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1031S WINDER

OPERATIONS and MAINTENANCE MANUAL

Gloucester Engineering

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1031S SINGLE TURRET PHANTOM AXIS SHAFT TYPE WINDER

Operations and Maintenance Manual

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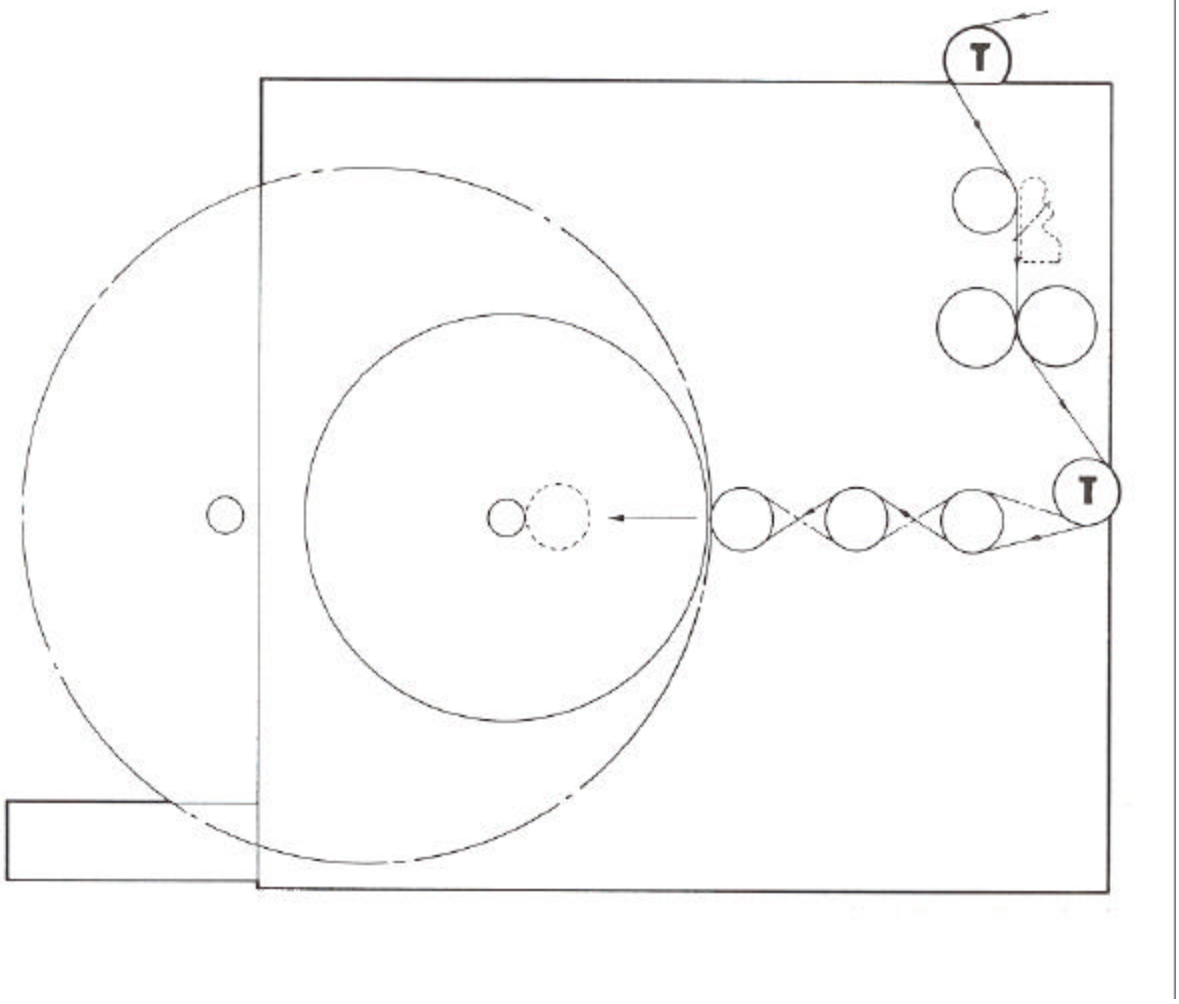
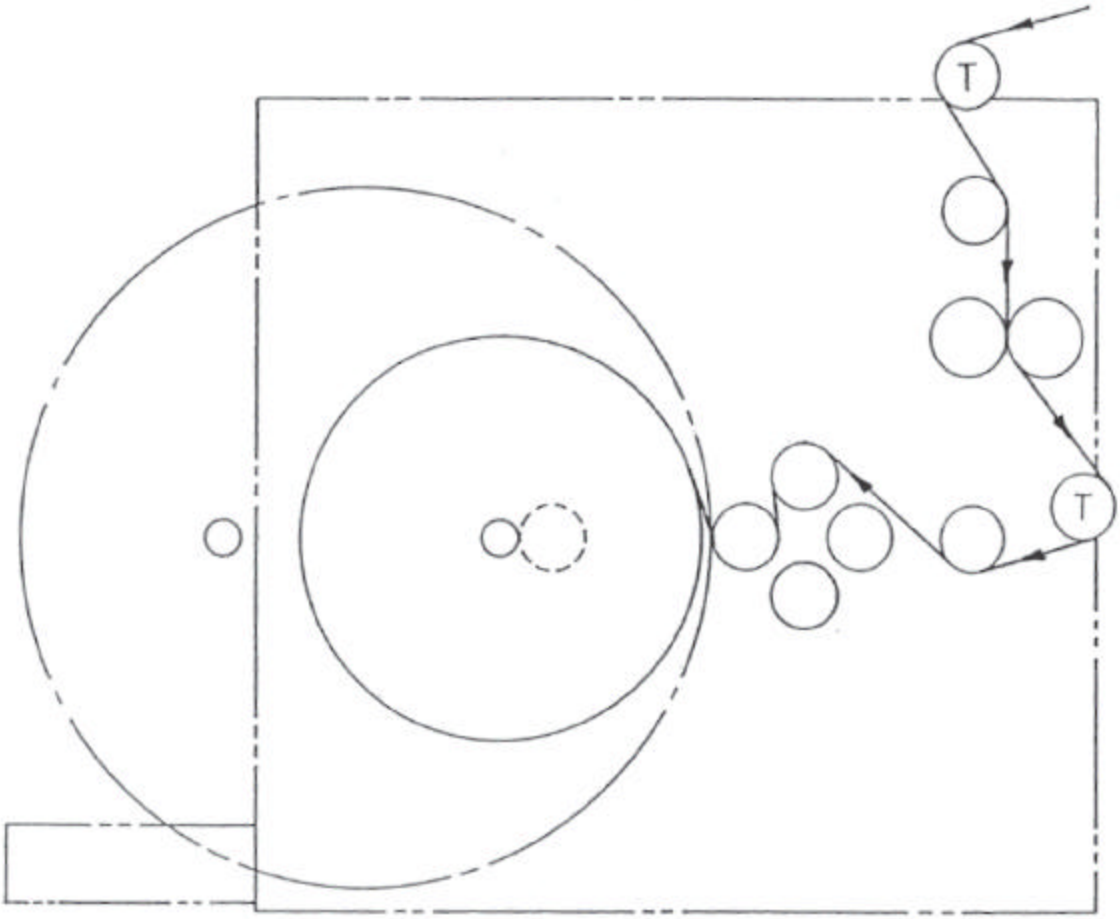


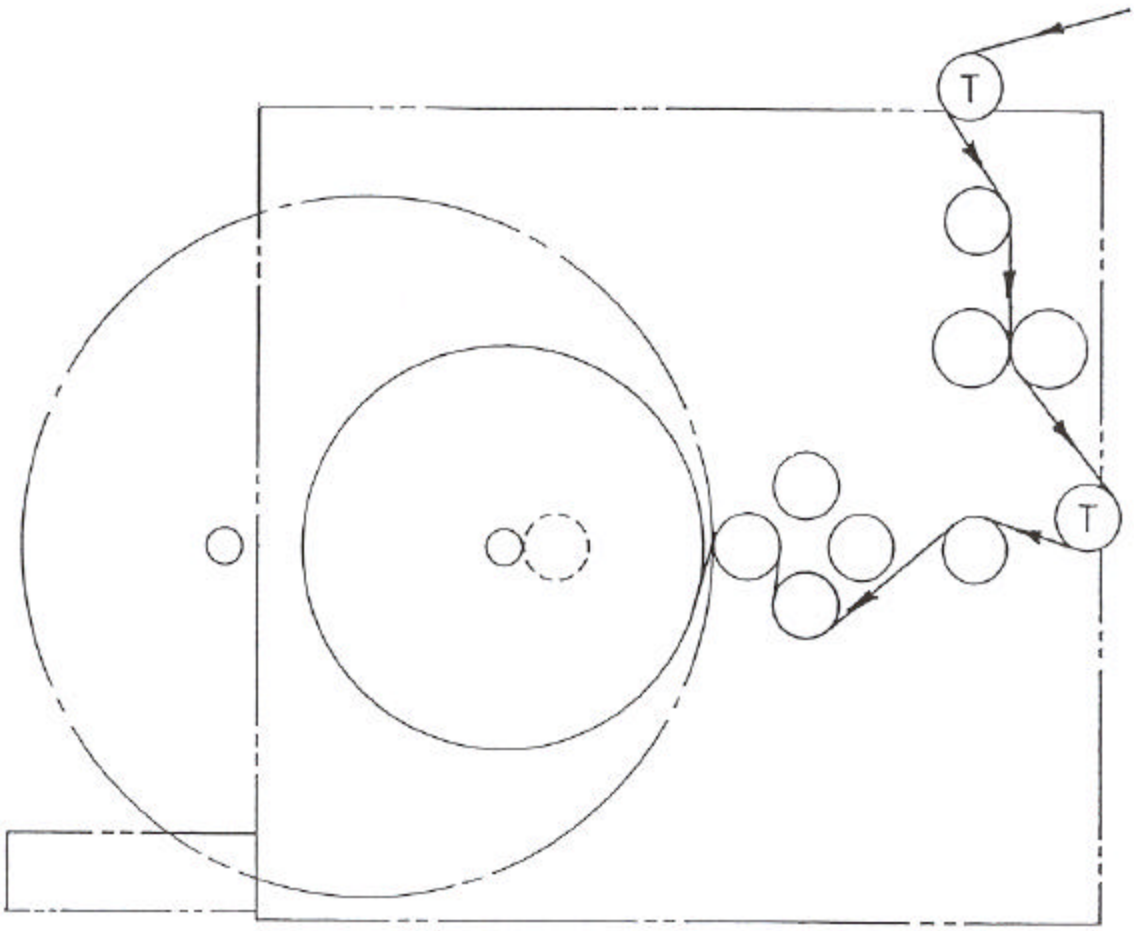
Model 1031S Winder



Model 1031S Winder

Forward wind with bypass idler rolls

Print side in



Model 1031S Winder

Reverse wind with bypass idler rolls

Print side out

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PROGRAMMABLE LOGIC CONTROL (PLC) TOUCH SCREEN (cont'd)

SAFETY FIRST

Safety notice

The winder is an electrically powered machine. To provide for operator safety and general acceptance, all electrical features of the machine have been designed in accordance with the National Electrical Code, NFPA-70. On special orders, the winders can be built to conform to codes that are different from the National Electrical Code, or have additional National Electrical Code requirements, e.g. the California Electrical Code. The winder should, in all cases, be installed according to the requirements of the local electrical code by a licensed electrician or electrical contractor. The winder must be adequately grounded. Ground connections should be inspected at regular intervals of not more than thirty days.

Your employer has prepared various procedures for you to follow during maintenance and other non-operational functions. These procedures, commonly referred to as "Lockout/Tagout" procedures should be followed by you during all applicable operations.

Electrical safety precautions

1. Junction boxes and electrical enclosures are protected from tampering with screw fastened metal plates and locked hinged doors.
2. DO NOT open electrical enclosures while the winder is running or while the main disconnect is ON.
3. DO NOT open electrical enclosures if you are not a qualified electrical technician or a licensed electrician.
4. DO NOT make electrical access keys available to unqualified personnel.

Motion safety precautions

1. Various portions of drive systems involving belts, chains, pulleys, and sprockets are enclosed in covered cabinets.
2. Photoelectric sensors prevent indexing and cutover if their beam is broken by anyone stepping within range when the winder is near the index or cutover point.
3. A guard prevents operator exposure to the nip roll.
4. DO NOT open any enclosures containing moving components unless the winder is shut down and the main disconnect is locked out.
5. DO NOT thread up the winder in RUN mode. The winder has a THREAD UP mode switch. See the small key control switch at the front of the winder.
6. DO NOT under any circumstances, reach into, or place any part of the body into the winder while it is running.

Pressure safety precautions

1. DO NOT begin maintenance on the pneumatic system before shutting off and locking out the hand operated vented ball valve at the air inlet.
2. DO NOT forget to regularly examine all air connectors, fittings, and lines. If excessive wear is evident, replace immediately.

Operational safety

1. DO NOT operate the equipment unless all guards are in place.
2. During the automatic indexing of the turret winders, a horn alarm is sounded. Do not permit any part of the body to remain inside the floor areas that are marked with yellow and black stripes.
3. When manually indexing the turrets, always make sure no one is inside the floor area marked with yellow and black stripes.
4. A red safety cable runs through the center of the winder. If this cable is pulled, all machine functions will stop. All personnel who work with the machine should be aware of this cable and its function.
5. Another red cable is located near the ingoing nip of the feed rolls. Pulling on this cable will open and stop the nip rolls.
6. A wooden or plastic wand should be used to push film through the nip roll. **Never use a hand or an arm.** When threading up, use a flat fabric belt tied to the film to pull the film through the machine. **Never attach the belt to any part of your body.**
7. When undertaking maintenance work, *always* remove all blades. These blades can cut or fall even when the air that activates the cylinders has been turned off.
8. If the film is attached by hand to a new core, the end of the film should be fixed to a new core by attaching it onto the opposite side of the core from the pinch point. The core should have been previously coated with adhesive, or wound with double-sided sticky tape, or single sided tape - sticky side out.

DO NOT wind the film around the core and then tuck the loose end of the film between the core and the incoming film as your hand could easily become caught between the core and the film.

9. On installations where the treater station is mounted on or next to the winder, care must be taken to ensure the high voltage areas in the treater station are isolated from accidental contact by personnel. If the treater has been installed at Battenfeld Gloucester Engineering, it is covered and "DANGER-HIGH VOLTAGE" signs are affixed to the cover. An electrical cut off switch on the cover is essential. In addition, provisions must be made to remove the gasses produced in the corona discharge area so they do not accumulate in work areas.
10. An alarm sounds during each automatic cutting cycle. Absolutely all personnel must be out of the caution areas when the alarm sounds.

Safety devices must not be disconnected or otherwise defeated!

1031S SPECIFICATIONS

Winder type:

Single turret

Machine size:

54 to 104 in (1372 to 2642 mm)

Maximum roll width:

52 to 102 in (1321 to 2591 mm)

Maximum roll diameter:

42 in (1067 mm)

Maximum roll weight:

2500 lbs (1134 kg)

Maximum line speed:

Customer specifications - dependent on shaft diameter and length:

600 fpm (183 mpm)

Type of material:

Cast film, thin sheet, blown film

Idler roll diameter:

4.50 in (114 mm)

Core size(s):

3 in or 6 in ID (76.2 mm or 152.4 mm)

Air required:

80 psi (5.5 bar) @ 10 cfm plant air

Power required:

Customer specification

Type of transfer:

Adhesiveless automatic cutover

Winding method:

DC center drive

STANDARD FEATURES

single turret phantom axis shaft type winder:

- automatic indexing and cutover

"touch screen" PLC (Programmable Logic Control) to control all drives as well as the sequencing logic:

- reduces maintenance
- improves uptime
- improves troubleshooting
- user friendly
- provides on-line diagnostics
- winding parameters input via CRT

swingout shafts:

- core changes from small to large with a single command
- integral chain fall for swingout shaft support
- tailstock and shaft interlock
- universal joint design

forward to reverse wind changes with a single command

load cell tension control:

- more accurate and repeatable tensions
- runs lower tensions than dancer control
- shorter web path than conventional dancer controlled winders

electrostatic web transfer:

- no tape or glue on the core to get into the reclaim system

flying knife cutoff - top and bottom cut

layon roll:

- special "floating" linear layon roll with force transducer feature
- controls and displays the true layon force
- eliminates change in the web path when the layon roll assembly moves in or out
- rugged construction keeps the layon roll parallel to the winding roll, even when winding off-center

slitting station above the winder nip:

- easy access for center or edge slitting
- driven bowed roll

bowed roll on the layon arm:

- driven at speed match by a separate DC drive
- eliminates web tension variations caused by friction in the bowed roll
- final web spreading prior to winding

winder nip - integral nip with a transducer controlled drive:

- two (2) air actuated edge trim knives
- transducer controlled for improved tension control

OPTIONAL FEATURES

center slitters

bleed trim slitters

air shafts

static eliminator

gap wind

bypass idlers

INSTALLATION and START UP

Set up

1. Unpacking

a. Leave the winder and any at tach ments crated and mounted to their wooden skids un til they have been moved to their op er at ing site.

b. Place the winder in an area with sufficient clearance above and on all sides for ser vic-ing, leaving room for any future additional equipment.

c. Remove the crating and packing materials, taking care not to damage any parts in the process.

d. Inspect the winder carefully for dents, scratches, bro ken com po nents or any loose as sem blies. Should there be any dam age, no-tify the ship ping agent im me di ately.

e. Lift the winder off its skids us ing the proper equipment. A rigging company can be hired for this pur pose if equip ment is not avail able.

f. At tach the photo safety cell brack ets to the front of the winder and in stall the PLC Touch Screen.

g. Un tie the layon. Re move the two **lower** shoul-der bolts on the layon pivot. Re tain for the cal i-bration procedures described in the **PLC TOUCH SCREEN** chap ter.

2. Tramming

a. Drop a plumb line from the center and each end of the non-pivoting nip roll in the tower and mark the floor. Using these three points, mark a par al lel line on the floor in the winder area.

b. Mea sure and mark the cen ter of a nip roll on the back of the winder.

c. Align this mark with the cen ter of the line on the floor by drop ping a plumb line through the winder's nip rolls.

d. With a measuring tape, mea sure from each end of one of the winder's nip rolls to the mark on the floor that rep re sents the cen ter of the tower nip roll. Ad just the winder un til the mea-surements are equal, making the tower nip roll and the winder nip roll par al lel.

3. Leveling

a. Lo cate the two dowel pins about 8" apart on the inside of the sideframes. Using a pre ci-sion level on top of the pins, level the sideframes from front to back by turn ing the four jackscrews located at the base of the frames.

b. To level the winder from side to side, check to see if the nip roll is level by plac ing a pre ci sion level on top the non-pivoting nip roll. Adjust the jackscrews if necessary.

4. Lagging

a. Once the winder has been trammed and lev-eled, it can be lagged to the floor with the proper bolts.

5. Floor area markings

a. It is sug gested that the floor around the tur ret and photo safety cir cuit area be marked with yel low or yel low and black stripes. This should include the maximum di am e ter of the roll in the tur ret on its shaft.

6. Check all wires

a. Check all wires and relays to see if they are loose by gently pulling on them one at a time.

b. Tighten or reconnect them if necessary.

7. Main power connection

CAUTION: This procedure should be performed by qualified personnel only.

a. Connect the three phase power supply to the Main Disconnect in accordance with applicable local electrical codes.

b. Check the three phase connection. See the *Checking the power phase* section later in this chapter. **Complete this section before continuing.**

8. Tach signal from upstream equipment

a. In a separate conduit, run a twisted shielded cable to terminals inside the main control cabinet to supply a 0-87 VDC or 0-175 VDC or other special isolated signal.

9. Air supply connection

a. Clean, dry, well-regulated plant air of 80 psi at 10 cfm or greater is recommended.

b. Hookup can be done in flexible hose or solid pipe, 1/2" diameter or greater.

c. The air supply should be connected to the filter-regulator-lubricator (pneumatic oiler) located inside the pneumatic cabinet. Note the safety shut off valve at tached to it.

d. Check that the filter-regulator-lubricator is filled to the proper level with oil and any excess moisture is drained from the filter portion of the unit.

10. Turn air supply on and check for leaks

a. Turn the handle of the air supply safety valve to the ON position. It is located on the inside of the pneumatic cabinet where it is marked "Main Air Pressure".

b. Listen for any air leaks from loose connections and tighten any fittings if necessary.

11. Check and adjust pressure settings

a. All of the following air supplies have their own regulators which are marked and located inside the pneumatic cabinet. The air shaft bladder inflation regulator is on the outside on the front of the cabinet.

b. Check the following pressure settings. These are just preliminary settings and can be adjusted later during actual run.

Transfer Air - 40 psi

Top/Bottom Knife - 30 psi

Top/Bottom Latch - 50 psi

Top/Bottom Cut - 50 psi

Nip Roll - 50 - 60 psi

Edge Trim - 40 psi

Bleed Trim - 40 psi

Air shaft Bladder Inflation - 80 psi

c. Check the following pressure settings. These have been factory set and locked. DO NOT alter these settings without consulting Battenfeld Gloucester Engineering.

Layon Pressure Back - approx 22 psi

Layon Pressure Pneumatic Control:

Amplifier Supply - max psi

E to P Supply - 25 psi

Layon Force Cylinder Pneumatic Control:

Amplifier Supply - max psi

E to P Supply - 25 psi

12. Load full cores onto shafts

a. Be sure the Main Disconnect is OFF.

b. Turn the Main Air ON if it is not already on.

c. Turn the tailstock air valves on if they are not already on.

d. Pull the safety latch knob on the tailstock and pull out on the air valve to the right of the tailstock to retract it.

e. Swing the shaft outtoward the operator, load the full length core onto the shaft, and then swing the shaft back in place.

f. Push in on the air valve to the right of the tailstock to engage it.

g. Center the core on the shaft.

h. Place nozzle of the coiled air hose into the bleed valve of the air shaft to cause its "buttons" to pop out locking the core in place.

Note: If a larger core is being used with a smaller shaft, add core chucks on each end. Cores should not extend beyond the width to avoid breakdown of their ends under the weight of a full roll.

Full length cores should be used during startup whether or not multiple cores will be used during production.

13. Check the static transfer/cut arm gap

CAUTION: If your winder is equipped with a plunge knife option, extreme care must be taken as the knives are extremely sharp and unprotected at this time.

a. Manually move the static transfer/cut arm to its FULL IN position by first pressing the button on the safety latch solenoid and then the button on the solenoid that is marked for that arm. If the solenoid is the "spring loaded" type, the button must be held in.

b. When a cut arm solenoid is being operated electrically with the machine ON, the static bar will charge at the same time the static transfer/cut arm is moving. Charging continues until the cut timer runs out, so **DO NOT TOUCH THE STATIC BAR!**

c. Check to see if the gap between the core and the static bar is between 1/4" and 1/2". If the gap needs to be adjusted, refer to the Special Functions Menu in the **PLC TOUCH SCREEN** chapter. The Turret Position Screen will allow you to move the turret by degrees to adjust this gap.

14. Speed match the winder

When the winder is first installed in the customer's plant, it must be speed matched to the upstream "master line speed machine", usually the primary nip roll. This can be accomplished by following the procedure listed below.

DO NOT adjust any potentiometers unless they are indicated.
This will throw the machine out of calibration and require a lengthy recalibration procedure by a factory trained technician.

The power to the winder and the touch screen needs to be on. Follow steps 1 through 4 in the Start Up section later in this chapter. None of the winder drives need to be running during this procedure.

a. From the Main Menu, select the Special Functions Menu.

b. Enter the correct code to gain access to the Special Functions Menu.

c. If the code for Operator No. 1 is unknown, it can be found on the Access Code screen. To get to this screen, set the key switch located on the back of the touch screen to the CONFIGURE position. The Configure Menu will appear on the touch screen.

d. Select ACCESS CODES. The code screen will appear.

e. After the access code has been determined, return the key switch to the RUN position and proceed to the Special Functions Menu.

f. From the Special Functions Menu select the Monitor & Calibrate screen.

g. On the Monitor & Calibrate screen note the LINE SPEED indicator.

h. Adjust the master line speed machine to its maximum speed.

i. Locate the LINE SPEED FOLLOW potentiometer (3P) on the custom components card (7CCD). Adjust this potentiometer until the rate shown on the LINE SPEED indicator equals the speed of the master line speed machine.

j. Verify that the speed match is linear by reducing the master line speed down to 10% of maximum. The LINE SPEED indicator should now read this speed.

k. If it does not, adjust the zero potentiometer (1P) located on the line speed isolator (1ISO), until the LINE SPEED indicator reads this 10% speed. If the zero potentiometer is adjusted, steps h through j must be repeated.

Checking the power phase

After the 3 phase main power supply has been connected to the winder, check the power phase as follows:

1. Turn on the plant power supply to the winder.

2. Set the MAIN DISCONNECT switch of the winder to the ON position.

3. Push the flashing SAFETY CIRCUIT RESET push button.

4. Turn on the air supply to the winder.

5. **Make sure all personnel and tools are clear of the winder.**

6. On Setup Screen 1:
   a. Set the WIND button on FWD.
   b. Set CUT button on AUTO.
   c. Set the COUNTER CYCLE START button on MAN.
   d. Press MACHINE ON, starting the machine. If the turret is not in home position, a message will appear on the screen to hold the button until it reaches home position.

7. Set the RUN - THREAD UP key switch below the touch screen to RUN.

8. On Wind Screen 1, press CYCLE START activating the turret. Observe the direction of index. The *inside* turret spindle should index over the top toward the operator.

9. If it indexes in the wrong direction, stop the winder by pressing the EMERGENCY STOP push button below the touch screen or go to Setup Screen 1 and press MACHINE OFF.

10. Lock out the incoming power supply and have qualified personnel reverse any two leads to the MAIN DISCONNECT switch.

11. Check again for proper rotation.

Start up

1. Turn on electrical power

a. Turn on the plant power sup ply to the winder.

2. Power up winder

a. Turn MAIN DISCONNECT to the ON po si tion.

3. Turn on PLC touch screen

a. On the in side of the main con trol cab i net, lo-cate the back of the touch screen. Make sure the RUN - CON FIG URE key switch is in the RUN mode.

b. The Main Menu will appear on the touch screen.

c. The SAFETY CIR CUIT RE SET but ton be low the touch screen will be flash ing.

d. A flash ing mes sage, "Re set Safety Cir cuit" will ap pear on the screen.

4. Reset safety circuit

a. Press the SAFETY CIR CUIT RE SET but ton.

b. A flash ing mes sage "*MA CHINE OFF* GO TO SETUP SCREEN 1 TO START MA CHINE" will appear.

5. Turn on the static trans fer con trol-ler

a. This is lo cated in side the main con trol cab i-net.

b. Turn the switch to the LO CAL po si tion un less there is a sep a rate switch in a RE MOTE area.

6. Start winder

a. Go to Setup Screen 1.

b. Press MA CHINE ON and *hold* un til the tur ret is in home po si tion.

c. The touch screen's alarm will start beeping. "MACHINE ON" will au to mat i cally be en tered into the Alarm His tory.

d. Press ACKNOWL ALARM. The screen will clear and the alarm will stop.

7. Select modes of operation

On Setup Screen 1:

a. Forward or reverse wind (see winding dia-gram)

b. Auto or man ual cut

c. Small or large core size

d. COUNTER CYCLE START status

e. CORE SIZE (O.D.) - En ter by press ing the INC button (increase) or the DEC button (de-crease) be low each core size.

On Setup Screen 2:

f. CUT ARM IN TIMER

If winder is equipped with a flying knife, the "Cut Arm In Timer" serves as a de lay be fore the knife goes across.

g. CUT ACROSS TIMER

If winder is equipped with a plunge knife, set the "Cut Across Timer" to 0.00.

On Coun ter Screen:

h. COUNTER DIS PLAY Feet/Time

i. PRESET

8. Check three phase power supply

Make sure this sec tion is com pleted be fore continuing. See section ti tled *Checking the power phase.*

9. Dry cycle (index)

a. Set RUN - THREAD UP key switch to RUN.

The layon will move to FULL IN po si tion.

b. Pull and hold the WINDER NIP CLOSE but ton at the rear of the winder until the indicator light co mes on.

c. Go to Wind Screen 1.

NIP ROLL CLOSED but ton will be lit.

d. Press NIP ROLL START.

The nip rolls will start turn ing.

e. Press WIND SPDL START.

The spin dle will start wind ing.

f. Press CYCLE START.

The tur ret will cy cle (in dex).

10. Check all safety circuits

The fol low ing safety cir cuits shut off the winder. A message "RESET THE SAFETY CIRCUIT" will ap- pear on the screen. Press the SAFETY CIR CUIT RE- SET but ton be low the touch screen.

a. **EMER GENCY STOP push but ton**

Push EMERGENCY STOP push but ton be low the touch screen.

b. **Red safety ca bles**

Pull front and rear safety ca bles.

Push the EMERGENCY STOP button on the con trol box. Use the le ver to re set.

c. **Air supply interruption**

Turn safety air valve OFF on the in side of the pneumatic cabinet.

d. **Nip force-open limit switch**

On Wind Screen 1, press NIP ROLL STOP.

At the rear of the winder, pull and hold the WINDER NIP CLOSE but ton un til the light is ac- tuated.

Slide a long piece of 3/16" thick cardboard be tween the nip rolls and turn them by hand. This will trip the limit switch, open ing the rolls.

The fol low ing safety cir cuit shuts off the winder. A message "*MACHINE OFF* GO TO SETUP SCREEN 1 TO START MA CHINE" will ap pear on the screen.

e. **MA CHINE OFF but ton**

Press the MACHINE OFF button on Setup Screen 1.

The following safety circuit will not shut off the winder but will stop it from in dex ing. A mes sage "RE SET THE PHOTO SAFETY CIR CUIT" will ap pear on the screen.

f. **Photo safety cir cuit**

Step into photo safety area. Step out of photo safety area. Go to Wind Screen 1 and press PHOTO/ARBOR SAFETY RE SET.

Thread up

This is a two person operation.

CAUTION: Do not under any circumstances stand on the rolls to thread up the winder! The load cells will be damaged!

Note: If the winder is running in line, be sure it is ready to have the web attached before starting upstream equipment.

Run upstream equipment at a minimal speed until the web is:

- centered on the cores
- the correct width
- winding flat

If modes of operation (forward/reverse wind, auto/manual cut, core size etc.) have not been selected, set them now.

1. Set the RUN - THREAD UP key switch below the touch screen to the THREAD UP position.

   This will cause a flashing message "MACHINE IN THREAD-UP MODE" to appear on the screen.

This is essential for safety of all personnel!

2. Thread up the turret of the machine using fabric straps or ropes according to the diagram at the beginning of this manual.

   Make sure that the ends of the pull-rope hang on the outside of the winder so that reaching into the winder will be avoided.

CAUTION: Do not attach the pull-rope to any part of your body!

3. Tie the web to the pull-rope and pull through to the front of the winder.

4. To avoid the spindles from slowing down or stopping during thread up, adjust the web tension setting on Wind Screen 2 **to at least 20 pounds.** Press INC to increase or DEC to decrease the WIND TENSION - SETPOINT AT CORE.

5. Cut off the excess web with a sharp razor and attach the end of the web to the core on the inside spindle of the turret.

   This will be a test roll used only to center the web and obtain the correct layflat width.

CAUTION: Touch only the top of the core. AVOID the pinch point between the core and the incoming film.

6. On Wind Screen 1, press WIND SPDL START. The spindle will start winding.

7. On Wind Screen 1, press NIP ROLL START. The nip rolls will start turning.

8. Pull and hold the WINDER NIP CLOSE button on the rear of the machine until the indicator light comes on.

   On Wind Screen 1, NIP ROLL CLOSED button will then be lit.

9. On Wind Screen 1, push SLACK NIP and/or SLACK WIND to remove any slack in the web. Repeat this as necessary during thread up.

10. Adjust the bowed roll.

a. From the rear of the winder, slowly turn the knurled knob attached to the adjustment shaft so that the bow turns back into the incoming film or until the wrinkles disappear from the film. The bow should face in the direction that points downstream of the center of the roll.

11. Install the trim blades.

NOTE: Do not install blades until the winder is winding film at its correct layflat to avoid accidental contact during thread up.

a. Remove the blade holders from their housings by loosening the locking knob or by pulling out on the spring loaded knob.

b. Remove the screw and washer and fit the blade into position.

c. Because the blade is slotted, slide it forward so that it is at its maximum length.

d. Tighten the screw and washer.

e. Install the blade holders back in their housings.

12. Retract the manual blades.

NOTE: To avoid accidental contact, it is strongly suggested that the manual blades and their housings be removed from the winder when not in use and placed in a safe location.
Pneumatic trim blades will be in a retracted position unless the "EDGE TRIM IN" or "BLEED TRIM IN" buttons on the rear of the winder are pulled.

a. Loosen the locking knob.

b. Slide the blade holder back until the blades are safely inside the housing and pose no hazard to the operator.

c. Tighten the locking knob.

13. Adjust edge trim blade position.

a. At the rear of the machine, adjust the edge trim knives to obtain the correct web width by loosening the locking knob and sliding the edge trim housings along the shaft.

14. Pull the EDGE TRIM IN button.

a. This is located on the small pushbutton station located at the rear of the machine. It will move the blades from their housings into the web.

b. Allow the edge trim to start falling to the floor.

Note: If the blades become dull during operation, install the manual blades and their housings. Slide the manual blades into the film. Retract the pneumatic blades by pushing the EDGE TRIM OUT button. Remove the pneumatic cylinders with the attached blade holder. Rotate the blade holder 180° to expose a new edge of the blade. Return the pneumatic blade holder to its housing. Remove manual blades.

15. Set the RUN - THREAD UP switch to RUN.

16. On Wind Screen 1, press LAYON AUTO. The layon will come to FULL IN position.

17. Adjust the force of the layon on Wind Screen 2 by pressing INC to increase or DEC to decrease the LAYON FORCE - SETPOINT AT CORE.

18. Check the layflat width by measuring the web at the rear of the machine. Adjust the edge trim knives if necessary.

19. Cut off the edge trim that has fallen to the floor and feed the new edge trim into your "take-away" system.

20. From the front of the machine, check the alignment of the two cores. If necessary, adjust the outside core to line up with the web that is winding on the inside core.

21. Recheck the layflat width and make any necessary adjustments.

22. If the web is to be divided into several sections, adjust the center slitter or bleed trim knives at the rear of the machine to their correct positions, the same as the edge trim knives adjustments.

23. Pull the BLEED TRIM IN button on the small pushbutton station at the rear of the machine. This will allow the knives to move from their housings and into the web.

24. Check the width of the web sections and make any necessary adjustments.

25. Feed the bleed trim into your “take-away system”.

26. After the turret has been threaded up and the product is running well, decrease the WIND TENSION - SETPOINT AT CORE to a normal setting.

27. When everything is running correctly, you are ready to transfer (index) to a new core.

Gap wind setup (opt)

Refer to the *Layon Gap Control* section in your schematic.

Refer to circuit board () D40074224–035.

the basics

To prevent being marked, sticky films need to be wound without being touched by the layon until cutover. The gap wind feature of the winder maintains a space between the film and the layon as the roll grows in diameter.

A photoelectric sensor sends a beam across the edge of the winding roll to a receiver on the other side of the winder. As the roll grows, the beam is blocked, which sends a signal to the actuator motor. The layon is pushed back by the actuator, maintaining the gap.

When the winder indexes, the motor reverses quickly, retracting the actuator so the layon can come full in for cutover. After indexing, the layon moves in on the new winding roll.

the details

1. With the winder power off, locate the gap wind photoelectric sensor module(s) in the electrical enclosure.

   Check the following connections:

   a. Ground wire to Term #8.

   b. Jumper wire between Term #8 and the range extender Term S.

   c. Shield wire from receiver cable to range extender Term S.

   Check the following settings:

   a. Set the switch to DARK ENERGIZED.

   b. Set the SENSITIVITY knob to around 7.

2. Locate the sensor source and the receiver mounted in the winder on the layon. Make sure they are seated properly in their mounting brackets and the connectors are tight.

3. Turn the MAIN DISCONNECT to ON.

4. On Wind Screen 2:

   a. Set the LAYON FORCE AUTO/MAN to MAN.

   b. Set the LAYON FORCE SETPOINT AT CORE to approximately 10 pounds greater than the winding tension.

5. Insert the two lower shoulder bolts in the layon pivot that were removed after shipping.

6. On Setup Screen 1:

   a. Press MACHINE ON.

   b. Press GAP WIND OFF.

7. Set the RUN - THREAD UP switch to RUN.

   a. The layon will come in.

   b. The gap wind actuator motor will retract the actuator full in.

8. If the actuator extends instead of retracts, the armature wires in the motor are reversed.

   a. Lock out power to the winder.

   b. Swap the A1 and A2 armature wires in the actuator motor.

   c. Turn the winder back on. The actuator will retract.

9. For safety purposes, the machine power must be off for the following procedures, but the layon needs to be in (it moves out with power off).

   To accomplish this, swap the air lines on the layon cylinder (not the pivot cylinder).

a. Lock out power to the winder.

b. Locate the layon cylinder inside the mechanical cabinet.

c. Disconnect the rear cylinder air connection.

d. Disconnect the front cylinder air connection. You will hear air escaping. This is OK.

e. Place the front connector in the rear connection. Leave the rear connector hanging.

f. The layon will come in.

10. Make sure the actuator motor is facing the winder sideframe closest to it and is parallel to the floor. If it is not, rotate it and lock it in place.

11. Check the position of the guide rod.

    The purpose of the guide rod is to prevent the actuator from turning, not allowing it to retract into the housing.

    a. With both the actuator and layon full in, measure from the end of the actuator housing to the collar on the housing that supports the guide rod.

    b. It should measure about 3" or so. If necessary, loosen and adjust the collar. This prevents the guide rod from slipping out of the collar when the actuator is fully extended.

12. With the layon full in, adjust the retracted actuator position.

    a. Loosen the main collar that holds the actuator.

    b. Adjust the actuator until the end is approximately ½" from the actuator bracket.

    c. Tighten the collar.

13. If you have a dual turret winder, repeat the above procedures for the other turret.

14. Return the layon cylinder air lines to their operating positions.

15. Turn the MAIN DISCONNECT to ON.

16. ON Setup Screen 1:

    a. Press MACHINE ON.

    b. Press GAP WIND ON.

    Note: If the actuator starts moving, make sure:

    - The switch on the photoelectric sensor module is set to DARK ENERGIZED.
    - The photoelectric sensor in the winder is aligned. See the following procedure.

17. Align the gap wind photoelectric sensor. Check to see if the red LED ring is lit around the base of the sensor on the source side.

    If lit, the *source* side is aligned with the *receiver* side of the sensor.

    If not, use the following procedure:

    a. Make sure the receiver side is parallel to the floor.

    b. If not, loosen the collar that holds the sensor to the layon pivot shaft. Adjust and tighten.

    c. Loosen the collar on the source side and rotate forward or back until the LED ring around the base of the sensor comes on. Tighten the collar.

    d. If the LED is not lit even after everything is aligned, check the SENSITIVITY setting on the module. It should be around 7.

18. The LED on the module should be off. If not, check for a bad module, sensor source, or sensor receiver.

19. Locate the board for the Layon Gap Control in the electrical enclosure.

    a. Place an ohm meter (set for DC volts) between the red lead Term #9 and the black lead Term #1.

    b. Adjust the speed reference pot **P3** until the meter reads 2.0 - 2.5V.

    c. Check the resistor-capacitor connections. There should be a connection between Term #8 and Term #11 for a single turret winder or for the top turret of a dual turret winder.

       There should be a connection between Term #2 and Term #5 for the bottom turret.

20. Locate the actuator motor controller (RG25U*) in the electrical enclosure and adjust the set tings for the following pots to an 11 o'clock position:

    FWD - Determines the maximum torque for accelerating and driving the motor in the forward direction.

    REV - Determines the maximum torque for accelerating and driving the motor in the reverse direction.

    IR - Determines the degree to which the motor speed is held constant as the motor load changes.

21. Set the deadband **DB** pot. This determines the time that will elapse between the application of current in one direction before current is applied in the opposite direction.
    - 3 o'clock position for 60 Hz AC line operation
    - 9 o'clock position for 50 Hz AC line operation

22. Set the **MAX SP** pot. This determines the maximum motor speed when the speed adjust potentiometer is turned full CW. Since it is factory set for maximum rated motor speed, it needs to be adjusted to prevent motor burnout.

    a. If the actuator is not extended, block the photoelectric sensor until it extends fully.

    b. Place an ohm meter (set for DC volts) between A1 and A2 of the motor controller.

    c. Unblock the sensor and the actuator motor will stop turning.

    d. On Setup Screen 1, press GAP WIND OFF to start retracting the actuator.

    e. Observe the voltage on the ohmmeter. The desired voltage is 80V.

       Too high - adjust the MAX SP pot CCW until the reading is 80V.

       Too low - adjust the pot CW.

23. Check the gap wind operation.

    a. On Setup Screen 1, press GAP WIND ON.

    b. If the photoelectric sensor reads the core thickness (typically 3/8"), the layon should start to move back.

    c. If not, slip a piece of cardboard between the roll and the layon to block the beam. The layon should move back.

*Information courtesy of Automation and Control

AUTO CYCLE of OPERATIONS

Before operating the winder, the operator should be thoroughly familiar with all the winder controls and the safety precautions presented in this manual.

The indexing cycle will start in one of three ways:

1. When the counter reaches preset and the COUNTER CYCLE START/MAN-OFF-AUTO selector switch on Setup Screen 1 is set for MAN.

   The CYCLE START button on Wind Screen 1 is then pushed.

2. When the counter reaches preset and the COUNTER CYCLE START/MAN-OFF-AUTO selector switch on Setup Screen 1 is set for AUTO.

   The cycle will start automatically.

3. By pressing the CYCLE START button on Wind Screen 1 at any time.

Auto cut

1. Set the winder RUN - THREAD UP selector switch to RUN.
2. When the cycle starts in one of the three ways above, the HORN will sound indicating that the empty roll is now ready for transfer.
3. The turret can only index when:
   a. the static transfer/cut arm is in the FULL OUT position
   b. the photo safety area is clear
4. The layon moves back to the FULL OUT position.
5. The empty spindle starts turning.
6. The turret indexes until it comes to the auto cut position.
7. The layon returns to the FULL IN position.
8. The static transfer/cut arm comes to the FULL IN position.

   The CUT ARM IN TIMER serves as a delay before the knife goes across allowing time to create static on the empty core.

   (If the winder is equipped with a plunge knife option, the blade will cut the film at this time.)

9. The flying knife goes across, cutting the film, and returns to the starting position.
10. The CUT ACROSS TIMER starts the cut time duration and stops the full roll from turning after the cut is made.

    This time should be long enough to make a good cut, but as short as possible to avoid leaving the flying knife on the other side for any unnecessary amount of time.
11. The turret returns to home position.
12. The static transfer/cut arm returns to the FULL OUT position.
13. The HORN silences, indicating the cycle is complete and is ready for the next transfer.

Manual cut

1. Set the winder RUN - THREAD UP selector switch to the RUN position.
2. On Setup Screen 1, set the CUT button to MAN.
3. When the cycle starts in one of the three ways above, the HORN will sound indicating that the empty roll is now ready for transfer.

4. A tur ret can only in dex when:
   a. the static trans fer/cut arm is in the FULL OUT po si tion
   b. the photo safety area is clear
5. The layon moves to the FULL OUT po si tion.
6. The empty spin dle starts turn ing.
7. The tur ret in dexes un til it co mes to the man ual or hand cut po si tion.
8. The op er a tor goes into the photo safety area, cuts the film by hand with a knife or ra zor, and trans fers the film onto the new core.
9. The operator must step out of the PHOTO SAFETY area.
10. On Wind Screen 1, press CYCLE START to stop the full roll from turn ing and to re turn the tur ret to home po si tion.
11. The layon re turns to the FULL IN po si tion.
12. The HORN silences indicating the cycle is com plete and is ready for the next trans fer.

DESCRIPTION of CONTROLS

Your control panel may include some or all of the following controls depending upon the options you have chosen for your line.

Front panel

touch screen

The Touch Screen adds a new dimension to the winder control system. It allows the winder to communicate with its operator.

Alarm messages warn the operator of winder malfunctions. Other messages inform the operator of special machine conditions which make the winder easier to operate.

Special function screens permit engineering and maintenance personnel to calibrate and tune the winder.

Alarm history provides supervisors with 21 alarmed events so that machine and process performance can be evaluated.

All winder parameters such as tensions, core size, layon force, and cut times are entered using decimals. This allows for consistent setup and monitoring of the winder.

A few helpful hints should be followed when operating the touch screen. If they are followed, the touch screen will function reliably.

1. Standing directly in front of the screen when pressing a button will prevent accidentally touching an adjacent button.
2. Two buttons can not be pushed at the same time.
3. Your hand should be held in a closed grip position with only the index finger extended. No other part of your hand should touch the screen at the same time or other buttons may be touched.
4. When cleaning the touch screen, keep in mind that it has a coating that makes it to some degree resistant to the following chemicals:

   Acetone, acetone-methylketone 50/50, alcohol (ethyl, methyl), ammonia (dilute), brake fluid DOT 3, butyl acetate, carbon tetrachloride, concentrated hydrochloric acid, dichloromethane, diesel fuel, dimethyl sulfoxide, ethanol, ethylene glycol, freon, gunk degreaser, HCL (10% dilute solution), heptane, isopropanol 50/50, methyl ethyl ketone, silicone based lubricant, 40% sodium hydroxide, toluene, trichloroethylene, turpentine, unleaded gasoline, VNMP-Naptha.

Operation and description of the touch screen controls are described in the chapter entitled **PROGRAMMABLE LOGIC CONTROL (PLC) TOUCH SCREEN.**

Take a few minutes to familiarize yourself with the various screen layouts.

meters

NIP AMP/TORQUE
Measures the current/torque of the nip drive motor.

SPINDLE #1 AMP/TORQUE
Measures the current/torque of the drive motor of spindle #1.

SPINDLE #2 AMP/TORQUE
Measures the current/torque of the drive motor of spindle #2.

controls

EMERGENCY STOP push button
When pushed, stops all drives and opens up the nip roll.

SAFETY CIRCUIT RESET push button
This will light when:

- any of the cable operated safety switches have been tripped.
- the EMERGENCY STOP push button has been pressed.
- the MAIN DISCONNECT switch for the machine has been set to the OFF position.

It is deactivated when the button is pushed.

It must be deactivated before the machine can be put back in operation.

RUN - THREAD UP selector switch
When set to RUN, puts the machine in the automatic mode.

When set to THREAD UP:

1. Disables the counters.
2. Holds the layon roll in its FULL OUT position.
3. Holds the cut arm in its FULL OUT position.
4. Holds the machine at the current step of the cycle.
5. Retracts all the bleed trim blades into their housings.
6. Will NOT retract edge trim blades.

Rear panel

EDGE TRIM push/pull button
OUT - IN

Note: Trim blades can not be activated unless the nip is moving and there is tension on the load cell. If the web should break, the blades will retract after 13 seconds. This time can be altered by personnel who have access to the configuration key at the rear of the touch screen.

When pushed, retracts the edge trim blades (and the bleed trim blades, if they are in cutting position) out of the web path and into the housings.

When pulled, moves the edge trim blades into the web path.

WINDER NIP push/pull button
OPEN - CLOSE

When pushed, opens the nip rolls.

When pulled, closes the nip rolls. The button must be pulled and *held* until the nip rolls are completely closed and the indicator light is on. If the button is released before the indicator light comes on and the nip rolls are closed, the nip rolls will open.

Other controls

HORN

Located on top of the main control cabinet.

Will sound when the counter has reached its preset value and the winder is ready for the transfer cycle.

Will also sound when the CYCLE START button is pressed on Wind Screen 1.

REVOLVING LIGHT

Located on top of the main control cabinet.

Will flash when the counter has reached its preset value and the winder is ready for the transfer cycle.

Will also flash when the CYCLE START button is pressed on Wind Screen 1.

MAIN DISCONNECT switch with lockout handle

Located on the door of the main control cabinet.

When set to the ON position, supplies electrical power to the machine, while locking out access to the inside of the control cabinet.

When set to the OFF position, stops electrical power to the machine. The handle allows the electrical power to be locked out.

PROGRAMMABLE LOGIC CONTROL (PLC) TOUCH SCREEN

The programmable logic control (PLC) system has a user friendly "Touch Screen" that consists of a color monitor covered with a pressure sensitive transparent membrane. When modest pressure is applied to the screen, a switch is closed, acting as a pushbutton. The button you pressed will then light up showing that it is active.

A few helpful hints should be followed when operating the touch screen.

If they are followed, the touch screen will function reliably.

1. Make sure the RUN - CONFIGURE key switch also located on the back of the screen is in the RUN mode.
2. Standing directly in front of the screen when pressing a button will prevent accidentally touching an adjacent button.
3. Two buttons can not be pushed at the same time.
4. Your hand should be held in a closed grip position with only the index finger extended. No other part of your hand should touch the screen at the same time or other buttons may be touched.

Note: Your screens may vary slightly from the examples shown in this chapter, depending on the options you have selected and the revision of the software.

Main Menu

When the power to the winder is on and the MAIN DISCONNECT is placed in the ON position, the Main Menu will appear on the screen after a few seconds of warm up time.

All of the screens with the exception of the Main Menu have blue buttons located on the side of the screen. These are screen selector buttons which allow you to go from the screen you are on to the screen labeled inside the button. They are usually the screens most often needed.

If the touch screen is not used for eight minutes, the screen saver is activated. This extends the life of the screen and prevents a screen pattern from being burned into the CRT. When the screen is touched again, the last operator's screen will appear. If eight minutes is not long enough, the time can be altered by personnel who have access to the configuration key at the rear of the touch screen.

The following screens are used by the operator during normal setup and operation:

Wind Screen 1

Wind Screen 2

Counter Preset

Setup Screen 1

Setup Screen 2

Index Setup

Recipe 1 & 2

The following screens are used by the operator in case of a malfunction:

Alarm History

Alarm Messages

Operator Messages

The following screens are used by trained, authorized personnel:

Special Functions (Access code necessary)

PID Loop Tune 1 & 2

Monitor & Calibrate

Turret Position

Special Operations

Parameter List

Changes on the following screens on the Special Functions Menu are locked out by an additional access code:

Loadcell Calibration

Tach Signal Calibration

Layon Calibration 1 & 2

Drive Calibration

Machine Configuration

The following screens are used by maintenance:

DC Inputs

AC Inputs 1 & 2

AC Outputs 1 & 2

Analog I/O

Wind Screen 1

COUNT
When "FEET/METERS" has been chosen on the Counter Preset screen, displays the amount of film foot age that has been wound on the roll.

When "TIME" has been cho sen on the Coun ter Pre-set screen, dis plays the amount of time re main ing in hours and min utes un til the pre set is reached.

NIP ROLL SPD
The speed of the nip roll.

NIP ROLL TEN
The ten sion of the film be tween up stream equip-ment and the winder's nip roll.

WIND TEN
The ten sion of the film be tween the nip roll and the wind ing roll.

L/O FORCE
The amount of pres sure of the layon against the wind ing roll.

PHOTO/ARBOR SAFETY RESET
Re sets the photo safety cir cuit.

When the photo safety beams are broken by someone walking into the safety area during in-dex ing, the cy cle will stop. A mes sage will ap pear on the screen "RESET THE PHOTO SAFETY CIR-CUIT".

The PHOTO SAFETY RE SET but ton will con tinue to flash un til the safety area is cleared and the but ton is pressed.

SLACK NIP (PUMP)
Used to quickly re move slack in the film be tween the upstream equipment and the winder nip roll dur ing thread up.

Each time it is pressed (pumped), the speed of the nip drive in creases by a cer tain per cent age.

This but ton must be held for the overspeed to con-tinue. If it is re leased for more than one half sec-ond, the speed will re turn to nor mal.

SLACK WIND (PUMP)
Used to quickly re move slack in the film be tween the winder nip roll and the wind ing spin dle dur ing thread up.

Each time it is pressed (pumped), the speed of the wind ing spin dle drives in creases by a cer tain per-centage.

This but ton must be held for the overspeed to con-tinue. If it is re leased for more than one half sec-ond, the speed will re turn to nor mal.

NIP ROLL START/STOP
Starts and stops the drive of the nip roll.

If the nip roll is open when START is pressed, a message will appear on the screen "THE NIP IS OPEN????"

NIP ROLL IS OPEN/CLOSED
In di cates whether the nip roll is open or closed.

NIP ROLL OPEN
Opens the nip roll. The nip roll can also be opened by push ing the WINDER NIP OPEN/CLOSE but ton at the rear of the winder.

The nip roll can only be closed by pull ing and hold-ing the WINDER NIP OPEN/CLOSE but ton at the rear of the winder un til the light co mes on. It can-not be closed by any but ton on the touch screen.

WIND SPDL START/STOP
Starts and stops the spin dle wind ing drives.

LAYON AUTO/OUT
When set to AUTO, the layon will automatically move to wards and away from the wind ing roll as necessary dur ing a cycle.

When set to OUT, the layon will move away from the winding roll to the FULL OUT position.

If the winder starts indexing when the layon is in the OUT position, the layon will move back in for the cut cycle and return to AUTO control.

CYCLE START

Starts the indexing (transfer) cycle for the turret.

Also used to resume indexing during the hand cut cycle or if the cycle has been interrupted.

This button will only operate if the RUN-THREAD UP keyselector switch below the touch screen is in the RUN position.

INDEX RESET

When pressed, it will cause the turret to return to the winding position after indexing has started as long as it has not reached the cut position.

After the button has been pushed and the turret is returning to winding position, the message in the button will read “GOING HOME”.

The CYCLE START button must be pressed to resume the cycle.

Counter Preset

Note: If the *Special Operations Screen* is set to metrics, each place indicated below as "feet" will be read as "meters".

COUNTER DISPLAY
FEET / METERS - TIME

When set to FEET, the COUNT display will indicate the number of feet wound on the roll.

When set to TIME, the COUNT display will indicate the amount of time left before the preset number of feet will be reached. The time is displayed with hours on the left, minutes on the right, and two zeros (00) in between.

Example: 15 hours and 23 minutes will appear as 150023 in the display.

The time remaining is determined by the nip speed. If for any reason the nip roll is stopped or the speed is reduced to a very slow value, the time remaining will read 99999999.

The operator can switch between FEET and TIME at any time, and as often as desired.

COUNT

The actual number of feet on the current winding roll or time remaining until the preset amount is reached.

PRESET

The amount of feet desired to complete a full roll.

RESET

When pressed, will reset the COUNT display to zero.

NUMERIC KEYPAD

This allows the preset value to be entered.

By pressing the desired numbers on the keypad and then ENT to enter the value, it will appear in the PRESET window. If an error is made during entry, pressing the DEL button will delete the last digit entered. To clear the entire entry, press CLR.

Wind Screen 2

LAYON FORCE AUTO/MAN

A transducer in the layon roll allows the layon to be pushed slightly by the winding roll (perhaps by a bump in an uneven roll) without causing the entire layon assembly to move.

When set to AUTO, the layon force transducer remains in its middle setting, automatically maintaining the SETPOINT AT CORE setting for the LAYON FORCE.

When set to MAN, the layon force transducer bottoms out and allows the whole layon assembly to move to maintain the layon force.

NIP ROLL SPD

The actual speed of the nip roll.

NIP ROLL TEN

The actual tension of the film between upstream equipment and the winder's nip roll.

TENSION SET INC/DEC

Increases or decreases the tension setting of the nip roll by one pound, each time it is pressed.

This value is shown above the INC/DEC buttons.

WIND TENSION

The actual tension of the film between the nip roll and the winding roll.

LAYON FORCE

The amount of pressure of the layon against the winding roll.

FULL ROLL DIAMETER INC/DEC

The desired diameter of the roll when tapering action will stop.

Not needed with TAPER OFF.

TAPER ON/OFF

When set to ON, FULL ROLL DIA, SETPOINT FULL ROLL and SETPOINT AT CORE all work together to set the slope of the taper (the gradual change of tension and force on the winding film as the diameter of the roll increases).

With these three setpoints, you choose:

- the winding tension and layon force at the beginning of the roll
- the winding tension and layon force at the end of the roll
- the diameter at which the tapering action is to stop

If the FULL ROLL DIA is set to a smaller diameter than the actual finished roll, the slope of the taper is calculated so that the SETPOINT FULL ROLL tension value will be reached at the FULL ROLL DIA value. For the remainder of the roll, the tension and force are held fixed.

SETPOINT FULL ROLL INC/DEC (WIND TENSION)

The winding tension desired at the end of a full roll.

Not needed with TAPER OFF. The amount of tension remains the same for the entire roll as determined by SETPOINT AT CORE.

SETPOINT FULL ROLL INC/DEC (LAYON FORCE)

The amount of pressure desired that the layon will exert against the winding roll at the end of a full roll.

Not needed with TAPER OFF. The amount of force remains the same for the entire roll as determined by SETPOINT AT CORE.

SETPOINT AT CORE INC/DEC (WIND TENSION)

The winding tension desired at the beginning of a roll.

SETPOINT AT CORE INC/DEC (LAYON FORCE)

The amount of pres sure de sired that the layon will ex ert against the wind ing roll at the be gin ning of a roll.

Setup Screen 1

MACHINE ON/OFF

Turns the winder on and off.

If the turret is not in home position when the ON button is pressed, a message will appear on the screen "HOLD MACHINE ON BUTTON FOR TURRET HOME TO START MACHINE". Press and hold the ON button until the turret returns to home position.

If the winder is OFF a message will appear on the screen "*MACHINE OFF* GO TO SETUP SCREEN 1 TO START MACHINE".

The OFF button can be used to stop the winder, but the EMERGENCY STOP pushbutton below the touch screen will do the same thing.

WIND FWD/REV

Controls the direction of the turret winding and indexing drives; forward (FWD) or reverse (REV).

CUT AUTO/MAN

If set to AUTO when the turret indexes, the film is automatically cut.

If set to MAN when the turret indexes, the film needs to be cut by hand.

CORE SIZE SMALL/LARGE

Selects which core OD value that will be used. Also adjusts the AUTO CUT position for the large core.

SMALL CORE O.D. INC/DEC

Enters the actual outside diameter of a smaller core being used.

This affects the speed match of the empty core during indexing. A smaller OD will cause the core to run faster, while a larger OD will cause the core to run slower. If speed match is a problem at cutover, the value should be changed. In hand cut, a slight overspeed of the empty core may be helpful.

LARGE CORE O.D. INC/DEC

Same as the SMALL CORE O.D. INC/DEC but tons except for a larger core.

COUNTER CYCLE START OFF/MAN/AUTO

When set to OFF, the counter does not receive any further footage from the counter actuator.

When set to MAN, the counter will go to its preset value. The horn will sound signaling the operator to press the CYCLE START button to go into the indexing cycle.

When set to AUTO, the counter will go to its preset value. The horn will sound and the winder will index automatically.

The counter will only count in MAN or AUTO if:

- the winder is in RUN mode
- the nip is closed
- the nip is on

CUT BOOST (X WIND AMPS) INC/DEC

This value is multiplied by the winding amp value to create additional tension on the film just before the cutarm comes to the FULL IN position. This helps the knife to cut the film more effectively.

GAP WIND ON/OFF (opt)

When set to ON, activates the gap wind actuator system allowing the layon to move back as the winding roll grows while maintaining a gap between the layon roll and the winding film.

When set to OFF, there is no gap between the layon roll and the winding roll.

If the winder shuts down mid cycle and the actuator does not retract, press the SAFETY CIRCUIT RESET button.

STATIC ELIM ON/OFF (opt)

When set to OFF, de ac ti vates the static eliminator bar used to re move static elec tric ity from the film.

When set to ON, ac ti vates the static eliminator bar used to re move static elec tric ity from the film.

OSCILLATOR ON/OFF/CENTER (opt)

When set to ON, turns on the os cil la tor at tached to the winder al low ing it to move back and forth.

When set to OFF, turns off the os cil la tor which will then move to one side.

When set to CENTER, al lows the os cil la tor to re-main in the mid dle.

Index Setup

INDEX AUTO

When selected, allows the winder to gradually change the indexing time as the roll diameter increases. The minimum and maximum settings are displayed above the AUTO INC/DEC buttons.

The smaller the roll diameter, the faster the turret will index. The larger the roll diameter, the slower the turret will index.

INDEX MAN

When selected, allows the winder to index in the amount of time set by the MANUAL INC/DEC button, regardless of roll size.

MANUAL INC/DEC

The amount of time it will take the winder to index when INDEX MAN has been selected (8 - 26 seconds).

The value can be changed by pressing the increase and decrease buttons below the display.

AUTO INC/DEC
FASTEST (SMALLEST DIA)

The fastest amount of time desired for the winder to index when INDEX AUTO has been selected.

The minimum value that can be set is 8 seconds. The value can be changed by pressing the increase and decrease buttons below the display.

AUTO INC/DEC
SLOWEST (LARGEST DIA)

The slowest amount of time desired for the winder to index when INDEX AUTO has been selected.

The maximum value that can be set is 26 seconds. The value can be changed by pressing the increase and decrease buttons below the display.

Setup Screen 2

CUT ARM IN TIMER INC/DEC

The amount of time the static transfer/cut arm is in its FULL IN position before the flying knife goes across to cut the film.

This gives the static transfer bar time to build up a charge on the empty core. It is factory set at 1.5 seconds, but can be changed by using the increase and decrease buttons.

CUT ACROSS TIMER INC/DEC

The amount of time it takes the flying knife to go across to cut the film.

When its time runs out, the static transfer/cut arm returns to the FULL OUT position and the turret returns to home position. It is factory set at 1.0 second, but can be changed by using the increase and decrease buttons.

It is very important this time be as short as possible (only as long as it takes the flying knife to reach the other side of the winder), because it affects the winding tension when the turret returns to home position.

If the winder is equipped with a plunge knife option, this timer is set to 0.00.

Alarms

Alarm Message Windows

The white Alarm Message Window can pop up over any screen. It warns the operator of a condition that will no longer allow the winder to function normally.

The alarm message is cleared from the screen by pressing the Acknowl Alarm button.

The Up and Down Cursor buttons allow the operator to move to an unacknowledged alarm and then acknowledge it by pressing the Acknowl Alarm button.

The Alarm Status button brings you to the Alarm Status Screen.

The Silence Alarms button silences the touch screen audio alarm. This can be disabled by personnel with a configuration key.

The Alarm History button brings you to the red Alarm History Screen.

Pressing Exit clears the alarm window.

Alarm History Screen

The red Alarm History Screen can be accessed from the Main Menu or from a white Alarm Message Window.

It saves the last 128 alarmed events by recording the time and date it occurred on the left of the screen and the alarm message on the right.

The Page Up and Page Down Cursor buttons display the previous or following page of alarms.

The Up and Down Cursor buttons allow the operator to move to an unacknowledged alarm and then acknowledge it by pressing the Acknowl Alarm button.

When an alarm is acknowledged the time and date it was acknowledged appear in the middle of the screen.

The Silence Alarms button silences the touch screen audio alarm. This can be disabled by personnel with a configuration key.

The Print button allows the alarm history to be transferred to a printer if one is connected to your system.

The Alarm Status button brings you to the Alarm Status Screen.

Pressing Exit returns the operator to the previous screen.

Alarm Status Screen

The white Alarm Status Screen provides a list of all the alarm messages which can be viewed several ways by pressing the Display Mode button:

- all alarms - lists all alarms, active or inactive
- active alarms - lists all currently active alarms
- past alarms - lists all alarms that are active or have been since the last reset

The Silence Alarms button silences the touch screen audio alarm. This can be disabled by personnel with a configuration key.

The Reset Qty/Time button resets the number of times a fault has been tripped and the accumulated amount of in-alarm time.

The Page Up and Page Down Cursor buttons display the previous or following page of alarms.

The Up and Down Cursor buttons allow the operator to move up and down through the list of alarms.

The Print button allows the alarm history to be transferred to a printer if one is connected to your system.

The Alarm History button brings you to the red Alarm History Screen.

Pressing Exit returns the operator to the previous screen.

Information Message Windows

This window appears after the white Alarm Message Window is cleared. It provides additional information about an alarm.

The Clear button removes the message from the screen.

Recipe Screens 1 & 2

This screen is a convenient and effective way to store a set of operating conditions of different products, to be used later when the product is run again.

It stores and retrieves the data in the form of "recipes". These recipes can be selected and loaded into the system, easily changing the currently running operating conditions.

A red flashing light will appear on the screen when the last recipe loaded into the system has been changed on Wind Screens 1 & 2 and Setup Screens 1 & 2.

Recipe Screen 2 is used like a keyboard to input up to a 20 character name for a recipe, making it easier to distinguish one recipe from another.

It is suggested that a list of recipe numbers and their corresponding processes be kept close to the PLC so that recipes are not mistakenly changed by different operators. A blank Recipe Reference Sheet is provided in this chapter to make copies for this purpose.

There are 20 recipe numbers available for storage.

LAST RECIPE LOADED (upper screen)

Displays the *number* of the recipe last loaded into the system.

LAST RECIPE LOADED (lower screen)

Displays the *name* of the recipe last loaded into the system.

RUNNING

The numbers listed below this window display the values of the currently running operating conditions set up on Wind Screens 1 & 2 and Setup Screens 1 & 2.

When the buttons on the Setup Screens are selected in a certain combination, a memory number is assigned to it. The number displayed next to "SetUp" corresponds to this memory number. This is for factory reference only.

RECIPE SELECTED (upper screen)

This window displays the recipe *number* currently selected, using the RECIPE SELECT INC/DEC buttons. The values of this recipe are displayed below the window. These values are not put into operation until the LOAD button is pressed. This way you can look at the values in any given recipe without changing the line operation.

RECIPE SELECTED (lower screen)

Displays the *name* of the recipe currently selected.

RUNNING VALUES MATCH RECIPE

If values being run match an existing recipe, the recipe number will appear in the window.

If the values do not match an existing recipe, a zero (0) will appear in the window, warning the operator to store them as a recipe if so desired.

LOAD

Brings into use the recipe called up in the RECIPE SELECTED window.

STORE

Places in memory the values listed below the RUNNING window. Writes over the last values stored in that recipe.

Be sure to double check the buttons selected from Wind Screens 1 & 2 and Setup Screens 1 & 2 before pressing the STORE button.

RECIPE SELECT INC/DEC

Increases and decreases the numbers assigned to existing recipes (1 - 20).

Special Functions Menu

When the SPECIAL FUNCTIONS MENU button is pressed on the Main Menu, a numeric key pad will appear requesting the entry of a special code to be able to access four special functions screens.

The access code can be changed at any time by someone with a configuration key. Turn the key at the rear of the Touch Screen to the CONFIGURE position. A special menu will appear on the screen. Select "SECURITY" from the menu. Enter the new code and press the ENTER button. Return the configuration key to the RUN position and the normal screens will be available.

Because any change to these screens can adversely affect the function of the winder, only trained engineering and maintenance personnel should have access to the code or the configuration key.

Once the correct code is entered, the Special Functions Menu will appear. Authorized personnel will then have access to the other screens.

The Loadcell, Tach Signal, Layon, Drive Calibration, and Machine Configure Screens have an additional three digit access code. The screens may be monitored at any time, but the code must be entered to make changes.

If any problems arise that require changes in these screens, you may contact Battenfeld Gloucester Engineering for further instructions at 978-281-1800.

PID Loop Tune (Tune Screen 1 & 2)

ERROR, INTEGRATOR, & PID OUTPUT

When a function pointer number refers to a parameter loop for tension or force, the loop's values will appear in the ERROR, INTEGRATOR, and PID OUTPUT displays.

FUNC. POINTER INC/DEC

The list with the numbers 1-56 in front of them are the winder parameters that can be altered.

The function pointer display is a number from the list of winder parameters. Change the number by pressing the increase and decrease buttons below the FUNC POINTER display.

Example: #21 is WIND TEN PB

FUNCTION VALUE INC/DEC

The value of the parameter whose number appears in the POINTER display. This value can be changed by pressing the increase and decrease buttons below the FUNCTION VALUE display.

NIP TEN

The tension of the film between upstream equipment and the winder's nip roll.

WIND TEN

The tension of the film between the nip roll and the winding roll.

L/O POSITION

The position of the layon in reference to the roll diameter.

L/O FORCE

The amount of pressure of the layon against the winding roll.

Monitor & Calibrate (Monitor Screen)

MEMORY LOCATION INC/DEC

The displays indicated by (F8:XXX) and (F9:XXX) will contain "floating point" register information.

The display indicated by (N7:XXX) will contain "integer" register information.

The values in the registers which are in the PLC memory can be called up by placing the memory address within the MEMORY LOCATION display by using the increase and decrease buttons.

10V DC SUPPLY

The power supply to the feedanalog input. If the reading goes below 9.8 or above 10.2, the winder will shut down.

LINE SPEED

The speed of the upstream equipment.

NIP SPEED

The speed of the nip roll.

SPDL 1 SPD

The speed of spindle winding drive #1.

SPDL 2 SPD

The speed of spindle winding drive #2.

CAL SHAFT SPD

The target calibration speed of the shafts.

NIP TEN

The load cell tension reading of the film between upstream equipment and the winder's nip roll.

WIND TEN

The load cell tension reading of the film between the nip roll and the winding roll.

L/O FORCE

The amount of pressure of the layon against the winding roll.

Turret Position

TURRET POSITION

The current position of the turret using winding spindle #1 as a reference point (in degrees).

The PLC calculates the stopping position for winding spindle #2, by adding 180° from winding spindle #1's position.

The exception to this rule is that the actual winding position for each spindle can be set by using "HOME SPDL" position setpoints.

TURRET POSITION POINTER INC/DEC

The list with the numbers 0-7 in front of them are turret positions.

The turret position pointer display is a number from the list that corresponds to one of the various positions a turret must go to during operation.

To change the numbers, use the increase and decrease buttons.

Example:

#3 is the position for SMALL CORE REV WIND AUTO CUT.

TURRET POSITION SETPOINT INC/DEC

The value of the position of the number that appears in the TURRET POSITION POINTER display (in degrees).

If changes are required in the stopping positions of the turrets, use the increase and decrease buttons to change the value.

Helpful Hint: The easiest thing to do is to just add or subtract a few degrees from the setpoint. Press CYCLE START and see what happens. If the stopping position is not enough or went in the wrong direction, make a correction.

PHOTO/ARBOR SAFETY RESET

Resets the photo safety circuit.

When the photo safety beams are broken by someone walking into the safety area during indexing, the cycle will stop. A message will appear on the screen "RESET THE PHOTO SAFETY CIRCUIT".

The PHOTO/ARBOR SAFETY RESET button will continue to flash until the safety area is cleared and the button is pressed.

If your machine is equipped with swingout arbors, it will activate if someone or something is in the safety area when the arbor starts to swing back in.

CYCLE START

Starts the indexing (transfer) cycle for the turret.

Also used to resume indexing during the hand cut cycle or if the cycle has been interrupted.

This button will only operate if the RUN-THREAD UP keyselector switch below the touch screen is in the RUN position.

INDEX RESET

When pressed, it will cause the turret to return to the winding position after indexing has started as long as it has not reached the cut position.

After the button has been pushed and the turret is returning to winding position, the message in the button will read "GOING HOME".

The CYCLE START button must be pressed to resume the cycle.

METRIC UNITS / IMPERIAL UNITS

Allows speed, tension, force, core size, diameter size, and layon position values to be displayed in either METRIC UNITS or IMPERIAL UNITS.

When selected, a message will appear on Wind Screens 1 & 2, Counter Preset, and Setup Screen 1 indicating the unit of measure that has been chosen.

Calibration Procedures

The following procedures are to help you calibrate various parameters of the winder. When the SPECIAL FUNCTIONS button is pressed on the Main Menu Screen, a numerical key pad will appear requesting a screen access code. Enter 281 (default) or Operator Code No. 1 and press ENT. The Special Functions Menu will appear. At this point you may select any of the following calibration screens by pressing the button:

LOADCELL CALIBRATION

TACH SIGNAL CALIBRATION

LAYON CALIBRATION

DRIVE CALIBRATION

MACHINE CONFIGURATION

These screens require an additional three digit access code. They may be viewed at any time, but it is necessary to enter the additional code to make any parameter changes. These codes are listed at the beginning of each section.

If you only read one thing in this manual, please read the following extremely important piece of advice:

A little knowledge is a dangerous thing!

Only authorized, trained specialists should have access to these codes and be allowed to make parameter changes! Any other course of action could result in major malfunctions of the winder, extensive down time, and a factory service call.

Loadcell Calibration

The three digit access code for this screen is 805. This code should only be given to factory trained personnel.

Note: The CANCEL button is useful for canceling an unwanted selection.

1. While the machine is on (MACHINE ON button on Setup Screen 1 is green) bring the layon in against the spindle. Tie the layon roll to the spindle to allow for the correct wrap angle during loadcell calibration when the machine has to be off.
2. On Setup Screen 1, press the MACHINE OFF button to turn the machine off for the rest of the loadcell calibration procedure.
3. Go to the Main Menu Screen and press the SPECIAL FUNCTIONS button. A keypad will then appear on the screen. Enter Screen Access Code 281 (default) or Operator Code No. 1 and press ENT to get to the Special Functions Menu. When the Special Functions Menu screen appears, press the LOADCELL CALIBRATION button to get to the Loadcell Calibration Screen.
4. To allow alteration to the current loadcell calibration, enter the access code 805 on this screen.
5. Visually inspect the nip roll and wind tension rolls to make sure the rolls are bare and have nothing hanging on them.
6. To calibrate the nip tension loadcells, press the SELECT button under the NIP L-C VOLTS display. The button will flash indicating you have selected to calibrate the nip loadcells.
7. Press the ZERO button to zero the nip loadcells with just the weight of the rolls themselves. The SELECT button will stop flashing indicating the action of zeroing the nip loadcells has been acknowledged.
8. Repeat steps 6 & 7 for the wind tension loadcells to zero the roll.
9. Make sure that the MAX WEIGHT display reads 50.00 LBS (22.68 KG).

   Note: The MAX WEIGHT may be 99.9 (45.31 KG) if the loadcells have been reoriented for higher tensions.
10. Make sure the CAL WEIGHT display reads the actual weight you are going to use to calibrate the tension rolls. The actual weight you use should be at least 80 percent of the MAX WEIGHT or 40 LBS (18.14 KG).
11. To calibrate the nip tension roll, tie a rope to the slitter bar, thread the rope back along the film path, and down through the nip. Tie your calibration weight to the end of the rope.
12. Press the nip tension SELECT button. The button will flash indicating that you have selected to calibrate the nip loadcells.
13. Press the CAL button to calibrate the nip tension loadcells to the calibration weight. The SELECT button will stop flashing indicating the action of calibrating the nip loadcells has been acknowledged.
14. Repeat steps 11, 12, and 13 for the wind tension loadcells with exception to the film path used to hang the calibration weight. For the wind tension roll, the rope should be fastened to the winding spindle and threaded back through the film path.
15. When the calibration procedure is completed, go to Setup Screen 1 and press the MACHINE ON button to turn on the machine.
16. Untie the layon assembly, which was previously tied in step 1.

Tach Signal Calibration

The three digit ac cess code for this screen is 508. This code should only be given to fac tory trained personnel.

1. Go to Setup Screen 1 and press the MA CHINE ON button to turn on the machine.
2. Go to Wind Screen 1 and press the NIP ROLL and WIND SPDL START but tons.
3. Go to the Main Menu Screen and press the SPECIAL FUNCTIONS button. A keypad will then ap pear on the screen. En ter Screen Ac - cess Code 281 (default) or Operator Code No. 1 and press ENT to get to the Special Func tions Menu. When the Spe cial Func tions Menu screen ap pears, press the TACH SIG - NAL CAL I BRA TION but ton to get to the Tach SignalCalibration Screen.
4. To al low al ter ation to the cur rent tach sig nal cal i bra tion, en ter the ac cess code 508 on this screen.
5. Press the CAL ON button to turn on all 3 winder drives and to automatically select CALSHAFT SPEED LO, which sends a speed reference of 10 percent of the maximum speed to all 3 winder drives.
6. Press the CALSHAFT SPEED HI but ton to send a maximum speed reference to all 3 winder drives.
7. Using a hand ta chom e ter, tach the ar bor shaft (not the ar bor core) of spin dle #1. Ad just the speed scale dis play lo cated un der the SPDL 1 SPEED display by pressing the INC or DEC but tons un til the value in the SPDL 1 SPEED dis play is equal to the hand tach speed.
8. Re peat this pro ce dure with spin dle #2 and the nip roll.

Layon Calibration 1 & 2

The three digit access code for this screen is 805. This code should only be given to factory trained personnel.

Note: The CANCEL button is useful for canceling an unwanted selection.

1. Go to Setup Screen 1 and press the MACHINE OFF button.
2. Go to the Main Menu Screen and press the SPECIAL FUNCTIONS button. A keypad will then appear on the screen. Enter Screen Access Code 281 (default) or Operator Code No. 1 and press ENT to get to the Special Functions Menu. When the Special Functions Menu screen appears, press the LAYON CALIBRATION button to get to the Layon Calibration Screen 1.
3. To allow alteration to the current layon sensor calibration, enter the access code 805 on this screen and follow steps 4 - 17.
4. Press the FORCE PIVOT ROLL BACK button to move the pivot roll to its full back position.
5. Locate the layon force sensor. Set the minimum gap for the sensor. Loosen the plastic nuts holding the sensor and adjust the gap between the sensor and the cam until the L/O VOLTS display reads 1.34 ± .1 volts. Tighten the plastic nuts. Be sure the reading is still 1.34 ± .1 volts.
6. Install the two shoulder bolts that were removed during the unpacking process (see the **INSTALLATION and STARTUP** chapter) in the two lower holes of the layon pivot. This will position the pivot in the middle of the cradle.
7. Press the SELECT button.

   The button will flash indicating you have selected to calibrate the layon sensor.
8. Press the ZERO button.

   This will zero the layon sensor. The SELECT button will stop flashing indicating the action of zeroing the layon sensor has been acknowledged.
9. Remove the shoulder bolts.
10. Press the FORCE PIVOT ROLL BACK button again.
11. The L/O VOLTS reading should still be 1.34 ± .1 volts
12. Press the SELECT button.
13. Press the CAL BACK button.
14. Press the FORCE PIVOT ROLL FWD button to move the pivot roll to its full forward position.
15. The L/O VOLTS reading will be approximately 4 - 5 volts.
16. Press the SELECT button.
17. Press the CAL FWD button.

This has now calibrated the layon sensor for its full range displacement.

CAUTION: The following procedure should only be done if there has been a change to:

E/P converter
air multiplier
air regulator
carriage air cylinder
pivot roll air cylinder

18. Go to Setup Screen 1 and press the MACHINE ON button.
19. Go to Layon Calibration 1 Screen 1 and select the LAYON CAL 2 button.
20. Select LAYON FORCE MAN.
21. Select TAPER OFF.
22. Suspend a measuring device or scale between the layon roll and the core.
23. Set the LAYON FORCE to 35 lbs.
24. Use the FUNCTION POINTER INC/DEC buttons to select #3 LAYON CARRIAGE GAIN.

Use the FUNC TION VALUE INC/DEC but tons un til the scale reads 35 lbs.

25. Set the LAYON FORCE to 10 lbs.
26. Se lect #4 LAYON CAR RIAGE OFF SET and ad- just un til the scale reads 10 lbs. ± 3 lbs.
27. Re peat steps 23 - 26 un til no ad just ments are required when the layon force setpoint is changed.
28. Set the LAYON FORCE to AUTO. You will now have sen sor feed back.
29. Set the LAYON FORCE to 35 lbs.
30. Se lect #1 PIVOT CYL IN DER GAIN and ad just un til the mea sur ing de vice reads 35 lbs when the pivot is in the cen ter of the cra dle (ER ROR will read 0).
31. Set the LAYON FORCE to 10 lbs.
32. Se lect #2 PIVOT CYL IN DER OFF SET and ad- just un til the mea sur ing de vice reads 10 lbs when the pivot is in the center of the cradle (ER ROR will read 0).
33. Re peat steps 29 - 32 un til no fur ther ad just- ment is re quired.

Drive Calibration

The three digit ac cess code for this screen is 508. This code should only be given to fac tory trained personnel.

1. Go to Setup Screen 1 and press the MA CHINE ON button to turn on the machine.
2. Go to Wind Screen 1 and press the NIP ROLL START and WIND SPDL START buttons.
3. Go to the Main Menu Screen and press the SPECIAL FUNCTIONS button. A keypad will then ap pear on the screen. En ter Screen Ac - cess Code 281 (default) or Operator Code No. 1 and press ENT to get to the Special Func tions Menu. When the Spe cial Func tions Menu screen ap pears, press the DRIVE CAL I - BRA TION but ton to get to the Drive Cali bra tion Screen.
4. To al low al ter ation to the cur rent drive cal i bra - tion, enter the access code 508 on this screen.
5. Press the CAL ON but ton to turn on all 3 drives and to au to mat i cally se lect CALSHAFT SPEED LO which sends a speed ref er ence of 10 per - cent of the max i mum speed to all 3 drives.
6. Press the CALSHAFT SPEED HI but ton to send a max i mum speed ref er ence to all 3 drives.
7. Adjust the NIP SPEED ref er ence scale us ing the INC or DEC but tons un til the value in the NIP SPEED display matches the value in the CALNIPSPD dis play.
8. Adjust the SPDL 1 SPEED reference scales until the value in the SPDL 1 SPEED display matches the value in the CALSHAFTSPEED display.
9. Re peat step 8 for SPDL 2 SPEED.

For DC spin dle drives, fol low steps 10 through 20.

10. Dis con nect power from the winder by switch - ing the main dis con nect off.
11. Re move one field lead con nec tion at each of the spin dle drive con trol lers.
12. Re fer to the elec tri cal draw ings of the winder and re move both drive run re lays.
13. Switch the main dis con nect back on and re - peat steps 1 - 5.
14. Plug in the drive run re lay for SPDL 1. Ad just the SPDL 1 cur rent scale dis play lo cated un - der the la bel SPDL 1 AMPS by us ing the INC or DEC but tons un til the motor nameplate cur - rent is read on the SPDL 1 am me ter.
15. Immediately re move the drive run relay for SPDL 1 to min i mize mo tor heat ing.
16. Re peat steps 14 and 15 for SPDL 2.
17. Dis con nect power from the winder by switch - ing the main dis con nect off.
18. Reconnect the field wires to each controller that were re moved in step 11.
19. Replace both drive run relays that were re - moved in step 12.
20. Switch the main dis con nect back on.

For flux vec tor spin dle drives, fol low steps 21 through 24.

21. Con nect a volt me ter to the cur rent ref er ence in put ter mi nals of the SPDL 1 drive and ad just the SPDL 1 cur rent scale dis play lo cated un - der the la bel SPDL 1 AMPS by us ing the INC or DEC but tons un til the volt me ter reads 6.66 volts.
22. Display the torque reference parameter (U1-09) for the SPDL 1 drive.

23. Adjust the Analog Output Chnl2 gain parameter (F4-04) so the SPINDLE #1 TORQUE meter on the front of the winder matches the torque displayed in U1-09.

24. Repeat steps 21 - 23 for SPDL 2.

Machine Configuration

The Machine Configuration Screen contains the factory set parameters which configure the winder for the designed maximum speed and torque requirements. These factory set parameters should not be altered unless specifically instructed by the engineering department of Battenfeld Gloucester Engineering.

Parameter List

For the convenience of the operator or technician, PID tuning, turret position, and drive calibration parameters are all displayed on one screen.

DC & AC Inputs

These screens are used for main te nance per son-
nel. They show whether or not the PLC is re ceiv ing
in put sig nals from the sen sors, pushbuttons, and
limit switches.

If the de vice is on, the in di ca tor will be red.

If the de vice is off, the in di ca tor will be white.

AC Outputs 1 & 2

These screens are used for maintenance personnel. They show if the PLC is energizing an output device such as a relay or solenoid.

If the device is being energized, the indicator will be red.

If the device is off because the output is de-energized, the indicator will be white.

Analog I/O

ANALOG INPUT VOLTAGE
The voltage of the analog input selected.

ANALOG INPUT VOLTAGE INC/DEC
Scrolls through the list of analog inputs.

ANALOG OUTPUT VOLTAGE
The voltage of the analog output selected.

ANALOG OUTPUT VOLTAGE INC/DEC
Scrolls through the list of analog outputs.

TROUBLESHOOTING

PROBLEM:	CAUSE:	SOLUTION:
Touch Screen will not come on	Plant power supply is not ON.	Turn on.
	MAIN DISCONNECT is not ON.	Turn on.
	Circuit breaker for the primary transformer is tripped.	Determine the cause and reset.
	Touch screen fuse is blown.	Replace.
MACHINE ON button on Setup Screen 1 will not activate when pressed	SAFETY CIRCUIT RESET button is flashing and/or the emergency stops need checking.	Check and make called-for adjustments.
	Faulty EMERGENCY STOP button.	Replace the pushbutton.
	Interference with the red safety cables.	Determine the interference and eliminate.
	Main air supply is not turned ON.	Check that the air valve regulator is turned ON.
	Air leak. Pressure switch is not activated.	Check the tailstocks and the end of the spindles for a bad seal and rectify.
Warning light flashing on the processor module	Battery is low in the *processor*.	Replace the battery. See the Programmable Controllers Assembly & Installation Manual.

Battery fail message appears on the screen	The batteries in the *touch screen* have failed.	See the Panelview Operator Terminals User's Manual. **Note**: All retentive values are lost when the touch screen is powered up again.
Isolated sections of the winder are not operating	All switches/solid state sensors are not tight enough or properly adjusted.	Lock out the machine power and check the tightness and adjustment of the switches and sensors.
	Relays or fuses have loose connections.	Lock out the machine power and tighten.
	Worn or broken belt or chain. Loose sprocket.	Lock out the machine power and check.
	Faulty relay, switch, or sensor.	Replace.
Counter is not counting	DC input module light is not flashing due to faulty footage actuator.	Check and adjust the actuator.
	Winder is in THREAD UP mode.	Set the RUN-THREAD UP selector switch to RUN.
	The nip is open.	Close the nip.
	The nip is not running.	Start the nip.
	Counter is not on.	Set the COUNTER CYCLE START button on Setup Screen 1 to AUTO or MAN.
Turret will not index or stops during indexing	Plant air is not at 10 cfm at 80 psi and the safety switch has shut the machine down.	Check the plant air pressure on the gauge.
	Tailstock pressure is too low.	Check and adjust the pressure regulator.

Turret will not index or stops during indexing (cont'd)	Shaft is not fully engaged in tailstock.	Firmly push the shaft into the tailstock until engaged and press the PHOTO/ARBOR SAFETY RESET button on Wind Screen 1.
	A sensor on the turret is loose or needs to be adjusted.	Tighten the nuts holding the sensor and/or adjust the gap.
	Winder in THREAD UP mode.	Change to RUN mode.
	Someone or something is in the photo safety area.	Remove the obstruction and press the PHOTO/ARBOR SAFETY RESET button on Wind Screen 1.
	Photo safety cells are dirty or misaligned.	Clean and adjust the reflectors for each photo cell until each photo cell is lit with no obstruction and goes off when the beam is broken.
	Low voltage power supply fault.	Check the power supply for the correct voltage. If not, replace the power supply. Check for shorts or grounds.
Erratic speed	Worn or broken belt or chain. Loose sprocket.	Lock out the machine power and check. Replace if necessary.
	Loose, dirty, or worn brushes on collector ring assembly.	Lock out the machine power and check the brushes. Tighten, clean, or replace if necessary.
	Faulty tachometer.	Replace.
Incoming spindle stops turning	Loose, dirty, or worn brush on collector ring assembly.	Lock out the machine power and check. Tighten, clean, or replace if necessary.

Pneumatic cylinders are scored/valves not functioning	Unfiltered plant air is in use.	Install a filter in main supply, upstream of regulator.
	Dirty main air supply filter.	Clean or replace the filter.
	Filter-regulator-lubricator is low or empty.	Fill to the required level and check periodically.
Layon roll is nicked and damaged	Failure to cycle to an empty core prior to beginning the run.	Make sure the cores are fitted onto shafts prior to beginning the run.
	No core on the shaft.	Do not run without cores on shafts.
	Knife has been used to cut off wrapped on material.	Stop the roll and carefully cut off the material by sliding a brass blade between the film and the roll. Cut the film with a safety knife against the brass blade.
Brake fails to hold the turret in position	Air/oil brake pressure is too low.	Adjust the air regulator to 70 - 75 psi.
	Gear reducer oil is low.	Add oil to proper level. See the **LUBRICATION** chapter.
	Brake pads are worn or have oily surface.	Replace the brake pads.
Loss of layon control	Layon roll is not counterbalanced.	Check (with no layon pressure) that the layon roll can be moved and it will stay where it is. Adjust the regulator as required.
	Layon is binding on the rails.	Clean the rails with alcohol and dry with a soft cloth.
		Clean and adjust the layon side bearings.

Layon stays in the FULL OUT position (with power on)	LAYON button is set to OUT on Wind Screen 1.	Press the LAYON AUTO button.
	Faulty E/P converter or analog output card.	Check and replace if necessary.
Layon stays in the FULL OUT position (with the power on) and the E/P converter is okay	Faulty diaphragm inside the amplifying relay.	See the Amplifying Relay service instructions.
Turret travels beyond cut position	Rotary pot out of adjustment.	Check the turret position on the Turret Position Screen.
	Faulty analog input card.	Replace.
Static transfer/cutarm fails to travel to make the cut	Cut arm pressure is too low.	Adjust the pressure regulator to suit.
	Output fuse blown.	Replace the fuse in the module.
	Faulty solenoid.	Check control sequence to see if the output for the solenoid is energized. Repair or replace if necessary.
Static transfer bar fails to transfer static to the empty core	No power to the high voltage supply.	Check the output fuse on module.
	Problem with the high voltage cables.	Inspect and repair as required.
	Incorrect gap between the static bar arms and the core.	Refer to the adjustment procedure in the **MAINTENANCE** chapter.
	Static bar is loose or not in the correct position.	Lock out the machine power and check the static bar.

Loss of transfer to the empty core	Layon not in all the way.	Adjust the layon position.
	Gap between the core and the static transfer bar is too wide; lack of contact.	See the **MAINTENANCE** chapter for the correct procedure.
	Gap between the core and the static transfer bar is too narrow; causes arbor (spindle) to short out.	See the **MAINTENANCE** chapter for the correct procedure.
	Core speed match incorrect.	Check the CORE O.D. on Setup Screen 1 and adjust the value to the actual core diameter.
	Dull blades.	Replace.
Cut arms slam at stroke	Air cylinder cushions need adjustment.	Adjust the cushions on the air cylinders.
	Air flow are out of adjustment.	Adjust.
Poor winding	Tension and draw controls may not be adjusted properly.	Adjust the values on Wind Screen 2 to suit each product; may require different settings.
	All rolls may not be turning freely.	Turn power OFF and check all rolls.
	Improper thread up.	Check the thread up path of material according to the illustration at the beginning of the manual.
	Bowed roll speed does not match nip roll speed.	Check with hand tachometer and adjust the nip roll speed.
	Bowed roll is improperly adjusted for type of film being wound.	Refer to the *Thread up* section in the **INSTALLATION and START UP** chapter.

Film is not tracking	Winder is not leveled.	Check the side frames and nip roll for level.
	Winder not trammed accurately.	Check the nip roll and upstream machinery with a tape measure.
Film not being cut	Dull blades.	Replace.
	Trim blades may not be extended the full length of the slot in the blade.	Adjust the blade position.
Wrinkles in the film	Layon transfer pressure and layon winding pressure settings are incorrect.	Check the settings on Wind Screen 2.
	Bowed roll speed does not match the nip roll speed.	Check with a hand tachometer and adjust the nip roll speed.
	Bowed roll is improperly adjusted for the type of film being wound.	Refer to the *Thread up* section in the **INSTALLATION and START UP** chapter.
	Misaligned rolls or winder.	Check the alignment.
	Nip roll and/or tension values are set too low.	Adjust the values on Wind Screen 2.
Edge of film curls where it is being slit	Gauge bands.	Check the die.
Tailing	Improper setting of the spindle speeds.	Check with a hand tachometer and adjust the CORE OD on Setup Screen 1 to suit.
	Layon is binding on the rails.	Clean the rails with alcohol.
		Clean and adjust the layon side bearings.
	Cut arm pressure is too low.	Adjust the regulator.

“Starring” on the wound roll	Soft wind at the core.	Raise the tension setpoint at the beginning of the roll and lower the taper tension setting at the end of the roll.
Roll is not the correct size	Footage counter is not set correctly.	Adjust the value on the footage counter to suit.
Tension control problems	Loadcell out of calibration or improperly set.	Follow the procedures in the **PLC TOUCH SCREEN** chapter.
	Winding tension is higher than nip tension.	Adjust to a lower setting.
	PID tuning parameters were changed.	Return to a previously recorded proven settings.

MAINTENANCE

In or der to en sure a long, trou ble free life for your winder, pe ri odic main te nance must be sched uled. This will de crease down time and in crease pro duc-tivity.

More im por tantly, well maintained and clean ma-chines make a safer work ing en vi ron ment. A clean working environment is a morale booster which has also been shown to in crease pro duc tiv ity.

*Af ter the safety fea tures have been checked, you must **shut down the ma chine** to per form main te-nance and lock out the MAIN DISCONNECT.*

Every week

1. Check all safety circuits

Procedure:

The fol low ing safety cir cuits shut off the winder. A message "RESET THE SAFETY CIRCUIT" will ap-pear on the screen. Press the SAFETY CIR CUIT RE-SET but ton be low the touch screen.

a. **EMER GENCY STOP push but ton**

Push EMERGENCY STOP push but ton be low the touch screen.

b. **Red safety ca bles**

Pull front and rear safety ca bles.

Push the EMERGENCY STOP button on the con trol box. Use the le ver to re set.

c. **Air supply inter ruption**

Turn safety air valve OFF on the in side of the pneumatic cabinet.

d. **Nip force-open limit switch**

On Wind Screen 1, press NIP ROLL STOP.

At the rear of the winder, pull and hold the WINDER NIP CLOSE but ton un til the light is ac-tuated.

Slide a long piece of 3/16" thick cardboard be tween the nip rolls and turn them by hand. This will trip the limit switch, open ing the rolls.

The fol low ing safety cir cuit shuts off the winder. A message "*MACHINE OFF* GO TO SETUP SCREEN 1 TO START MA CHINE" will ap pear on the screen.

e. **MA CHINE OFF but ton**

Press the MACHINE OFF button on Setup Screen 1.

The following safety circuits will not shut off the winder but will stop it from in dex ing. A mes sage "RE SET THE PHOTO SAFETY CIR CUIT" will ap pear on the screen.

f. **Photo safety cir cuit**

Step into the photo safety area. Step out of the photo safety area. Go to Wind Screen 1 and press PHOTO/ARBOR SAFETY RESET.

2. Check the filter-regulator-lubricator

Procedure:

a. If more oil is required, unscrew the fill plug next to the sight dome on the lubricator.

b. Fill to the indicator line and replace the fill plug.

c. Condensation from the air builds up inside the filter. To release it, locate the manual flexible drain located on the bottom of the bowl, and push the rubber tip to one side. In high humidity situations, this may need to be checked more often.

d. The correct rate of flow for the oiler is one drop per minute. (You should be able to observe this.) If adjustment is required, turn the knob counter-clockwise to decrease the flow of oil or clockwise to increase it.

3. Check blade sharpness

Procedure:

a. Remove blade holders.

b. Visually inspect blades for wear and dullness.

c. See MISCELLANEOUS REPAIRS for blade replacement.

4. Be sure the static transfer bar is tight and in the correct position

Procedure:

a. Check the static bar for tightness.

b. If the static bar is loose, check all support brackets and tighten them.

c. Be sure the high voltage cable supports are tight.

d. Be sure the ground cable is securely fixed.

e. Manually bring the cut arm to FULL IN position.

SAFETY WARNING: If the winder is equipped with the plunge knife instead of a flying knife, the blades are exposed at this point. Serious injury can occur if extreme care is not taken!

f. The pins on the static bar should be pointing at the center of the empty core, and between 1/4" and 1/2" away from the core when the turret is in cut position.

5. Check the static transfer cables

Procedure:

a. Visually inspect the cables that run between the static transfer bars and the transformer for cracks and wear.

b Replace as necessary.

6. Clean the layon traverse rails and bearings

Procedure:

a. Use a clean cloth and alcohol to remove all dust, dirt, or other foreign matter from the rails and the outside of the bearings.

b. Wipe with a dry cloth.

Note: This procedure is essential for the layon to operate efficiently.

Every two weeks

1. Check relays for loose connections

Procedure:

a. Lock out power to the ma chine.

b. All re lays are lo cated in the elec tri cal sup ply panel where the main power ca bles en ter the winder.

c. Push the re lays gently to be sure they are securely seated in po si tion.

d. Pull *gently* on each cable one at a time to check for tight ness at ter mi na tion points.

2. Check all drive belts and replace if necessary

Procedure:

a. Lock out power to the ma chine.

b. Touch the belt to see if there is too much play in it. The belt should only be able to be depressed 1/2".

c. Ad just any take-up pul ley.

d. If there is too much play in the belt, re place it.

e. Vi sually in spect the belt for cracks. If found, re place the worn belt im me di ately.

3. Be sure all switches and solid state sensors are tight

Procedure:

a. Lock out power to the ma chine.

b. Manually check that all se cur ing bolts hold ing limit switches are tight.

c. With screwdrivers/Allen wrenches, tighten any loose se cur ing bolts.

d. Check that the locknuts hold ing the solid state sen sors at the tail stocks are tight.

e. Use wrenches to tighten any loose locknuts.

f. *Do not* oil limit switches. Re place them if they do not move freely.

4. Be sure all rolls turn freely and are completely clear of obstruction

Procedure:

a. With *no* drives run ning, vi su ally check for:

1. Material that may be wrapped around shafts close to bear ings
2. Worn belts
3. Dry bearings
4. Adequate oil lev els in gear boxes for the spin dle drives

b. If the above checks out, turn the drives on one at a time and run slowly. Look and listen for any thing un usual.

5. Check the collector ring brushes

Procedure:

a. Lock out power to the ma chine.

b. Re move the cover around the col lec tor ring assembly.

c. Inspect each brush for lack of con tact, dirt, wear, or a loose wire.

d. Tighten the mount ing screw, clean or re place the brush, or tighten the wire as necessary.

e. Re place the cover.

Once a month

1. Clean the electrical control cabinet

Procedure:

a. Lock out power to the ma chine.

b. Open the doors and vac uum ev ery thing in side the cab i net, es pe cially the elec tri cal pan els.

Using an air hose to blow out the dirt may cause small par ti cles of metal to in ter fere with the operation of electrical com po-nents.

c. If sup plied, *re move the fil ter* from the lou ver on the side or rear of the cab i net by first pop-ping the re tain ing grid out of its holder. Ei ther vacuum or blow out the dust and replace it back into its holder. This may need to be done more of ten in a dusty en vi ron ment.

2. Grease the bearings

Procedure:

a. All the bearings on the winder that have grease fit tings should be pe ri od i cally greased with a grease gun.

b. The grease fit ting is on the bear ing hous ing, and the bear ings are lo cated on each end of the nip rolls, bowed roll, in dex unit, nip guard shaft, and static trans fer/cut arm shaft.

3. Check the drive mo tor gear boxes

Procedure:

a. Following manufacturer's instructions, check and main tain the proper oil lev els.

4. Check the drive motors

Procedure:

a. Lock out power to the ma chine.

b. Make sure the motor is clean and dry. Re-move dust, dirt, cor ro sion, and grease from the housing.

c. Re move the in spec tion plates from the mo tor and ei ther vac uum or use high pres sure air to blow the dust and dirt out of the mo tor hous-ing.

5. Check the drive motor brushes

CAUTION: This procedure should be per - formed by qual i fied per son nel only.

Procedure:

a. Lock out power to the ma chine.

b. Re move the in spec tion plate on the mo tor.

c. In spect each brush for lack of con tact, wear, or loose wires. Look for discoloration from sparking on the inside of the commutator housing.

d. Tighten any loose mount ing screws or wires.

e. Clean or re place any dirty or worn brushes.

6. Calibrate the loadcells.

Procedure:

a. Follow the procedure described in the *Loadcell Calibration* section of the **PLC TOUCH SCREEN** chap ter.

Miscellaneous repairs

1. Solenoid repair

If a solenoid starts to stick, it is usually because of impurities in the air supply.

Procedure:

a. Lock out power to the machine.

b. Remove the coverplate. Be careful, as there is a small spring pushing against the coverplate. This spring could pop out and become lost if the coverplate is not removed carefully.

c. Check the piston motion. If the piston moves freely and there is no dirt around it when it is withdrawn, the sticking problem is caused by the actuating coil, and the coil should be replaced.

d. If there is dirt or other impurities within the solenoid that cause the piston to stick, try to free the piston from the open end. If it is not possible to free the piston with the end cover removed, remove the coil housing. Note that the housing can only be moved as far back as the slack in the coil will permit. Pushing alternately on either end of the piston should free it.

e. Once the piston is free, thoroughly clean the piston and the cavity in which it travels.

f. Carefully reassemble the solenoid and check its alignment.

2. Cut arm blade replacement

Procedure:

a. Lock out power to the machine.

b. Remove all the button head cap screws that secure the blade to the cut arm blade holder.

c. Remove the old blade and install the new blade so the ground angle on the teeth faces away from the direction of the web travel.

d. Replace all the button head cap screws removed in step b.

3. Replacing the urethane belt on the driven bowed roll

To determine the new belt length:

1. Place the bowed roll drive motor in its mid-adjustment position.

2. Belly band" a tape measure over the two pulleys and note the measurment.

3. Multiply the belly band length by .94 to get the cut length.

   This shorter length allows 6% stretch. Heavier rolls may need to be increased to 10% stretch. The maximum allowable stretch is 12%.

   If you are not manufacturing the new belt yourself, forward this information to Battenfeld Gloucester Engineering to manufacture the belt.

Supplies:

- Eagle Belting Company Weld Splicer Fixture Model UT-3*
- Eagle Belting Company Thermo-Weld Heating Tool – Model UT-6D*
- Eagle Belting Company V-Section Urethane belting – 1/8" x 5/16" Urethane A*
- Sharp utility knife

* Available from:

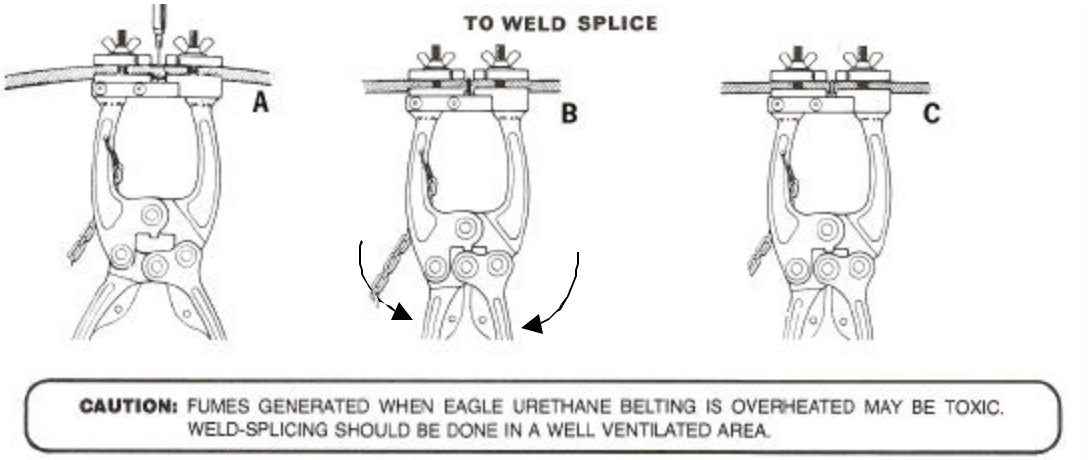
Eagle Belting Company
1683 South Mt. Prospect Road
Des Plaines, IL 60018-1893
Phone – 847–297-8200
FAX – 847–803-9290

Making the belt:

Warning: Failure to follow these procedures precisely may result in the belt splitting.

1. Wipe off the heating tool blade making sure there is no residue, which could produce fumes from thermal decomposition.
2. Plug in the heating tool and preheat for 5 minutes.
3. Cut the new belt to the correct length (see above).
4. Makes sure the cuts on both ends of the belt are 90°.
5. On the weld splicer fixture, loosen the wingnuts on the top of each side of the clamp.
6. Place the step spacer (attached to the chain) between the sides of the clamp with the step facing up. Squeeze the handles.
7. Feed one end of the belt through the clamp and butt the end against the step in the spacer.
8. Tighten down the wingnuts on that side.
9. Slightly spread the handles of the weld splicer fixture, allowing the step spacer to drop out.
10. Feed the other end of the belt through the other side of the weld splicer fixture, making sure the belting is not twisted.
11. Match the ends of the belt.
12. Adjust the handles of the weld splicer fixture so that an even amount of belting is showing between the two sides of the fixture and then tighten the wingnuts on the second side.
13. Spread the handles slightly to create a 1/16" gap between the belt ends.
14. Slide the hot knife blade between the belt ends and squeeze the clamp handles to add a little pressure. (A)
15. When complete melting is evident by the urethane *beginning* to mushroom, remove the heating tool and quickly squeeze the ends together until the melt starts to ooze from the seam. (B)

    Note: Do not melt the ends too long or bubbles will form inside, decreasing the contact area and weakening the joint.
16. Let the weld cool for 5 minutes. Cold water may be applied. (C)



Information courtesy of Eagle Belting Company.

LUBRICATION CHART

CAUTION: Over lubrication of bearings may cause the bearing grease seals to rupture.

ITEM	FREQUENCY	LUBRICATION
1. Reservoir of air line lubricator	Check daily	Mobil Mist Lube #24 SAE 10 Amoco Rykon 68 Shell-Omala 68 or equivalent
2. Turret shaft bearings	Check every 3 months	Mobilux EPO NLGI #0 grease or equivalent
3. Layon pivot shaft bearings	Check every 3 months	Mobilux EPO NLGI #0 grease or equivalent
4. Right angle gearbox	Check monthly	See vendor's instructions
5. Nip roll drive motor	Check monthly	See vendor's instructions
6. Nip roll drive gear reducer	Check monthly	See vendor's instructions
7. Turret drive reducer	Check monthly	Mobil Synthetic Lube SHC-634

1031S Winder
Recipe Reference Sheet

FILM TYPE										
GAUGE										
RECIPE #										
WindTen										
WindTenFulRol										
FulRolDiameter										
L/OForce										
L/OForceFulRol										
NipRolTen										
SmallCore O.D.										
LargeCore O.D.										
CutBoost										
SetUp										
CountPreset										