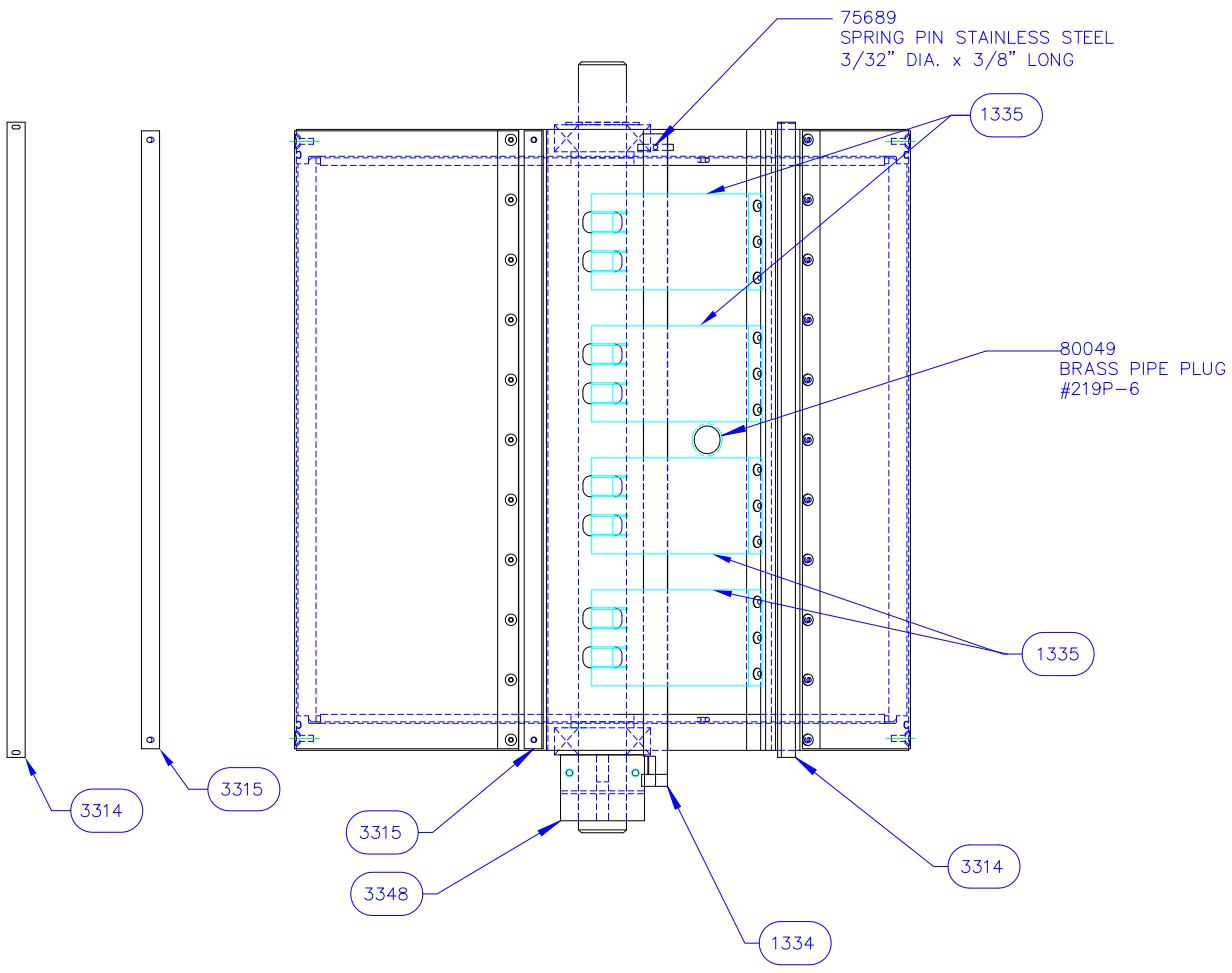
TOP ASSY - SIDE VIEW

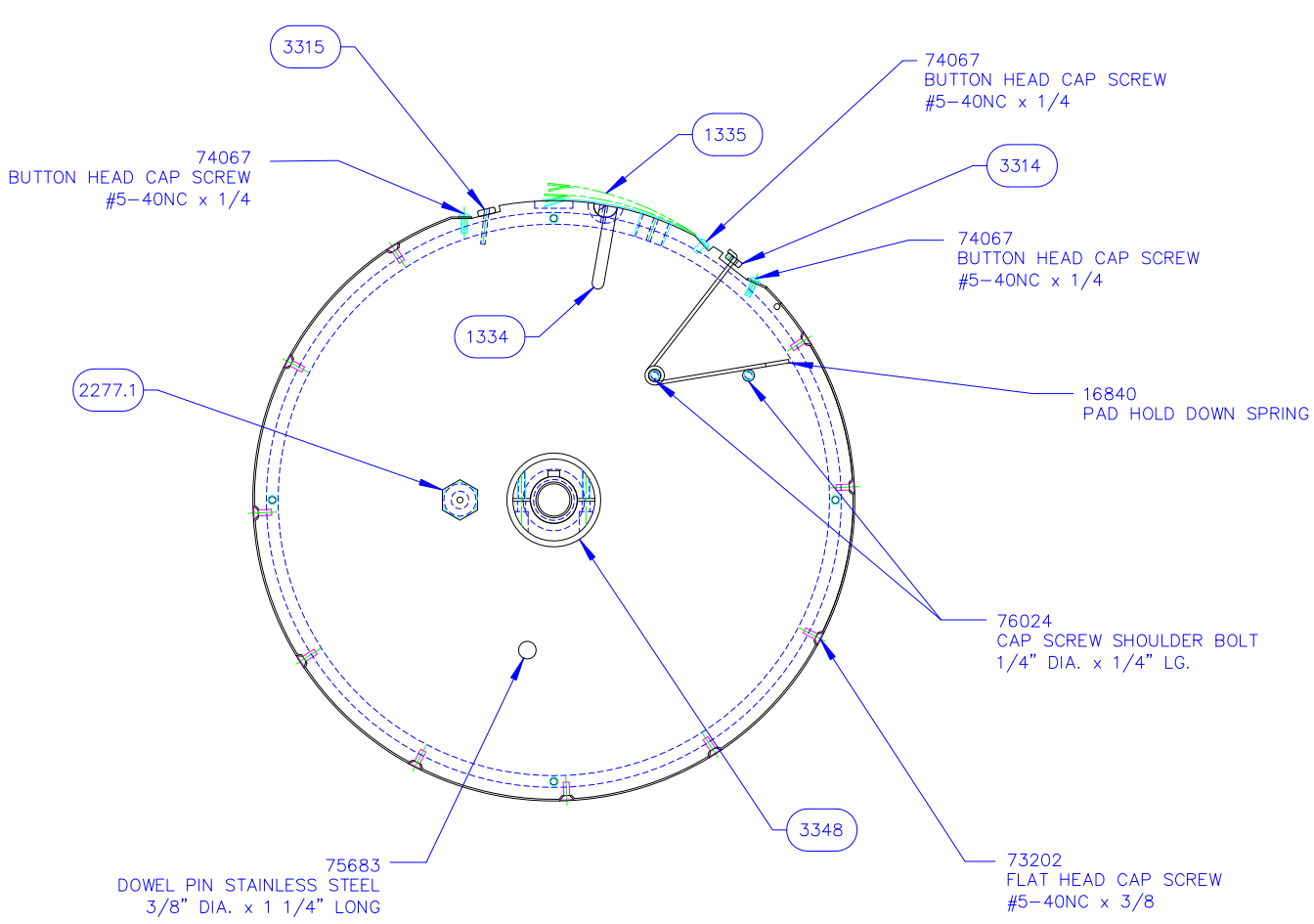
Scale:	1:4	

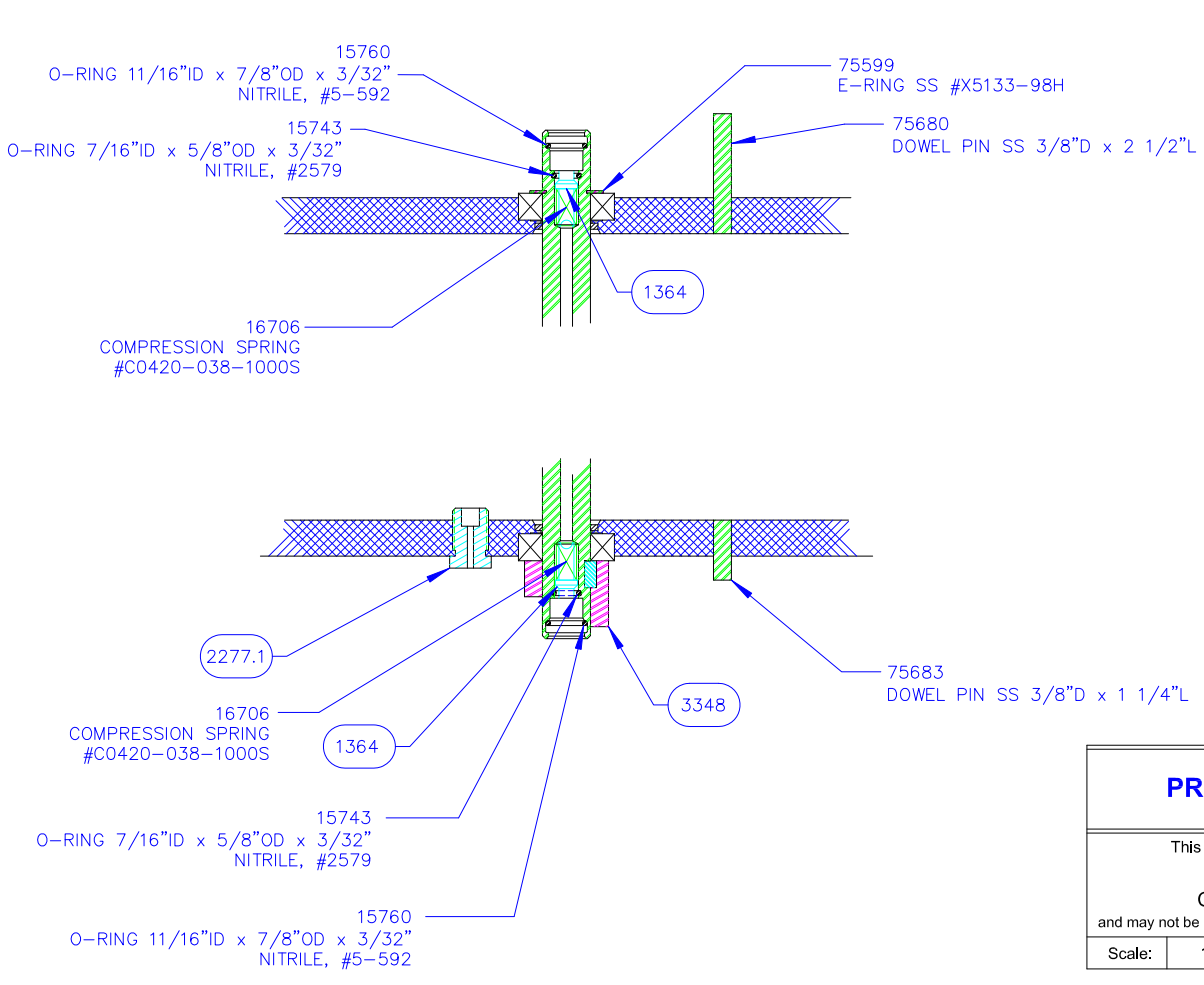


TOP COVER

Scale:	1:8	





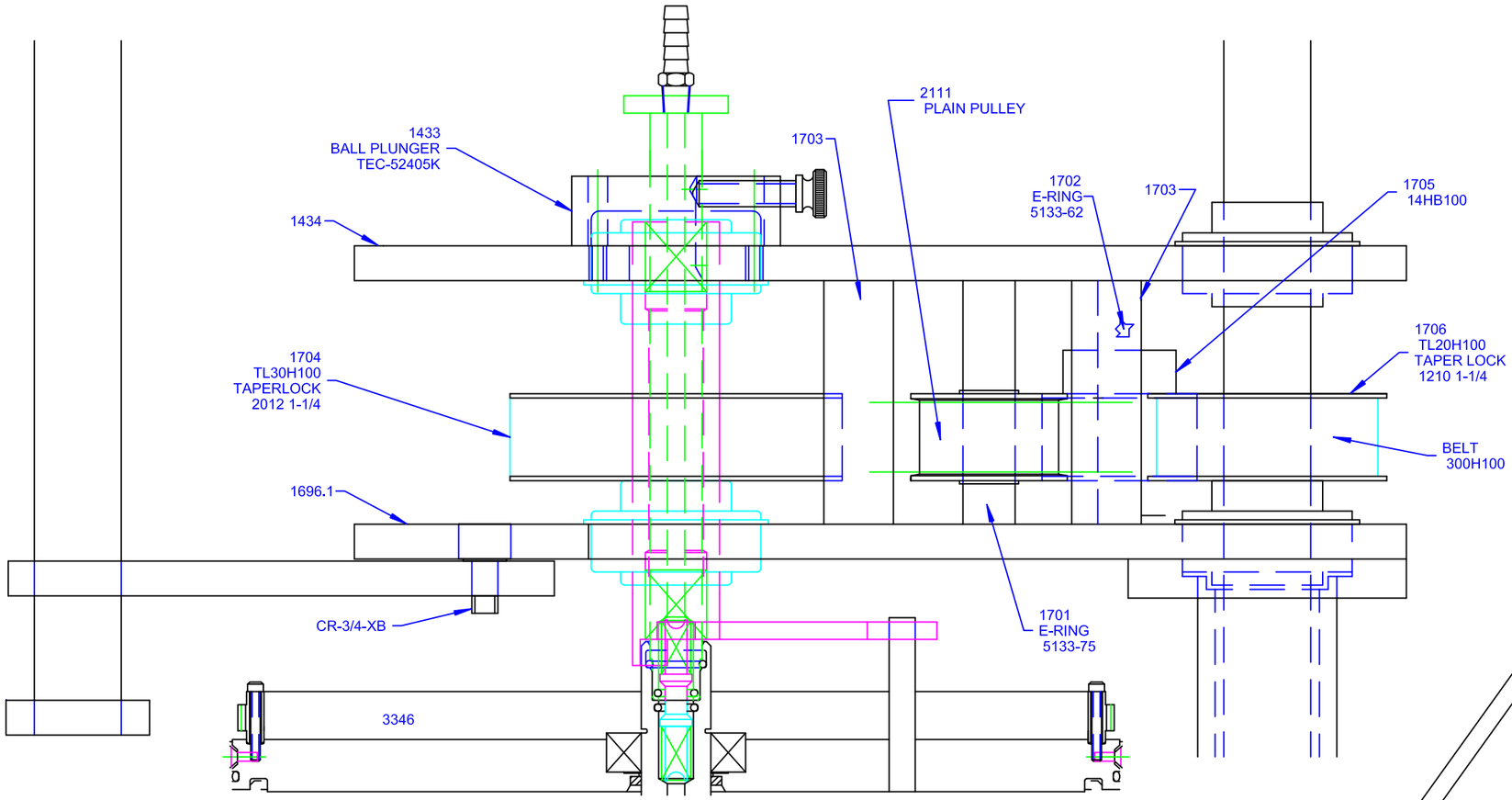


PRINT CYLINDER

Scale:	1:4	

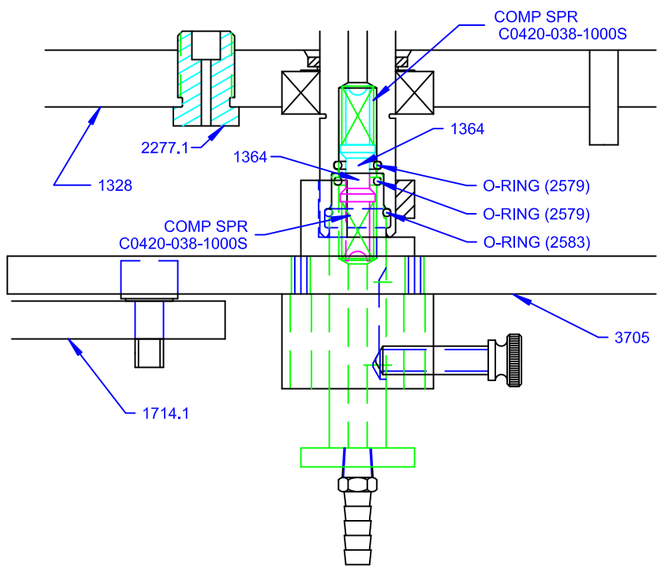
PRINT CYLINDER
INK IN/OUT CONNECTIONS

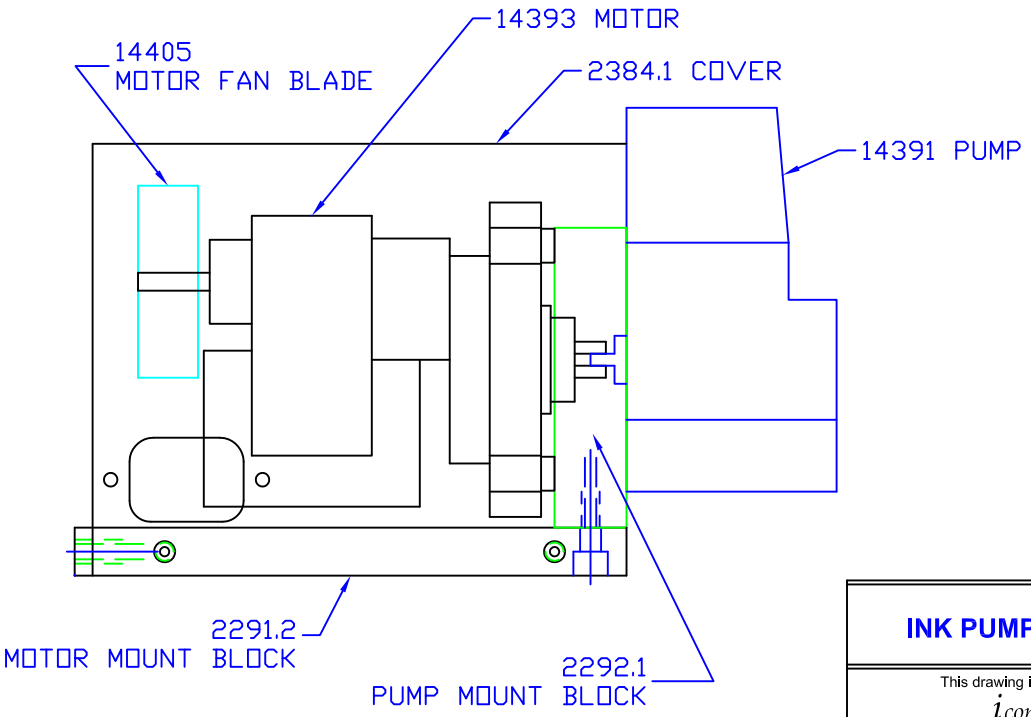
Scale:	1:2	



DRIVE SIDE

OPERATOR SIDE



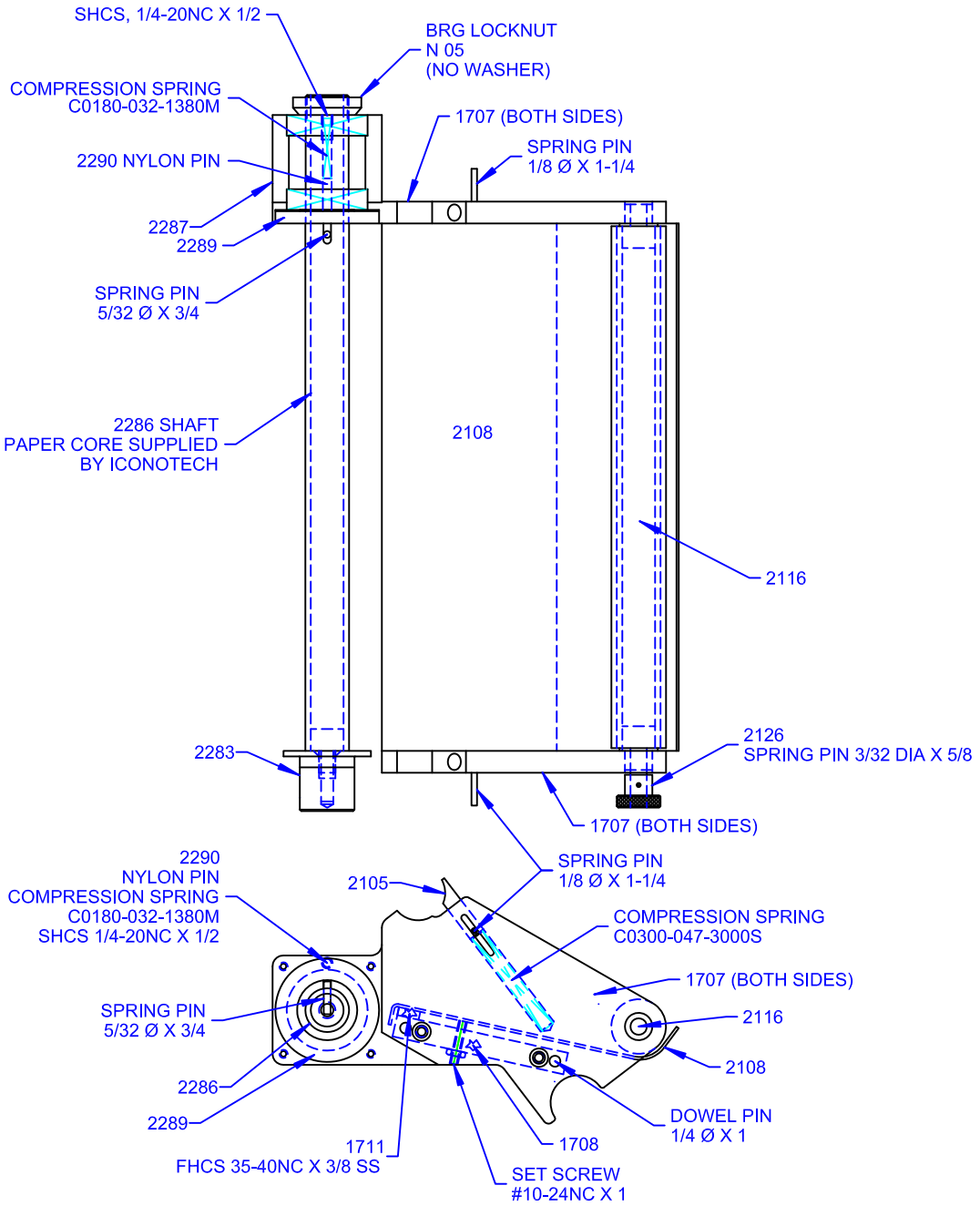


INK PUMP & MOTOR

Scale:	1:2	

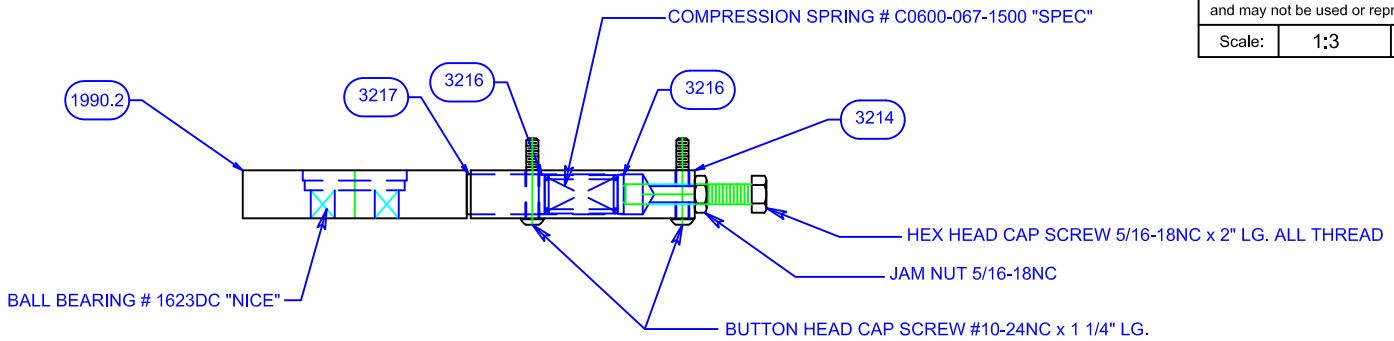
STENCIL LOADING ASSY

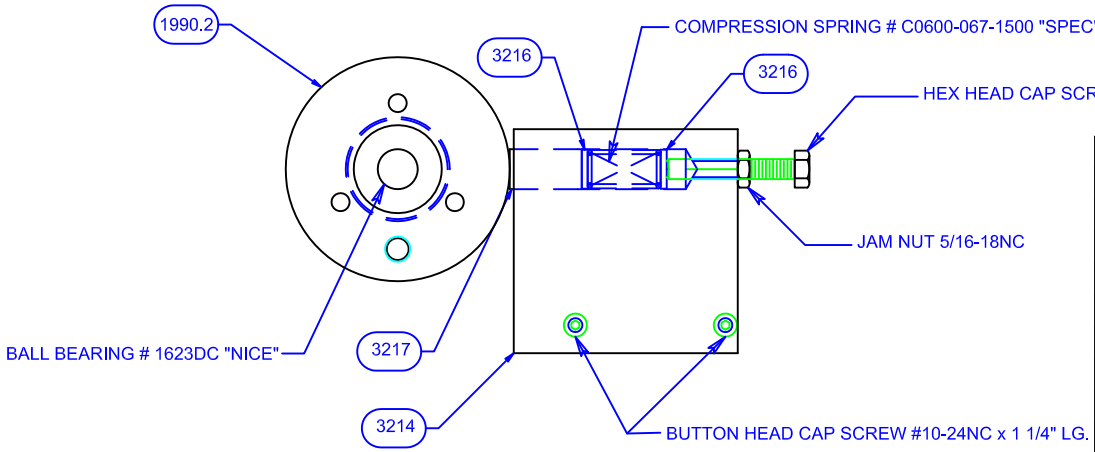
Scale:	1:4	



CLUTCH FRICTION BLOCK

Scale:	1:3	

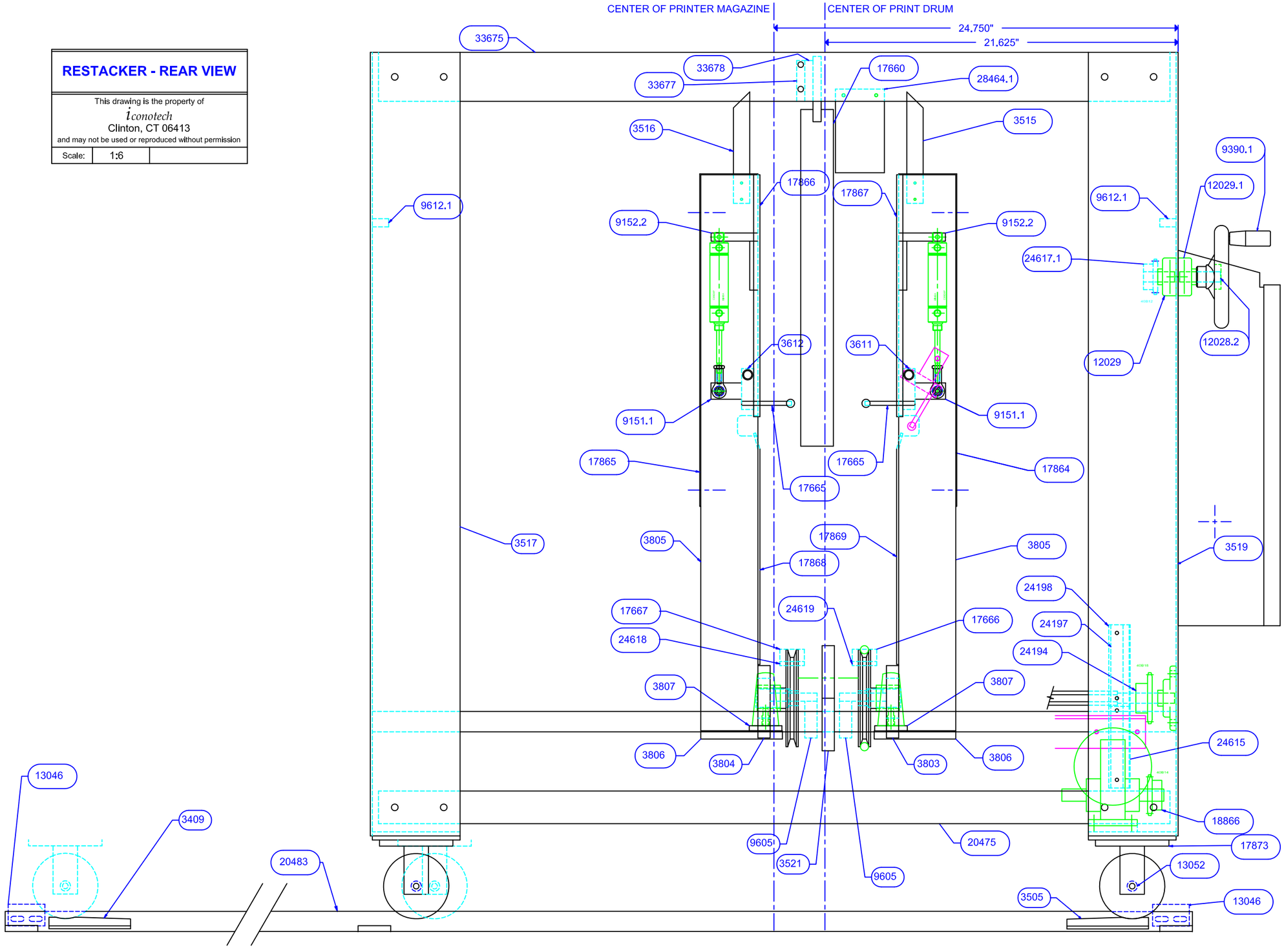


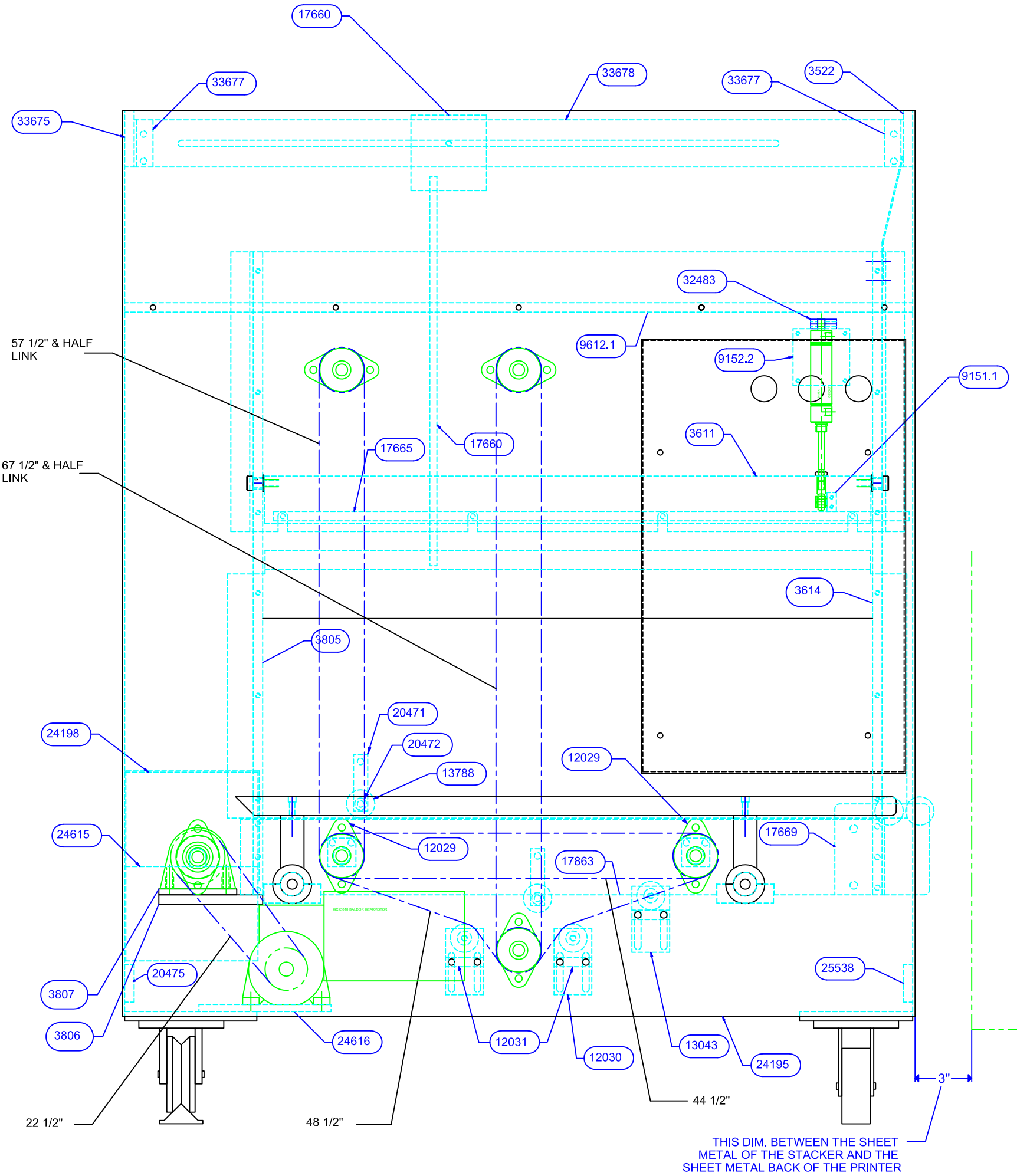


MATERIAL LIST:	
QTY:	DESCRIPTION:
2	BUTTON HEAD CAP SCREW #10-24NC x 1 1/4" LG.
1	JAM NUT 5/16-18NC
1	HEX HEAD CAP SCREW 5/16-18NC x 2" LG. ALL THREAD
1	COMPRESSION SPRING # C0600-067-1500 "SPEC"
1	BALL BEARING # 1623DC "NICE"
1	#3217 FRICTION BLOCK WEAR BLOCK
2	#3216 FRICTION BLOCK WASHER
1	#3214 FRICTION BLOCK
1	#1990.2 WRAP SPRING CLUTCH FACE PLATE

RESTACKER - REAR VIEW

Scale:	1:6	





RESTACKER - SIDE VIEW

Scale:	1:6	

RESTACKER - TOP VIEW

Scale: 1:6