

OPERATORS MANUAL FOR AGL6400



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Table of Contents

Preface- General Description**Chapter 1 Installation**

Selecting Area.....	1-1
Uncrating.....	1-1
Leveling.....	1-1
Electrical Connection.....	1-2
Pneumatic Connection.....	1-2
Recycling Packaging.....	1-2

Chapter 2 Specifications

Machine Dimensions.....	2-1
Electrical Requirements.....	2-1
Pneumatic Requirements.....	2-1
Material Capacity.....	2-1

Chapter 3 Safety

General Machine Safety.....	3-1
Operator Safety.....	3-1

Chapter 4 Operation

General.....	4-1
Right Hand Control Panel, Figure 1.....	4-2
Left Hand Control Panel, Figure 2.....	4-3
Rear Control Panel, Figure 3.....	4-4
Temperature Controls.....	4-4
Laminator Setup.....	4-5
Loading and Positioning Film.....	4-5
Web the Laminator.....	4-5
Encapsulation Process.....	4-6
Pressure Sensitive Process.....	4-7
Two Pass Vinyl Transfer and Lamination.....	4-8
Pressure Sensitive Process (Reverse).....	4-8
Process Output Trouble Shooting.....	4-9
Process Control Chart.....	4-11
PLI Chart.....	4-12

Chapter 5 Maintenance

Nip Roll Section.....	5-1
Checking the Nip.....	5-1
Zeroing the Nip.....	5-1
Cleaning the Nip Rolls.....	5-1
Roller Open and Close Rate.....	5-2
Lubrication.....	5-2
Electrical Schematic.....	5-3
Pneumatic Schematic.....	5-4

Chapter 6 Warranty

Limited Warranty.....	6-1
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Preface

Your Advanced Greig Laminators, Inc. (AGL) laminator is a finely engineered and designed piece of equipment.

Standard equipment includes a 1/2 HP DC drive (variable and reversible), air operated brake and clutch, plus an air-operated laminating section with easily adjustable spacer system for controlled laminating nip opening.

The nip rolls are the heart and soul of the laminator. To insure a quality end product, the rolls are rigid enough to carry their weight, plus the working pressures against them without deflecting. The covering is ground straight and concentric to the bearing journals to insure a constant uniform opening at the laminating nip between the top and bottom roll. The power transmission from the drive motor to the bottom laminating roll and the release liner windup clutch is with chain. The laminating nip section is protected with an electric photo-cell and safety cable system.

The AGL design has a rigidly constructed steel frame. All parts are machined to prints, ensuring complete interchangeability of all parts, manufactured or purchased. Adjustable air pressure to the laminating nip section and brake and clutch tension is supplied via your regulated plant air supply

Selecting Area

Select an area that has a smooth, level surface for the laminator to set on, this will allow for easier maneuverability of the machine if it requires moving later on. The area should be large enough to allow an operator ample room to properly handle your largest product on the infeed and outfeed sides of the laminator. The sides of the laminator should also be easily accessible in case service or maintenance is required. AGL approximates this area should be about 7-8 feet in front and back of the machine and 3-4 feet on either end. This is only a suggestion, your plant and the products to be laminated will be the determining factor.

Uncrating

Your new laminator may come in a full crate. The crate is designed to be usable for future shipping if required, so careful disassembly of the crate is important if the crate is to be reused. The crate is held together by screws (Phillips head) a power screwdriver with a Phillips bit is recommended but not required for uncrating. First, remove the top of the crate, keep the screws for future use on the crate. Next, remove the front of the crate (it is recommended that two people disassemble the crate, so one person can hold the panels while the other removes the screws). Move around the crate and remove the remaining panels. Remove the bolts holding the laminator down to the skid. A fork truck can now lift the laminator off the skid (it is possible to get the laminator out of the crate after removing only the top and front and the hold down bolts). With the laminator on the fork truck, thread the adjusting bolts into the lower cross bar, make sure that the bolt heads are about ½" above the caster. Lower the machine down onto the casters. With 3-4 people to guide the machine, roll the machine into the final position.



CAUTION

The laminator is a large heavy piece of equipment. Do not attempt to move the machine with one person. Injury is possible as well as permanent damage to the laminator. The laminator should only be rolled on a relatively smooth and level surface. Tipping or forcing the machine over large bumps can destroy the alignment of the rolls, idlers, and unwind/windup shafts. This alignment is required for proper lamination. Advanced Grieg Laminators, Inc.'s warranty does not cover malfunction of the machine due to improper handling of the machine during installation.

Turn the leveling bolts down until they touch the floor. Remove the shrink wrap, bands, and protective coverings from the rolls.



CAUTION

Do Not use a knife or other sharp object to remove the shrink wrap from the laminator and the protective coverings from the rolls. This can cause irreparable damage to the laminator enclosures and rolls.

Leveling

The laminator has been trammed and burned in at the factory, but to insure the alignment of the machine it must be leveled in its final position. To level the machine, set a level on the upper front unwind/windup shaft. Turn the front leveling bolts until the bubble shows that the shaft is level. Repeat this procedure on the upper rear unwind/windup shaft. Next place the level across the upper unwind/windup shafts (front to rear) and adjust the leveling bolts to achieve a level reading. Repeat this procedure on the other end of the machine. Be sure to check the left to right level as it may have shifted when leveling from front to back. Repeat the previous procedures until you have a level reading at all four places. Tighten the jam nuts on the leveling bolts up tight against the lower cross bar to lock the bolts in place.



CAUTION

Do Not lift the casters more than ½" off the floor. This will cause the machine to be unstable.

Electrical Connection

Refer to the **Electrical Requirements** under Specifications for the proper requirements for your laminator. All connections to components and terminal blocks should be checked for tightness before initial startup. This will help avoid and electrical problems caused by connections that may have loosened due to vibration during shipping. A readily accessible disconnect device shall be incorporated into the fixed wiring circuit. The switch on the laminator is not considered a disconnect device. Consult a qualified, licensed electrician to ensure that the power supply for the machine is properly installed in your facility. Qualified personnel can remove the RH enclosure cover to allow access to the terminal strip and grounding lug. Advanced Grieg Laminators, Inc. will not be responsible for damage caused by incorrect electrical installation.

Pneumatic Connection

Refer to the Pneumatic Requirements under Specifications for the proper requirements for your laminator. The air supply should be clean, dry, and regulated. Failure to properly clean and dry the air supplied to the laminator will cause damage to the cylinders, brakes, and clutches. The laminator is supplied with a 1/4npt port for your final connection.



CAUTION

The air supply to the laminator must be clean and dry. Particles and moisture can damage the cylinders, brakes and clutches.

Recycling Packaging

If your machine came in a fully enclosed crate, the crate can be stored flat for future use or dismantled and the wood can be recycled. The screws can be kept for future use of the crates or stored for some other use. The shrink wrap is not recyclable and should be thrown away. The foam protective coverings over the rolls can be recycled to be used for other shipping purposes.

Machine Dimensions

Width: 89"
Height: 58"
Depth: 53"
Weight: 2800 lbs.

Electrical Requirements

220/230 VAC single phase, 50/60 Hz, 60 Amp service.

Pneumatic Requirements

Approximately 2-3 cfm at 90 psi line pressure supplied via your cleaned/dried/regulated plant air.

Material Capacity

Upper Front Station:	10" Diameter x 56 long x 3" Diameter core. (Thermal) 10" Diameter x 63 long x 3" Diameter core. (Pressure Sensitive)
Lower Front Station:	10" Diameter x 56 long x 3" Diameter core. (Thermal) 10" Diameter x 63 long x 3" Diameter core. (Pressure Sensitive)
Upper Rear Station:	10" Diameter x 56 long x 3" Diameter core. (Thermal) 10" Diameter x 63 long x 3" Diameter core. (Pressure Sensitive)
Lower Rear Station:	10" Diameter x 56 long x 3" Diameter core. (Thermal) 10" Diameter x 63 long x 3" Diameter core. (Pressure Sensitive)
Middle Front Station:	8" Diameter x 56 long x 3" Diameter core. (Thermal) 8" Diameter x 63 long x 3" Diameter core. (Pressure Sensitive)

IMPORTANT

READ THIS SECTION BEFORE OPERATING YOUR LAMINATOR

General Machine Safety

The following messages are written here for your safety, all operators and others around the laminator should read, understand and follow these messages.

1. Read and understand all the safety instructions.
2. Keep this manual in a place where it can be easily referenced by all operators.
3. **All connections to components and terminal blocks should be checked for tightness before initial startup. This will help avoid and electrical problems caused by connections that may have loosened due to vibration during shipping.**
4. Use only the recommended power source to run the laminator. Consult a qualified and licensed electrician if you are unsure of the power supply and the safety features of the supply.
5. If power supply cord is run across the floor, provide adequate protection to the cord to avoid damage from foot traffic, dropped items or rolling items.
6. Do not attempt to service the laminator without qualified personnel available. Damage to the machine or injury to you could be caused by moving parts or high voltage.
7. Do not operate the laminator with out all guards in place. If a guard is damaged or not working properly, replace or repair before returning the machine to operation. If the machine is run without all guards in place the safety obligation of the manufacturer is null and void.
8. Do not insert fingers, hands, or items into openings in the sideframes. Items may become entangled in moving parts or in contact with high voltage.
9. Disconnect or lockout power from machine when any service is required and when cleaning the nip rolls.
10. Disconnect or lockout power from the machine and refer to service personnel if the performance of the machine changes indicating a problem or if machine does not operate normally to correct operational procedures.

Operator Safety

Your laminator is designed to protect the operator from injury when used properly. Do not operate the machine without all guards and protection devices in place, serious injury could occur.



WARNING

The nip section can pull you into laminator! Do not place fingers into the nip section when the rolls are rotating. It is recommended that operators tie long hair back and not wear neckties, loose clothing and jewelry since they can be caught in the nip section and pull the operator into the machine. Proper equipment such as gloves should be used if the material being laminated requires it. The nip rolls will lower if there is a loss of air pressure.

The nip section is protected by a photoelectric eye that shoots a light beam across the machine in front of the nip rolls. When the machine is in continuous run mode, the rolls will stop when the beam is broken by an item too close to the nip section. However, if the machine is in jog mode, an alarm will sound warning the operator that he/she is very close to the nip section, but the rolls will not stop rotating. The jog mode is useful for starting prints into the laminator and smoothing the print corners out as they enter the nip section, but this mode should be used as sparingly as possible since it puts the operator at a greater risk than the run mode.



CAUTION

When the machine is in jog mode, an alarm will sound to warn the operator but the rolls will not stop rotating when the light beam is broken. Use this mode sparingly and with respect.

There are E-stop switches on all four corners of the machine, as well as an E-stop cable in front and back. The machine will stop and the nip section will open if any of these switches are tripped. Striking the red mushroom heads on the switches with your palm can activate the four switches. The cables can be tripped by using your foot and pressing on the cable. The machine must be reset after an E-stop condition has occurred. Refer to the **Operation** section for further details.

General

1. Power: A switch in the lower right rear switches the main power on and off. The switch is labeled clearly so the operator can tell if the power is on or off.
2. Reset: A reset button is used to start the machine initially and restart the machine after an E-stop condition has occurred. After the power is turned on, the reset button is held for 15 seconds to allow the machines electrical controls to reset to initial settings.
3. Speed: A potentiometer is used to control the speed that the laminator will run product through. Your laminator has the electrical and mechanical capability to run up to 20 feet per minute, but the quality of the product output is the governing factor in maximum process speed.
4. E-stops: E-stop switches are located at all four corners to allow the operator to stop the machine and open the nip rolls and pull rolls in case of emergency. The button must be pulled back out before pressing the reset button to restart the machine.
5. Nip Rolls: The nip rolls are the heart and soul of the laminator and must be cared for properly in order to give years of quality product output. Always dial the shim wheel to a shim setting greater than "0" when the machine is not in use. This will prevent the rolls from forming a flat spot from resting against each other. This also applies to the pull rolls.



CAUTION

Always set the shim wheel to a setting greater than "0" when the machine is not in use. This will prevent the roll from coming together and forming a flat spot. Permanent damage can be caused to the rolls if this warning is not heeded.

6. Fwd/Rev: This button is a lighted button that will determine which direction the machine will run. If the button is not lit, the machine will run from front to back. If the button is lit, the machine will run from back to front.
7. Stop: This button will stop the rotation of the nip rolls.
8. Run: This button will allow the machine to run continuously in the direction depicted by the Fwd/Rev button and at the speed set by the potentiometer.
9. Foot Switch: The foot switch will run the laminator in the direction depicted by the Fwd/Rev button and at the speed set by the potentiometer. The foot switch is always active, this allows an operator to press the foot switch to get a print started and then press the Run button to transfer to the continuous run mode without stopping.
10. Temperature Control with switch: The two position switch allows the operator to turn the heater in the roll on or off. The temperature controller allows the operator to set a desired temperature for a process.

Right Hand Control Panel

The right hand control panel looks like the figure below.

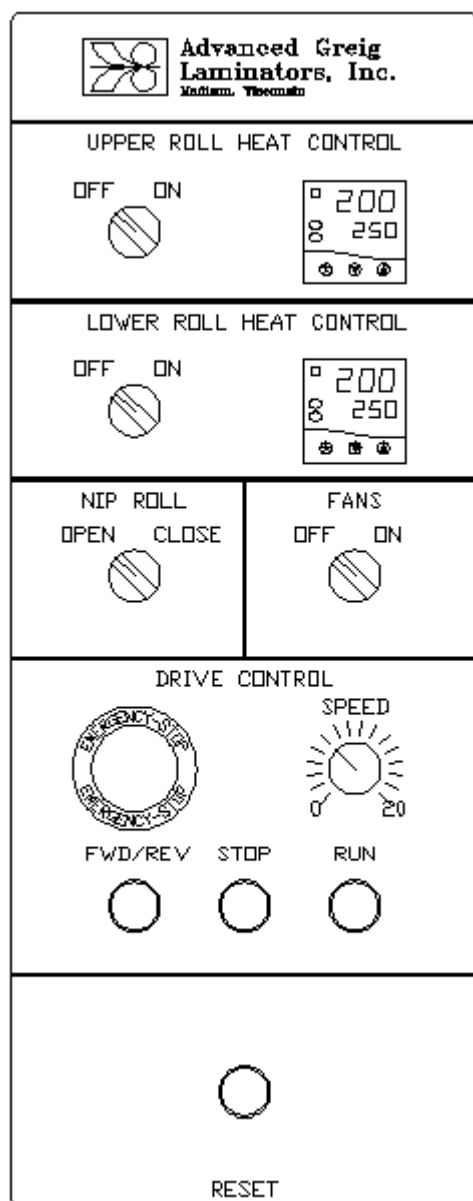


Figure 1 Right Hand Control Panel

Upper Roll Heater Controls:

Two position switch turns heater for upper roll on and off. The temperature controller allows the operator to set a desired temperature for the process. The controller will maintain that temperature during the process.

Lower Roll Heater Controls:

Two position switch turns heater for upper roll on and off. The temperature controller allows the operator to set a desired temperature for the process. The controller will maintain that temperature during the process.

Nip Roll Switch:

This switch will open and close the nip rolls.

Fans Switch:

This switch turns the web cooling system on and off for web cooling during thermal lamination.

Drive Control:

E-Stop switch will stop the laminator and open the rolls.

Speed Pot sets the laminators speed. 0-20 FPM

FWD/REV button toggles the drive between forward and reverse. If the button is lit the machine is in reverse mode.

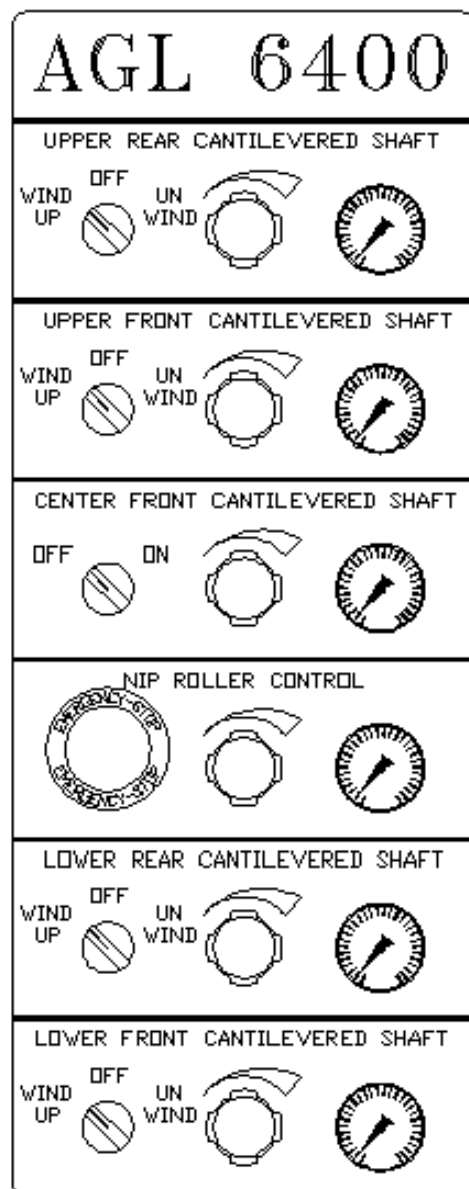
STOP button stops the drive from turning thus stopping the rolls.

RUN button switches the laminator from jog mode to run mode.

Reset button resets the machine after an E-stop condition or at initial startup. Hold button for 15 seconds after turning main power switch on.

Left Hand Control Panel

The left hand control panel looks like the figure below.



Upper Rear Cantilevered Shaft:

The 3 position switch changes the station between a windup and unwind. The regulator adjusts the air pressure to the brake-clutch changing the web tension. The gauge indicates air pressure which allows for repeatable results.

Upper Front Cantilevered Shaft:

The 3 position switch changes the station between a windup and unwind. The regulator adjusts the air pressure to the brake/clutch changing the web tension. The gauge indicates air pressure which allows for repeatable results.

Center Front Cantilevered Shaft:

The 2 position switch changes the station between off and on. This station is unwind only. The regulator adjusts the air pressure to the brake changing the web tension. The gauge indicates air pressure which allows for repeatable results.

Nip Roller Control:

The open/close switch is found on the RH panel, but the regulator adjusts the air pressure to the cylinders and the gauge indicates air pressure. An E-stop switch is located here for easy access to the operator.

Lower Rear Cantilevered Shaft:

The 3 position switch changes the station between a windup and unwind. The regulator adjusts the air pressure to the brake/clutch changing the web tension. The gauge indicates air pressure which allows for repeatable results.

Lower Front Cantilevered Shaft:

The 3 position switch changes the station between a windup and unwind. The regulator adjusts the air pressure to the brake/clutch changing the web tension. The gauge indicates air pressure which allows for repeatable results.

Figure 2. Left Hand Control Panel

Rear Control Panel

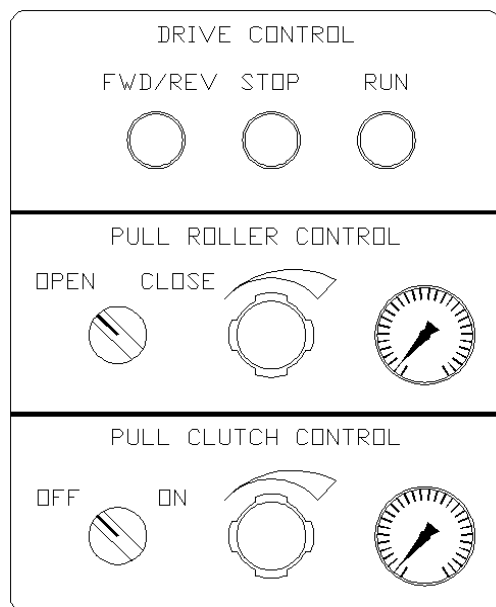


Figure 3. Rear Control Panel

Drive Control:

FWD/REV button toggles the drive between forward and reverse. If the button is lit the machine is in reverse mode.

STOP button stops the drive from turning thus stopping the rolls.

RUN button switches the laminator from jog mode to run mode.

Pull Roller Control:

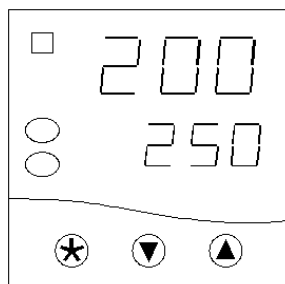
A 2 position switch open and closes the pull rolls. The regulator adjusts the air pressure to the cylinders and the gauge indicates air pressure which allows for repeatable results.

Pull Clutch Control:

The switch turns the clutch on and off. The regulator adjusts air pressure to the clutch changing the amount of pull the rollers exert on the web. The gauge indicates air pressure which allows for repeatable results.

Temperature Controls

Your laminator has heated rolls that allow you to laminate with thermal films and pressure sensitive films that require heat to activate the adhesive. The temperature controls have a maximum temperature set at the factory. The operator cannot set the temperature above this point. The controllers are also set up with an over temp alarm. If there is a failure and the heater coils heat out of control, the temperature controller will create an e-stop condition.



The temperature controller looks like the graphic shown at the left. The operator only needs to press and hold the **asterisk** key then press the **up arrow** key to raise the "Set Point Temperature" or the **down arrow** to lower the "Set Point Temperature". The square green LED in the upper left will stay on initially as heater comes up to temperature and flash as the controller pulses electricity to maintain the heat in the rolls. The top alarm LED will flash on if the rolls exceed the upper temperature limit set at the factory and then the machine will go into an E-stop condition. The rolls must be allowed to cool down before restarting machine. The machine can be restarted by pressing and holding the Reset button for 15 seconds. If the machine fails again in the

same manner, the laminator should be serviced by qualified personnel.

Laminator Setup

Your laminator has been designed to make the setup and lamination process as easy and repeatable as possible, however, there will be techniques that make this phase easier that you will only learn by using the machine. Do not get frustrated if the setup process takes longer than you expected, the process will get quicker and easier the more you use your laminator.

The set up process is comprised of the following steps:

1. Loading and positioning the film.
2. Webbing the laminator.
3. Setting the process controls to initial settings.
4. Warm up time (if required by process)

Loading and Positioning the Film

1. Determine the way the film is wound, adhesive inside or outside. This will determine the way it is placed on the unwind shaft. If the adhesive is wound to the inside, the web will be pulled from the bottom of the supply roll. The web path configuration figures show the film in this configuration.
2. Rotate the shaft so that it can be removed from the coupling. Press and hold the button to slide the collar back from the end of the shaft. Swing the cantilevered shaft out towards you.
3. Remove the core idler. Slide the film on the shaft up onto the locking core chuck, and finally slide the core idler on the shaft. You may lightly tighten the setscrews in the core chuck clamp and idler but do not tighten completely.
4. Press and hold the button to slide the collar back, swing the unwind/windup shaft with film back into the coupling and release the button to let collar slide back over the end of the shaft.
5. Measuring from the sideplates, make sure the film is centered on the shaft. Once the measurements from each end of film to the sideplates are equal, tighten the locking core chuck and core idler down.
6. Repeat this process on any other unwind station.
7. If the film is a pressure sensitive with a release liner, you will need to set up a wind up station. This is done by webbing the film under an idler and separating the film and liner. Once the liner has been separated from the film, it must be routed up over the second idler and taped to a windup core.
8. The wind up core is loaded and positioned exactly like the film was in steps 1-5. Keep in mind that the windup cores will rotate the exact same direction as the lower nip roll.
9. Tape the release liner to the core and windup any slack by hand. Feed the film with adhesive around and through the nip opening. **Note: You may require feeder stock to keep the film from sticking to the lower nip roll.**

Webbing the Laminator

The term webbing means routing the film through the laminators' idlers and nip rolls and thus creating a web. The easiest way to web the machine up after loading the film is by using a piece of feeder stock. The stock can be anything that is relatively stiff, but still flexible enough to route around the nip roll. A common example would be tag board.

The first step in webbing the machine is to have a planned web path configuration. There are four web path configurations shown and two processes described in this manual. The encapsulation process uses thermal film from top and bottom to "encapsulate" the substrate being fed into the laminator. This process seals the edges and protects the substrate. Refer to figure 4 as the webbing process is described below.

Encapsulation Process

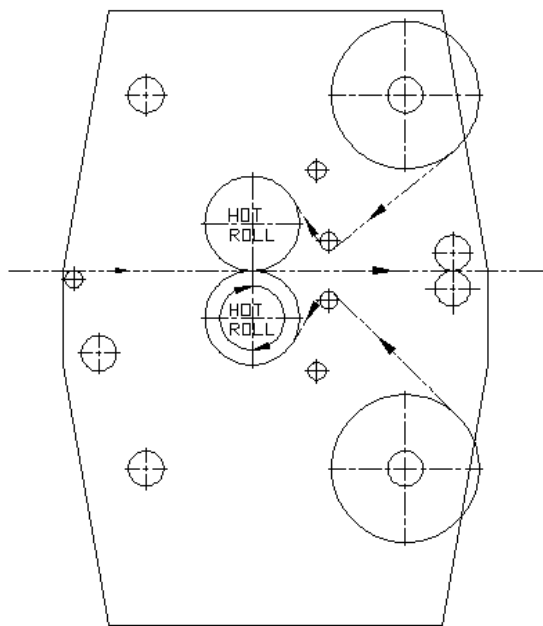
1. Load thermal film on the rear upper and lower unwind stations. Turn the selector switch on these two stations to "Off".
2. Set the shim wheels to "0", place a piece of feeder stock into the nip rolls with plenty of stock hanging out the front. Close the nip rolls onto the piece of feeder stock.



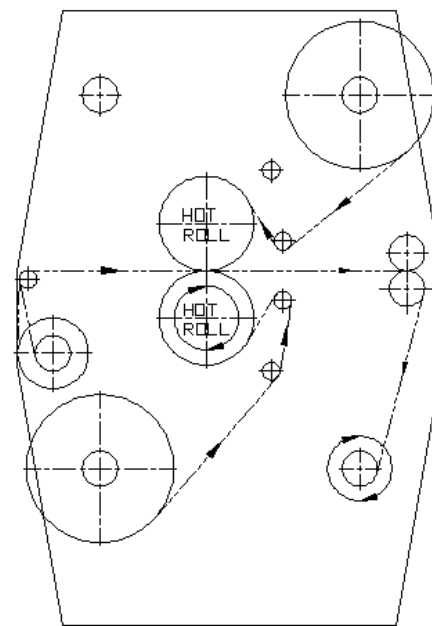
CAUTION

The nip section can pull you into laminator! Do not place fingers into the nip section when the rolls are rotating. It is recommended that operators tie long hair back and not wear neckties, loose clothing and jewelry since they can be caught in the nip section and pull the operator into the machine

3. Pull the film from the upper rear station down under the idler roller directly behind the nip roll and over the top of the top nip roll. Tape the film to the feeder stock.
4. Remove the infeed table for easier access to the lower rear station. Pull the film from the lower rear station up over the idler roller directly behind the bottom nip roll and under the bottom nip roll. Tape the film to the feeder stock.
5. Replace the infeed table.
6. Set the speed potentiometer to a low setting and move to the rear of the machine.
7. Set the machine to run in the FWD direction (the FWD/REV button should not be lit) and press the foot switch.
8. Guide the feeder stock into the gap between the pull rolls. Once the feeder stock has cleared the pull rolls, close the pull rolls.
9. Turn the heater controls to "On" and set the desired temperature. While the rolls are heating up use your process control chart to make all initial settings on the brakes, speed and nip pressure.
10. With rolls at the desired temperature you may feed the substrate into the nip section.
11. If your substrate is in roll form, you may use the center front unwind station to feed it into the nip. Route the substrate from the unwind station around the infeed table roller and into the nip. Figure 4 shows the front lower station being used as the unwind and the lower rear being used as the product windup. Follow the procedure to load the film as discussed in the **Loading Film** section.



Sheet Feed Encapsulation Process



Roll Fed Encapsulation Process

Figure 4. Encapsulation Process

Pressure Sensitive Process

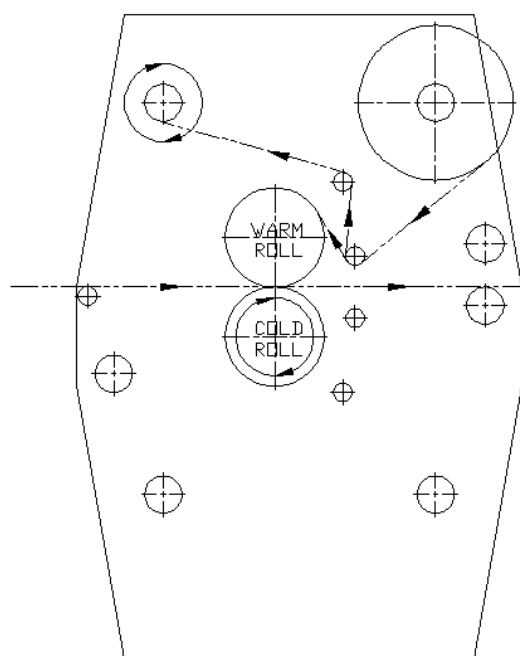
1. Load film on the rear upper unwind station. Turn the selector switch to that station to "Off".
2. Set the shim wheels to "0", place a piece of feeder stock into the nip rolls with plenty of stock hanging out the front. Close the nip rolls onto the piece of feeder stock.



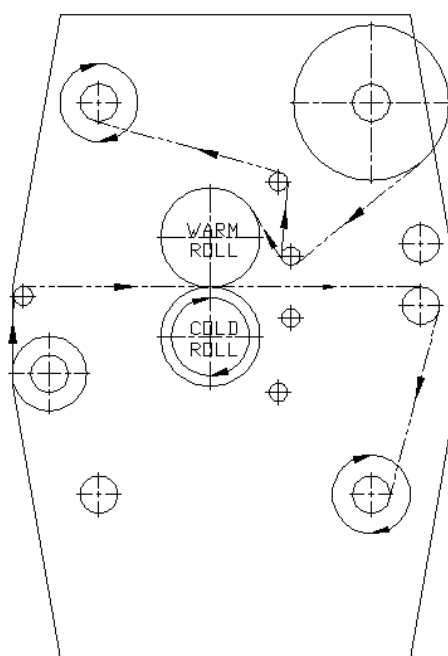
WARNING

The nip section can pull you into laminator! Do not place fingers into the nip section when the rolls are rotating. It is recommended that operators tie long hair back and not wear neckties, loose clothing and jewelry since they can be caught in the nip section and pull the operator into the machine

3. Pull the film from the upper rear station down under the idler roller directly behind the nip roll and over the top of the top nip roll. Separate the release liner from the film and tape the film to the feeder stock.
4. Route the release liner in an "S" wrap on the idler rolls and back to the front upper windup station. Tape the release liner to the wind up core.
5. Set the speed potentiometer to a low setting and move to the rear of the machine.
6. Set the machine to run in the FWD direction (the FWD/REV button should not be lit) and press the foot switch.
7. Guide the feeder stock into the gap between the pull rolls
8. Turn the heater controls to "On" and set the desired temperature. While the rolls are heating up use your process control chart to make all initial settings on the brakes, speed and nip pressure.
9. With rolls at the desired temperature you may feed the substrate into the nip section.
10. If your substrate is in roll form, you may use the center front unwind station to feed it into the nip. Route the substrate from the unwind station around the infeed table roller and into the nip. Figure 5 shows the lower rear station being used as the product windup. Follow the procedure to load the film as discussed in the **Loading Film** section.



Sheet Fed Pressure Sensitive Process



Roll Fed Pressure Sensitive Process

Figure 5. Pressure Sensitive Process

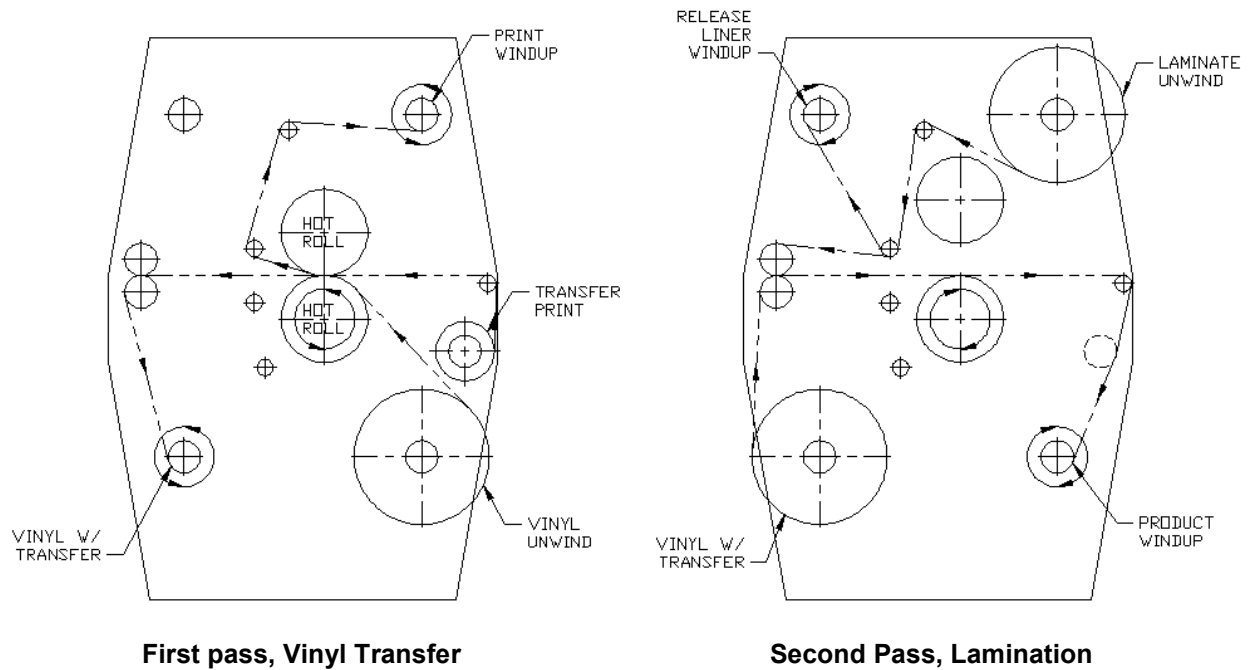


Figure 6. Two Pass, Vinyl Transfer and Lamination

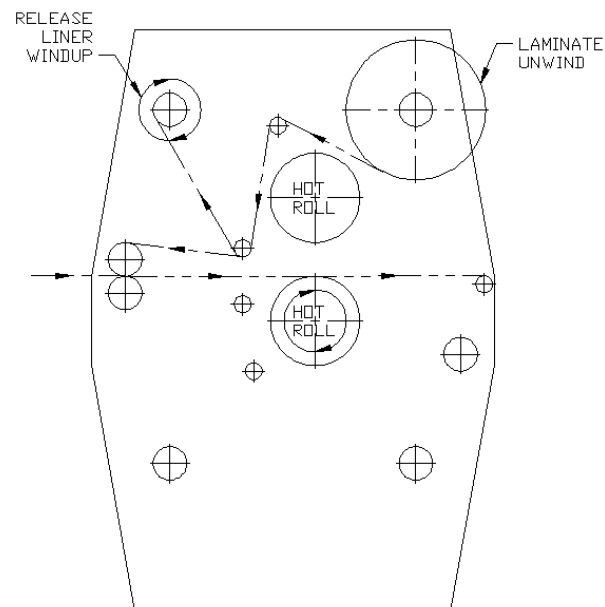
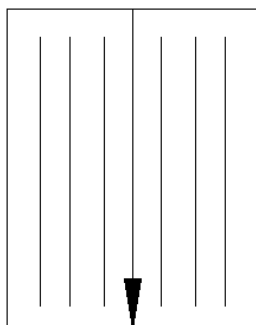


Figure 7. Pressure Sensitive Process (Reverse)

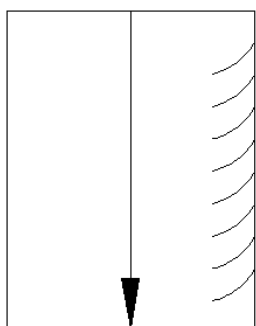
Process Output Trouble Shooting



Straight waves in output

Pull roll creating too much tension → Decrease clutch air pressure

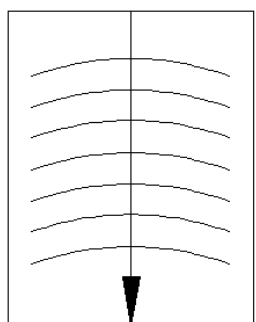
Film not cooling fast enough → Slow feed rate down and turn on cooling system.



Waves on one side of output

Nip “zero” setting may be incorrect → Check nip setting and adjust if necessary. Refer to **Zeroing the Nip** in the maintenance section.

Pull roll “zero” setting may be incorrect → Check nip setting and adjust if necessary. Refer to **Zeroing the Nip** in the maintenance section. Pay particular attention to sides opposite the waves.



D-Waves in Product

If waves are in the substrate and not film

Substrate problem → Check the substrate moisture content and the substrate tension.

If waves are in the film

Low tension between nip & pull roll → Increase air pressure to pull roll clutch.

Roll pressure settings → Adjust nip and pull roll settings as required.

Web Breaks

Web breaks caused by excess tension: If the web breaks between the unwind station and the nip, reduce the unwind brake tension. If the web breaks between the laminating opening and the rewind station, reduce the rewind clutch tension.

Web breaks will occur from faulty material. The AGL laminator will not correct this; the material must be replaced.

Curl in Product

1. Running a hot mount material in cold-mount machine sometimes creates a curl in the finished product.
2. Too much web tension: Reduce unwind brake pressure.
3. Excessive roll pressure: Reduce upper roll pressure.
4. Wrong spacers being used.

Wrinkles in Product

1. Check the adhesive stock for wrinkles while operating. If wrinkles exist, this is a manufacturing material defect, and must be cut out of the roll. A laminator will not correct material defects.
2. String the web straight and square between the unwind and the windup shafts. If it is not straight and square, the tension will not be even across the web and will cause wrinkling.
3. If the web is loose between the unwind and the drive roll, there is not enough pressure on the unwind brake. Increase the pressure on the unwind brake to correct.
4. If the web is loose between the windup and the drive roll, there is not enough pressure on the windup clutch. Increase the pressure on the windup clutch to correct.
5. If the web gets narrow between the unwind and the drive roll, there is too much pressure on the unwind brake. Decrease the pressure on the unwind brake to correct.
6. Top and bottom laminating rolls may not be parallel. Make sure spacer shims are the same size, then zero the nip. Refer to **Zeroing the Nip** in the maintenance section.

Poor Lamination

1. All substrate materials must be cleaned and free of dust, dirt, grease, and any other type film.
2. Poor lamination is usually caused by thickness variation in the substrate materials such as plywood, hard board or other such non-precisely made materials. To overcome this, cylinder spacers may have to be removed and materials laminated without the use of cylinder spacers, or the next smaller spacer may be used or special spacer utilized.
3. Material such as Plexiglas or glass sometimes carry a greasy or oily film. These materials may need to be cleaned with a solvent prior to lamination.
4. Poor lamination can be caused by defective material. To correct this, replace defective material with higher quality material.

Bubbles in Product

1. Visually inspect materials, mounting or overlays for any voids in the adhesive film. If any exist, it cannot be corrected by any laminating machine - that part of the material should be discarded.
2. Low pressure on nip rolls → Increase air pressure to nip rolls.
3. Incorrect shim setting → Adjust shim wheel to correct setting.
4. Nip “zero” setting may be incorrect → Check nip setting and adjust if necessary. Refer to **Zeroing the Nip** in the maintenance section.

Process Control Charts

In order to consistently output high quality product, the operator must have a definite starting point on the many process variables. This can be achieved by having the operators document system settings when you have achieved acceptable quality output. The process control chart will allow any operator to set the machine up for a given process. Keep in mind that the system variables may require adjusting as the process is being run, but the chart gives an excellent starting point. Factors such as temperature, humidity, changing film roll diameters all affect the process, therefore, operator technique in running the machine is inevitable. There is a blank process control chart located on page 4-10, copy this page as often as needed for new processes.

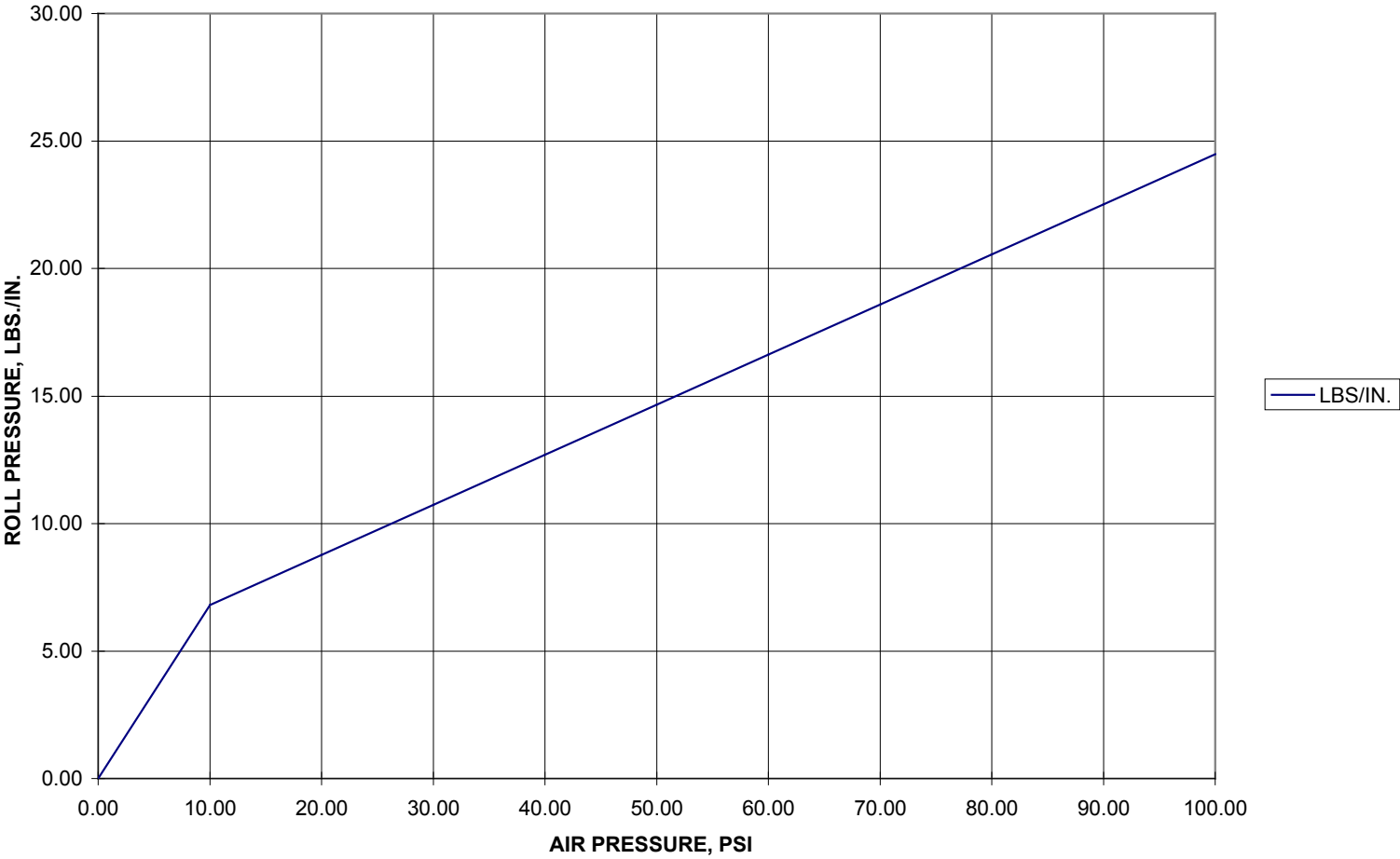
PROCESS CONTROL CHART

Process: _____
 Product: _____
 Material Top: _____
 Material Bottom: _____
 Other Material: _____
 Date Settings Documented: _____

Front Control Settings			
Speed (Ft/min):		Direction: Forward Reverse	
Nip Roll: Up Down		Shim Dial Setting:	
Roll Pressure: (PSI)		Top Temp. Setting: Deg. F	
Top Roll Heater: On Off		Bottom Temp. Setting: Deg. F	
Bottom Roll Heater On Off			
Rear Control Settings			
Pull Roll Clutch: On Off		Pull Roll: Up Down	
Pull Roll Clutch Setting:(PSI)		Pull Roll Pressure:(PSI)	
Shim Dial Setting:			
Film Station Settings			
Upper Rear Station: Unwind Off Windup			Pressure Setting:(PSI)
Upper Front Station: Unwind Off Windup			Pressure Setting:(PSI)
Center Front Station: Unwind Off Windup			Pressure Setting:(PSI)
Lower Rear Station: Unwind Off Windup			Pressure Setting:(PSI)
Lower Front Station: Unwind Off Windup			Pressure Setting:(PSI)

Other Instructions: _____

AGL6400 LAMINATOR ROLL PRESSURE



Maintenance

As a result of years of experience, refined engineering and construction techniques, very little time need be lost to maintenance. However, regular maintenance will keep your laminator operating at its optimum level.



WARNING

Removing the enclosure covers to work on machine exposes person to electrocution and moving parts hazard. Only trained service personnel should perform maintenance with any guards or covers removed.

Nip Roll Section

The most critical adjustment of the nip and pull rolls is the “zero” position. This adjustment makes the top roll parallel to the bottom roll which creates even pressure and pull distribution across the face of the roll. If the rolls are out of adjustment, the machine will not laminate properly. Zeroing the nip is done at the factory before shipment, but should be checked at startup and if laminator is not creating quality output.

Checking the Nip

1. Place two pieces of thin paper (approximately 1.0” wide by 12.0” long) between the upper pressure roll and the lower roll (about 3.0” from each end).
2. Set the shim dial to the “0” setting and put the upper pressure roll in the down position by activating pressure roll valve.
3. Pull gently on both pieces of paper, if both pieces of paper have the same drag, the nip is fine, if the drag is different, follow the procedure below to correct the setting. The pull rolls are adjusted the same as the nip rolls.

Zeroing the Nip

1. Loosen the jam nut on the top of the cylinder rod.
2. Adjust the cylinder stop clockwise to raise the roll and counter clockwise to lower the roll.
3. Check the nip using the 3 steps shown in the **Checking the Nip** section.
4. Once the drag on the pieces of paper has been equalized, turn each cylinder stop ¼ turn and lock the jam nut down on top of it.

Cleaning the Nip Rolls



WARNING

Cleaning the nip rolls may require the nip rolls to be rotating. Rotate the rolls at a very slow rate to avoid being pulled into the nip section. Do not wear neck ties, loose clothing or hanging jewelry that could be pulled into the nip section.

The nip rolls should be cleaned as often as necessary, the frequency will vary on the products used and the processes being run. AGL recommends a mild detergent solution or denatured alcohol with a 100% lint free cloth to clean the rolls. Your film manufacturer can recommend solvents that will remove the adhesive from silicone and neoprene rolls without causing damage to the coverings. To facilitate the cleanup process, adhesives should be cleaned from the rolls as soon as possible and while the roll is still warm. A rubber “eraser” has been included in your accessory kit that can be used to clean the adhesive from the warm rolls. Rub the eraser over the adhesive with the rolls turning very slowly. The cloth and alcohol can be used to remove the residue.



CAUTION

Use of incorrect solvents on your nip and pull rolls can cause irreparable damage to the coverings. Advanced Grieg Laminators, Inc. is not responsible for damage to roll coverings caused by these solvents.

Roller open and close rate

The rollers must open and close evenly to prevent excessive wear on the cylinders and bearings. This rate is set at the factory, but can be adjusted in the field. Follow the procedure below to adjust either the pull rolls or nip rolls.



WARNING

Maintenance that requires working on the machine while power and air are connected poses and imminent danger of electrocution or extremities being caught in rotating parts. Only qualified personnel should work on a machine in this state

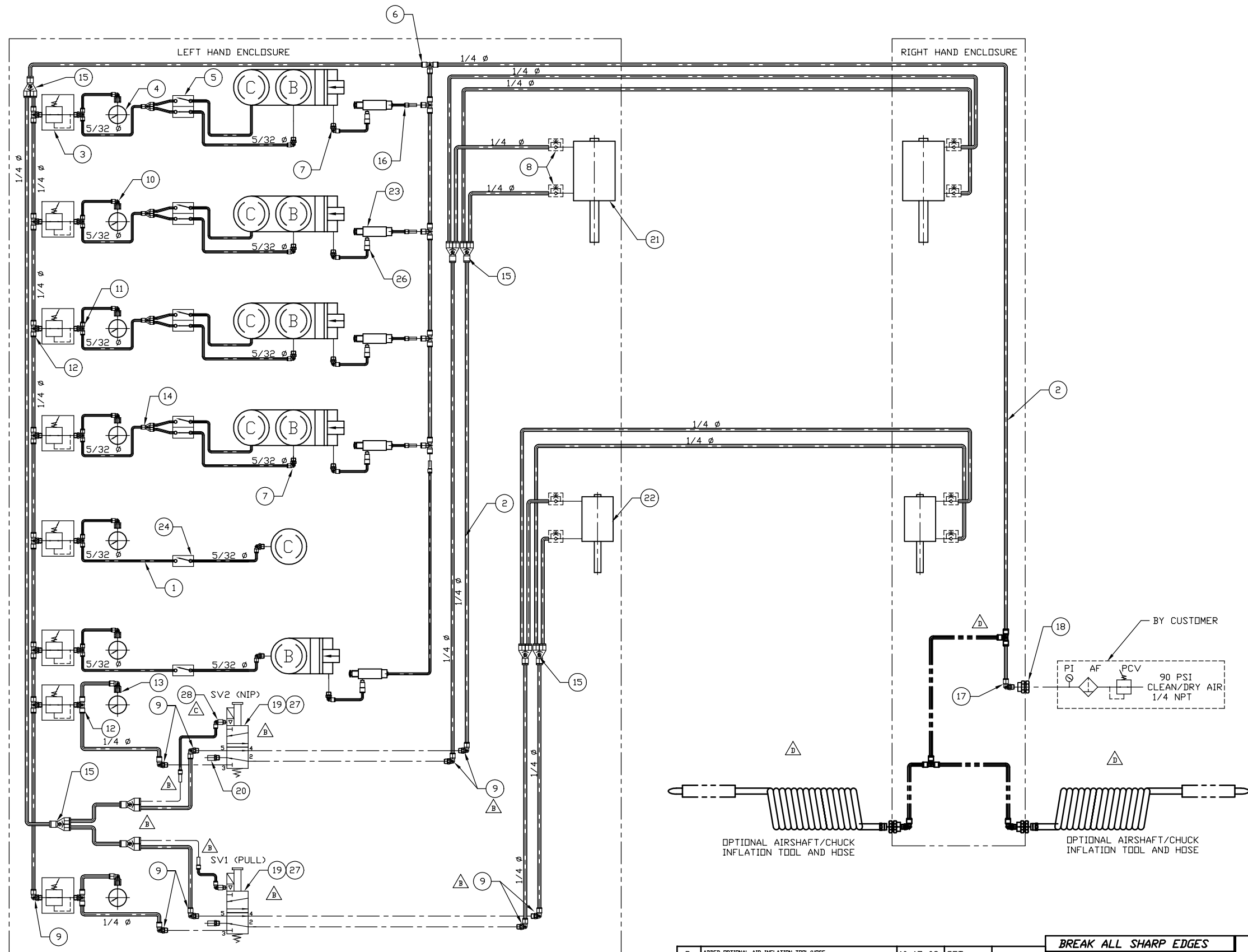
1. There are flow control fittings on both cylinders, but the fittings on the left hand cylinders will require most of the adjusting.
2. To increase the rate, turn the adjustment screw counter clockwise, to decrease the rate turn the adjustment screw clockwise. The upper fitting controls the “Open” rate, and the lower fitting controls the “Close” rate. Do not rotate the screw more than ½ turn at a time.
3. Adjust the open rate until the rolls open correctly, then proceed with the close rate.
4. Lock the adjustment screw in place with the jam nut. Be careful not to turn the adjustment screw as you tighten the nut.
5. Replace enclosure covers.


Lubrication

The high temp grease that is packed into the nip roll bearings will begin to pass by the seal as the machine is used in high temperature applications. The frequency of high heat processes will determine the frequency of adding grease to the bearings. Inspect the nip roll bearings at least weekly for grease outside the seals, regrease as necessary with a high temperature No. 2 consistency bentone-based grease with petroleum oil. Your lubrication vendor can recommend a quality product with this specification. The bearings on the lower pull roll should be checked for grease leakage after 3 months of use and then every 6 months from there on. The grease is a standard lithium based grease. The grease should be added slowly with the shaft turning until a slight bead forms at the seal.

When the bearings are being greased, the bearing gibs should also receive a coating of lithium grease.

The chain should be lubricated as needed with a Lubriplate spray chain lubricant. The tension in the chain should be checked at 6 months and tightened to take up any stretching that may have occurred, and then inspected yearly from that point on.



D					ADDED OPTIONAL AIR INFLATION TOOL/HOSE					10-17-08		GFT				BREAK ALL SHARP EDGES							Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532											
C					ADDED 28					8-22-07		GFT				DO NOT SCALE DWG.																		
B					REVISED TO NUMATICS VALVE					10-17-06		GFT				UNLESS OTHERWISE SPECIFIED					MAT'L: AGLK0066-1													
A					CHANGED SWITCH, ADDED #26					7-31-02		GFT				0.00 +/-.0015 0.000 +/-.0005					FINISH:													
REV NO.					DESCRIPTION					DATE		INT.		ECN		ANGLES +/-5°					JOB NO.		QTY.		DWG. BY:		CHK BY:		SCALE: 1/4 = 1		DWG. NO.		REV.	
																					DATE: 12-19-01						AGL-64-D4293		D					

Warranty and Conditions

AGL warrants all models of the laminator's product line manufactured to be free from defects in workmanship and materials for a period of one year with the exception of operator caused damage, or surface abrasions to the laminating rolls or other obvious caused damage. Compression set in silicone covered nip rolls can occur when a thicker material combination is run in the same lateral position through the nip roll on a consistent basis. This will permanently damage the silicone cover. Randomizing the lateral position of the process through the nip rolls for continuous production runs will maximize the life of the silicone covering. It is the sole responsibility of the end user to periodically shift the process from one side to the other to prevent compression set from happening. Compression set in the silicone coverings is not covered under the factory warranty. The warranty period will commence on the date it ships from AGL.

This warranty does not apply to any equipment which after delivery has been subject to abuse, accident or alterations by anyone other than persons authorized by AGL.

Component parts such as controls, motors, heating elements, air cylinders, rubber coverings, etc. which are incorporated into the design and manufacture of our laminators are purchased from reputable manufacturers and suppliers and, as such carry their respective warranties. Failure of any components purchased by AGL and incorporated in the laminators carry supplier warranty and to insure proper credit all parts that should fail must be returned freight prepaid for evaluation **LABOR AND ALL RELATED COSTS TO REPLACE THE DEFECTIVE PART WILL BE BORNE ENTIRELY BY THE END USER.** AGL assumes the responsibility of incorporating these various component parts into the fabrication of the laminator and warrants that this will be done in a suitable and workable manner.

AGL offers no warranty for the laminated product and/or process that the machine produces and as such will not be liable for any special, indirect or consequential damages.

NO OTHER WARRANTY IS EXPRESSED OR IMPLIED INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE. AGL is not liable for incidental or consequential damage such as, but not limited to, lost profits, loss of use of other equipment or increases in operating costs or expenses.

Bill Of Material

Part #: AGL-64-K2602-1	Appl #:	Assy #: AGLD0094	BOM Rev: D
Model #:	Rev:	Rev: C	Date: 12/18/2001
Description: MAIN MACHINE FRAME ASSEMBLY, AGL6400			

Item:	Part #:	Description:	Qty:
1	AGL-64-D0017-1	RH. SIDEPLATE, AGL6400	1
2	AGL-64-D0016-1	LH. SIDEPLATE, AGL6400	1
3	AGL-64-B0011	LOWER TIE BAR	2
4	AGL-64-B0010-01	CROSS TUBE	2
5	AGL-64-D2517-1	RH. WRAP, AGL6400	1
6	AGL-64-D2518-1	LH. WRAP, AGL6400	1
7	AGL-64-C0064	COVER, ENCLOSURE	2
8	AGL-64-B0839	COVER	2
10	AGL-64-B4320	SHAFT, FRAME SUPPORT	1
20	000198-15	NUT, HEX, JAM, 1-1/8-12UNF, ZINC	4
21	000358-36	HHCS, 3/4-10UNC, 7 LG, ZINC	4
22	000195-12	NUT, HEX, JAM, 3/4-10UNC, ZINC	4
23	001451	CASTER, SWIVEL, 5 DIA 900 LBS.	4
24	000011-08	SHCS, 5/16-18UNC, 1 LG, BLACK	16
25	000035-03	SHCS, #10-32UNF, 3/8 LG, BLACK	41
26	000055-03	BHSCS, #8-32UNC, 3/8 LG, BLACK	16
27	000207-04	WASHER, FLAT, SAE, #10 DIA, 1/2 OD, 7/32 ID, ZINC	41
29	000340-07	HHCS, 5/16-18UNC, 7/8 LG, ZINC	16
30	000493-07	WASHER, LOCK, 5/16 DIA, SPLIT, ZINC	16
31	000207-07	WASHER, FLAT, SAE, 5/16 DIA, 11/16 OD, 11/32 ID, ZINC	16
32	000343-08	HHCS, 3/8-16UNC, 1 LG, ZINC	2
33	000493-08	WASHER, LOCK, 3/8 DIA, SPLIT, ZINC	2
36	000057-04	BHSCS, #10-24UNC, 1/2 LG, BLACK	8
37	001452	DECAL, VINYL, BURGUNDY, 150 FT. ROLL	11
39	000201-03	NUT, HEX, #8-32UNC, ZINC	4
40	000577-08	PHMS, PHILLIPS, #8-32UNC, 1 LG, ZINC	4
41	000493-03	WASHER, LOCK, #8 DIA, SPLIT, ZINC	4
42	000207-04	WASHER, FLAT, SAE, #10 DIA, 1/2 OD, 7/32 ID, ZINC	41

Part #: AGL-64-K2602-1

Appl #:

Assy #: AGLD0094

BOM Rev: D

Model #:

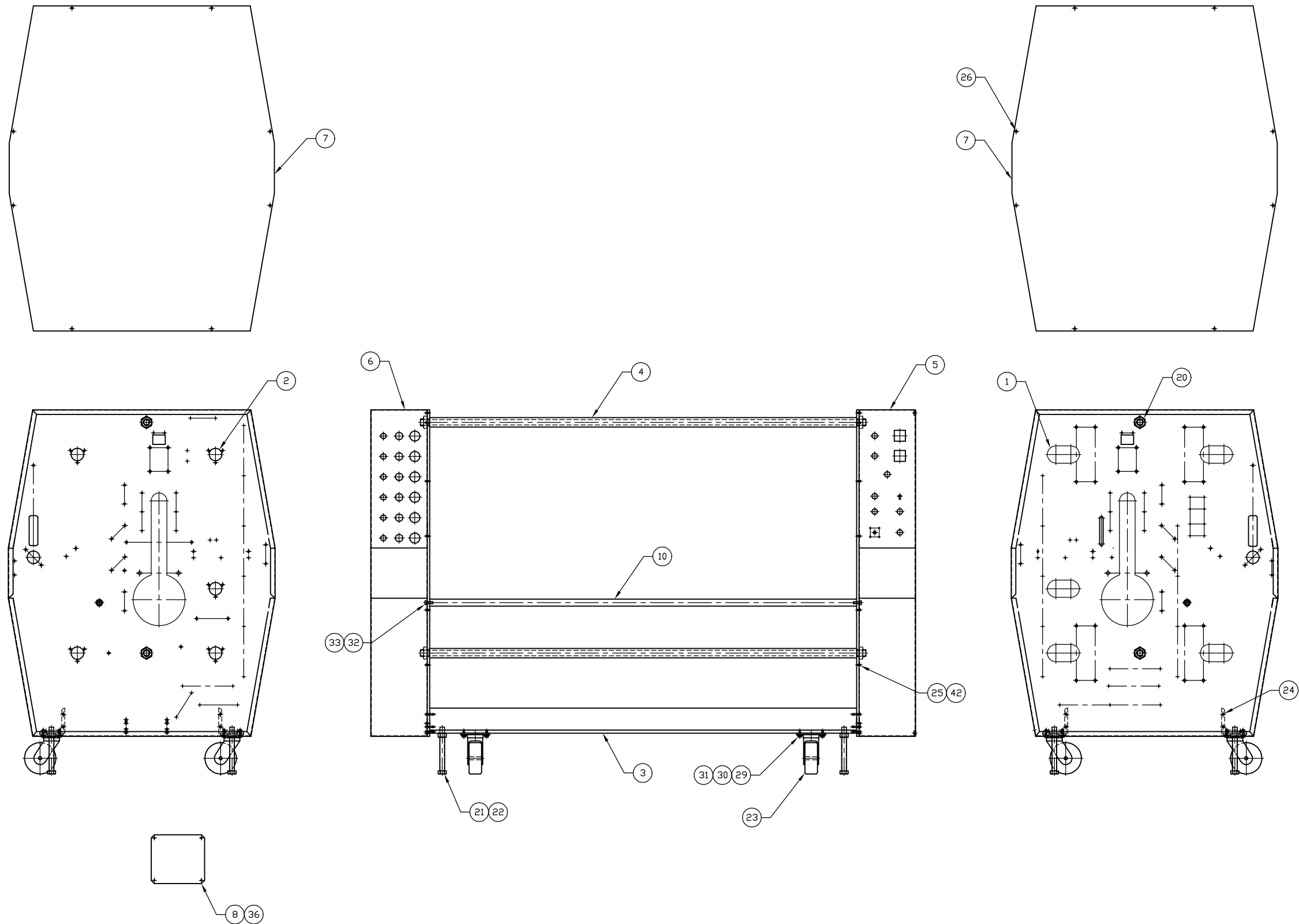
Rev:

Rev: C

Date: 12/18/2001

Description: MAIN MACHINE FRAME ASSEMBLY, AGL6400

Item:	Part #:	Description:	Qty:
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C	ADDED #42	9-22-04	GFT	
B	REMOVED 1 CROSS TUBE, REPLACED WITH SHAFT	8-27-02	GFT	
A	REVISED AFTER PROTOTYPE MARKUPS	1-29-98	GFT	
REV NO.	DESCRIPTION	DATE	INT.	ECN

BREAK ALL SHARP EDGES					AGL Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532			
DO NOT SCALE DWG.					MAIN MACHINE FRAME ASSEMBLY			
UNLESS OTHERWISE SPECIFIED	MAT'L: AGLK2602-1	FINISH:			SCALE: 1/8" = 1'		DWG. NO. AGL-64-D0094	
0.00 +/-0.015		JOB NO.	QTY.	DWG. BY	CHK BY	DATE: 8-25-97	REV. C	
0.000 +/-0.005				GFT				
ANGLES +/- .5°								

Bill Of Material

Part #: AGL-64-K0028-1

Appl #:

Assy #: AGLC0027-1

BOM Rev: I

Model #:

Rev:

Rev: C

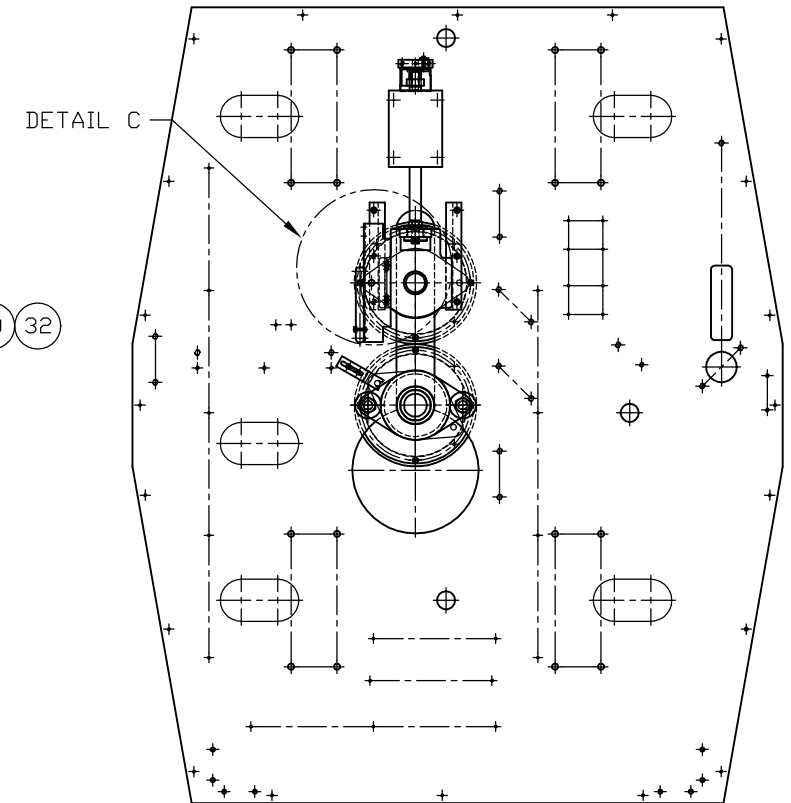
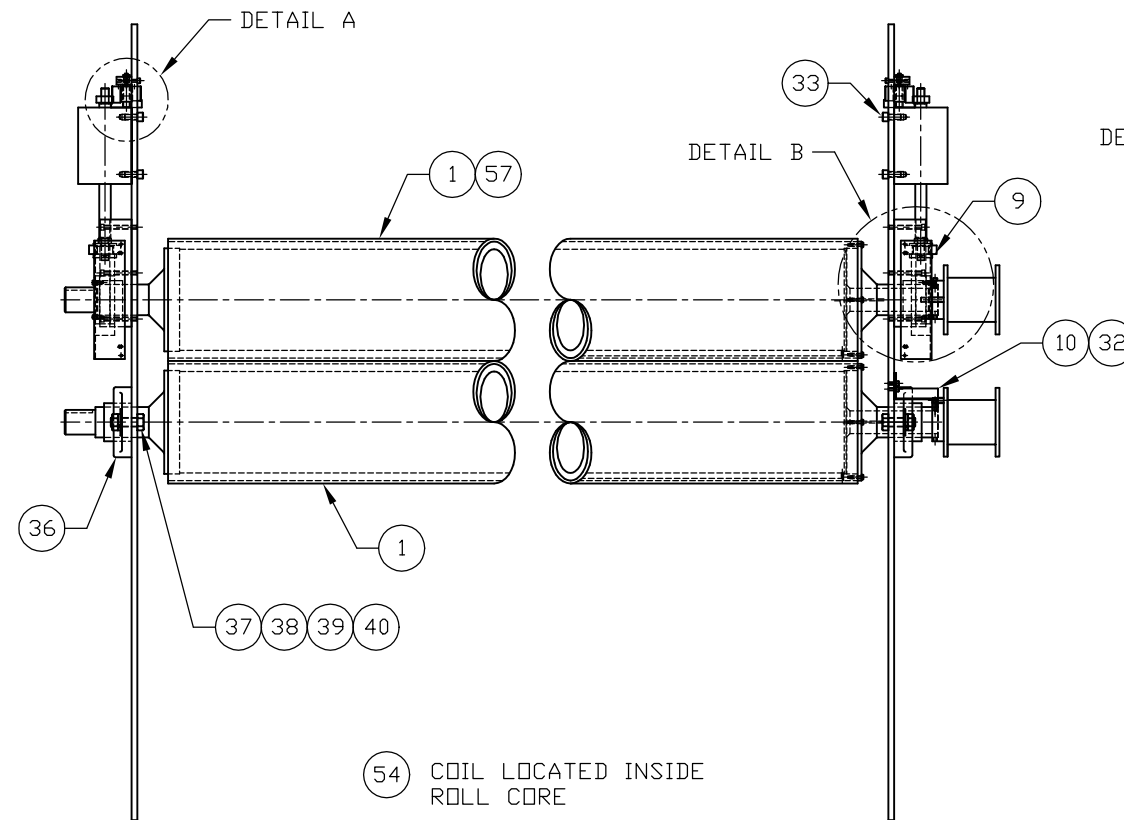
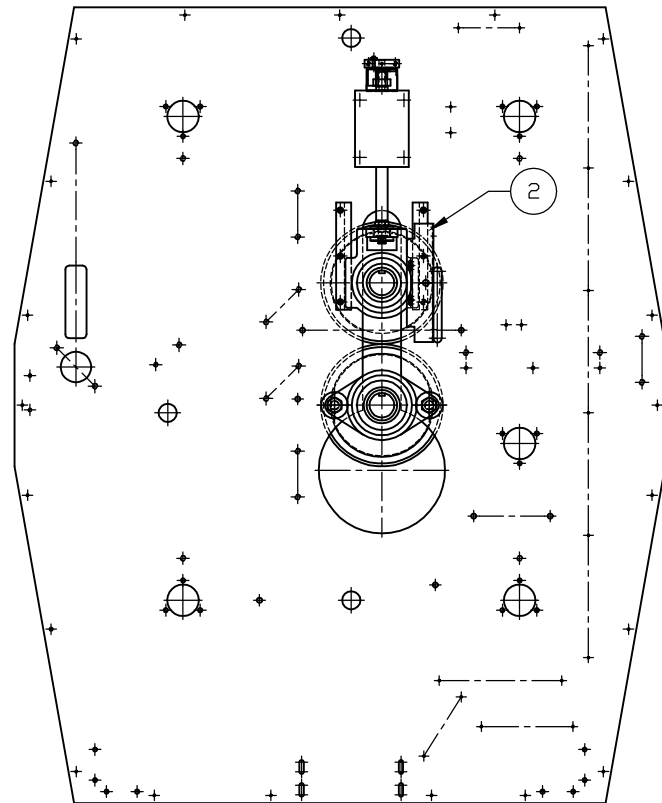
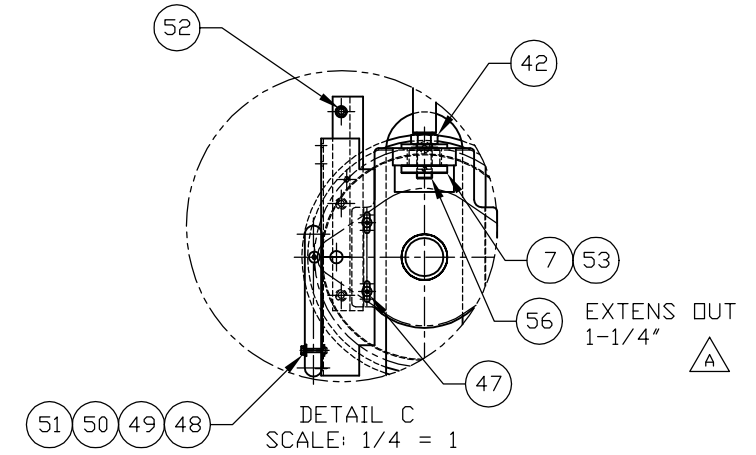
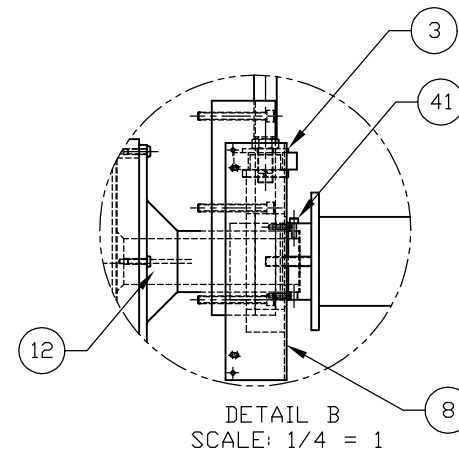
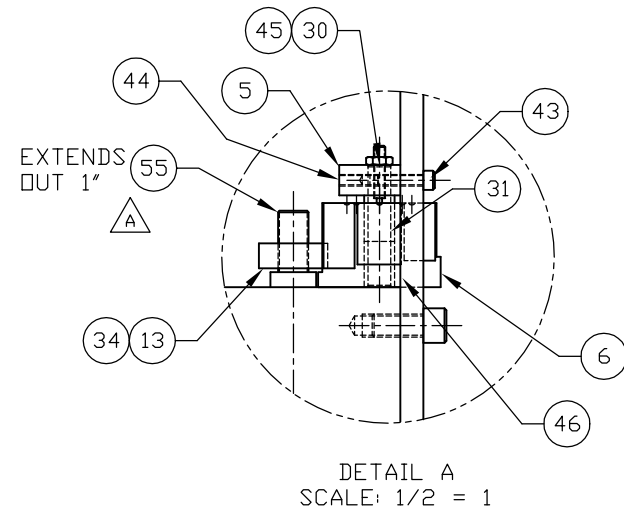
Date: 12/17/2001

Description: NIP ROLL ASSEMBLY, AGL6400 (BAUMER EYE)


Item:	Part #:	Description:	Qty:
1	AGL-64-D0001	NIP ROLL, 8.0 OD., 64.0 ROLL FACE (COMPLETE)	2
2	AGL-64-B0019	BEARING GIB	4
3	AGL-64-B1118-3	BEARING SPACER, AGL6400 (ALTER AGL-64-B1118)	2
5	AGL-64-B0014	SHIM SHAFT SUPPORT	2
6	AGL-64-B0015	SHIM WHEEL	2
7	AGL-64-B0021	BEARING CENTERING COLLAR	2
8	AGL-64-B0022-1	PHOTOEYE MTG. BRACKET, SERIES 10	2
9	AGL-64-B0023	BEARING, TAKE-UP, MODIFIED (ALTER AMI #UCST210-32C4HR5)	2
10	AGL-XX-B1070	BRACKET, SLIP RING STOP	1
12	AGL-64-B0536	PLUG, JOURNAL	2
13	AGL-64-B0694-1	STOP, CYLINDER, TAPPED	2
30	001392-15	PLUNGER, SPRING, LEP, 3/8-16UNC, 5/8 LG	2
31	000289-16	PIN, DOWEL, 3/8 DIA, 2 LG	2
32	000007-04	SHCS, #10-24UNC, 1/2 LG, BLACK	2
33	000013-06	SHCS, 3/8-16UNC, 3/4 LG, BLACK	8
34	012378-04	SSS, BRASS TIP, 1/4-20UNC, 1/4" LG.	4
36	012108-32	BEARING, FLANGE, 2-BOLT, 2 DIA BORE, HIGH TEMP	2
37	012372-14	HHCS, 5/8-11UNC, 1-3/4 LG, PLAIN BLACK FINISH	4
38	000493-12	WASHER, LOCK, 5/8 DIA, SPLIT, ZINC	4
39	000207-12	WASHER, FLAT, SAE, 5/8 DIA, 1-5/16 OD, 21/32 ID, ZINC	4
40	000195-11	NUT, HEX, JAM, 5/8-11UNC, ZINC	4
41	000005-04	SHCS, #8-32UNC, 1/2 LG, BLACK	4
42	000198-09	NUT, HEX, JAM, 1/2-20UNF, ZINC	2
43	000035-06	SHCS, #10-32UNF, 3/4 LG, BLACK	4
44	000155-08	SSS, CUP PT, #10-32UNF, 1/2 LG, BLACK	2
45	000204-04	NUT, HEX, #10-32UNF, ZINC	2
46	000732-06	BUSHING, BRONZE, 3/8 ID, 1/2 OD, 3/4 LG	4
47	000055-03	BHSCS, #8-32UNC, 3/8 LG, BLACK	4

Part #: AGL-64-K0028-1**Appl #:****Assy #:** AGLC0027-1**BOM Rev:** I**Model #:****Rev:****Rev:** C**Date:** 12/17/2001**Description:** NIP ROLL ASSEMBLY, AGL6400 (BAUMER EYE)

Item:	Part #:	Description:	Qty:
48	000553-06	PHMS, SLOTTED, #4-40UNC, 3/4 LG, ZINC	2
49	000207-01	WASHER, FLAT, SAE, #4 DIA, 5/16 OD, 1/8 ID, ZINC	4
50	000493-01	WASHER, LOCK, #4 DIA, SPLIT, ZINC	2
51	000201-01	NUT, HEX, #4-40UNC, ZINC	2
52	000009-17	SHCS, 1/4-20UNC, 2-1/4 LG, BLACK	12
53	000127-08	SSS, CUP PT, #8-32UNC, 1/2 LG, BLACK	2
54	012061-01	HEATER ASSY, AGL 6400/6450	2
55	000165-32	SSS, CUP PT, 1/2-20UNF, 2 LG, BLACK	2
56	000165-40	SSS, CUP PT, 1/2-20UNF, 2-1/2 LG, BLACK	2



C	REMOVED #57	8-22-07	GFT	
B	ADDED #57	10-17-05	GFT	2134
A	ADDED 55 & 56	4-25-02	GFT	
REV NO.	DESCRIPTION	DATE	INT.	ECN

BREAK ALL SHARP EDGES					 Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532				
DO NOT SCALE DWG.									
UNLESS OTHERWISE SPECIFIED		MAT'L: AGLK0028-1			NIP ROLL ASSEMBLY AGL6400 LAMINATOR				
		FINISH:							
		0.00 +/-0.015 0.000 +/-0.005							
		ANGLES +/-5°							
JOB NO.		QTY.	DWG. BY:	CHK BY:	SCALE: 1/8 = 1		DWG. NO.		REV.
			GFT		DATE: 12-17-01		AGL-64-C0027-1		C

Bill Of Material

Part #: AGL-64-K0052-3

Appl #:

Assy #: AGLD0045-3

BOM Rev: C

Model #:

Rev:

Rev: C

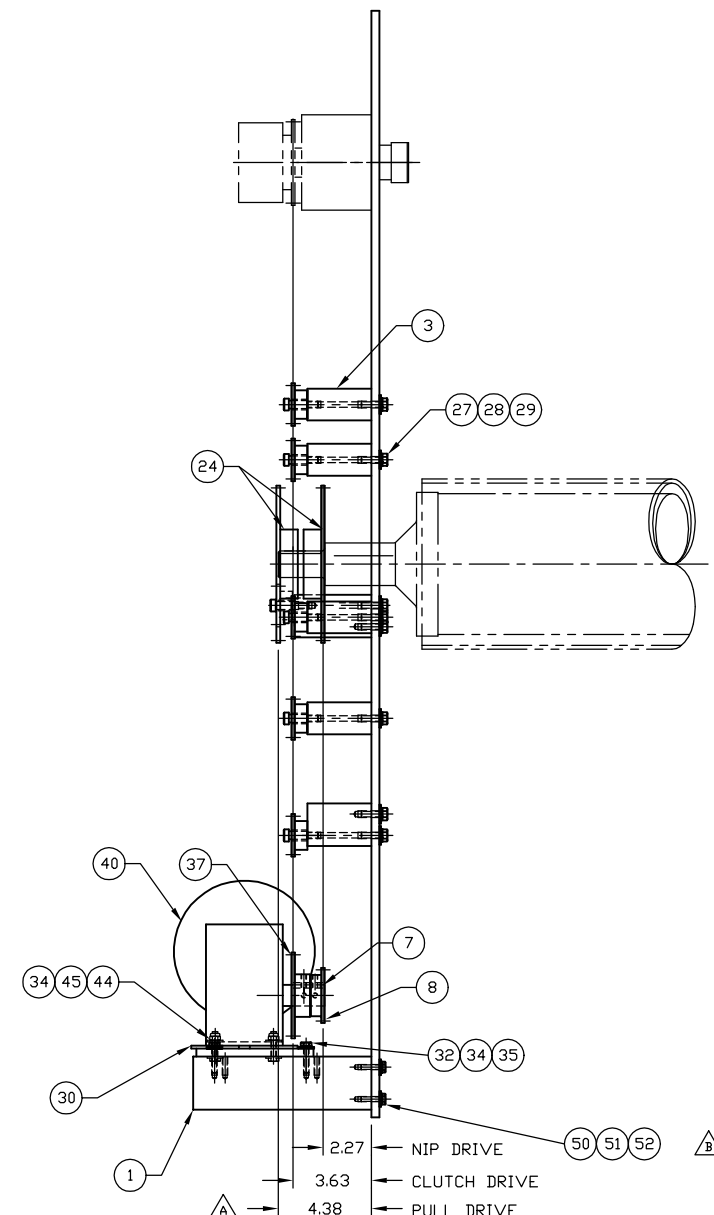
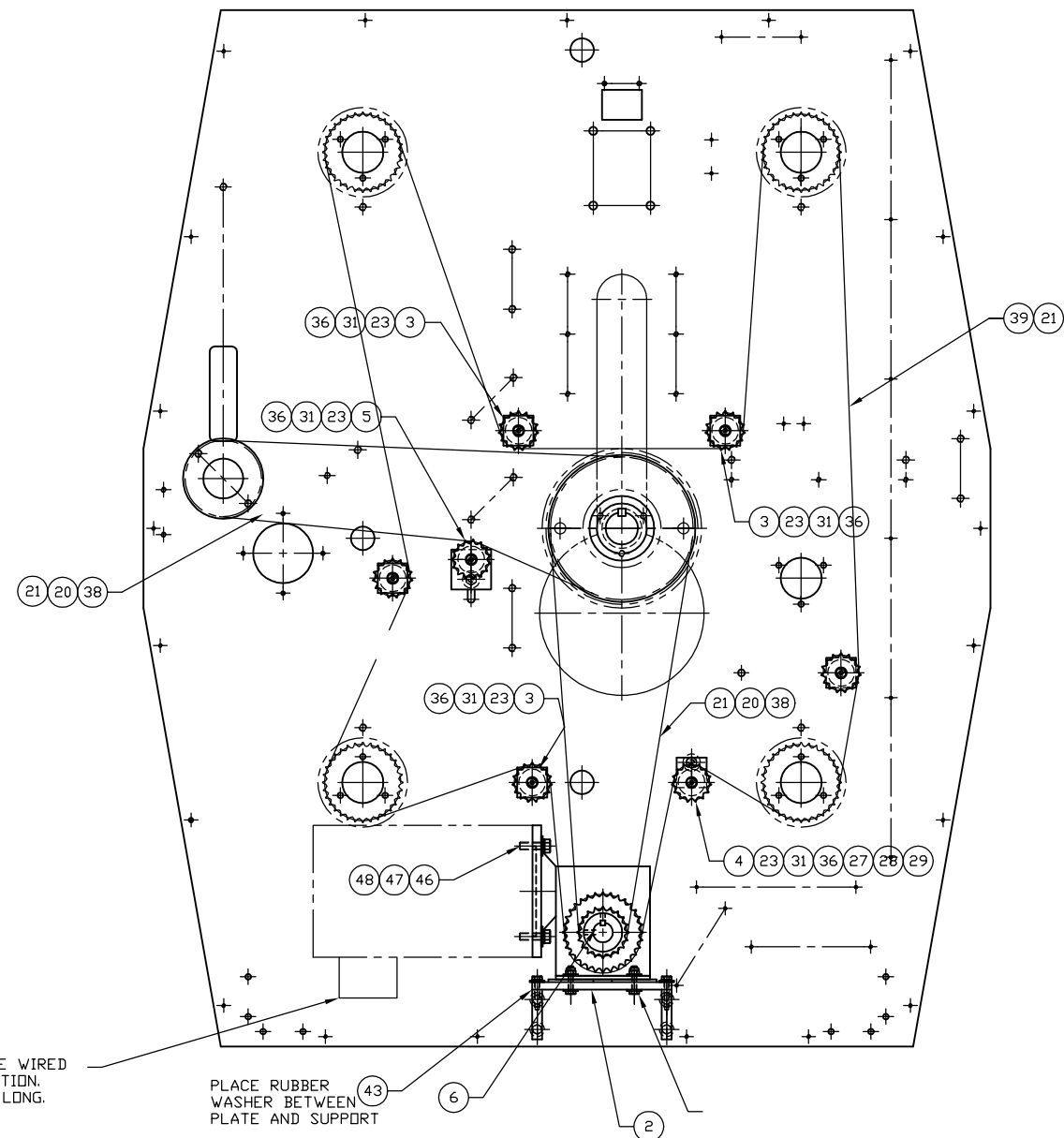
Date: 10/16/2003


Description: DRIVE ASSEMBLY, AGL6400

Item:	Part #:	Description:	Qty:
1	AGL-64-B0046	MOTOR SUPPORT BAR	2
2	AGL-64-B0047	MOTOR MOUNTING PLATE	1
3	AGL-64-B0048-1	IDLER SPACER, 3.00 LG.	5
4	AGL-64-B0049-1	IDLER TENSIONER, 3.00 LG.	1
5	AGL-64-B0928-1	IDLER TENSIONER, 3.63 LG.	1
6	001330-14	KEY, 0.25 SQ, 1.75 LG, CRS	1
7	001330-17	KEY, 0.25 SQ, 2.13 LG, CRS	1
8	AGL-XX-B5066	SPROCKET MOD. (ALTER MARTIN #3520-1 BORE)	1
20	001275-01	CHAIN, #35, HALF LINK	2
21	001275	CHAIN, #35, CONNECTING LINK	3
23	000912-15	SPROCKET, 3/8 PITCH, 0.50 DIA BORE, 15 TOOTH	7
24	001401-60	SPROCKET, 3/8 PITCH, 1-1/4 BORE, 60 TEETH	2
27	012417-08	HHCS, 5/16-18UNC, 1 LG, BLACK OXIDE	7
28	012416-07	WASHER, FLAT, SAE, 5/16 DIA, 11/16 OD, 11/32 ID, BLACK OXIDE	7
29	012415-08	WASHER, LOCK, 8mm DIA, SPLIT, BLACK OXIDE	7
30	012495-03	WASHER, RUBBER, 2.25 OD. X .38 ID. X .13 THICK	4
31	000635-08	SHOULDER SCREW, 3/8 DIA, 1 LG (5/16-18UNC)	7
32	000337-08	HHCS, 1/4-20UNC, 1 LG, ZINC	4
34	000207-06	WASHER, FLAT, SAE, 1/4 DIA, 5/8 OD, 9/32 ID, ZINC	12
35	000493-06	WASHER, LOCK, 1/4 DIA, SPLIT, ZINC	4
36	000732-06	BUSHING, BRONZE, 3/8 ID, 1/2 OD, 3/4 LG	7
37	001460-32	SPROCKET, 3/8 PITCH, 1 BORE, 32 TEETH	1
38	001461	CHAIN, #35, 147 PITCHES	1
39	001462	CHAIN, #35, 437 PITCHES	1
40	012022-01	GEAR BOX, 60:1,56C, WITH SINGLE OUTPUT SHAFT	1
41	012022-04	NOW PURCHASED AS PART OF #012022-01	1
42	012137	CHAIN, #35, 143 PITCHES	1
43	012214-04	WASHER, RUBBER, 1/4 ID. X 5/8 OD.	4

Part #: AGL-64-K0052-3**Appl #:****Assy #:** AGLD0045-3**BOM Rev:** C**Model #:****Rev:****Rev:** C**Date:** 10/16/2003**Description:** DRIVE ASSEMBLY, AGL6400

Item:	Part #:	Description:	Qty:
44	000337-10	HHCS, 1/4-20UNC, 1-1/4 LG, ZINC	4
45	000651-05	NUT, HEX, NYLOCK, 1/4-20UNC, ZINC	4
46	000343-08	HHCS, 3/8-16UNC, 1 LG, ZINC	4
47	000493-08	WASHER, LOCK, 3/8 DIA, SPLIT, ZINC	4
48	000207-08	WASHER, FLAT, SAE, 3/8 DIA, 13/16 OD, 13/32 ID, ZINC	4
50	012418-08	HHCS, 1/4-20UNC, 1 LG, BLACK OXIDE	4
51	012416-06	WASHER, FLAT, SAE, 1/4 DIA, 5/8 OD, 9/32 ID, BLACK OXIDE	4
52	012415-06	WASHER, LOCK, 6mm DIA, SPLIT, BLACK OXIDE	4



					BREAK ALL SHARP EDGES		 Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532			
					DO NOT SCALE DWG.					
C	ADDED NOTE, ADDED LARGE RUBBER WASHER	10-17-06	GFT		UNLESS OTHERWISE SPECIFIED 0.00 +/--.0015 0.000 +/--.0005 ANGLES +/--.5"	MAT'L: AGLK0052-3	DRIVE ASSEMBLY			
B	ADDED 50-52	12-20-04	GFT			FINISH:				
A	4.38 WAS 4.25, ADDED #49	9-22-04	GFT							
REV. NO.	DESCRIPTION	DATE	INT.	ECN	JOB NO. QTY. DWG. BY: GFT CHK BY:			SCALE: 1/4" = 1" DATE: 10-16-03	DWG. NO. AGL-64-D0045-3	REV. C

Bill Of Material

Part #: AGL-64-K0043-1

Appl #:

Assy #: AGLC0042-1

BOM Rev: B

Model #:

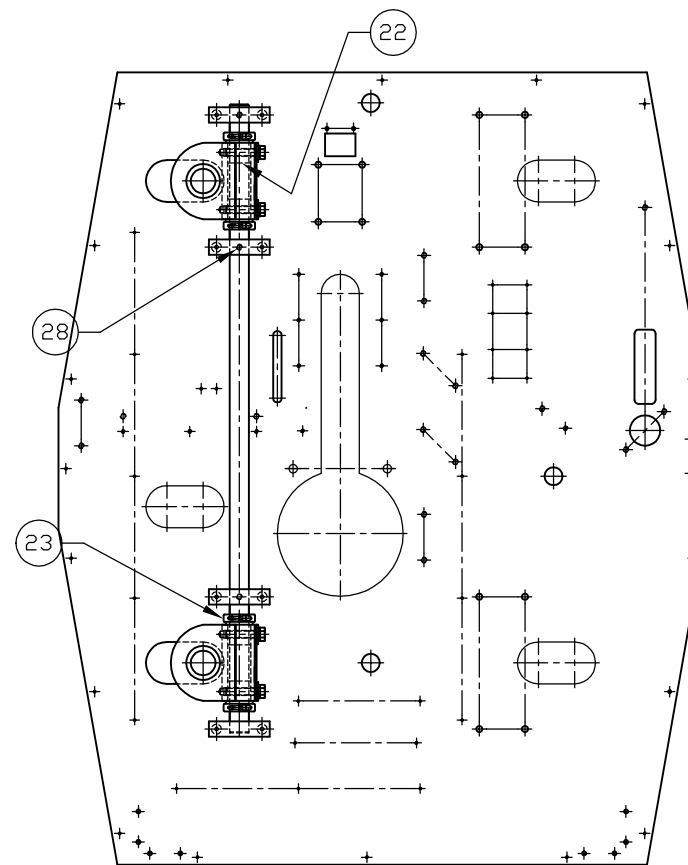
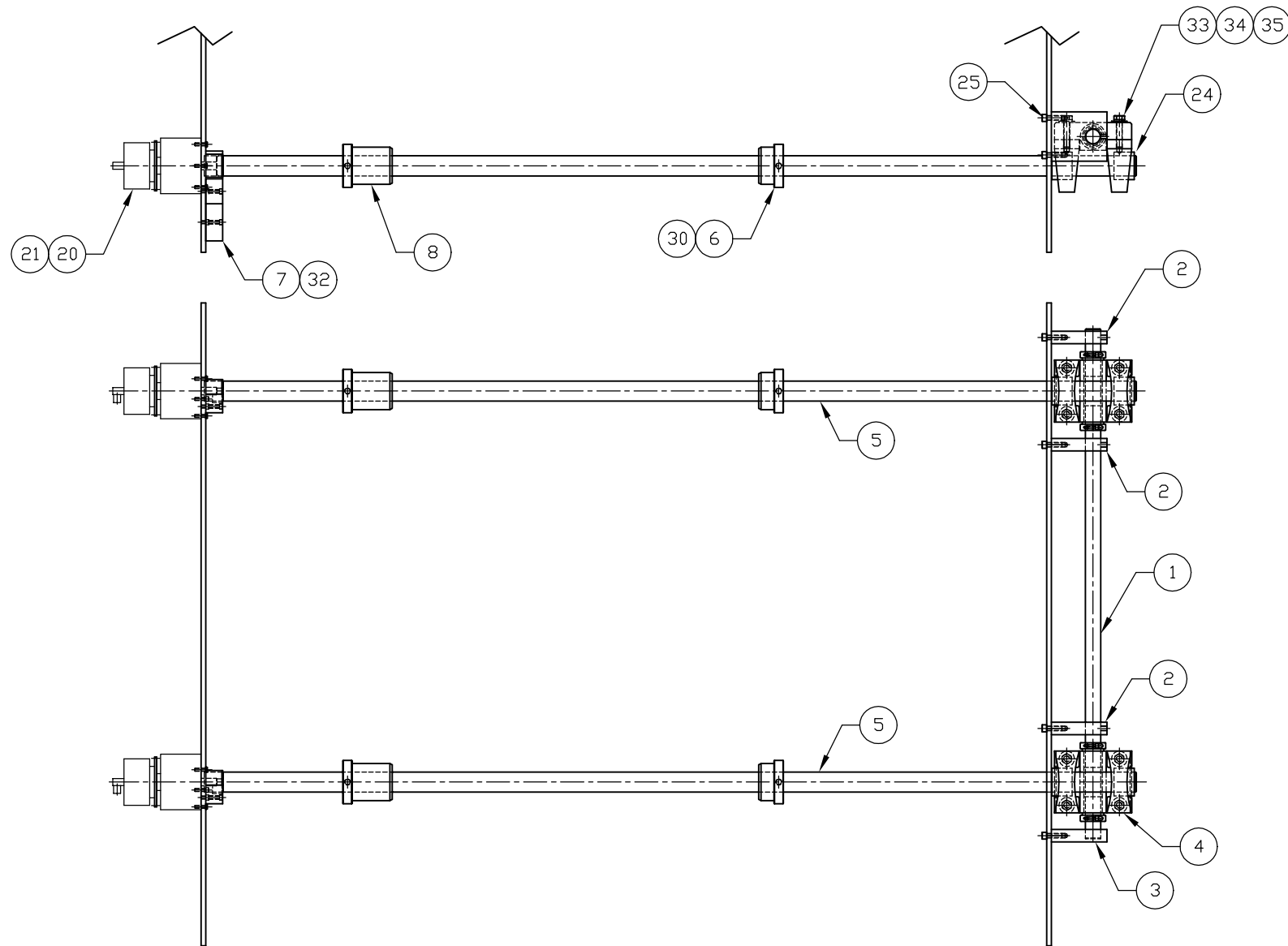
Rev:

Rev: -

Date: 12/19/2001


Description: FRONT UNWIND/WINDUP STATION ASSEMBLY, AGL6400

Item:	Part #:	Description:	Qty:
1	AGL-64-B0003	VERTICAL SHAFT, CANTILEVERED UNWIND	1
2	AGL-64-B0004	SHAFT BRACE, CANTILEVERED UNWIND	3
3	AGL-64-B0005	SHAFT SUPPORT, CANTILEVERED UNWIND	1
4	AGL-64-B0940	MAIN PIVOT BLOCK	2
5	AGL-64-B0007	UNWIND SHAFT	2
6	AGL-64-B0044	CORE COLLAR	2
7	AGL-64-B2070	RAMP, UNWIND/WINDUP	2
8	AGL-XX-B2917-1	CORE HOLDER, 1-5/8 BORE (ENCORE)	2
20	012115-05	BRAKE / CLUTCH COMBO, PNEUMATIC COUPLER	2
21	000059-07	BHSCS, 1/4-20UNC, 7/8 LG, BLACK	6
22	001356-12	BUSHING, FLANGED, BRONZE, 1 1/4 ID., 1 1/2 OD, 1 1/2 LG	4
23	000411-20	COLLAR, SHAFT, 1.25 DIA BORE, 1/2 WIDE	4
24	001355-26	BEARING, TAPPED BASE, 1 5/8 BORE	4
25	000013-10	SHCS, 3/8-16UNC, 1-1/4 LG, BLACK	8
28	000135-08	SSS, CUP PT, 3/8-16UNC, 1/2 LG, BLACK	3
30	012265-06	SSS, NYLON TIPPED, 1/2-13UNC, 3/4 LG. BLACK	2
32	000009-12	SHCS, 1/4-20UNC, 1-1/2 LG, BLACK	4
33	000349-17	HHCS, 1/2-13UNC, 2-1/4 LG, ZINC	8
34	000207-10	WASHER, FLAT, SAE, 1/2 DIA, 1-1/16 OD, 17/32 ID, ZINC	8
35	000493-10	WASHER, LOCK, 1/2 DIA, SPLIT, ZINC	8



REV NO.	DESCRIPTION	DATE	INT.	ECN

BREAK ALL SHARP EDGES				
DO NOT SCALE DWG.				
UNLESS OTHERWISE SPECIFIED		MAT'L: AGLK0043-1		
0.00 +/-0.015 0.000 +/-0.005		FINISH:		
ANGLES +/- .5°		JOB NO.	QTY.	DWG. BY GFT

 Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532			
FRONT UNWIND/WIND-UP STATION AGL 6400			
SCALE: 1/8" = 1"	DWG. NO.	REV.	
DATE: 12-19-01	AGL-64-C0042-1		

Bill Of Material

Part #: AGL-64-K0041-1

Appl #:

Assy #: AGLC0040-1

BOM Rev: B

Model #:

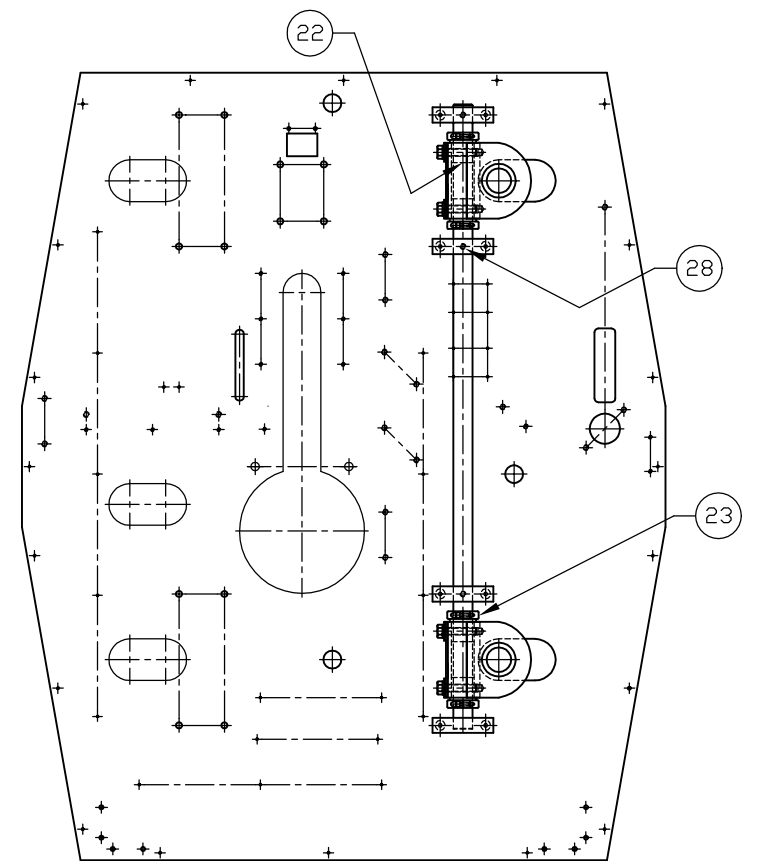
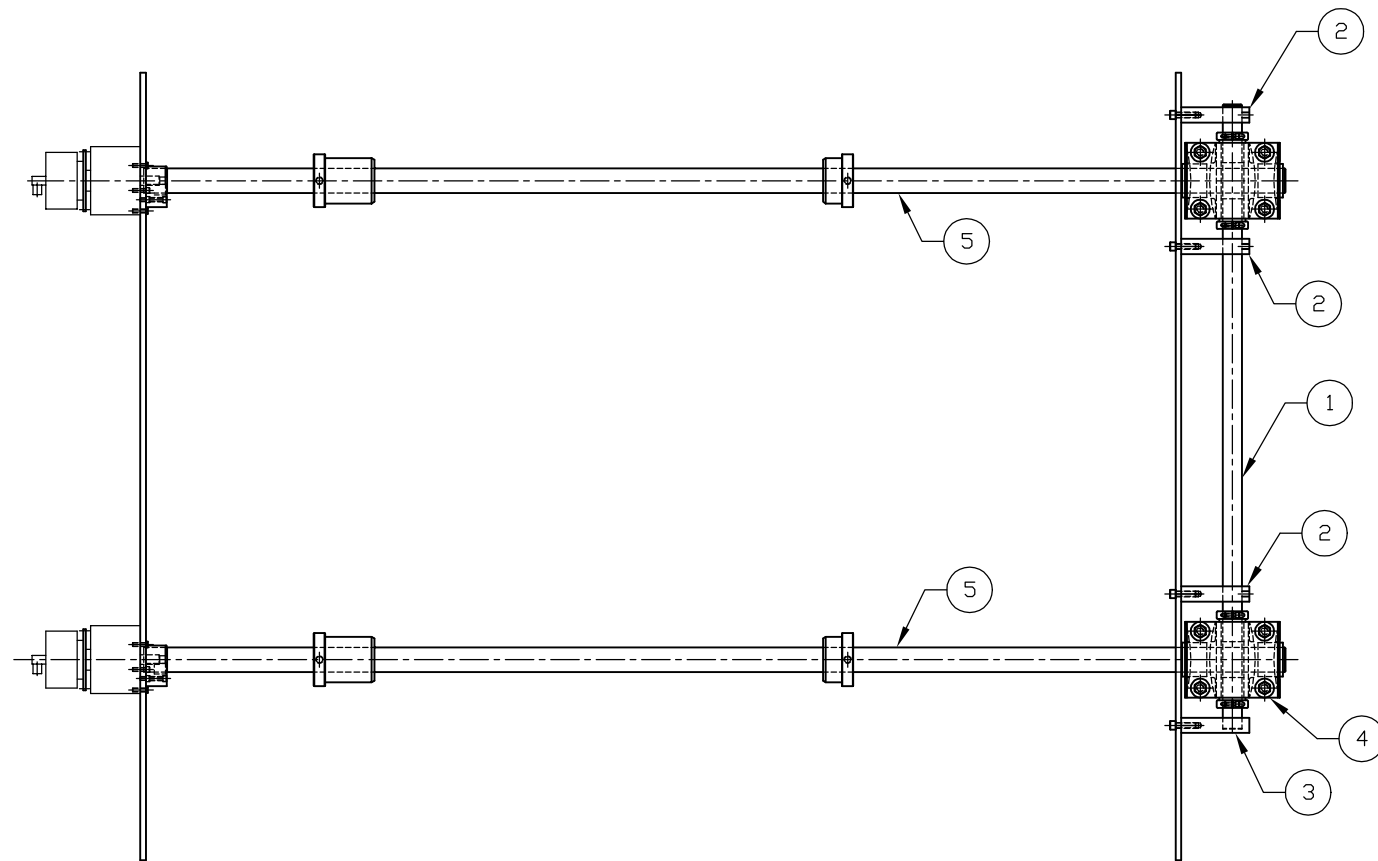
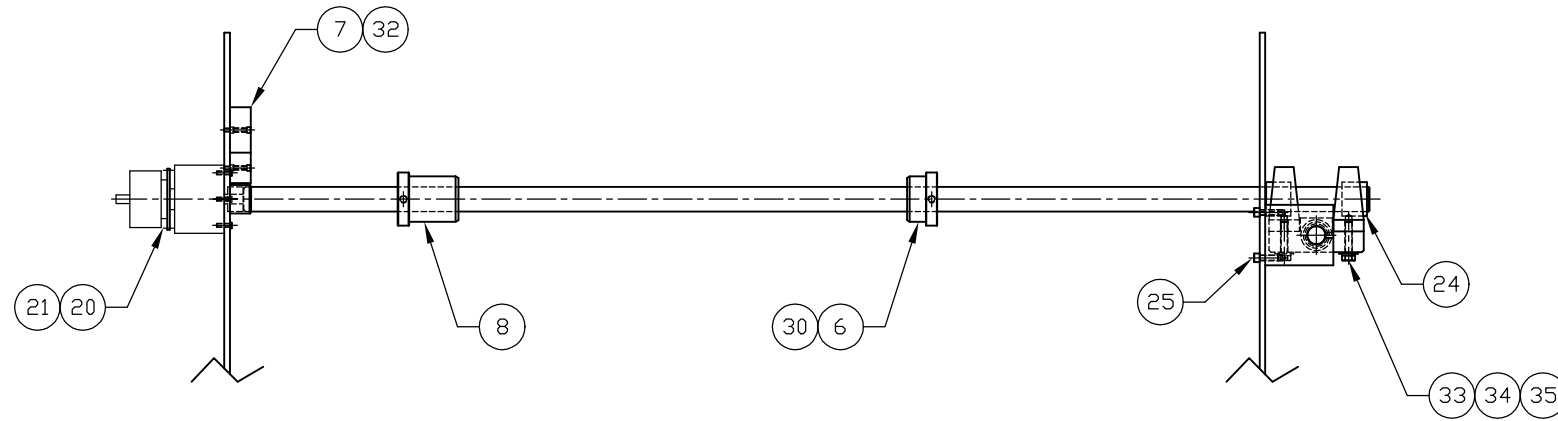
Rev:

Rev: -


Date: 12/19/2001

Description: REAR UNWIND/WINDUP STATION ASSEMBLY, AGL6400

Item:	Part #:	Description:	Qty:
1	AGL-64-B0003	VERTICAL SHAFT, CANTILEVERED UNWIND	1
2	AGL-64-B0004	SHAFT BRACE, CANTILEVERED UNWIND	3
3	AGL-64-B0005	SHAFT SUPPORT, CANTILEVERED UNWIND	1
4	AGL-64-B0940	MAIN PIVOT BLOCK	2
5	AGL-64-B0007	UNWIND SHAFT	2
6	AGL-64-B0044	CORE COLLAR	2
7	AGL-64-B2070	RAMP, UNWIND/WINDUP	2
8	AGL-XX-B2917-1	CORE HOLDER, 1-5/8 BORE (ENCORE)	2
20	012115-05	BRAKE / CLUTCH COMBO, PNEUMATIC COUPLER	2
21	000059-07	BHSCS, 1/4-20UNC, 7/8 LG, BLACK	6
22	001356-12	BUSHING, FLANGED, BRONZE, 1 1/4 ID., 1 1/2 OD, 1 1/2 LG	4
23	000411-20	COLLAR, SHAFT, 1.25 DIA BORE, 1/2 WIDE	4
24	001355-26	BEARING, TAPPED BASE, 1 5/8 BORE	4
25	000013-10	SHCS, 3/8-16UNC, 1-1/4 LG, BLACK	8
28	000135-08	SSS, CUP PT, 3/8-16UNC, 1/2 LG, BLACK	3
30	012265-06	SSS, NYLON TIPPED, 1/2-13UNC, 3/4 LG. BLACK	2
32	000009-12	SHCS, 1/4-20UNC, 1-1/2 LG, BLACK	4
33	000349-17	HHCS, 1/2-13UNC, 2-1/4 LG, ZINC	8
34	000207-10	WASHER, FLAT, SAE, 1/2 DIA, 1-1/16 OD, 17/32 ID, ZINC	8
35	000493-10	WASHER, LOCK, 1/2 DIA, SPLIT, ZINC	8



REV NO.	DESCRIPTION	DATE	INT.	ECN

BREAK ALL SHARP EDGES				 <div>Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532</div>				
DO NOT SCALE DWG.								
UNLESS OTHERWISE SPECIFIED		MAT'L: AGLK0041-1		REAR UNWIND/WIND-UP STATION AGL 6400				
		FINISH:						
0.00 +/-0.015 0.000 +/-0.005		JOB NO.	QTY.	DWG. BY.	CHK BY.	SCALE: 1/8" = 1	DWG. NO.	REV.
ANGLES +/- .5°				GFT		DATE: 12-19-01	AGL-64-C0040-1	

Bill Of Material

Part #: AGL-64-K0086

Appl #:

Assy #: AGLD0085

BOM Rev: G

Model #:

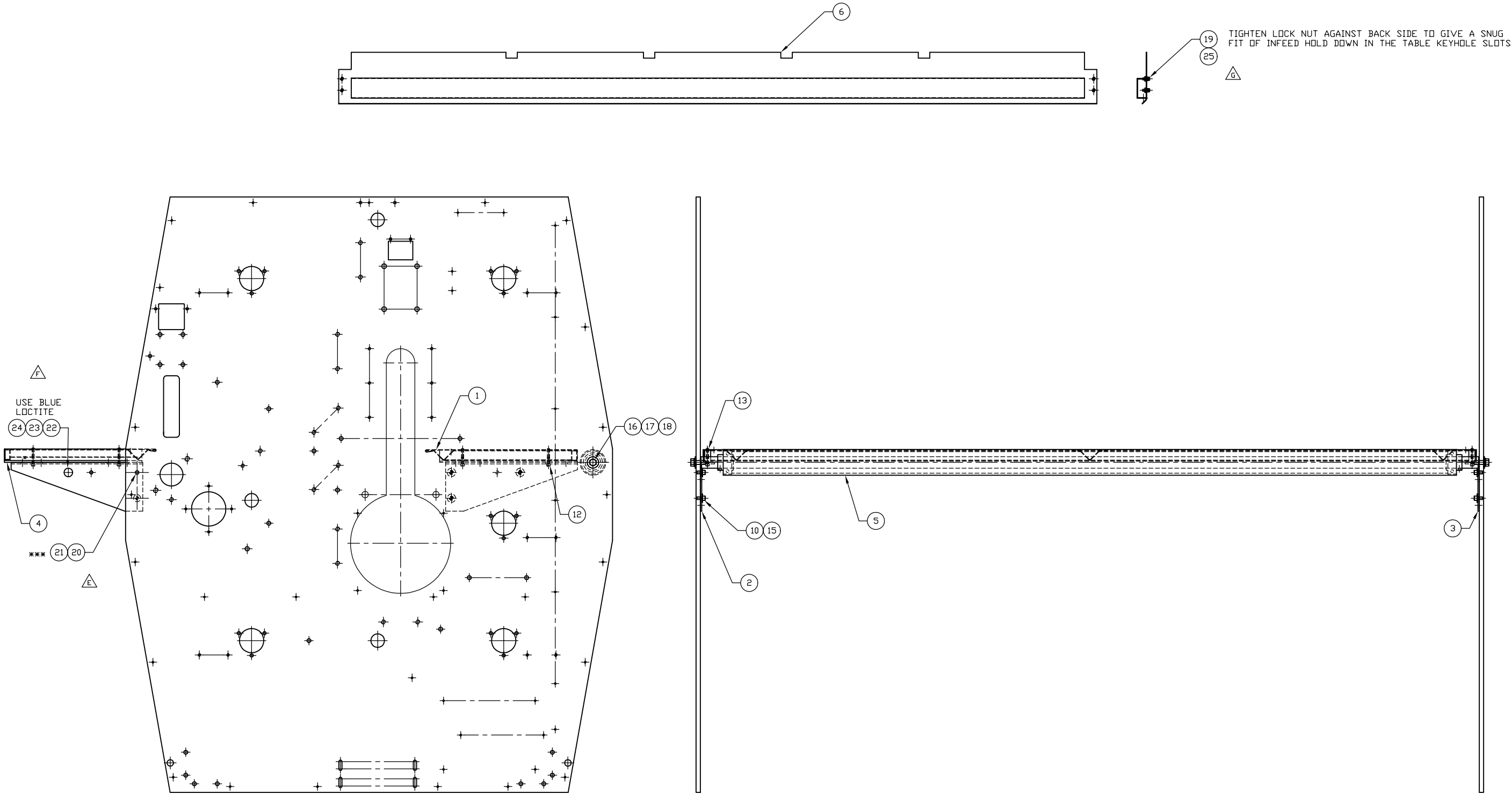
Rev:

Rev: G


Date: 5/19/1999

Description: INFEED/OUTFEED TABLE ASSY

Item:	Part #:	Description:	Qty:
1	AGL-64-C0955-01	INFEED TABLE, REMOVABLE (LIGHT GREY)	2
2	AGL-64-B0082-01	TABLE SUPPORT, RIGHT HAND (LIGHT GREY)	2
3	AGL-64-B0083-01	TABLE SUPPORT, LEFT HAND (LIGHT GREY)	2
4	AGL-64-B0923	MOUNTING ENDS, OUTFEED TABLE	4
5	AGL-64-B0992	IDLER ROLLER SUB ASSY	1
6	AGL-64-C2904-01	INFEED HOLD DOWN, 64/6400 SERIES (LIGHT GREY)	1
10	000009-04	SHCS, 1/4-20UNC, 1/2 LG, BLACK	10
12	000007-04	SHCS, #10-24UNC, 1/2 LG, BLACK	8
13	000129-08	SSS, CUP PT, #10-24UNC, 1/2 LG, BLACK	8
15	000207-06	WASHER, FLAT, SAE, 1/4 DIA, 5/8 OD, 9/32 ID, ZINC	6
16	000343-08	HHCS, 3/8-16UNC, 1 LG, ZINC	2
17	000207-08	WASHER, FLAT, SAE, 3/8 DIA, 13/16 OD, 13/32 ID, ZINC	2
18	000493-08	WASHER, LOCK, 3/8 DIA, SPLIT, ZINC	2
19	000055-04	BHSCS, #8-32UNC, 1/2 LG, BLACK	4
20	012362-01	PIN, QUICK RELEASE, 5/16 DIA, 0.8 LG	2
21	012029-03	LANYARD, QUICK RELEASE PIN, 6" LG., MTG. TAB	2
22	001411-01	BUMPER, ROUND, 3/4 DIA x 7/16 LG #8-32UNC MALE	1
23	000201-03	NUT, HEX, #8-32UNC, ZINC	1
24	000207-03	WASHER, FLAT, SAE, #8 DIA, 7/16 OD, 3/16 ID, ZINC	1
25	000651-03	NUT, HEX, NYLOCK, #8-32UNC, ZINC	8



⚠ *** DRILL 9/32 HOLE IN BRACKETS OUT TO 5/16 DIA.

G	ADDED #25	8-22-07	GFT		BREAK ALL SHARP EDGES DO NOT SCALE DWG.				 Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532				
F	ADDED 22,23,24	9-23-04	GFT										
E	ADDED 20 & 21 AND NOTE	6-14-02	GFT		UNLESS OTHERWISE SPECIFIED 0.00 +/-0.015 0.000 +/-0.005 ANGLES +/-5°				INFEED/OUTFEED TABLE ASSEMBLY				
D	ADDED INFEED HOLD DOWN TO DRAWING	7-6-00	GFT	2059									
C	REMOVED ROLLER SUPPORTS, USED NEW IDLER ROLLER	5-19-99	GFT		MATERIAL: AGLK0086				FINISH:				
B	REVISED TO SHOW NEW REMOVABLE TABLE	7-17-98	GFT		JOB NO. QTY. DWG. BY: CHK BY: GFT								
A	REVISED AFTER PROTOTYPE MARKUPS	2-13-98	GFT						SCALE: 1/4" = 1" DATE: 8-21-97			DWG. NO. AGL-64-D0085	REV. G
REV NO.	DESCRIPTION	DATE	INT.	ECN									

Bill Of Material

Part #: AGL-64-K0918-3	Appl #:	Assy #: AGLC0917-3	BOM Rev: F
Model #:	Rev:	Rev: A	Date: 4/18/2002
Description: PULL ROLL ASSEMBLY, AGL6400 (SENSORS INSIDE)			

Item:	Part #:	Description:	Qty:
1	AGL-64-B0842-4	UPPER PULL ROLL, SUB ASSY, 45-55 DUR. SILICONE	1
2	AGL-64-B0913-1	STOP, CYLINDER, TAPPED	2
3	AGL-64-B0072-1	PULL ROLL GUIDE BLOCK, INSIDE SENSORS	2
4	AGL-64-B0018-1	LOWER PULL ROLL, 60-70 SILICONE	1
5	001317-16	KEY, 0.188 SQ, 2.00 LG, CRS	1
6	AGL-64-B4388-2	SENSOR BRACKET, RH. AGL64R/64i	1
7	AGL-64-B0915	SHIM WHEEL SUPPORT	2
8	AGL-64-B0015	SHIM WHEEL	2
9	AGL-64-B1331-1	EYEBOLT MODIFICATION (ALTER FASTENAL #44428)	1
10	AGL-64-B4388-1	SENSOR BRACKET, LH. AGL64R/64i	1
20	000011-06	SHCS, 5/16-18UNC, 3/4 LG, BLACK	8
21	012378-04	SSS, BRASS TIP, 1/4-20UNC, 1/4" LG.	4
23	000346-08	HHCS, 7/16-14UNC, 1 LG, ZINC	4
24	000493-09	WASHER, LOCK, 7/16 DIA, SPLIT, ZINC	4
25	000198-07	NUT, HEX, JAM, 3/8-24UNF, ZINC	2
26	000131-08	SSS, CUP PT, 1/4-20UNC, 1/2 LG, BLACK	2
27	000764-16	BEARING, FLANGE, 2-BOLT, 1.00 DIA BORE	2
28	012255-07	CLUTCH, PNEUMATIC, 32 TOOTH INPUT, 7/8 BORE, LOCO PADS	1
29	000009-08	SHCS, 1/4-20UNC, 1 LG, BLACK	1
30	000195-07	NUT, HEX, JAM, 3/8-16UNC, ZINC	1
31	000055-04	BHSCS, #8-32UNC, 1/2 LG, BLACK	4
32	000573-06	PHMS, PHILLIPS, #4-40UNC, 3/4 LG, ZINC	2
33	000007-06	SHCS, #10-24UNC, 3/4 LG, BLACK	4
34	001392-15	PLUNGER, SPRING, LEP, 3/8-16UNC, 5/8 LG	2
35	000732-06	BUSHING, BRONZE, 3/8 ID, 1/2 OD, 3/4 LG	4
36	000289-16	PIN, DOWEL, 3/8 DIA, 2 LG	2
37	000129-06	SSS, CUP PT, #10-24UNC, 3/8 LG, BLACK	2
38	001350-07	WASHER, FLAT, USS, 5/16 DIA, 7/8 OD, 3/8 ID, ZINC	2

Part #: AGL-64-K0918-3

Appl #:

Assy #: AGLC0917-3

BOM Rev: F

Model #:

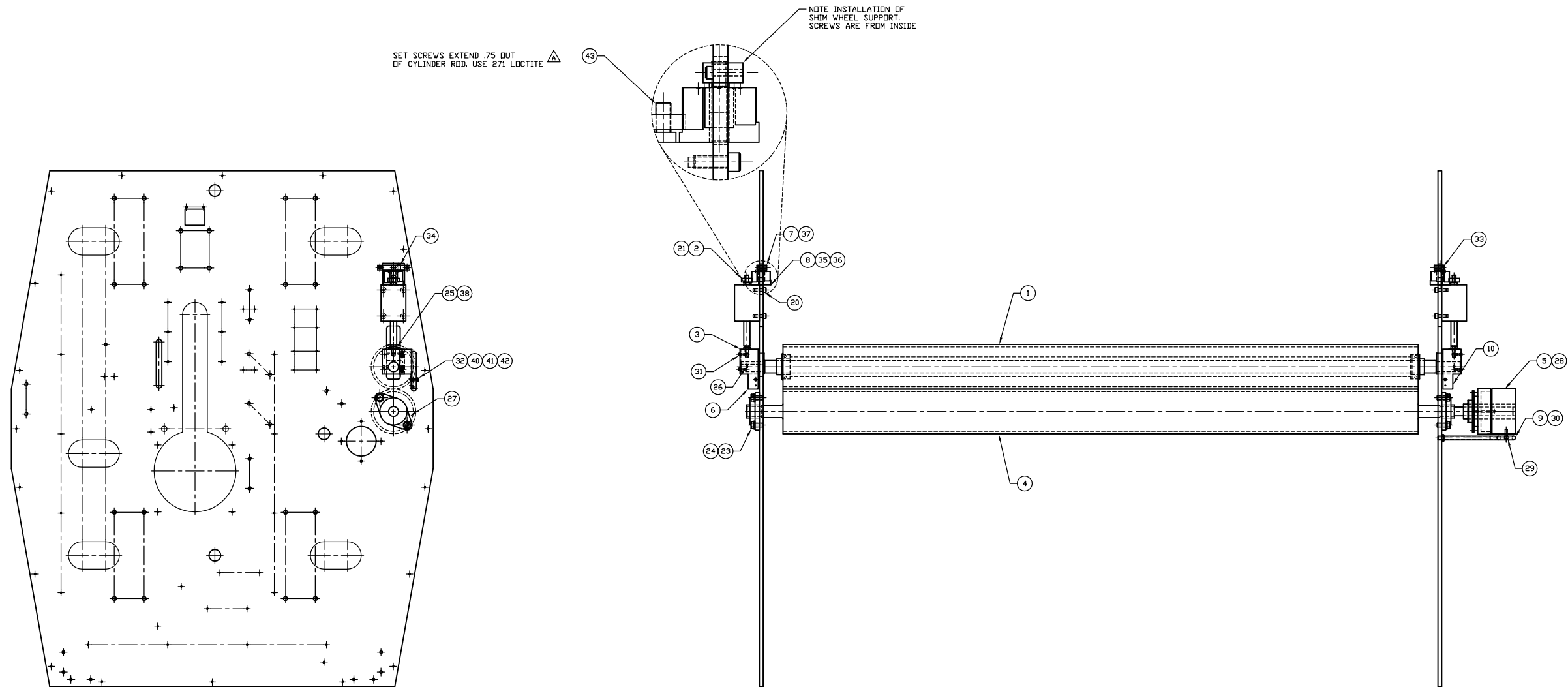
Rev:

Rev: A


Date: 4/18/2002

Description: PULL ROLL ASSEMBLY, AGL6400 (SENSORS INSIDE)

Item:	Part #:	Description:	Qty:
40	000493-01	WASHER, LOCK, #4 DIA, SPLIT, ZINC	2
41	000207-01	WASHER, FLAT, SAE, #4 DIA, 5/16 OD, 1/8 ID, ZINC	4
42	000201-01	NUT, HEX, #4-40UNC, ZINC	2
43	000161-24	SSS, CUP PT, 3/8-24UNF, 1-1/2 LG, BLACK	4



A	ADDED #43	2-2-05	GFT	
REV NO.	DESCRIPTION	DATE	INT.	ECN

BREAK ALL SHARP EDGES				 Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532			
DO NOT SCALE DWG.							
UNLESS OTHERWISE SPECIFIED	MAT'L: AGLK0918-3			PULL ROLL ASSEMBLY AGL6400 (SENSORS INSIDE)			
	FINISH:						
0.00 +/-0.015 0.000 +/-0.005	JOB NO.	QTY.	DWG. BY. GFT	CHK BY.	SCALE: 1/8" = 1	DWG. NO. AGL-64-C0917-3	REV. A
ANGLES +/- .5°					DATE: 4-18-02		

Bill Of Material

Part #: AGL-64-K0031

Appl #:

Assy #: AGLC0030

BOM Rev: A

Model #:

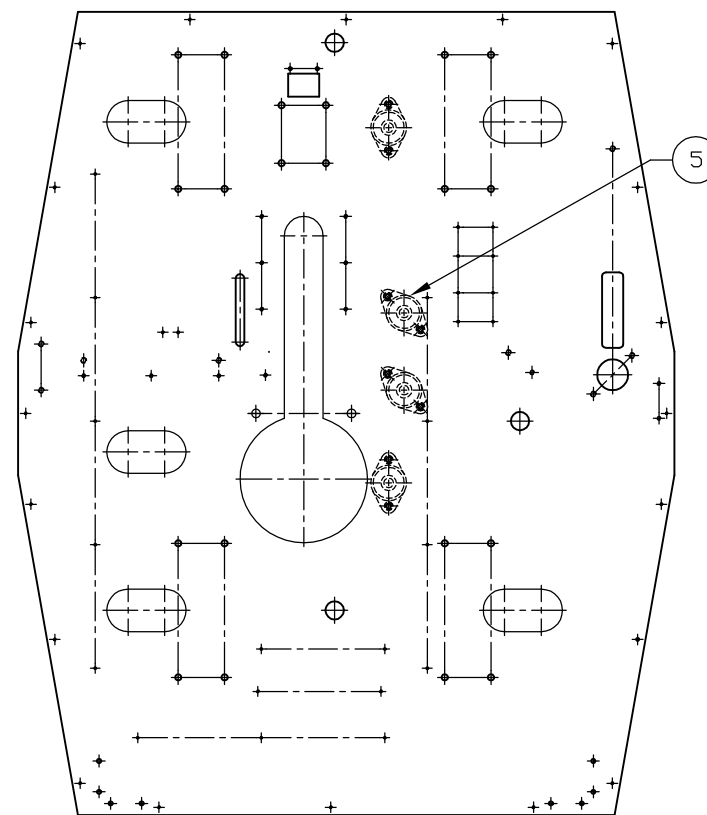
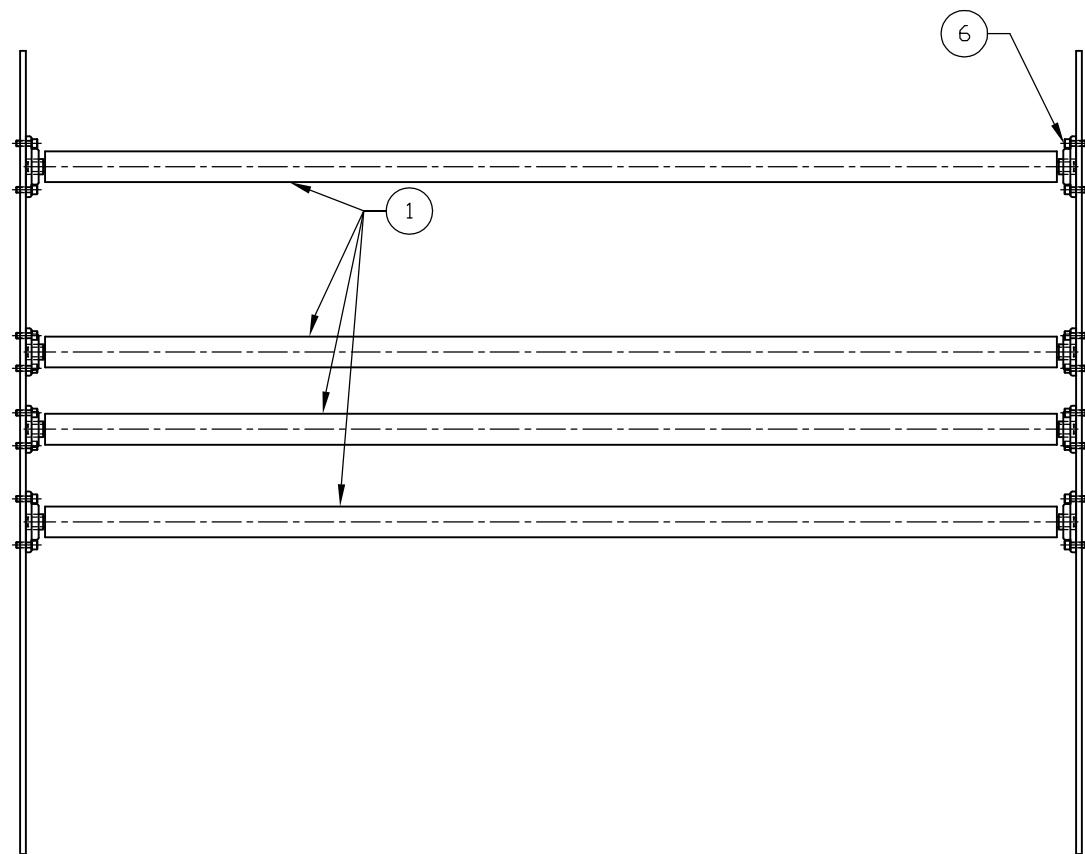
Rev:

Rev: B


Date: 5/12/1999

Description: IDLER ROLLER ASSY

Item:	Part #:	Description:	Qty:
1	AGL-64-B0029	IDLER ROLLER	4
5	001459-10	BEARING, FLANGE, 2-BOLT, 5/8 DIA BORE	8
6	000013-07	SHCS, 3/8-16UNC, 7/8 LG, BLACK	16



B	CHANGED HARDWARE TO SHCS	7-17-98	GFT	
A	MOVED TOP IDLER UP 6 INCHES	7-14-98	GFT	
REV NO.	DESCRIPTION	DATE	INT.	ECN

BREAK ALL SHARP EDGES					 Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532		
DO NOT SCALE DWG.							
UNLESS OTHERWISE SPECIFIED	MAT'L: AGLK0031				IDLER ROLLER ASSEMBLY		
	FINISH:						
	0.00 +/-0.015 0.000 +/-0.005	JOB NO.	QTY.	DWG. BY. GFT	CHK BY.	SCALE: 1/8" = 1	DWG. NO. AGL-64-C0030
ANGLES +/- .5°					DATE: 6-3-97		

Bill Of Material

Part #: AGL-64-K4606-1 **Appl #:** **Assy #:** AGLC5341 **BOM Rev:** D
Model #: **Rev:** **Rev:** B **Date:** 12/11/2002
Description: ELECTRICAL ASSEMBLY, AGL6400 (LATEST BUILD)

Item:	Part #:	Description:	Qty:
0	AGL-64-D4607-1	CONTROL SCHEMATIC, AGL6400/6450	1
1	AGL-64-B5214	DECAL PACKAGE, AGL6400	1
4	AGL-64-A0941	LABEL, TERMINAL BLOCK, AGL 6400/64/64i	1
5	AGL-64-C1107	SUBPANEL	1
6	002951	SIGNAL ISOLATOR	1
7	001998-03	CONTROLLER, MOTOR, 240V INPUT, 90 or 180VDC OUTPUT	1
8	001625-05	CONTROLLER, TEMP, THERMOCOUPLE, PULSED, ALARM	2
9	001623-50	RELAY, 50A, 240V, 1-PHASE	4
10	002974-01	RELAY, MIDGET, 3PDT, 24VDC	1
11	002427-04	SWITCH, FOOT, SPDT, MTD. IN GUARD, 16' CABLE	1
12	002337-01	SOCKET, RELAY, 11-PIN, DIN RAIL MTG, FINGER SAFE	3
13	002332-02	RELAY, MIDGET, 3PDT, 240V	2
15	006006-60	CIRCUIT BREAKER, 2 POLE, 60 AMP, PANEL MNT.	1
16	002099-10	LABEL, .50 x 1.50, VINYL, SELF LAMINATING	200
17	001883-05	TERMINAL BLOCK, 35MM, 10-26 AWG, GRAY, UK5N 12K5521	56
18	001879-01	DIN RAIL, 35MM WIDE, 7.5MM HIGH, 2 MT LG, NS35/7.5	26
19	000717-00	WIRE, STRANDED, 14 AWG, BLACK	45
20	000719-00	WIRE, STRANDED, 10 AWG, BLACK	50
21	002324-01	SWITCH, KNOB, 2 POS, 1NO	5
22	001153-05	CORD GRIP, BELL-MOUTH, BLACK, 5/8" MTG HOLE	2
23	001089-01	CABLE TIE, NYLON, WHITE, 4" LG	50
24	001090-01	CABLE TIE, MOUNT, ADHESIVE-BACKED, 3/4" SQ	40
25	001876-10	TERMINAL BLOCK, GND, 35MM, 8-20 AWG, USLKG10 29C3451	7
26	002544-02	WIRE, THERMOCOUPLE, TYPE J, #20AWG,SHIELDED, 1000 FT ROLL	30
27	002728-01	EMITTER, SERIES 10	2
28	001886-01	BAR, JUMPER, 10-POS, #FB10-6 (10 pcs.per bag)	1
29	002696-01	MOTOR, PERM MAGNET, 180VDC, 1/2 HP, 1750 RPM	1
30	000720-00	WIRE, STRANDED, MTW, 6 AWG, BLACK	20

Part #: AGL-64-K4606-1

Appl #:

Assy #: AGLC5341

BOM Rev: D

Model #:

Rev:

Rev: B

Date: 12/11/2002

Description: ELECTRICAL ASSEMBLY, AGL6400 (LATEST BUILD)

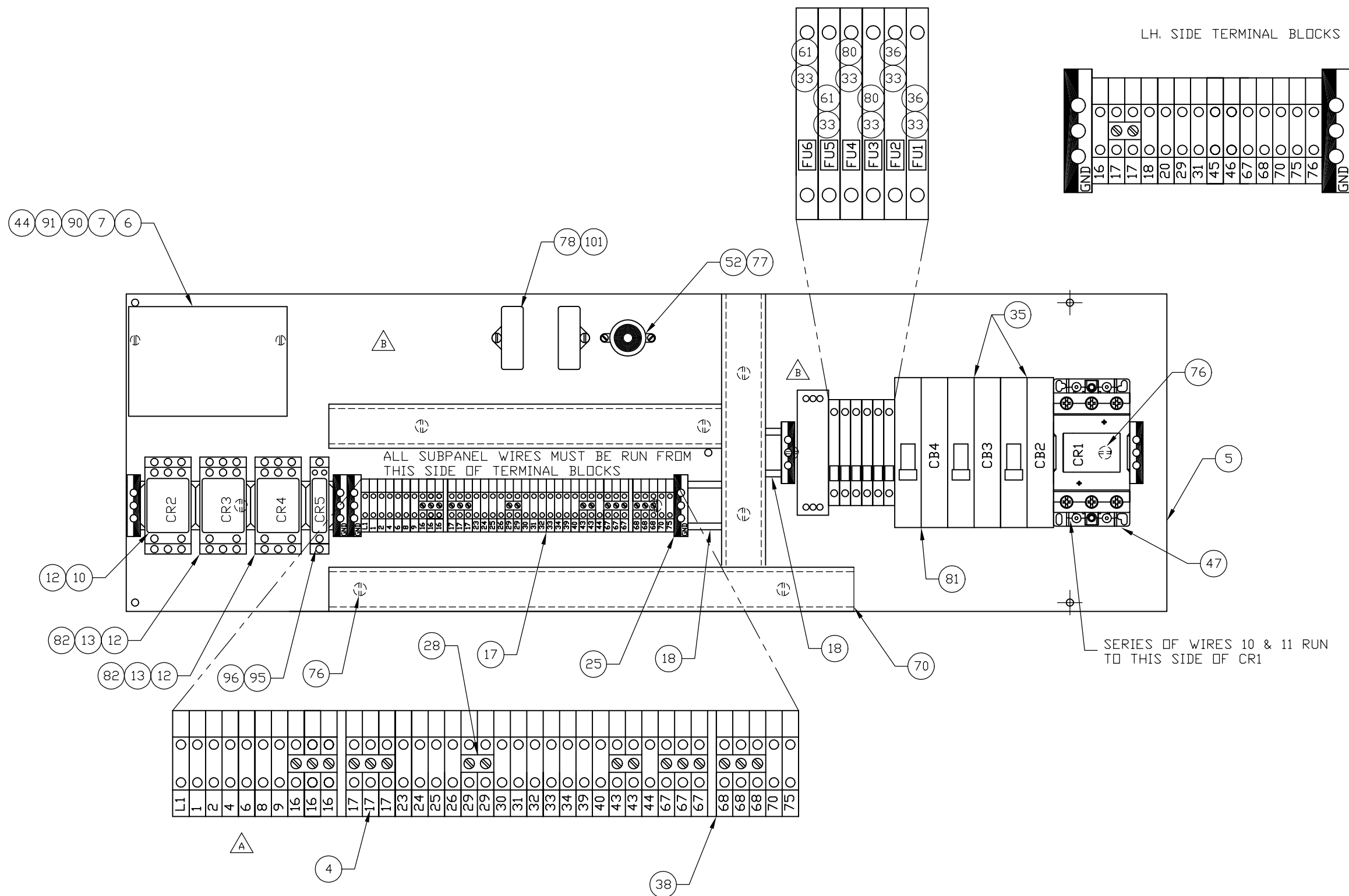
Item:	Part #:	Description:	Qty:
31	001089-02	CABLE TIE, NYLON, WHITE, 5.5" LG	15
32	001090-02	CABLE TIE, MOUNT, ADHESIVE-BACKED, 1" SQ	15
33	001875-01	FUSE HOLDER, TERMINAL BLOCK, 35MM MTG, (NOW INCLUDES 001881-01)	6
34	001881-01	NOW PURCHASED AS PART OF 001875-01	6
35	006021-30	CIRCUIT BREAKER, 2 POLE, 30 AMP, DIN RAIL MNT	2
36	001530-070	FUSE, SLO-BLO, 7.0A, 250V, 1/4X1-1/4"	2
37	002698-06	LUG, 1/4" HOLE, #6 AWG WIRE	4
38	002507-04	END COVER, TERMINAL BLOCK, D-UK4/10	2
39	002542-04	SLIP RING, 5 POLE, 3@45A, 2@2A, 2 BORE	2
44	000557-03	PHMS, SLOTTED, #8-32UNC, 3/8 LG, ZINC	2
46	000577-02	PHMS, PHILLIPS, #8-32UNC, 1/4 LG, ZINC	32
47	002509-60	CONTACTOR, 3-POLE, 70A, 220V, 1 AUX	1
48	002506	SWITCH ASSY, PUSHBUTTON, E-STOP	4
49	002510-02	SWITCH, PB, MAINT., LIGHTED, 1NC-1NO, 24V, AMBER	2
50	002318-06	SWITCH, PUSHBUTTON, FLUSH, 1NC, RED	2
51	002512-01	LEGEND, HIGH VOLTAGE	2
52	002511-01	ALARM, PANEL MTG, 3-28VDC	1
53	002448-02	CORD GRIP, LIQUID-TIGHT, 1" NPT, 0.71-0.98 DIA, BLK	1
54	001966	LUG, GROUNDING, 1/0-14AWG	1
55	001006-08	NUT, LOCK, CONDUIT, 1"	1
56	000337-04	HHCS, 1/4-20UNC, 1/2 LG, ZINC	1
57	000493-06	WASHER, LOCK, 1/4 DIA, SPLIT, ZINC	1
58	002728-02	RECEIVER, SERIES 10	2
59	001826-11	POWER SUPPLY, SINGLE, 24VDC, 1.0A	1
60	000715-00	WIRE, STRANDED, 18 AWG, BLACK	300.00
61	001530-003	FUSE, SLO-BLO, 1/4A, 250V, 1/4X1-1/4"	2
62	002728-03	CABLE, SERIES 10, 2M LG.	3
63	002318-02	SWITCH, PUSHBUTTON, FLUSH, 1NO, BLACK	3
64	001352-06	STANDOFF, HEX, M/F, #10-32UNC, 3/4 LG, AL	5

Part #: AGL-64-K4606-1**Appl #:****Assy #:** AGLC5341**BOM Rev:** D**Model #:****Rev:****Rev:** B**Date:** 12/11/2002**Description:** ELECTRICAL ASSEMBLY, AGL6400 (LATEST BUILD)

Item:	Part #:	Description:	Qty:
65	002523-08	FERRULE, INSULATED, 18AWG, WIDE COLLAR	206
66	002523-01	FERRULE, INSULATED, 16AWG, STD LENGTH, BLACK	12
67	002523-02	FERRULE, INSULATED, 14AWG, STD LENGTH, BLUE	6
68	000717-24	WIRE, STRANDED, 14 AWG, GREEN/YELLOW	14.00
69	002955-01	WIRE DUCT, 1 x 1-1/2, WHITE	144.0
70	002955-02	WIRE DUCT, 1 x 2-1/4, WHITE	48.0
71	002955-04	WIRE DUCT, 1-1/2 x 3, WHITE	96.0
72	000343-08	HHCS, 3/8-16UNC, 1 LG, ZINC	4
73	000493-08	WASHER, LOCK, 3/8 DIA, SPLIT, ZINC	4
75	000557-04	PHMS, SLOTTED, #8-32UNC, 1/2 LG, ZINC	4
76	000561-03	PHMS, SLOTTED, #10-32UNF, 3/8 LG, ZINC	6
77	000553-04	PHMS, SLOTTED, #4-40UNC, 1/2 LG, ZINC	2
78	000555-03	PHMS, SLOTTED, #6-32UNC, 3/8 LG, ZINC	2
79	000719-24	WIRE, STRANDED, 10 AWG, GREEN/YELLOW	11
80	001530-040	FUSE, SLO-BLO, 4.0A, 250V, 1/4X1-1/4"	2
81	006021-20	CIRCUIT BREAKER, 2 POLE, 20 AMP, DIN RAIL MNT	1
82	002492-022	SUPPRESSOR, ARC, TYPE QC, 22 OHM	2
83	001731-03	CABLE, 3 x 20 AWG, SHIELDED	10
84	002523-06	FERRULE, INSULATED, 6AWG, STD LENGTH, GREEN	10
85	002523-05	FERRULE, INSULATED, 10AWG, STD LENGTH, BLACK	14
86	002523-10	FERRULE, INSULATED, 12AWG, STD LENGTH, GRAY	2
87	002523-02	FERRULE, INSULATED, 14AWG, STD LENGTH, BLUE	2
88	002914-02	CABLE, 2 x 18 AWG, SHIELDED	4
89	002506-1	LEGEND, EMERGENCY STOP DECAL	4
90	002727-02	CONNECTOR, 90 DEG. FLAG DISCONNECT 12-10AWG	2
91	002727-01	CONNECTOR, 90 DEG. FLAG DISCONNECT 16-14AWG	2
92	002728-05	CABLE, SERIES 10, 5M LG.	1
94	006004-67	RIBBON SWITCH, 4' LEADS, 4 WIRE, YELLOW, 67" LG.	2
95	002974-02	RELAY, MIDGET, 1PDT, 24VDC	1

Part #: AGL-64-K4606-1**Appl #:****Assy #:** AGLC5341**BOM Rev:** D**Model #:****Rev:****Rev:** B**Date:** 12/11/2002**Description:** ELECTRICAL ASSEMBLY, AGL6400 (LATEST BUILD)

Item:	Part #:	Description:	Qty:
96	002337-06	SOCKET, RELAY, 5-PIN, DIN RAIL MTG	1
97	012393	DOUBLE SIDED TAPE	134
98	002345-221	RESISTOR, METAL-FILM, 1%, 1/4W, 221 OHM	1
99	006033-02	CONNECTOR, BRASS/SETSCREW, 2-10AWG	4
100	006033-03	CONNECTOR, BRASS/SETSCREW, 2-14AWG	4
101	001362-03	CAPACITOR	2
103	002893-02	END BARRIER, FUSE BLOCK	1



Bill Of Material

Part #: AGL-64-K0066-1 **Appl #:** **Assy #:** AGLD4293 **BOM Rev:** C
Model #: **Rev:** **Rev:** D **Date:** 12/19/2001
Description: PNEUMATIC ASSEMBLY, AGL6400

Item:	Part #:	Description:	Qty:
1	012262-05	TUBING, 5/32" OD, BLACK	110
2	012263-05	TUBING, 1/4" OD, BLACK	75
3	001294	REGULATOR, PRESSURE, 1/8NPT	8
4	012234-03	GUAGE, PRESSURE, 0-100PSI, 1/8NPT, PANEL MNT.	8
5	001455-01	SWITCH, AIR, 3 POSITION	4
6	000854-04	FITTING, TUBE, TEE, 1/4 OD TUBE	5
7	000847-06	FITTING, PIPE, ELBOW, MALE, 5/32 OD, 1/8 NPT	11
8	000861-03	FITTING, PIPE, FLOW CONTROL, ELBOW, 1/4 OD, 1/8 NPT	8
9	000847-10	FITTING, PIPE, ELBOW, MALE, 1/4 OD, 1/8 NPT	9
10	000851-02	FITTING, PIPE, ELBOW, FEMALE, 5/32 OD, 1/8 NPT	6
11	000849-05	FITTING, PIPE, TEE, BRANCH, 5/32 OD, 1/8 NPT	6
12	000849-08	FITTING, PIPE, TEE, BRANCH, 1/4 OD, 1/8 NPT	9
13	000851-04	FITTING, PIPE, ELBOW, FEMALE, 1/4 OD, 1/8 NPT	2
14	000855-01	FITTING, TUBE, "Y", 5/32 OD TUBE	4
15	000855-04	FITTING, TUBE, "Y", 1/4 OD TUBE	8
16	012280-05	FITTING, REDUCER, PLUG-IN, 1/4 TUBE-5/32 TUBE	7
17	000847-12	FITTING, PIPE, ELBOW, MALE, 1/4 OD, 1/4 NPT	1
18	000822-02	FITTING, PIPE, BULKHEAD, 1/4 NPT, 3/4-16UNC	1
19	012303-04	VALVE, SOLENOID, 2 POSITION, 24VDC, EXT. PILOT	2
20	012011-01	MUFFLER, EXHAUST, 1/8NPT	2
21	001458-28	AIR CYLINDER, 3 DIA BORE, 3-1/2" STROKE, FINE THD. BOTH ENDS	2
22	001457-20	AIR CYLINDER, 2 DIA BORE, 2 1/2" STROKE, FINE THD	2
23	012388-01	VALVE, PUSHBUTTON, 5/32 TUBE	5
24	001418	AIR SWITCH, NO, 1 POLE	2
25	000577-12	PHMS, PHILLIPS, #8-32UNC, 1-3/4 LG, ZINC	2
26	000845-02	FITTING, PIPE, MALE, 5/32 OD, 10-32UNF	5
27	012572-04	CONNECTOR, SOLENOID VALVE	2
28	000847-05	FITTING, PIPE, ELBOW, MALE, 5/32 OD, 10-32UNF	2

Part #: AGL-64-K0066-1

Appl #:

Assy #: AGLD4293

BOM Rev: C

Model #:

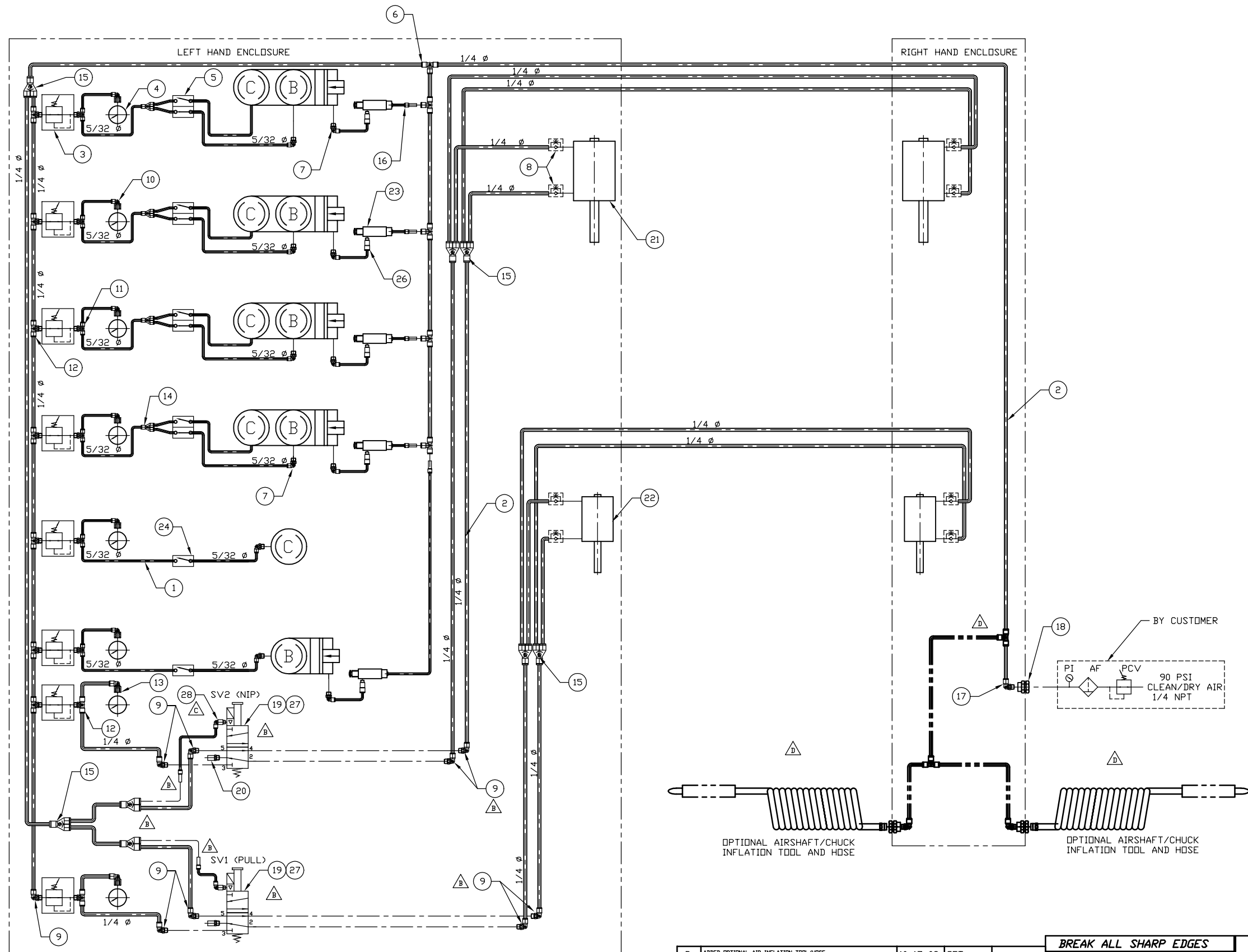
Rev:


Rev: D

Date: 12/19/2001

Description: PNEUMATIC ASSEMBLY, AGL6400

Item:	Part #:	Description:	Qty:
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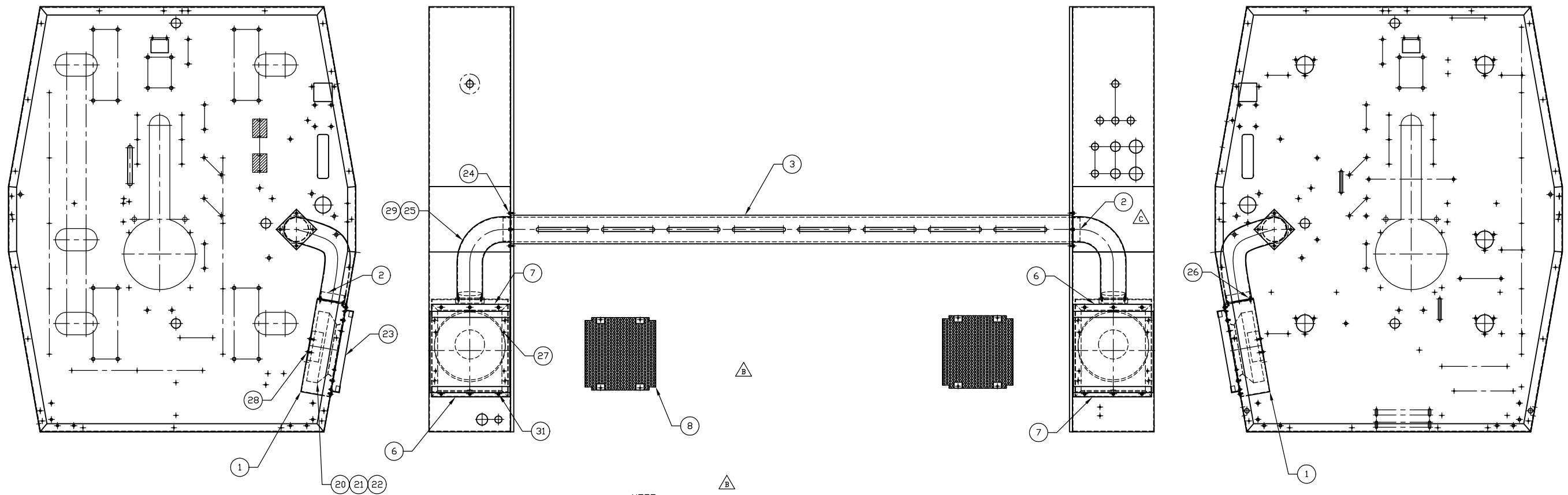


D	ADDED OPTIONAL AIR INFLATION TOOL/HOSE	10-17-08	GFT		BREAK ALL SHARP EDGES DO NOT SCALE DWG.	 AGL Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532	PNEUMATIC ASSEMBLY AGL6400			
C	ADDED 28	8-22-07	GFT							
B	REVISED TO NUMATICS VALVE	10-17-06	GFT							
A	CHANGED SWITCH, ADDED #26	7-31-02	GFT							
REV NO.	DESCRIPTION	DATE	INT.	ECN	UNLESS OTHERWISE SPECIFIED	MAT'L: AGLK0066-1				
					0.00 +/-0.015 0.000 +/-0.005	FINISH:				
					ANGLES +/-5°	JOB NO. QTY. DWG. BY. CHK BY GFT	SCALE: 1/4 = 1 DATE: 12-19-01	DWG. NO. AGL-64-D4293	REV. D	


Bill Of Material

Part #: AGL-64-K3511	Appl #:	Assy #: AGLD2515	BOM Rev: B
Model #:	Rev:	Rev: C	Date: 3/1/2001
Description: WEB COOLING, AGL6400			

Item:	Part #:	Description:	Qty:
1	AGL-64-C2511	PLENUM, AGL6400	2
2	AGL-64-B2510	ADAPTER RING, AGL6400	4
3	AGL-64-C2925	COOLING TUBE, AGL6400	1
6	AGL-64-B2512	RH. FILTER GUIDE, AGL6400	2
7	AGL-64-B2513	LH. FILTER GUIDE, AGL6400	2
20	001362-01	IMPELLER, MOTORIZED, 460cfm, 230VAC	2
21	001362-02	INLET RING, MOTORIZED IMPELLER	2
23	001363	AIR FILTER, 1 x 10 x 10	2
24	000005-03	SHCS, #8-32UNC, 3/8 LG, BLACK	8
25	001364	FLEXIBLE DUCT, 3.0 DIA x 15 FT. LG	.5
26	000055-03	BHSCS, #8-32UNC, 3/8 LG, BLACK	8
27	000053-02	BHSCS, #6-32UNC, 1/4 LG, BLACK	12
28	001366-10	BHSCS, M4x10 LG, BLACK	8
29	001365	HOSE CLAMP, 3.0 DIA	4
31	000057-03	BHSCS, #10-24UNC, 3/8 LG, BLACK	20



REV NO.	DESCRIPTION	DATE	INT.	ECN
C	CHANGED #5 TO #2	1-15-03	GFT	
B	ADDED ITEM 8 AND NOTE	11-28-00	GFT	2075
A	REMOVED ITEM 4 AND 30, LENGTHENED TUBE	7-6-00	GFT	2058

BREAK ALL SHARP EDGES DO NOT SCALE DWG.				 Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532			
UNLESS OTHERWISE SPECIFIED		MATERIAL: AGLK2514 AGLK3511		WEB COOLING AGL6400/6450			
FINISH: 0.00 +/-0.015 0.000 +/-0.005		JOB NO. QTY. DWG. BY: GFT		SCALE: 1/6" = 1"		DWG. NO. AGL-64-D2515	
ANGLES +/-5°		DATE: 12-21-99				REV. C	

Bill Of Material

Part #: AGL-64-K0096-1

Appl #:

Assy #: AGLC0097-1

BOM Rev: B

Model #:

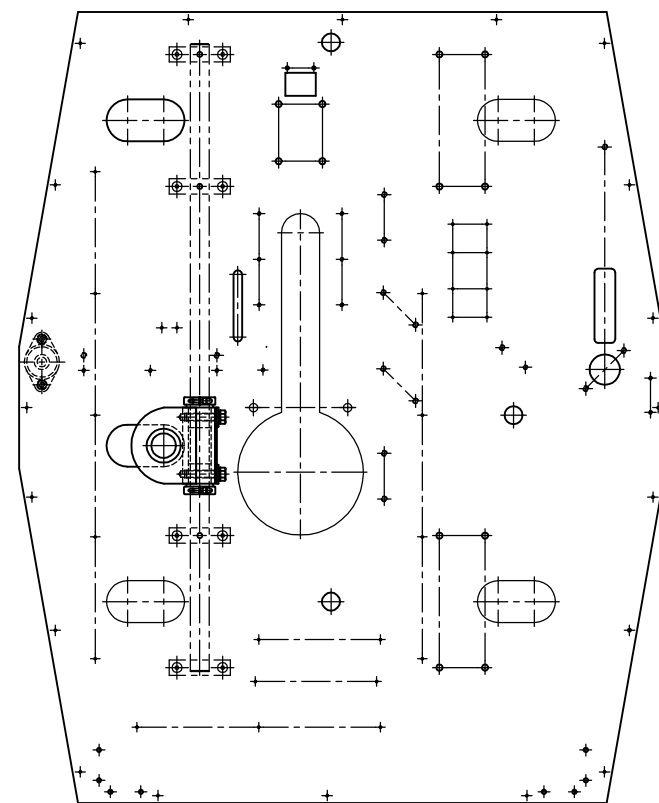
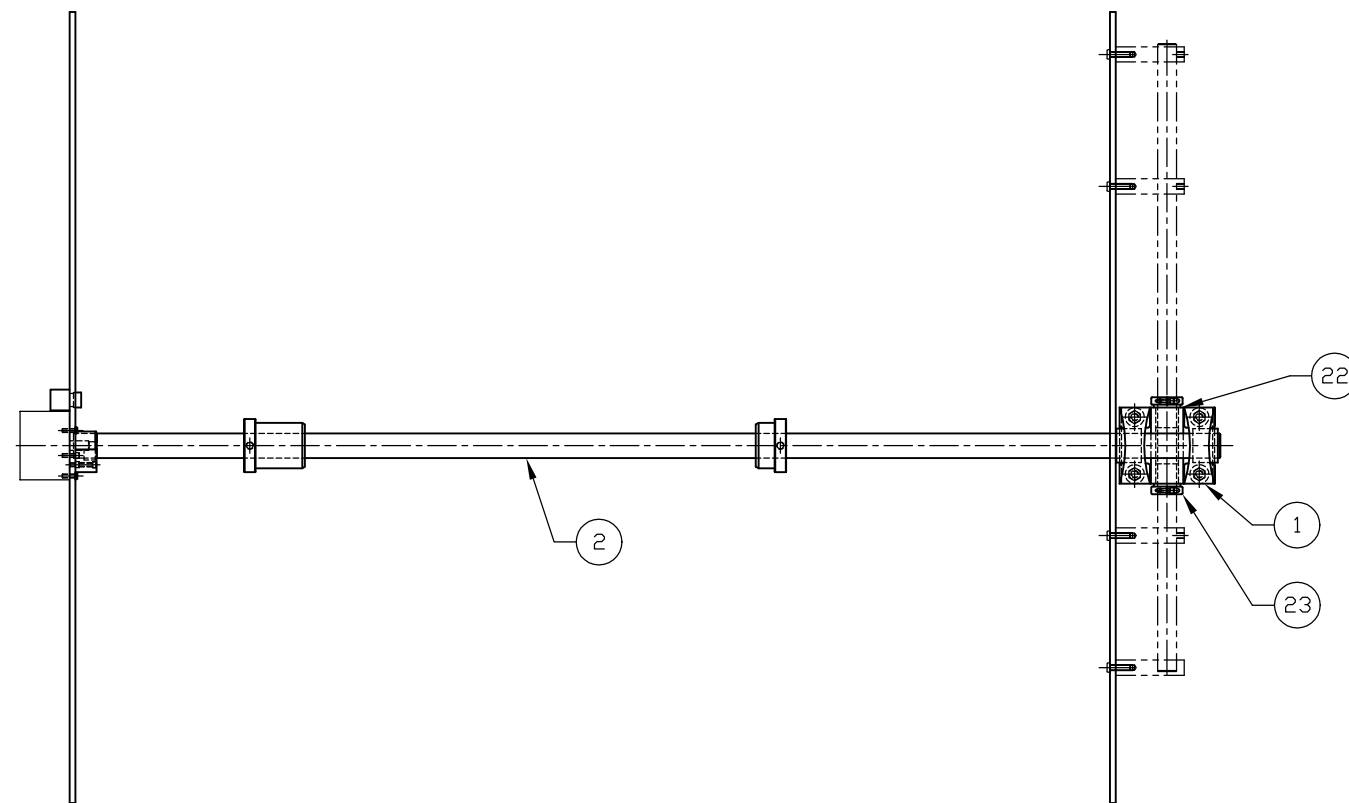
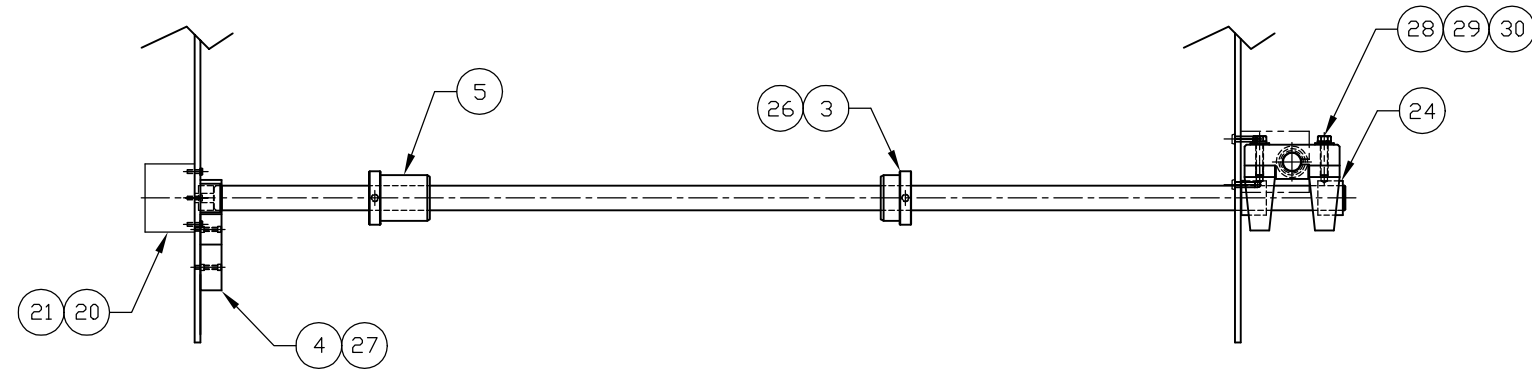
Rev:

Rev: -


Date: 12/19/2001

Description: FRONT CENTER UNWIND STATION, AGL6400

Item:	Part #:	Description:	Qty:
1	AGL-64-B0940	MAIN PIVOT BLOCK	1
2	AGL-64-B0007	UNWIND SHAFT	1
3	AGL-64-B0044	CORE COLLAR	1
4	AGL-64-B2070	RAMP, UNWIND/WINDUP	1
5	AGL-XX-B2917-1	CORE HOLDER, 1-5/8 BORE (ENCORE)	1
20	001379-1	BRAKE, PNEUMATIC COUPLING	1
21	000059-07	BHSCS, 1/4-20UNC, 7/8 LG, BLACK	3
22	001356-12	BUSHING, FLANGED, BRONZE, 1 1/4 ID., 1 1/2 OD. 1 1/2 LG	2
23	000411-20	COLLAR, SHAFT, 1.25 DIA BORE, 1/2 WIDE	2
24	001355-26	BEARING, TAPPED BASE, 1 5/8 BORE	2
26	012265-06	SSS, NYLON TIPPED, 1/2-13UNC, 3/4 LG. BLACK	1
27	000009-12	SHCS, 1/4-20UNC, 1-1/2 LG, BLACK	2
28	000349-17	HHCS, 1/2-13UNC, 2-1/4 LG, ZINC	4
29	000207-10	WASHER, FLAT, SAE, 1/2 DIA, 1-1/16 OD, 17/32 ID, ZINC	4
30	000493-10	WASHER, LOCK, 1/2 DIA, SPLIT, ZINC	4



REV NO.	DESCRIPTION	DATE	INT.	ECN

BREAK ALL SHARP EDGES					 <div>Advanced Greig Laminators, Inc. 801 Burton Blvd. DeForest, WI 53532</div>				
DO NOT SCALE DWG.									
UNLESS OTHERWISE SPECIFIED		MAT'L: AGLK0096-1			FRONT CENTER UNWIND STATION AGL 6400				
		FINISH:							
0.00 +/-0.015 0.000 +/-0.005					SCALE: 1/8 = 1		DWG. NO.		REV.
ANGLES +/- .5°		JOB NO.	QTY.	DWG. BY.	CHK BY.	DATE: 12-19-01	AGL-64-C0097-1		
				GFT					

Bill Of Material

Part #: AGL-XX-K2660

Appl #:

Assy #:

BOM Rev: D

Model #:

Rev:

Rev:

Date:

Description: ACCESSORIES KIT, 44/4400/64 SERIES/6400/6450

Item:	Part #:	Description:	Qty:
1	012235-01	CUTTER, ZIPPY	1
2	012236-01	ROLL ADHESIVE ERASER, PLAIN, SHRINKWRAPPED	1
3	001446-04	ALLEN WRENCH, LONG ARM, 3/32, T-HANDLE	1
4	AGL-XX-B0823	LIFTING BRACKET	2
5	001446-11	ALLEN WRENCH, LONG ARM, 1/4 T-HANDLE	1
6	000349-08	HHCS, 1/2-13UNC, 1 LG, ZINC	4
7	012248	CLOTH, LOW LINT, 12x13	1
8	012249	ALCOHOL, ISOPROPYL, 1 PINT	1
9	000493-10	WASHER, LOCK, 1/2 DIA, SPLIT, ZINC	4
10	001530-070	FUSE, SLO-BLO, 7.0A, 250V, 1/4X1-1/4"	2
11	X6	OPERATORS MANUAL	1