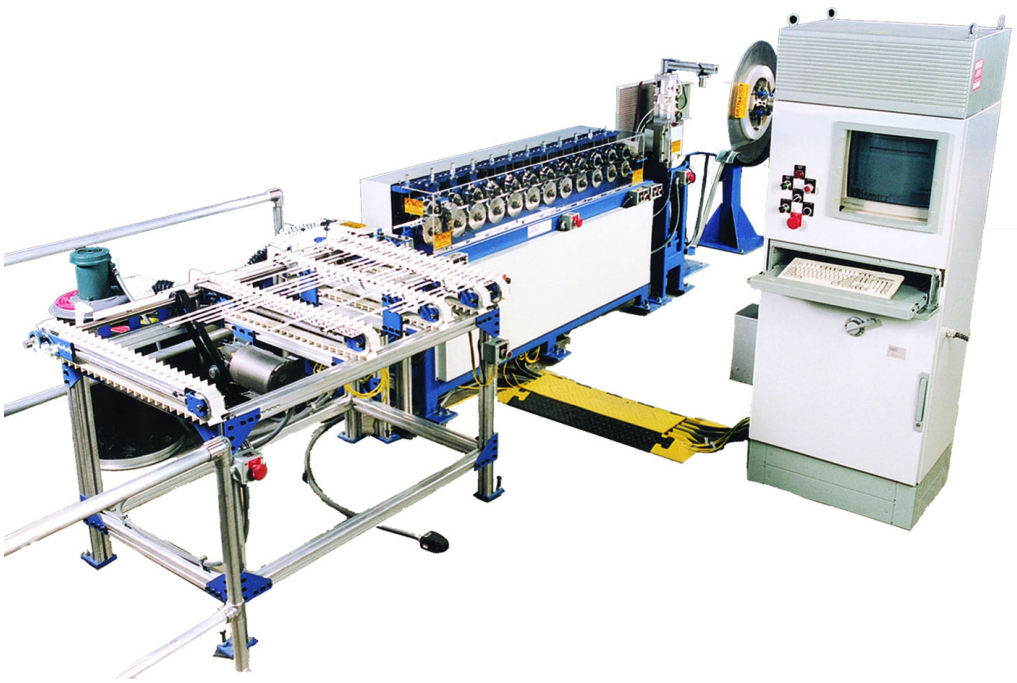

Intergrid® Muntin System User's Guide

Document Part Number: IM-0090, Rev. F

Intergrid® Muntin System

User's Guide

Document P/N: IM-0090, Rev. F

Machine S/N: _____

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Original Instruction - English

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Contents

1

Overview

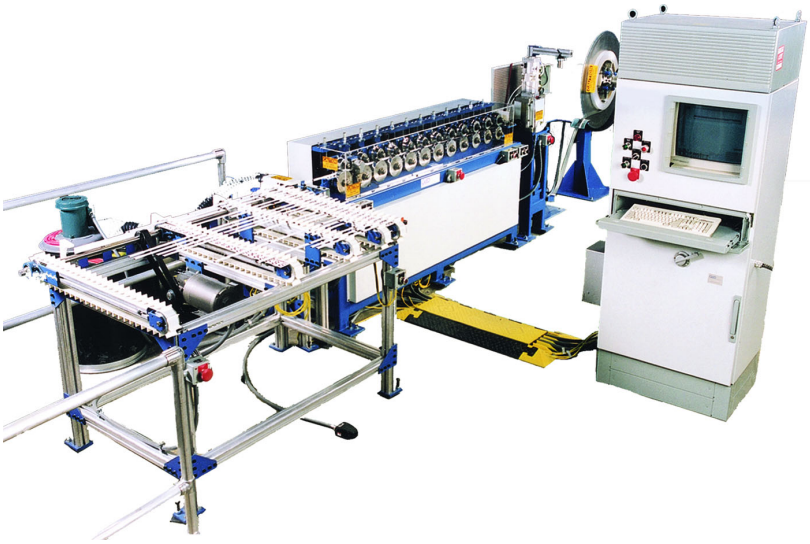
This manual contains important information necessary to the proper installation, service, and use of your GED equipment.

This chapter includes important information about the Intergrid Muntin System including technical specifications, safety considerations and general theory.

Introduction

This manual supports Intergrid Muntin Systems equipped with either or both of the following options:

- 2-Tone Muntin capability
- Valance muntin pattern capability.



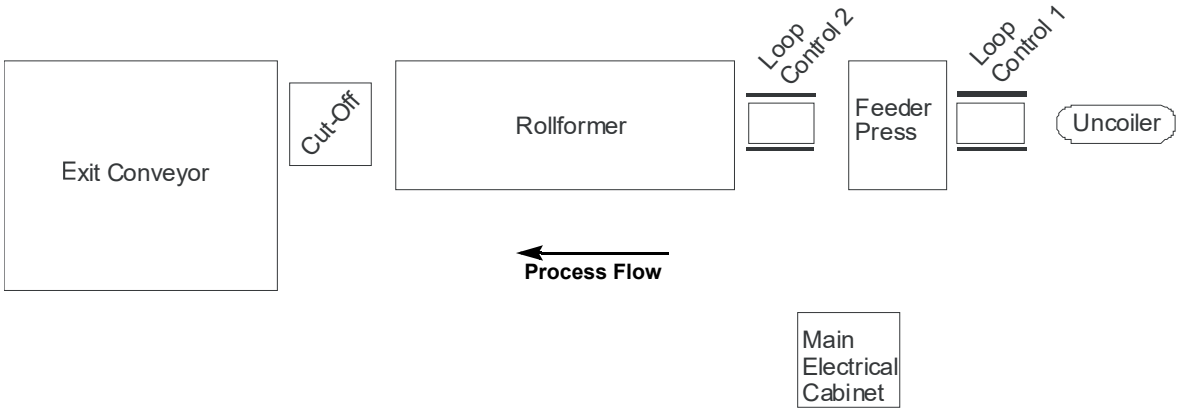
Intergrid Machine

The Intergrid Muntin System is composed of several sections:

- Uncoiler
- Loop Control #1
- Feeder Press
- Loop Control #2
- Rollformer
- Cutoff
- Conveyor

These sections transform the raw muntin material into finished, notched, cut-to-length muntin bars.

The entire system is computer controlled with sophisticated, easy-to-use WinGrid™ software.



Intergrid Layout

Uncoiler - unrolls the raw muntin material and feeds it into Loop Control #1 and the Feeder Press.

Loop Control #1 - provides three signals to control the Uncoiler mandrel drive: tight loop, full loop, and the analog signal.

- The tight loop signal is a digital signal that puts the Feeder Press into a feed hold condition to allow more material to unroll from the Uncoiler and, therefore, slacken the loop.
- The full loop signal is a digital signal that puts the Uncoiler into a feed hold condition to allow the Feeder Press to process more material and, therefore, tighten the loop.
- The analog loop control signal is fed back to the Uncoiler drive. It is a 0-10 vdc signal, 0v when the loop is at its fullest, 10v when the loop is at its tightest.

Feeder Press - punches the notches where the finished muntin bars intersect when the bars are assembled into the finished grid. The Feeder Press also punches the following:

- A registration slot to mark the cutoff point between muntin bars.
- A pair of holes to accept a joiner clip. Joiner clips are used to make T-joints when valance grid designs are produced.

Loop Control #2 - located between the Feeder Press and the Rollformer, consists of two photoeyes that regulate the amount of material fed into the Rollformer. If the top photoeye detects a tight loop, the Rollformer goes into a feed hold condition until enough material has passed through the Feeder Press to add sufficient slack to the loop. If the bottom photoeye detects a full loop, the Feeder Press goes into a feed hold condition until enough material has passed through the Rollformer to sufficiently reduce the slack in the loop.

Rollformer - folds and forms the punched material into the finished muntin bar shape.

Cutoff - detects the registration slot, and separates the formed, notched muntin bars with a saw.

Conveyor - moves the finished bars to the operator, where they are removed and assembled, or placed in a storage cart to await assembly.

Technical Specifications

Dimensions		
Main Electrical Cabinet	83" high x 31"wide x 24" deep (210 cm x 78 cm x 61 cm)	
Single Uncoiler	65" high x 38" wide x 27" deep (165 cm x 96 cm x 68 cm)	
Optional Dual Uncoiler	66" high x 64" wide x 47" deep (167 cm x 162 cm x 119 cm)	
Loop Control #1	61" high x 35" long x 18" deep (155 cm x 89 cm x 46 cm)	
Feeder Press	61" high x 33" wide x 25" deep (155 cm x 84 cm x 61 cm)	
Rollformer	48" high x 93" wide x 32" deep (122 cm x 236 cm x 81 cm)	
Cutoff	42" high x 10" wide x 24" deep (107 cm x 25 cm x 61 cm)	
Conveyor	43" high x 66" wide x 41" deep (110 cm x 168 cm x 104 cm)	
Air Consumption		
Feeder Press and Cutoff	12 CFM @ 90 PSI	
Electrical Requirements		
For a 480 VAC machine	480 VAC 60 Hz 40 AMP 3-phase grounded +/- 10% Breaker Size: 40 amps 16 FLA current draw (13.3 KvA)	
Weights		
Uncoiler	Empty weight	295 lb. (134 Kg)
	Coil weight	130 lb. (59 Kg) each
	Total Uncoiler weight	425 lb. (193 Kg)
Optional Dual Uncoiler	Empty Weight	130 lb. (59 Kg) each
	Total Weight Dual Uncoiler & 2 Coils	1,010 lb. (458 Kg)
Loop Control #1	Total Loop Control Weight	150 lb. (69 Kg)
Feeder Press	Dead load weight	750 lb. (341 Kg)
	Live (Dynamic) load weight	2,500 lb. (1,136 Kg)
	Total Feeder Press weight	3,250 lb. (1,477 Kg)
Rollformer	Total Rollformer weight	2,500 lb. (1,139 Kg)
Cutoff	Total Cutoff weight	250 lb. (113 Kg)
Conveyor	Total Conveyor Weight	250 lb. (113 kg)

Environment		
Temperatures	Operating Temperature	65ºF to 104ºF (18.33ºC to 40ºC)
	Storage Temperature	-4ºF to 122ºF (-20ºC to 50ºC)
	Humidity	Less than 90% non-condensing
Noise Level		70 dbA

Features	
2-Tone Muntin Capability	YES
“Valance” Muntin Pattern Capability (T-joint capability)	YES. **Note:** The punched holes for the valance T-joint require Allmetal muntin bar keepers (joiner clips). For 3/16” x 5/8” muntin, use Allmetal keepers P/N 1351387 or 135141. For 1/4” x 5/8” muntin, use Allmetal keepers P/N 135992 or 135993. Other clips may be used if they conform to specifications listed in “Joiner Clip Punch” on page 4-34.

Safety Considerations

Pay extra attention to warnings and danger notices. Ignoring these notices could result in serious personal injury and/or equipment damage. Even if you have operated, installed or serviced similar equipment in the past, there may be changes in design, manufacture, or procedure which significantly affect the operation, installation or service process.

If you have any questions or concerns about your equipment, contact GED Customer Service at (330) 963-5401 for additional information.

WARNING

- *Pinch Points, and Sharp Edges are present! Keep all body parts safely clear of Pinch Points and Sharp Edges.*
- *Keep hands, fingers, loose clothing, and long hair away from moving parts at all times.*
- *Do NOT attempt to remove or disable ANY safety device. Operating this machine with any guard, cover or other safety device missing, broken, or not in place constitutes misuse, and can result in personal injury, death and equipment damage.*

WARNING

The Intergrid machine's conveyor guarding accommodates a muntin bar length of 84" maximum. Do not operate the machine without guards that protect personnel from contacting the ends of muntin bars exiting the machine. Personal injury could result.

Caution

All moveable parts and assemblies of this equipment must be operated with care and inspected routinely in accordance with the manufacturer's recommendations.

Always use genuine GED replacement parts.

WARNING

Serious injury or death can be caused by the following:

- *Sudden, unexpected startup of the machinery or equipment.*
- *Contact with live electrical circuits.*
- *Unexpected release of stored energy.*

Whenever you work on, service or perform maintenance on this equipment, always observe and practice OSHA standards for controlling hazardous energy sources. Use lock-out/tag-out procedures to prevent unexpected startup and release of stored energy. Use block-out procedures to prevent the physical movement of machinery or equipment.

WARNING

Comply with the National Electrical Code, Federal, State, and Local Codes, and all applicable safety codes when installing and using this equipment. Always turn the power OFF, lock it OUT, and take other necessary precautions when installing or servicing this equipment to prevent personal injury or equipment damage.

The equipment MUST be grounded to an Earth ground by a separate conductor. The neutral side of the line is NOT an Earth ground.

WARNING

Use extreme caution when working with electrical connections!

- *Only properly trained and qualified personnel should be permitted to access internal parts or work on electrical circuits.*
- *Turn off and lock out main electrical power circuit breakers before servicing or cleaning any part of the equipment, removing enclosure panels, or attaching accessories!*

DANGER

Combustible and explosible aluminum fines *(fine aluminum particles) may be generated by the sawing process of this machine. Aluminum fines pose a risk of fire, flash fire, and explosion.*

- *Minimize the accumulation of aluminum fines. Make sure aluminum fines are collected and disposed of properly on a per-shift basis. (See* **Clean aluminum fines from all surfaces and floor** *on page 5-3.)*
- *Dispose of aluminum fines properly per local, state, and federal regulations.*
- *It is recommended to use a suitable wet dust collection system. GED offers an optional wet dust collection system.*
- *Make sure dust collection system is maintained properly per the manufacturer's instructions.*
- *Do not allow any ignition sources near the machine.*
- *Do not blow compressed air near the machine because aluminum fines suspended in the air pose a risk of flash fire or explosion.*
- *Refer to the NFPA 484 standard for proper handling of combustible metal dusts.*

The following safety label is attached to the machine and summarizes the combustible dust hazard.

Combustible Dust Hazard Label

Emergency Stop Buttons

Pressing any Emergency Stop button or opening any safety gate immediately stops all machine motion. All Emergency Stop buttons have a red mushroom head.

See “Emergency Stops and Safety Gates” on page 3-4 for details on location and functions.

Safety Labels

Your machine is shipped with labels that display important safety information. These vinyl self-stick labels are an important part of your machine's safety equipment.

WARNING

NEVER operate your equipment unless ALL safety guards and devices, including the safety labels, are securely attached in the proper position, working correctly, and in good condition!

Maintaining the Safety Labels

Read each label, and always observe the safety precautions!

Keep the labels clean. Wipe away dirt with a soft cloth.

If a label is damaged, or fades, or can no longer be easily read, promptly contact GED to obtain a replacement label.

Applying Replacement Labels - Compare the new label to the old label, make sure the new label is the correct label. If you have any questions, contact GED.

Make sure the surface where the new label will be applied is smooth (no cracks, lumps, pits, or holes).

Make sure the surface is clean and dry.

Gently peel the backing from the new label.

Carefully place the label on the equipment, and press it into place. Make sure there are no wrinkles or air bubbles trapped beneath the label.

NOTICE: It is the purchaser's responsibility to make sure the safety labels remain readable and undamaged. In the event a label becomes damaged or illegible, it is the purchaser's responsibility to obtain and install a replacement label. Contact GED to obtain replacement labels. GED assumes no liability for any consequences resulting from improperly maintained, missing, damaged, faded, or illegible safety labels.

2

Installation

This chapter describes how to prepare your Intergrid Muntin System for installation and connect the electrics and pneumatics.

Introduction

Inspect the equipment right away. If there is any damage, notify the carrier immediately.

GED thoroughly tests all equipment before shipping. The machine may be partially disassembled for safe shipment.

This equipment contains precision parts. Use care when off-loading and placing equipment. Mishandling can cause damage or misalignment. If you have any questions regarding installation or operation, contact the GED Service Department at:

31100 Diamond Pkwy.
Glenwillow, OH 44139
(330) 963-5401
Fax: (216) 539-0677
www.gedusa.com

Note: The installation and service of this equipment must be performed by authorized, qualified GED personnel.

Be sure to carefully read and understand the “Important Notes” on page 2-2.

Installation consists of five major steps:

- Preparing for installation.
- Positioning and placing the equipment.
- Making the electrical connections.
- Making the pneumatic connections.
- Configuring the software.
- Adding authorized users.
- Backing up the machine parameters.

Important Notes

The equipment is pre-assembled and tested before shipping. Components may be loosened or dislodged during shipping.

NOTICE	*Use care during off-loading and placement. Dropping or mishandling the equipment may result in damage.*

1. Make sure all connections are secure before the machine is powered up and put into operation.
2. All equipment must be level.
3. All equipment must be correctly positioned. Measurements are critical. They must be exact.
4. All equipment must be in alignment. The path the muntin material follows through the process must be level and straight.
5. All wires that must be connected are pre-cut to the proper length, and the ends are pre-stripped.
6. All flexible conduits are marked for easy re-connection.
7. Use a spreader bar or other support to unload and move the equipment. Attempting to move the equipment without some type of extra support will result in damage.

8. The installation layout drawings are standard.

   - Document any special information for your setup on the drawings.
   - Retain them for future reference.

   Note: It is the responsibility of the purchaser to secure and fasten objects to floors, walls, ceilings, and other structures. GED assumes no liability for the durability of any such connection, anchor, or fastener, nor for any damage that may result from the installation of any connection, anchor, or fastener.

Preparing for Installation

1. Make sure the electrical and pneumatic service lines (“drops”) are in place before installing the machine. Refer to your line layout drawing as necessary.
2. Confirm that the voltage of the electrical power source is correct.

   - The actual voltage coming from the electric company varies from area to area. Check the voltage on the circuits that will be used to power the equipment.
   - The tolerance limit on the line voltage variance is +/- 10%. If the power from the electric company is outside this range, the electric company must adjust it before the equipment can be operated.
   - Voltages outside this range will damage the equipment or result in improper operation.

   Note: The consequences of using this equipment with voltages and/or electrical service that fails to conform to these specifications is the purchaser's responsibility. GED assumes no liability for equipment damage, malfunctions, nor for any consequences of damage or malfunction due to improper voltages and/or electrical services.

Positioning the Equipment

1. Refer to the Weight Specifications in *Chapter One - Overview*, “Technical Specifications” on page 1-4 to insure the floor will support the load.

   Note: It is the purchaser's responsibility to make certain that the floor and/or support structure is capable of safely supporting the full weight load of the equipment. GED assumes no liability for damage resulting from failure of the floor and/or support structure.
2. Before unpacking the equipment, move it to its intended location. Select an area close to the source of supply, allowing sufficient work space for the longest piece of material.
3. Once in place, remove all shipping and packaging materials and unbolt the machine from the shipping skid. Remove all strapping.
4. Ensure the machine is properly anchored to prevent vibration during operation. If necessary, place shims under the machine legs.

Making the Electrical Connections

WARNING

DO NOT make connections with electrical power applied. Hazardous voltages are present. Live electrical terminals are DEADLY! Failure to comply may result in serious injury to service personnel. Only qualified electricians should work on electrical circuits. Always use a lock-out/tag-out procedure to prevent accidental re-connection and injury.

The electrical installation must conform to all National, State and Local Safety codes.

Confirm the code requirements in your area before performing the electrical installation steps.

If the safety codes in your area require a different set up, alert GED before installation and document this on the installation layout diagram. Keep this information for future reference.

Note: It is the purchaser’s responsibility to insure that the installation satisfies all applicable safety codes. GED assumes no liability for any consequences resulting from an installation that fails to conform to all applicable safety codes.

1. Make sure the voltage level of your incoming line holds steady at +/- 10% of the required voltage for the machine. If it does not, an incoming line transformer must be installed.
2. Make the electrical connections according to the drawings.

   Electrical connections are identified by an Ⓔ on the drawings.

   - ALL electrical systems MUST be properly grounded.

     The electrical installation must conform to all National, State and Local Safety codes.

   - Confirm the code requirements in your area before performing the electrical installation steps.
   - If the safety codes in your area require a different set up, alert GED before installation and document this on the installation layout drawings. Keep this information for future reference.
3. Check the resistive and inductive loads, make sure they are balanced.
4. Check all wiring to ground, make sure there are no shorts.
5. Make sure the incoming power has a proper ground, and that it is secured to the ground connection of the equipment.

   Note: If unbalanced loads or shorts to ground are detected, contact GED Customer Service immediately. Do not attempt to operate the equipment.

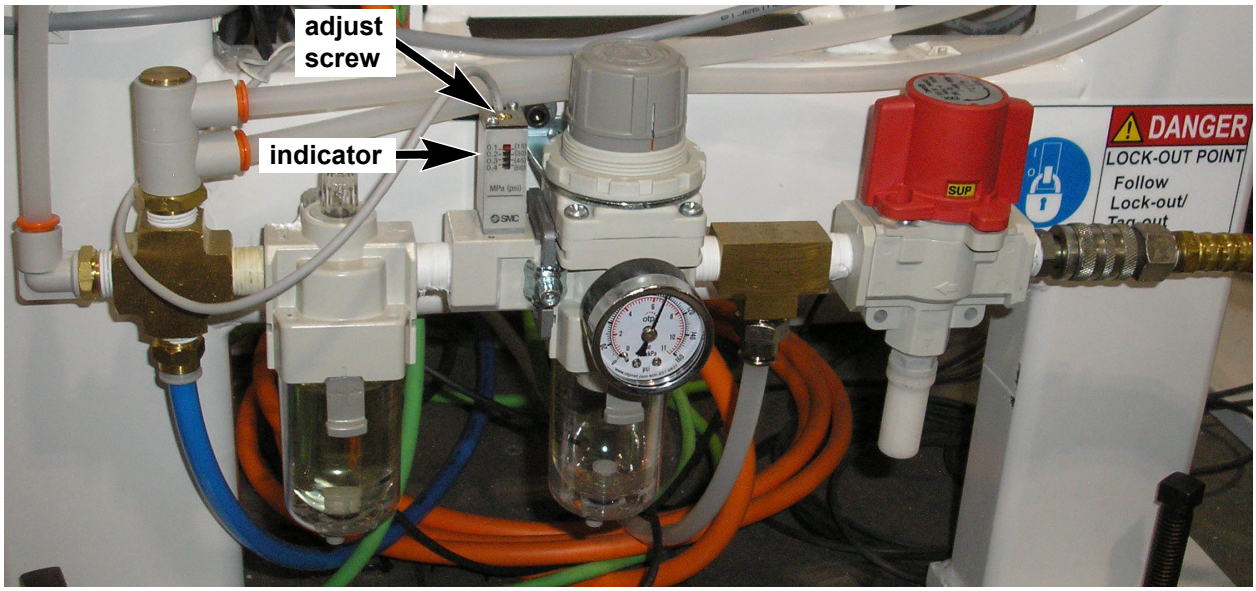
Making Pneumatic Connections

1. Refer to the line layout drawing for the correct number and position of pneumatic hook-ups.

   Note: Pneumatic hook-ups are identified by a Ⓟ on the drawings.
2. The air supply line must be 1/2” ID minimum for distances less than 200’, or 3/4” for distances between 200’ and 500. Refer to the compressed air requirements in *Chapter One - Overview,* “Technical Specifications” on page 1-4.
3. Set the main filter/regulator/lubricator (FRL) between 50 and 90 PSI. If the air pressure drops below 50 PSI, the pressure limit switch will cut the electric and pneumatic power to the machine.
4. Fill the lubrication unit of the FRL assembly with air tool oil.

Pressure Limit Switch

The Intergrid machine requires a minimum air supply pressure of 40 PSI to ensure adequate pressure for making complete cuts in the material. The air supply is monitored by a pressure switch (shown below) which will disable Master Start if the air supply pressure drops below this minimum pressure set point.



Pressure Limit Switch

The pressure switch is located on the FRL assembly, on the lower front of the Feeder Press frame. The recommended setting is 50-60 psi.

Set the indicator by turning the adjust screw (clockwise to increase pressure) until the indicator is on the desired pressure.

3

Operation

This chapter describes how to operate the Intergrid Muntin System.

Using Windows Conventions

WinGrid™ is a Microsoft Windows®-based program that enables you to use the Intergrid Muntin System to create muntins. Use Windows functionality such as choosing menus, selecting items from list boxes or check boxes, and pressing command buttons to enter settings and operate the machine. Performing these functions by using window controls is explained below.

The window controls can be performed by any of three input methods:

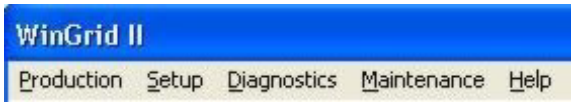
- keyboard
- mouse
- touchscreen

When using the touchscreen, you control the machine by touching the appropriate item on the computer touchscreen. To apply proper pressure to the touchscreen, use your finger tips.

NOTICE	*Only use finger tip to apply pressure to the touchscreen. Using tools, pens, pencils, or other sharp objects can cause damage to the touchscreen.*

Menus

The main menu appears across the top of the main window. The main menu provides access to all available system functions. Some system functions, however, may not be available depending on your security level.



Main Menu

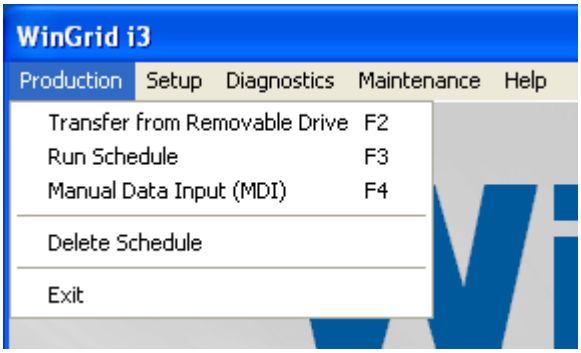
Choosing Menus

- Press **Alt** followed by the **underlined letter** in the menu name. For example, to select the Production menu, press **Alt** + **P**.
- To change menus, press the left or right arrow to scroll horizontally through the menu names until the menu opens.

Choosing Menu Commands

A list of menu commands appear when a menu is selected. Use one of the following methods to choose a menu command:

- From the active menu, press the **up or down arrow** to highlight the menu command and press **<Enter>**.



Active Production Menu

- From the active menu, press the **underlined letter of the menu command**. For example, to choose the Run Schedule option from the Production menu, press **R**.
- Some of menu commands have an associated function key, which you can press to access these options directly. For example, to select the Run Schedule option from the main menu, press **F3**.

Returning to the Previous Menu, Dialog Box or Window

- Press **Esc** until a menu is no longer selected.

Window Controls

Windows and dialog boxes contain elements including command buttons, option buttons, list boxes, check boxes, and fields for data entry that allow you to communicate with the computer. Use the Tab key on the keyboard to navigate through the elements.

- Press Tab to move forward from one control to the next.

  OR

- Press **Shift + Tab** to move backward through the controls.

Using Dialog Boxes

A dialog box is a small window that provides settings necessary to complete a task. Only one control can be active at a time.

- Press **Tab** to move from one control to the next in a window.

  OR

- Press **Shift + Tab** to move backward through the controls.

  - With a control selected, press **<Enter>**.

Using List Boxes

A list box provides a list of items to choose from. A highlight bar identifies the selected item. You may choose one, several, or all of the items from a list box.

Use one of the following methods to select an item from a list box:

- Press the **up** or **down arrow** to move through the items one at a time until the desired item is highlighted.
- Press **Page Up** or **Page Down** to move the highlight bar to the first or last item in the list until the desired item is highlighted.
- Press **<Enter>**.

Using Option Buttons

An option button appears next to an item to be selected. Only one item can be selected from a group of option buttons. The selected option is identified by a small round bullet inside of a circle.

- Press the **up, down, left or right arrow** to highlight the option, then press **<Enter>**.

Using Check Boxes

A check box appears next to an option to be selected. A selected check box is identified by a check mark in a box. An empty check box means the option has been cleared.

- Press **Tab** to highlight the check box, then press the spacebar to select or deselect the box.

Using Command Buttons

Pressing a command button in a window or dialog box performs a function. When a command button is selected the name appears inside a dotted box on the button label.

Use one of the following methods to select a command button:

- Press **Tab** until the button is highlighted, then press **<Enter>**.
- Press **Alt and the underlined letter** on the button label to highlight the button, then press **<Enter>**. For example, press **Alt + O** to select the OK button.

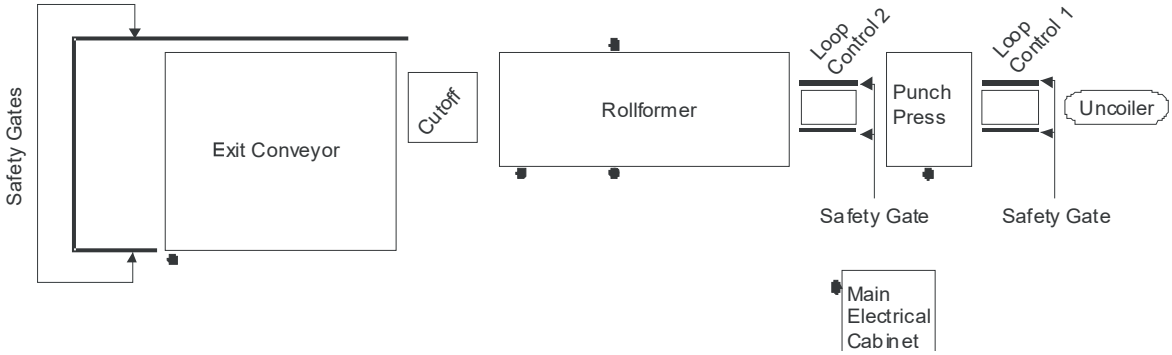
Select **Cancel** or press **Esc** to return to the previous window or menu, without saving any changes. Select **OK** to save changes, confirm a selection or perform a function.

Switches and Controls

Emergency Stops and Safety Gates

Emergency Stop buttons abruptly stop the machine and shut off the power to the motors and pneumatic operations. As represented by the black dots in the illustration below, the Intergrid line has six Emergency Stops: one located on the Main Electrical Cabinet, Feeder Press, and Exit Conveyor; and three located on the Rollformer. Use these buttons to quickly stop the machine in an emergency.

The machine will not operate unless all safety gates, as shown in the illustration below, are closed. If a safety gate is opened while the machine is operating, power to the motors is immediately shut down.



Location of Emergency Stops and Safety Gates

Restarting after an Emergency Stop

Use the procedure below to restart operation after a safety gate is tripped or an Emergency Stop button has been pushed.

To re-start after an emergency stop:

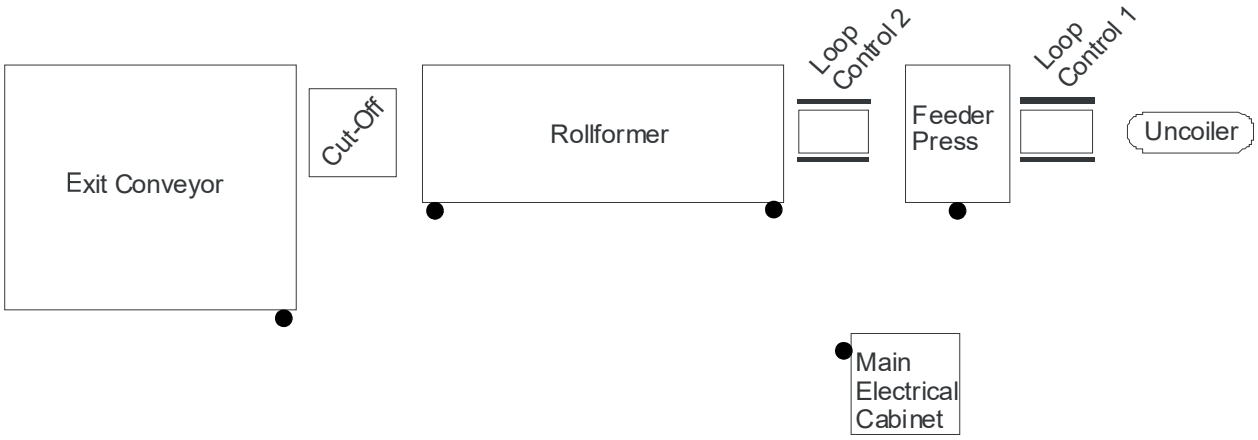
1. Correct the situation that caused the emergency.
2. Ensure all Emergency Stops on the Intergrid line are pulled out.
3. Turn the MANUAL/AUTO switch on the Main Electrical Cabinet to MANUAL.
4. Press Master Start. The button illuminates once you release it.
5. Return to the Main Screen and access the Run Production screen by selecting:

   Production > Run Schedule
6. Select Goto. The Goto Unit dialog box appears.
7. Select the Unit Number option, enter the number of the unit that was in production when the machine was stopped, and then select OK.
8. Turn the MANUAL/AUTO switch to AUTO.
9. On the Run Production screen, select Start.
10. Press Cycle Start.

Feed Hold Buttons

Feed Hold buttons enable you to stop the machine after the current action is completed. When you release the machine from the Feed Hold state, production continues at the point where it was paused.

As shown in the illustration below, the Intergrid line has five Feed Hold buttons: one on the Main Electrical Cabinet, the Feeder Press, and the Exit Conveyor; and two located on the Rollformer.



Location of Feed Hold Buttons

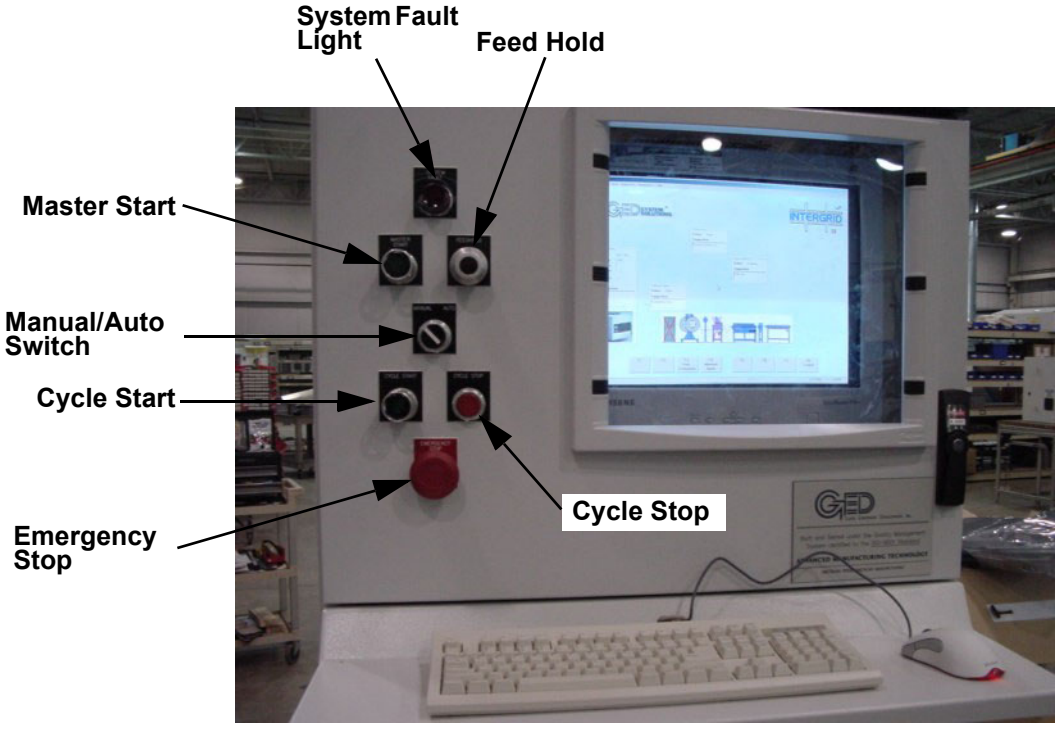
	***WARNING*** *The Feed Hold and Cycle Stop buttons will NOT promptly stop the machine. Always use an Emergency Stop button to stop the machine quickly. NEVER use Feed Hold or Cycle Stop in an emergency.*

Controls on the Main Electrical Cabinet

The control switches and pushbuttons located on the Main Electrical Cabinet are shown and explained below.

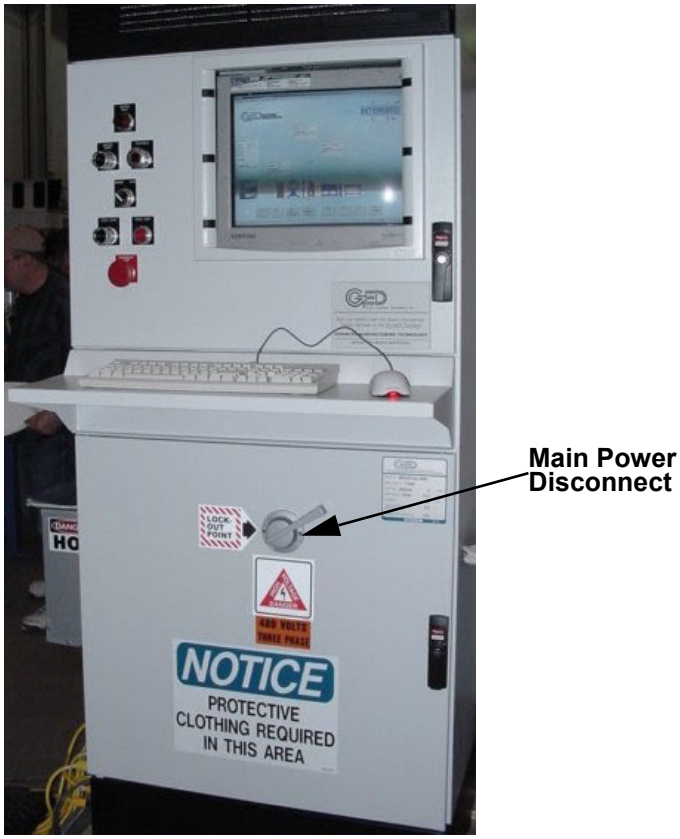
Computer and Monitor - The computer runs the WinGrid™ software, which allows you to load and run production schedules, enter production information manually, test and configure the system, and view the diagnostic functions.

The computer and monitor are connected to the UPS (Uninterruptible Power Supply), which provides backup power when the main electrical power has been disrupted. The UPS protects against damage to the computer and loss of important data.



Controls on the Main Electrical Cabinet

Main Power Disconnect - Switches the incoming voltage supply ON or OFF. The Main Power Disconnect switch is located on the door of the electrical cabinet. Turning the switch to the OFF position allows you to unlatch and open the enclosure door on which the disconnect is mounted. This is the lock-out/tag-out point for the machine.



Main Electrical Cabinet

System Fault Light - Illuminates steadily if a problem occurs anywhere in the Intergrid line. The computer monitor displays the source of the fault. A flashing light indicates a system hard fault.

Master Start - Activates the controls and enables the machine to operate.

> **Note:** The machine must be in MANUAL mode to enable Master Start.

Feed Hold - Stops the machine after the current action is completed. Pull the button out to resume production at the point where production was paused.

MANUAL/AUTO - Switches between MANUAL and AUTO (automatic) modes. Manual mode is used for changing material coils, testing, and set-up. Auto Mode is used for normal operation. (You should not switch to Manual Mode while running a batch. For more information, see Conveyor Data on page 3-28.)

Cycle Start - Begins operating the machine. Before Cycle Start will work, the following conditions must exist:

- All Emergency Stop and Feed Hold buttons must be pulled out.
- Master Start must be enabled.
- Material must be threaded through the entire machine.
- "Start" on the Run Production screen must be selected.

Cycle Stop - Stops the cycle after completing the current action. To resume operation from the last unit created, the following steps must be completed:

1. On the Run Production screen, select Goto.
2. On the Goto Unit dialog box, enter the unit number of the unit that was being punched when you initiated the Cycle Stop. Select OK.
3. Make sure Master Start is enabled.
4. Select Start on the Run Production screen.
5. Press Cycle Start when it begins to flash.

WARNING

Do NOT use Cycle Stop to stop the machine in an emergency; use Emergency Stop.

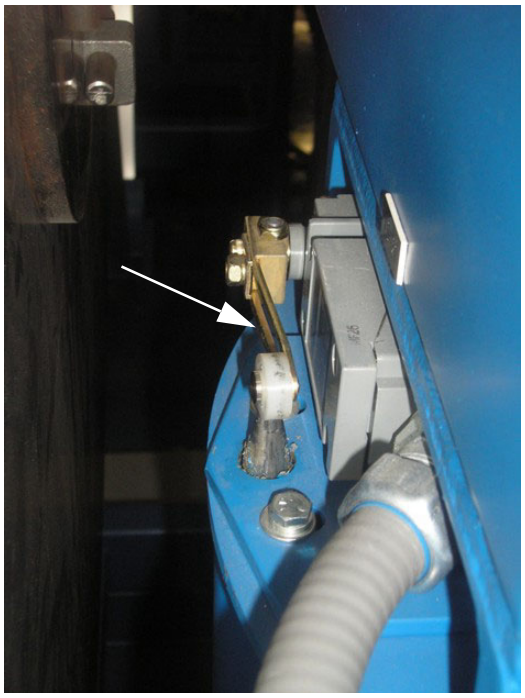
Emergency Stop - Immediately stops all movement on the Intergrid machines. Use this button to stop the machine in an emergency situation.

Controls on the Dual Uncoiler

Foot Switch - Allows you to switch between the two coils. Press with your foot to release lock and rotate the coils. When the coil is in place, release the foot switch.

Note: Ensure the foot switch comes up all the way so that the actuator arm behind the coil (shown in the photograph below) makes contact with the motor limit switch. Otherwise, the coil will not operate.

	***Caution*** *Press the Emergency Stop before unplugging or plugging the Uncoiler.*



Actuator Arm for the Motor Limit Switch

Controls on the Feeder Press

The pushbuttons and switches located on the Feeder Press are shown and explained below.

Controls on the Feeder Press

Emergency Stop - Immediately stops all movement on the Intergrid machines. Use this button to stop the machine in an emergency situation.

Feed Hold - Pauses the machine after the current action is completed. Pull the button out to resume production at the point where production was paused.

	***WARNING*** *The Feed Hold and Cycle Stop buttons will NOT promptly stop the machine. ALWAYS use the Emergency Stop button to stop the machine quickly. NEVER use Feed Hold or Cycle Stop in an emergency.*

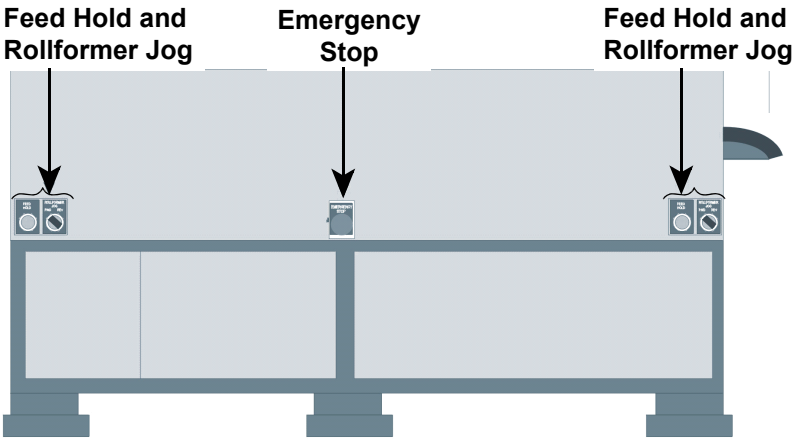
Continuous Jog ON/OFF - Turns the Continuous Jog mode ON and OFF. This switch is active in MANUAL mode only. When Continuous Jog mode is ON and the Feeder Press or Rollformer is jogged, the Uncoiler will jog as well, so that a steady supply of material moves through the system. In this mode:

- The Rollformer will not jog if Loop 2 is tight, and
- The Feeder Press will not jog if Loop 2 is full or Loop 1 is tight.

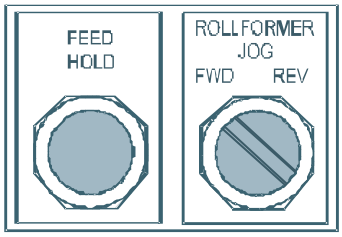
When Continuous Jog mode is OFF, the Uncoiler does not supply additional material when the Rollformer or Feeder Press is jogged.

Uncoiler Jog FWD/REV - Jogs the Uncoiler forward (FWD) and backwards (REV).

Controls on the Rollformer



Rollformer Controls



Rollformer Jog FWD/REV - Jogs the Rollformer, moving material through the machine forward (FWD) or backwards (REV).

Note: Do NOT move more than 1" of material through the Rollformer in REV.

Feed Hold - Pauses the machine after the current action is complete. Pull the button out to resume production at the point where production was paused.

When either Rollformer Feed Hold button is pressed, the Feeder Press and Rollformer will not jog.

WARNING

The Feed Hold button will NOT promptly stop the machine. ALWAYS use the Emergency Stop button to stop the machine quickly. NEVER use the Feed Hold button in an emergency.

Emergency Stop - Immediately stops all movement on the Intergrid machines. Use this button to stop the machine in an emergency situation. There is also an E-stop button on the rear of the Rollformer.

Controls on the Exit Conveyor

Feed Hold - Pauses the machine after the current action is finished. Pull the button out to resume production at the point where production was paused.

WARNING

The Feed Hold and Cycle Stop buttons will NOT promptly stop the machine. ALWAYS use the Emergency Stop button to stop the machine quickly. NEVER use Feed Hold or Cycle Stop in an emergency.

Emergency Stop - Immediately stops all movement on the machines in the Intergrid line. Use this button to stop the machine in an emergency situation.

Foot Switch (located on the floor) - Advances or re-activates the Conveyor, depending upon the state of the machine. In AUTO mode during production:

- When the Conveyor is full, it will stop. Remove one or more muntin bars, and press the Foot Switch to restart production.
- When the batch is complete, and Conveyor stops before the last muntin bars reach the end, press and hold the Foot Switch to move the bars to the end of the Conveyor. When the bars get close to the end, release the switch.

Preparing to Run Production

Power-up

To power-up the Intergrid System, follow the procedure below.

1. Turn ON the Main Power Disconnect switch. The user interface software will start. The Maintenance Screen will appear
2. Review the Maintenance Screen. If any maintenance is required, notify the appropriate personnel.
3. Close the Maintenance Screen. The Main Screen will appear (shown below).

Main Screen

4. Turn the Manual/Auto Switch to Manual.
5. Make sure all air supplies are ON, and set to the proper pressure.
6. Make sure all people are clear of all secure areas.
7. Make sure all E-stops are released, and all safety gates and guards are closed.
8. Press and hold the Master Start button for 3 seconds. The switch should illuminate.
9. Wait 5 seconds for the machine to initialize, then make sure all Feed Hold switches are pulled out.

Power-Down

Abruptly shutting off power to the system, or turning the computer off without properly shutting down may result in lost or damaged data, or hard drive errors. Prevent problems by following these simple steps when powering-down the machine.

1. Turn the MANUAL/AUTO switch to MANUAL.
2. Make sure the Continuous Jog switch on the Rollformer is set to OFF.
3. Return to the Main Screen. (Press the ESC key until the Main Screen appears.)
4. Press Emergency Stop.
5. Turn OFF the Main Power Disconnect. After 60 seconds, the UPS will shut down WinGrid™. Then 60 seconds later, the PC will shut off.
6. Perform any needed maintenance or cleaning. See *Chapter 4 - Maintenance*, “Maintenance Chart” on page 5-3.

   Note: If the machine will be turned off for more than 3 days, the UPS inside the Main Electrical Cabinet must also be turned off. The UPS battery will discharge completely if it is left on longer than 3 days.

Loading and Changing Coils

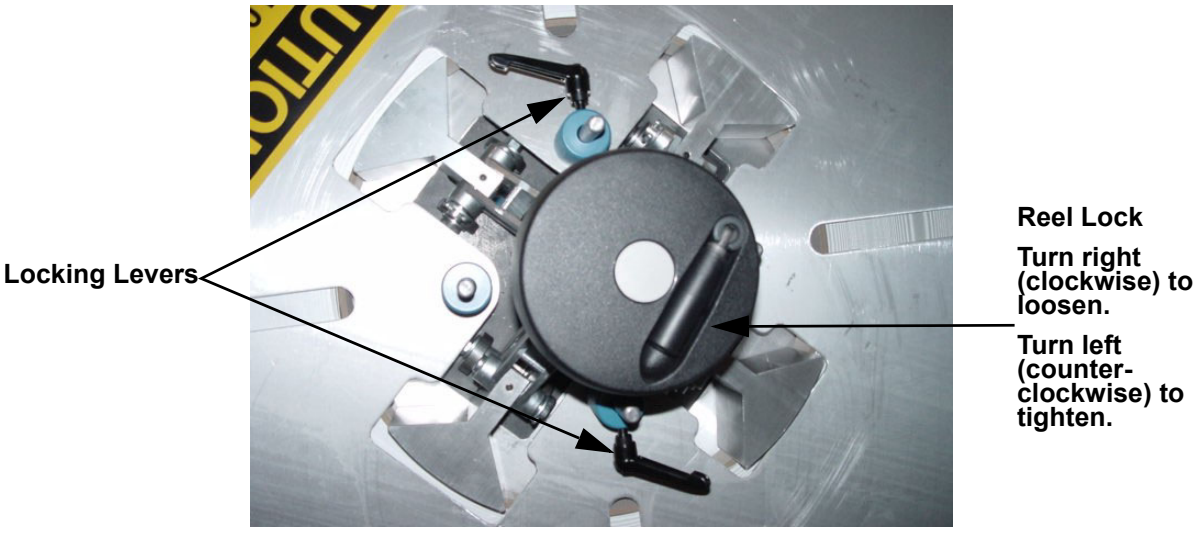
Caution

Material coils can be very heavy! Wear steel-toed shoes.

1. Note how the previous coil is mounted (Top Feed or Bottom Feed). If the new coil is mounted in the opposite direction, change the Uncoiler Feed Option in the Machine Constants settings. Refer to “Machine Constants” on page 4-5.
2. Press Emergency Stop.
3. If the machine is equipped with a Dual Uncoiler, press the foot switch and rotate the coil to the non-operator side.
4. Inspect the material carefully for dirt or damage. Use only material that is clean and in good condition. Make sure the material is room temperature.
5. Measure the strip width. Make sure it matches the size specified in the table on page 3 10, +/- .0025".

   Note: For additional information on the muntin raw material requirements, refer to *ED-0059, Intergrid Raw Material Specifications*.
6. Loosen the locking levers, and remove the outside cover.

7. Loosen the reel lock by turning it counter-clockwise.



Reel Lock and Locking Levers on Coil

8. If the coil you are removing is not empty, secure the material with a band or tape. Keep stored muntin material covered and clean.
9. Remove any packaging material from the new coil, leaving the bands or tape in place.
10. Load the new coil onto the reel, so that the side of the material that is the desired finished outside muntin color is facing down toward the floor.
11. Tighten the coil on the reel, and remove the bands or tape.

    Note: Load only one coil on a Single Uncoiler, or only one coil per side on a Dual Uncoiler. NEVER overload an Uncoiler.
12. Replace the outside cover. Do NOT push the cover tight against the coil, leave about 1/16” of space. Tighten the locking levers.

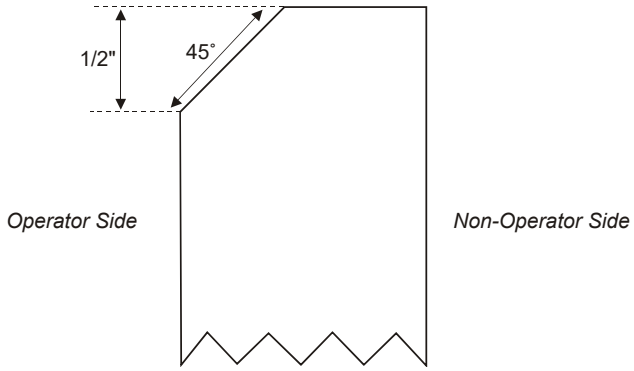
    If you are changing a Dual Uncoiler, rotate the coil and insure the foot switch is locked in place.
13. Trim away any damaged or dirty material from the end of the strip (including any material contaminated with tape or tape residue). Do NOT try to thread damaged or dirty material through the Intergrid Muntin System. Do not use the first or last 10' of material on a coil.
14. If the machine is equipped with a Dual Uncoiler, rotate the coil to the operator side, and then lock the foot switch in place.

    Note: Once you release the foot switch, ensure it comes up all the way so that the actuator arm behind the coil makes contact with the motor limit switch. Otherwise, the coil will not operate.

Threading the Material Through the Machine

1. Make sure the muntin material is clean and in good condition. Do NOT use dirty or damaged material. Do not use the first or last 10' of material on a coil.

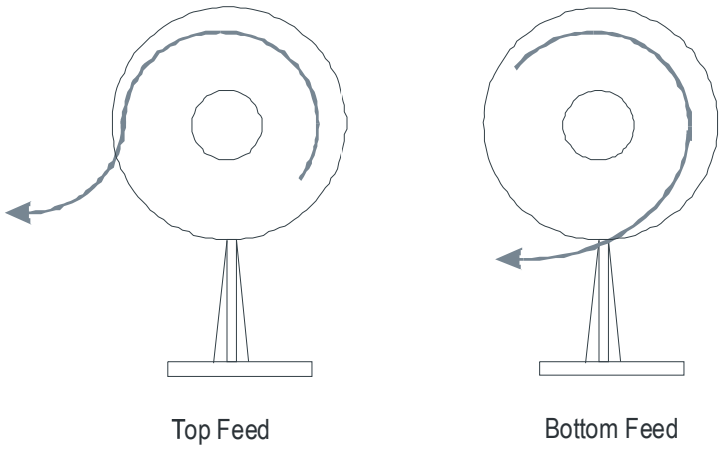
2. Wearing gloves, use aluminum snips to trim the end of the raw muntin material, as shown below. Make sure the cut is clean, with no burrs, tears, or other damage.



Trimming the leading edge of the material

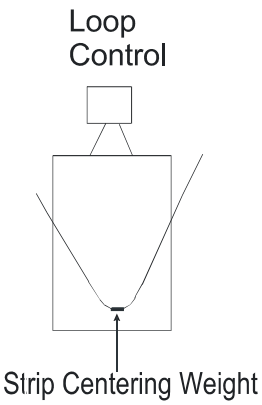
3. Make sure the machine is powered-up (as explained on p. page 3-14). Then make sure the machine is E-stopped.
4. Load the material on the Uncoiler in the same way (Top Feed or Bottom Feed) as the previous coil was mounted, as described in “Loading and Changing Coils” on page 3-16.

   Note: If the material is mounted in the opposite direction, change the Uncoiler Feed parameter in the Machine Constants, as described in “Machine Constants” on page 4-5. Otherwise, the Uncoiler will operate “backwards.”



Loading Material on the Uncoiler

5. Make sure all E-stops are released, then make sure the MANUAL/AUTO switch on the Main Electrical Cabinet is set to MANUAL.



Threading the Material

6. Press and hold Master Start for 3 seconds. The switch should illuminate.
7. Wait 5 seconds for the machine to initialize. Then, make sure all the Feed Hold switches are pulled out.
8. Use the Uncoiler Jog FWD switch on the Feeder Press to uncoil approximately 8' (3.78 m) of muntin material.
9. Make sure there are no twists in the material from the leading end back to the Uncoiler.
10. Thread the leading edge of the muntin material through the strip centering weight, as shown in at left. This allows the Loop Control to accurately determine the size of the loop.
11. Wearing gloves, feed the end of the muntin material into the guide slot on the Press. Push the material all the way through both punches, until it reaches the pinch feed wheels.

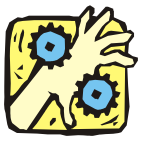
Caution

To prevent injury, do not hold the material by the edges; hold it between your thumb and forefinger.

12. Turn the Continuous Jog switch on the Feeder Press to ON.
13. Continue pushing the material in the entry end of the Press, while pressing the Jog Feed button, until the material exits the Press.
14. Grasp the leading end of the muntin material, as it exits the Press. Hold the material up off the floor. Press the Jog Feed button until there is enough material to thread into the Rollformer, leaving a full loop between the Rollformer and the Press.
15. Make sure there are no twists in the raw material between the Press and Rollformer.
16. Push the material into the guide slot on the Rollformer. Push the material into the Rollformer and into the first set of rolls.
17. Use either of the Rollformer jog switches (at the entry or exit end) to jog the machine until the material exits the Rollformer.

WARNING

Keep hands and fingers out of the Rollformer and clear of the rolls!



18. Make sure the formed material is lined up properly to enter the Cutoff.
19. Continue jogging material until the leading edge of the strip is fed just past the Cutoff.

Running Production

Getting Started

	***WARNING*** *Never attempt to operate the system unless all safety guards are securely fastened in place!*

1. Always wear safety gear when operating the equipment:
   - Anti-Cut Gear (Gloves and Forearm Protectors)
   - Ear and Eye Protection
   - Hard Hat
   - Steel Toed Shoes
2. Make sure:
   - All safety guards, rails, and other devices are securely fastened in the proper position.
   - No tools or other loose objects are resting anywhere on the machine.
3. Choose the proper raw material. Inspect it for dirt or damage.
4. Load the material onto the Uncoiler, as described in “Loading and Changing Coils” on page 3-16.
5. Thread the material (unpunched and unnotched) through the machine, as described in “Threading the Material Through the Machine” on page 3-18.
6. Make sure Master Start is active.
7. Make sure any installed dust collection system is turned ON and functioning properly.

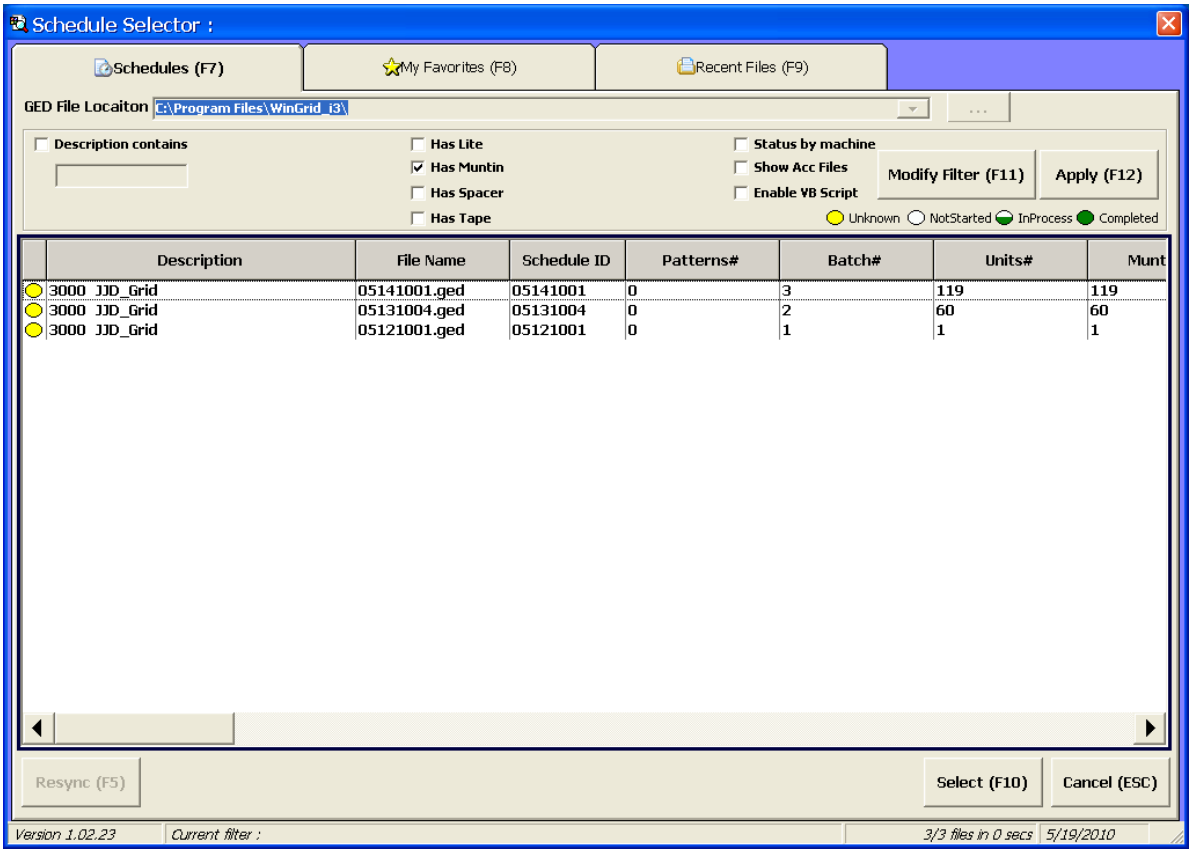
Operation Sequence

1. Select the Run Schedule button or select the following:

   Production > Run Schedule

   The machine automatically downloads production schedules from the specified network directory to the machine's local hard drive. The Schedule Selector screen appears, as shown below.

   Note: If your schedules are on a removable storage device such as a floppy disk or USB flash drive, open the door of the User Interface Console to access the floppy drive or USB port. Insert the storage device into the appropriate location, close the door, and select Production > Transfer From Removable Drive. A prompt will indicate the number of files found and transferred. Select OK to clear the prompt.



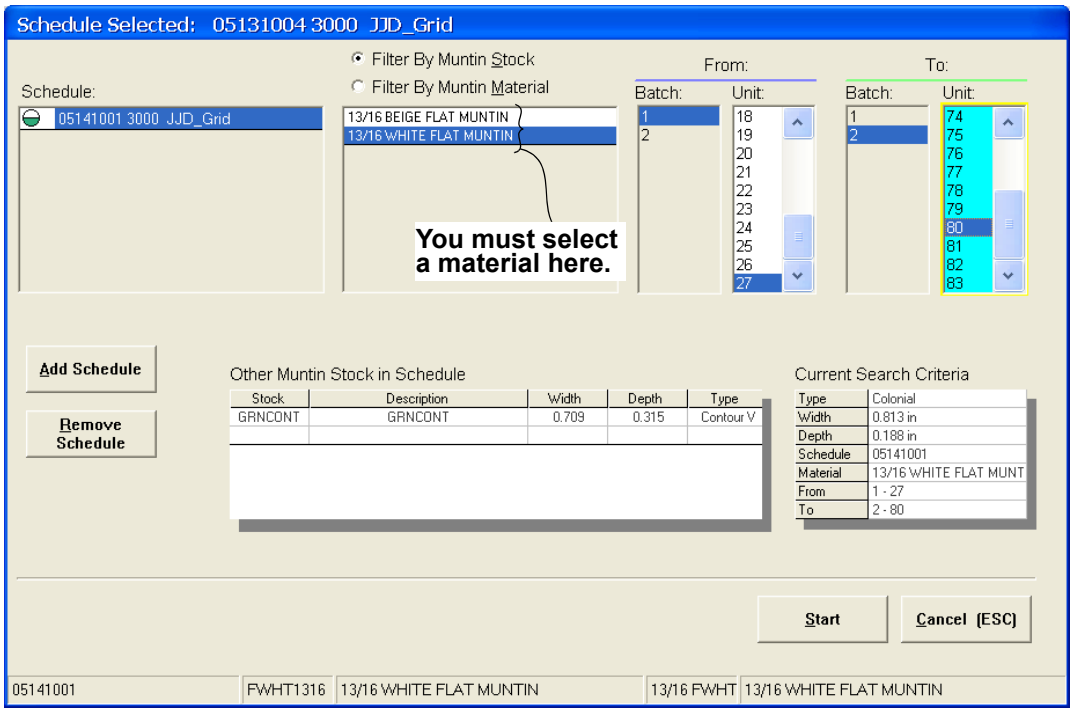
Schedule Selector Screen

2. On the Schedule Selector screen, select the schedule file to run.

   Note: To select multiple schedules, hold down the CTRL key and select each schedule with the mouse. To select a range of schedules, select the first schedule in the range, press the SHIFT key, and then select the last schedule in the range. The system will not allow you to select more than 10 schedules.

3. Select the Select button.

   The Schedule Selected: screen displays, as shown below.



Schedule Selected Screen

4. Choose the desired search criteria: Filter by Muntin Stock, or Filter by Muntin Material. (See “Understanding the “Schedule Selected” Screen” on page 3-25.)

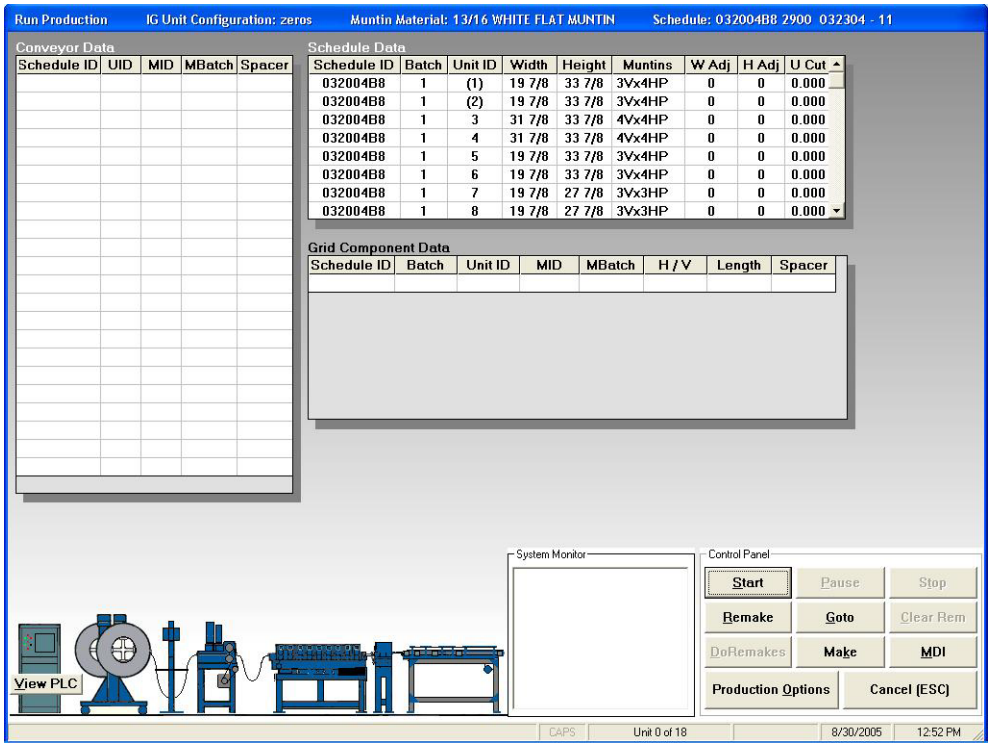
5. In the Filter By Muntin Stock/Material list, highlight the muntin stock/material type you want to run. (The Start button will not be active until you do this.)

   Note: Any muntins in the schedule that are made from a material the machine cannot run, are too big or small for the machine to fabricate, or are not colonial muntins appear in the ‘Other Muntin Stock in Schedule’ box.

6. In the ‘From: Batch’ field, highlight the beginning batch to run.

   Note: If multiple schedules appear on the Schedule Selected screen, the From: Batch/Unit and To: Batch/Unit fields do not contain data. You cannot select this information when multiple schedules are selected for production. In this case, skip to Step 11 below.

7. In the ‘From: Unit’ field, highlight the beginning unit to run.
8. In the ‘To: Batch’ field, highlight the last batch to run.
9. In the ‘To: Unit’ field, highlight the last unit to run.
10. Once you have specified the material, batches and units to run, select Start to display the Run Production Screen. (Note: The Start button will not be active until you have selected a muntin stock/material type.) The Run Production screen appears, as shown below.



Run Production Screen

11. Ensure all Feed Hold buttons are pulled out. Turn the MAN/AUTO switch to AUTO.
12. Select Start to begin the batch. The Cycle Start button will begin to flash.
13. Press Cycle Start. There may be a slight delay before the machine begins to operate.

    The Run Production screen shows how many muntin components are in each unit. Check the Conveyor Data grid on the Run Production screen to determine which muntins have been completed.
14. As each unit is finished and approaches the end of the exit Conveyor, lift all the muntins for that unit from the Conveyor, and place them in the rack or assembly table.
15. When the exit Conveyor is full, the machine pauses. To re-start:

    a. Remove the muntins from the Exit Conveyor.

b. Press the Foot Switch located on the floor beneath the Exit Conveyor.

Note: If a problem develops as the machine operates, check the computer screen for instructions. For more information, refer to “Understanding the Run Production Screen” on page 3-27.

16. When a batch is complete, the following prompt will appear:

    “Batch Complete, Feed All Material?”.

    Select one of the following:

    YES to feed the material through the machine to push all the completed units to the Conveyor. *This will generate a scrap piece!*

    NO to return to the Run Production window, which allows you to begin a new batch without wasting any material. For more information on managing scrap, see “Batch Complete - What to do (Managing Scrap)” on page 3-30.

Understanding the “Schedule Selected” Screen

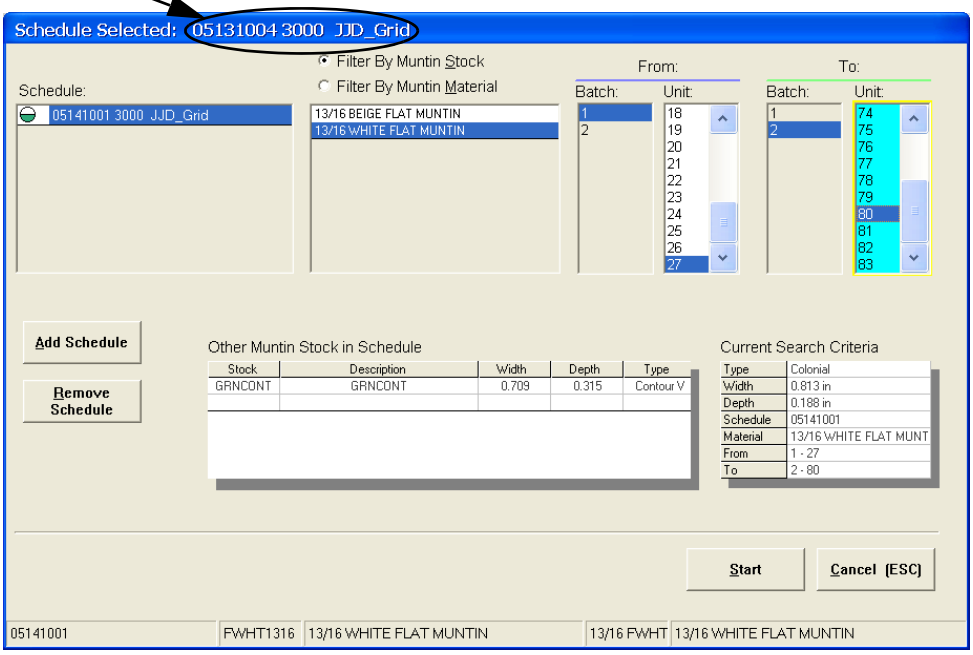
The main purpose of the Schedule Selected Screen is to show you all muntin units from the selected schedule(s) that can be produced on this machine, and sort them by muntin *material s*o you can select which material you want to run. This allows you to tell the machine to “run all units made of xxx material”.

This minimizes material changeovers and maximizes efficiency.

If only one schedule was selected, you can also specify the batch and unit range to run.

If only one schedule was selected, the currently selected schedule appears on the title bar at the top of the screen. If you selected multiple schedules, “Multi Schedule” appears in this area. (See illustration below.)

The currently selected schedule.



Schedule Selected Screen

Schedule List - Lists the schedule or schedules you previously selected on the Schedule Selector screen, and their status. (You cannot select schedules from this list; it is only a report.)

The circle to the left of the schedule indicates its completion status.

- An empty circle (white) indicates a schedule that has not been started.
- A half filled circle indicates a partially complete schedule.
- A fully filled circle indicates a complete schedule.

Filter by Muntin Stock / Muntin Material - "Muntin Stock" and "Muntin Material" are pre-defined via WinIG. The machine uses them as search criteria to search the selected schedule(s) for muntins that can be produced on this machine. "Muntin Stock" refers to finished/formed muntin bar, i.e. what you get out of the machine. "Muntin Material" refers to the unformed muntin material, i.e what you put into the machine.

Depending on which option you select, the resulting list (located below the options) will show either the Muntin Stock types or the Muntin Material types found in the selected schedule(s). From the resulting list, you must select the desired Muntin Stock or Muntin Material type to run.

You are given the two filter options (Stock or Material) because one filtering method might be more clear than the other as to which material or stock is specified for a given muntin. This depends on how "Muntin Stock" and "Muntin Material" were defined in WinIG. (Make sure the correct material is loaded in the machine.)

"From" List and "To" List - Enables you to select a range of batches and units to run. You do not have to run the whole schedule at once. In the From list, select the batch and unit with which to begin production. In the To list, select the batch and unit with which to end production. This feature is only available if a single schedule was selected.

Current Search Criteria - Reports the criteria the system is currently using to determine which schedules appear for selection. You cannot change this criteria on the Schedule Selected screen. The criteria is based on the IG unit configuration selected (Setup > IG Unit Configuration) and the IG unit setup defined for that configuration (Setup > IG Unit Setup). For more information, refer to "IG Unit Setup" on page 4-10.

Other Muntin Stock in Schedule - Displays the muntin stock types outside of the current search criteria, but exist in the listed schedules. This may also include Contour muntins, which cannot be run on the Intergrid machine.

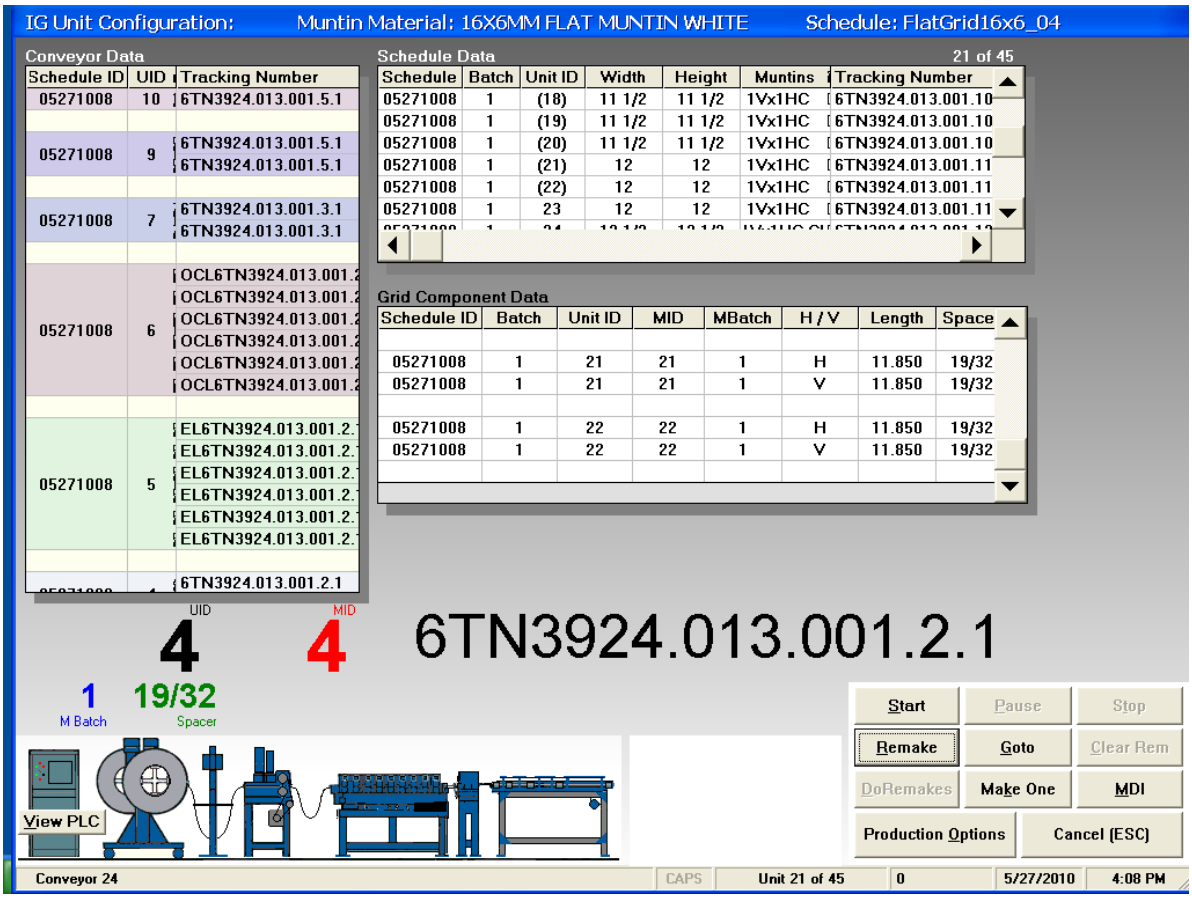
Add Schedule button - Displays the Schedule Selector screen, from which you can select another schedule to add to the Schedule list.

Remove Schedule button - Removes the highlighted schedule from the Schedule list. The schedule will still appear on the Schedule Selector screen so that you can selected it again at a later time.

Start - Selecting Start will close the Schedule Selected Screen and open the Run Production Screen where you can start producing muntins.

Understanding the Run Production Screen

The Run Production screen appears when you select the Start button on the Schedule Selected screen or when you select the Run button on the MDI screen. As shown below, the Run Production screen lists important information about the units currently being produced.



Run Production Screen

Schedule Data - The Schedule Data Table lists all the units you selected to produce. As units are completed, a parenthesis appears around the unit number in the Unit ID field. The parenthesis appear around the unit number when the machine's PC sends the unit data to the machine's PLC.

You can choose which columns of data to display in the Schedule Data Table. Right-click in the table; a check list will appear allowing

you check the items you want to display, and un-check the items you do not want to display.

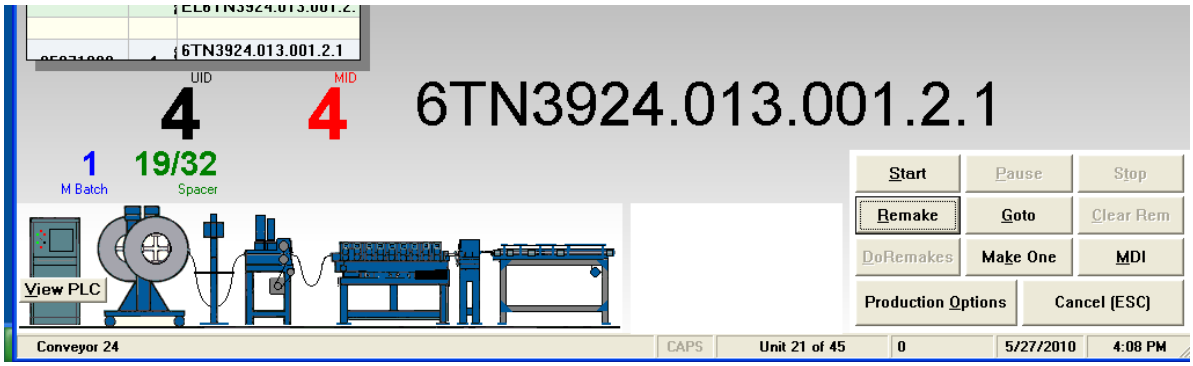
Note: It is possible that one or two sequential units might be marked as completed when they are not complete. For example, if the schedule is stopped before it is finished, the units for which data has already been sent to the PLC but have not cleared the Cutoff will be marked as complete even though they have not been fully produced.

Grid Component Data - Displays detailed information about each unit as it is being created. One line is displayed for each component of the muntin grid. For example, a unit with three vertical bars and two horizontal bars will display five rows in the Grid Component Data table.

Conveyor Data - This table, on the left side of the screen, displays the information about each component of the unit as it enters the Conveyor. Each line represents a slot on the Conveyor that contains the muntin component. (Note: If you switch from Auto to Manual, then back to Auto while a batch is running, the machine will try to pick up and continue, however the reported Conveyor Data will no longer match what is actually in the conveyor. Also, one of the units in the batch might not be made properly. If this happens, you can Stop the batch, then re-start at the desired unit using the Goto feature. This way, the Conveyor Data display will be back in sync with the conveyor.)

System Monitor - When an error occurs with one of the machines in the Intergrid line, this field displays a status message with details about the error. On the picture of the Intergrid to the left of this field, an "X" also displays over the machine where the problem has occurred.

UID, M Batch, MID, Spacer, and Tracking No. - When a grid component reaches the end of the Conveyor, its Unit ID, Batch ID, Muntin ID, Spacer information, and Tracking Number display at the bottom left side of the Run Production screen, as shown below.



Item Information on Bottom of Run Production Screen

The *Tracking Number* is the window manufacturer's own Unit ID number that they have included in the WinIG schedule data. The Tracking Number associates each muntin grid to it's corresponding

finished window. You can select remakes by Tracking Number. See “Remaking Muntins” on page 3-31.

Buttons

Start - Begins production of the currently selected schedule.

Pause - Pauses production of the currently selected schedule once all of the units already sent to the controller have been made.

Stop - Enables you to abort production before the schedule is completed. If you select the Stop button while the machine is in the middle of creating a unit, the machine will complete the components of the unit before stopping production. The machine continues moving until the last unit has gone through the production line.

Caution

During an emergency situation, press the Emergency Stop button to immediately stop the machines in the production line.

Remake - Enables you to specify the units you would like to remake. For more information, refer to “Remaking Muntins” on page 3-31.

Goto - Enables you to start production at a point other than the beginning of the batch. For more information, refer to “Starting Mid-Schedule” on page 3-36.

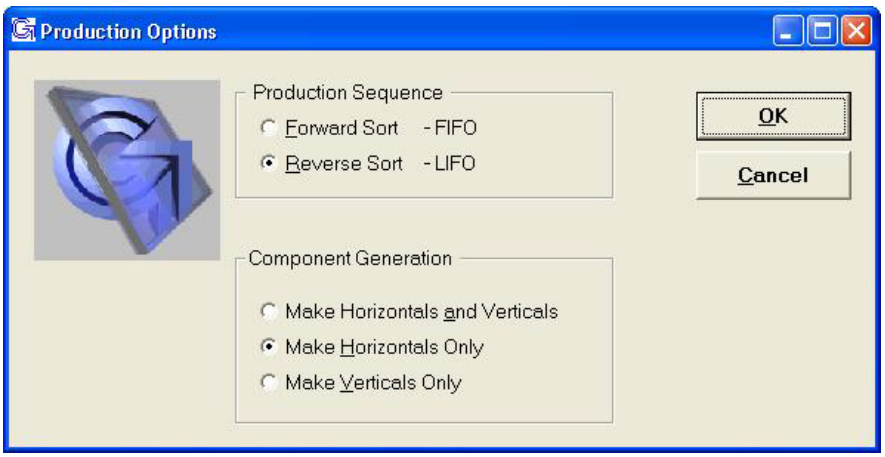
Clear Rem - Deletes ALL of the remake items listed in the Remakes column.

Do Remakes - If the machine is not currently running, selecting ‘Do Remakes’ starts production only on the remake items listed in the Remakes column. Do Remakes will not start a schedule running. Only use Do Remakes when the machine is not currently running. Do Remakes allows you to give top priority to remakes, but will generate a scrap piece of material when the last of a remake batch is fed through the Rollformer to the conveyor. See “Batch Complete - What to do (Managing Scrap)” on page 3-30. For more information about remaking units, refer to “Remaking Muntins” on page 3-31.

Make One - Creates only the currently selected unit in the Schedule Data table.

MDI - Enables you to manually enter additional units for production. For more information about MDI mode, refer to “Using MDI (Manual Data Input)” on page 3-39.

Production Options - Loads the Production Options dialog box (shown below) which enables you to change the production sequence or the component generation. The options you select become the new defaults for the Run Production screen until you log out of WinGrid™.



Production Options Screen

Batch Complete - What to do (Managing Scrap)

When a batch of muntins is complete, the "Batch Complete, Feed All Material?" prompt appears.

Note: "Batch Complete" means that all muntin components have been punched by the Feeder Press; it does not necessarily mean all muntin components have been fed through the Rollformer and are on the exit conveyor.

At the prompt, you can select YES or NO as follows:

- YES to feed the material through the machine to push all the completed units to the Conveyor. (Selecting YES will generate a piece of scrap approximately 172" long. The scrap piece will not come out until you start the next batch.) Typically you would only select YES at the end of a shift, or at some other time when you will not be running another batch immediately, but you need all the completed muntins now.
- NO to return to the Run Production window, which allows you to begin a new batch without wasting any material. (Selecting NO avoids generating the 172" long piece of scrap.)

Remaking Muntins

From the Run Production Screen, you can enter units to remake. You can remake any unit from any schedule that is currently loaded into the Run Production Screen. The power of the Remakes feature lies in the fact that you can selectively pick and choose multiple remake units from multiple schedules at once.

If you need to remake units whose schedules are not currently loaded into the Run Production screen, you must exit the screen, select Run Schedule, and select the schedule(s) containing the unit(s) you need to remake.

You can enter remake units while the machine is running. In this case, the remakes will be produced as soon as possible; they will be made a few units behind the unit currently in the Feeder Press.

You can also enter remakes when the machine is idle. In this case, you can choose to run only the remakes (DoRemakes button), or run the remakes then the selected schedule(s) (Start button).

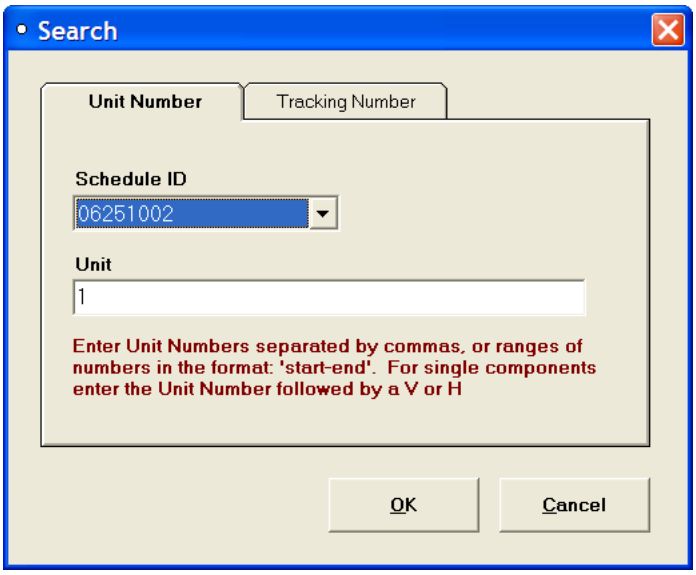
If you enter some remakes, but stop production and close the Run Production Screen before they are made, the unmade remakes will be “remembered”. They will appear in the Remakes List in the Run Production Screen the next time the schedule containing the remakes is loaded.

There are two methods for choosing muntins to remake: the Unit Number method, and the Tracking Number method. Both methods achieve the same results, and are explained below.

Unit Number Remake Method

The procedure below explains how to remake muntins from the Run Production Screen using the Unit Number Method.

1. With the Run Production Screen displayed, select Remake. The Search dialog box will appear, as shown below.

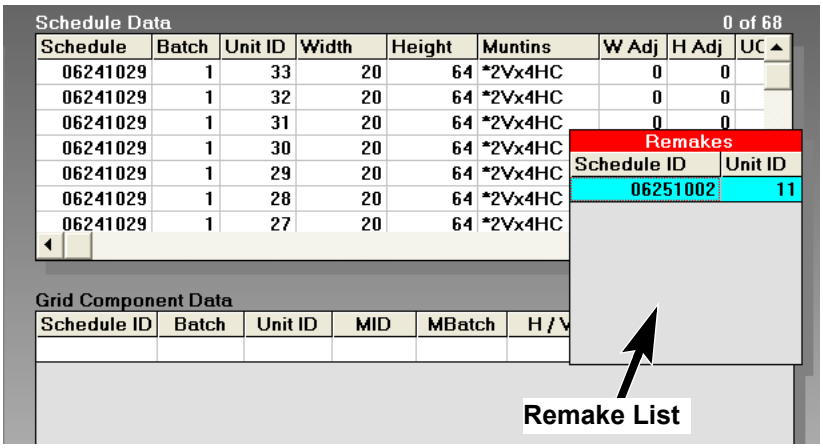


Search (Remake) Dialog Box

2. Make sure the Unit Number tab is selected.
3. In the Schedule ID field, select the schedule in which the unit you want to remake is located.
4. In the Unit field, enter the unit numbers or components of the units you want to remake:

   - For individual units, enter each unit number separated by a comma, e.g., 5,10,15.
   - For a range of units, enter the starting and the ending unit separated by a hyphen, e.g. 5-15.
   - For a single component of a unit, enter the unit number followed by “V” for the vertical components or “H” for the horizontal components, e.g. 5V. Just one vertical or one horizontal will be made. Considering this example, if you want two vertical components, you can enter 5V, 5V.
   - To enter a combination of individual unit numbers, ranges, and/or unit components, separate each by a comma, e.g. 5, 10, 15-20, 26V.

5. Select OK. The remake unit numbers will appear in the Remakes list at the right side of the Run Production Screen, as shown below.



Remakes List

If the machine was running a batch when you selected OK, you do not need to do anything else. The remakes will be produced as soon as possible; they will be made a few units behind the unit currently in the Feeder Press.

6. If the machine was NOT running when you selected OK, you have two choices:

   a. You can select Do Remakes. This will cause only the remakes to be made. Use this option if you want to finish the remakes immediately and feed them completely through the Rollformer to the conveyor without any other following units. This option gives top priority to the remakes, but the following material in the Rollformer will be fed out as scrap the next time you start a batch.

   b. You can select Start. This will cause the remakes to be made first, immediately followed by the rest of the units in the selected schedule(s). This option does NOT generate any scrap between the remakes and the following production units.

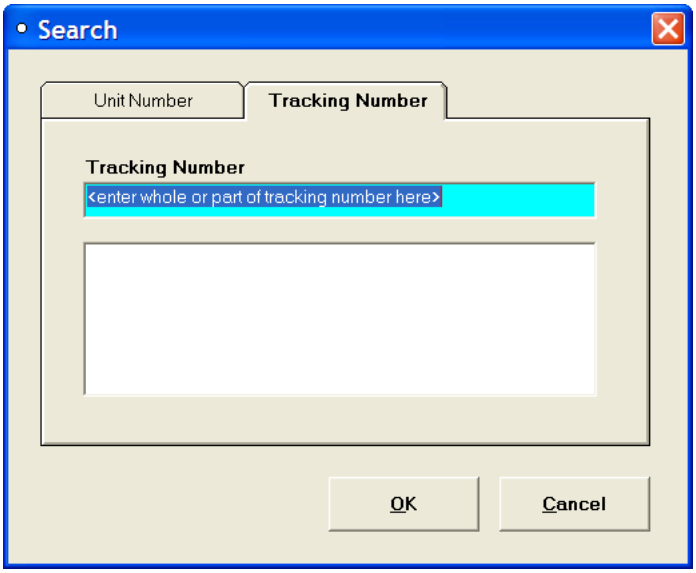
   Note: You can cancel the remakes without running them by selecting Clear Rem.

Tracking Number Remake Method

The procedure below explains how to remake muntins from the Run Production Screen using the Tracking Number Method.

The *Tracking Number* is the window manufacturer's own Unit ID number that they have included in the WinIG schedule data. The Tracking Number associates each muntin grid to it's corresponding finished window. You can select remakes by Tracking Number.

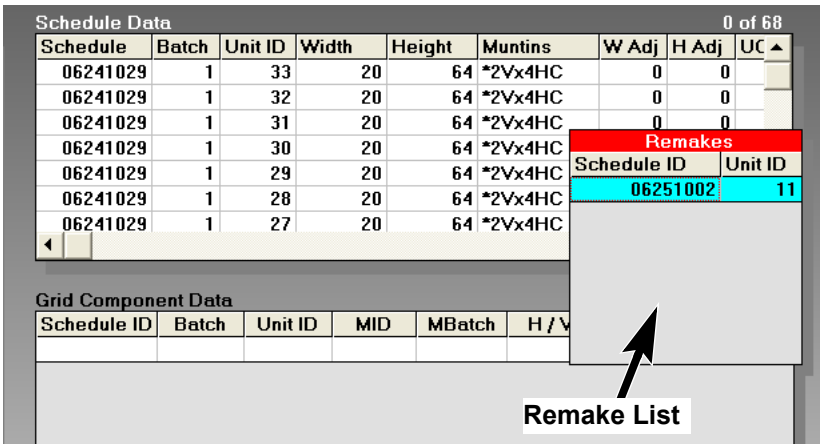
1. With the Run Production Screen displayed, select Remake. The Search dialog box will appear, as shown below.



Search (Remake) Dialog Box

2. Make sure the Tracking Number tab is selected.
3. In the Tracking Number field, start typing the desired tracking number. This field uses IntelliSense, which means that when you type any part of a tracking number, the list below is filled with all tracking numbers containing the part you typed. The more you type, the more the list is narrowed down.
4. When you see the desired number in the list, select it with the mouse.

5. Select OK. The remake unit numbers will appear in the Remakes list at the right side of the Run Production Screen, as shown below.



Remakes List

If the machine was running a batch when you selected OK, you do not need to do anything else. The remakes will be produced as soon as possible; they will be made a few units behind the unit currently in the Feeder Press.

6. If the machine was NOT running when you selected OK, you have two choices:

   a. You can select 'Do Remakes'. This will cause only the remakes to be made. Use this option if you want to finish the remakes immediately and feed them completely through the Rollformer to the conveyor without any other following units. This option gives top priority to the remakes, but the following material in the Rollformer will be fed out as scrap the next time you start a batch.

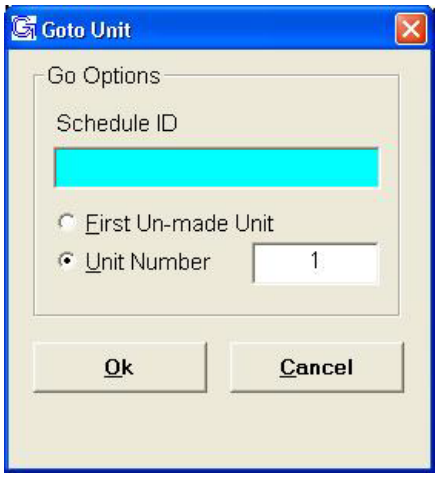
   b. You can select 'Start'. This will cause the remakes to be made first, immediately followed by the rest of the units in the selected schedule(s). This option does NOT generate any scrap between the remakes and the following production units.

   Note: You can cancel the remakes without running them by selecting Clear Rem.

Starting Mid-Schedule

If necessary, you can use the Goto button to start running a schedule at some point other than the beginning. This may be necessary, for example, if a schedule was stopped before it was completed.

1. From the Schedule Selector Screen, select the desired schedule(s), then choose Select.
2. From the Schedule Selected Screen, choose the desired From/To batches and units. Then select Start to display the Run Production screen.
3. From the Run Production Screen, select Goto. The Goto Unit dialog box appears, as shown below.



Goto Unit Dialog Box

4. In the Schedule ID field, enter the appropriate schedule ID.
5. Select one of the following options, and then select OK:

   - **First Un-made Unit** to go to the first unit in the batch that has not yet been made.
   - **Unit Number** to go to the unit number you specify in the field.

6. Select Start to begin running the schedule from the selected unit.

   or

   Select Make to run only the unit you selected.

Handling Finished Muntin Bars

Handle muntin bars carefully. Avoid damaging or scratching the paint.

Keep all work surfaces clean, including work tables, storage racks, and any other surface that may come in contact with the finished muntin bars. A clean environment reduces the chances of accidentally damaging the finished bars.

Clean finished muntin bars with a soft, damp cloth only. NEVER use MEK, alcohol, triethane, or any other chemical cleaner. These cleaners will damage the painted finish.

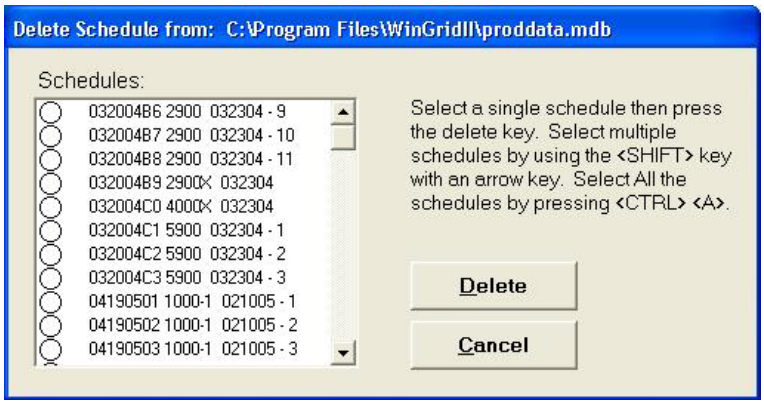
Deleting Schedules

You can delete a schedule from the machine's local hard drive. This feature can be helpful as a troubleshooting aid. If a schedule doesn't appear to have the proper information in it, or if it does not run correctly, you can delete the schedule and reload it.

To delete a schedule:

1. Display the Delete Schedule dialog box as follows:

   Production > Delete Schedule



Delete Schedule Dialog Box

2. Highlight the desired schedule, then press the delete key.

Selecting a Unit Setting

A Unit Setting is a pre-saved set of parameters that tell the machine various details about how to produce muntins. Multiple unit settings can be saved for quick recall. To select a Unit Setting:

1. Select the following:

   Setup > Select IG Unit Configuration

   The Select Unit Setup dialog box appears, as shown below, containing a list of all current Unit Settings.

Select Unit Setup Dialog Box

2. Highlight the desired Unit Setup.
3. Select OK. The machine will use the new settings during production.

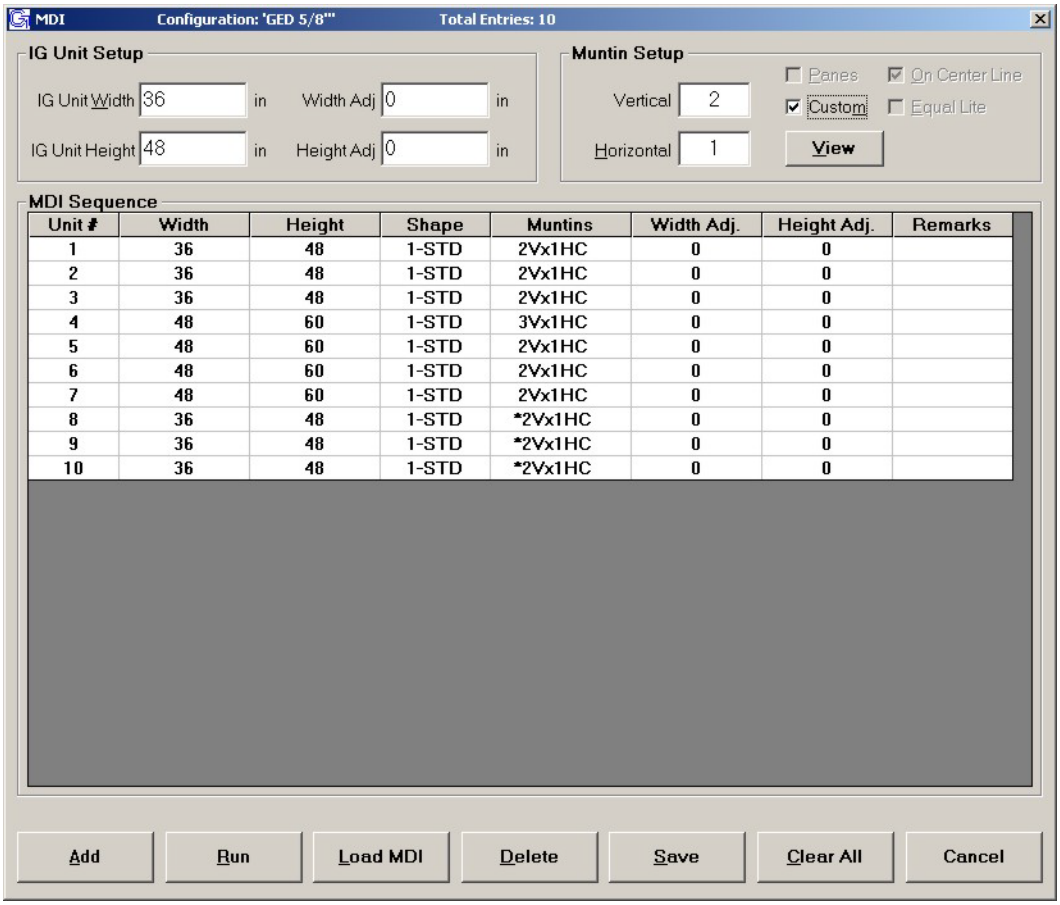
Using MDI (Manual Data Input)

The MDI (Manual Data Input) screen enables you to manually enter a production schedule. To access the MDI screen, select the following:

Production > Manual Data Input

Whenever you open the MDI screen, the last MDI schedule that was created displays, even if you did not save it before closing the previous MDI session.

The upper portion of the screen describes the IG unit characteristics that affect the muntin design. The middle section displays all the units in the MDI batch. The command buttons are in a row across the bottom of the screen.



MDI Screen

IG Unit Setup

The IG Unit Setup portion of the MDI screen contains four parameters. They are defined below.

Unit Width - The width of the IG unit in which the muntins will be mounted.

Width Adj - The amount of adjustment required to make the vertical muntins line up properly when two windows of different sizes are placed on top of each other, such as in a double hung window. If the larger frame is the reference frame, this amount is added to the second frame. If the smaller frame is the reference frame, this amount is subtracted from the second frame.

Unit Height - The height of the IG unit in which the muntins will be mounted.

Height Adj - The amount of adjustment required to make the horizontal muntins line up properly when two windows of different sizes are placed next to each other, such as in slider doors. If the larger frame is the reference frame, this amount is added to the second frame. If the smaller frame is the reference frame, this amount is subtracted from the second frame.

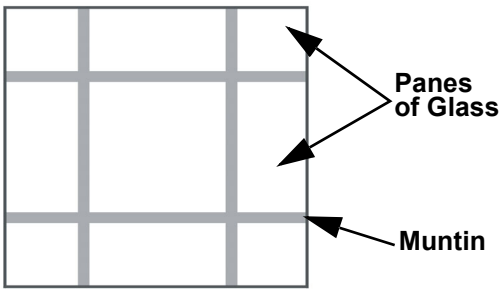
Muntin Setup

The Muntin Setup portion of the MDI screen contains seven items. They are defined below.

Vertical - The number of vertical muntin bars in the unit.

Horizontal - The number of horizontal muntin bars in the unit.

Panes - When this option is checked, the muntins are based on the number of "panes" of glass in the window, rather than the number of muntin bars. In this example, there are two vertical muntin bars, and three panes of glass.



Muntins and Panes

Custom - When this option is checked, you can define the exact position of the muntin bars within the frame. The muntin bars do not have to be evenly spaced or symmetrical. For further information about creating custom muntin patterns, refer to "Custom Muntin Patterns" on page 3-45.

On Center Line - When this option is checked, the muntins are positioned in the IG unit by the centerline of the muntin material. The lites created by the muntin cross-sections may not be equally sized.

Equal Lite - When this option is checked, the muntins are positioned in the IG unit so that all of the lites created by the muntin cross-sections are equally sized.

View - The View button only appears when Custom is checked. The View button displays the Custom Muntin Data Screen where you specify the details of your custom muntin pattern.

Command Buttons

The Command Buttons are located across the bottom of the MDI Screen. Each button is defined below.

Add - Adds new units to the MDI schedule. For further information, refer to “Adding Units in MDI” on page 3-42.

Run - Displays the Run Production screen, from which you can run the entered MDI schedule. For more information about the Run Production screen, refer to “Understanding the Run Production Screen” on page 3-27.

Load MDI - Allows you to retrieve or delete stored MDI schedules. For more information, refer to “Retrieving Saved MDI Schedules” on page 3-44.

Delete - Loads the Delete MDI Units dialog boxes, from which you can enter a range of units to delete. For more information, refer to “Removing Units from an MDI Schedule” on page 3-43.

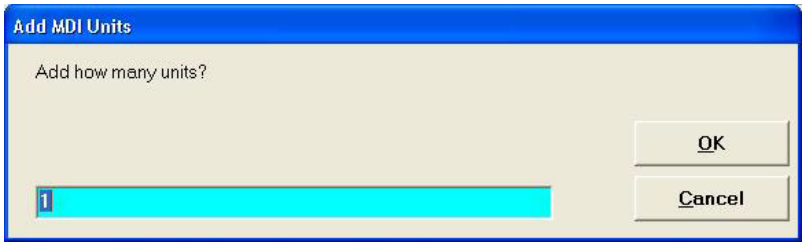
Save - Saves an MDI schedule. For more information, refer to “Saving an MDI Schedule” on page 3-44.

Clear All - Clears ALL of the units currently loaded on the MDI screen.

Cancel - Exits the MDI screen.

Adding Units in MDI

1. Enter all the pertinent information for the muntins you want to produce in the IG Unit Setup and Muntin Setup areas of the MDI screen. (If creating a custom muntin pattern, also enter all the pertinent information in the Custom Muntin Data Screen.)
2. When all the unit information is complete and correct, select Add. (If creating a custom muntin pattern, select OK from the Custom Muntin Data Screen.)
3. At the "Add MDI Units" prompt, enter the number of units you want to add to the batch, and then select OK.

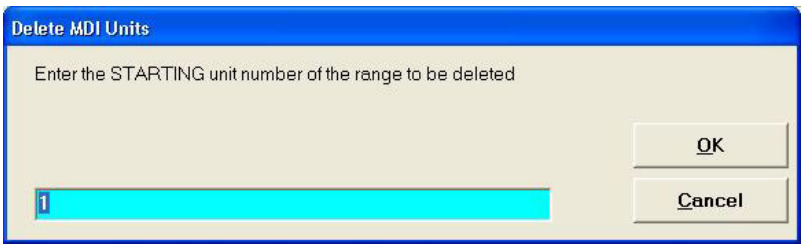


Add MDI Units Dialog Box

Removing Units from an MDI Schedule

The Delete button on the MDI screen enables you to delete a unit or a range of units from an MDI schedule.

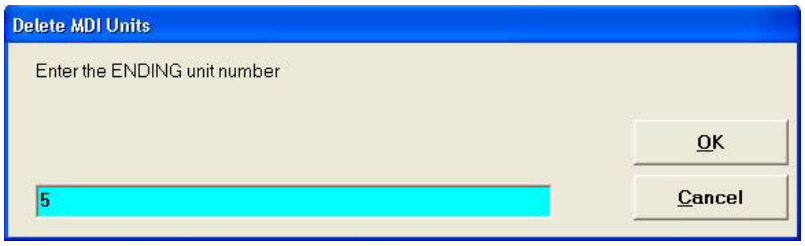
1. From the MDI screen containing a loaded MDI schedule, select Delete. The first Delete MDI Units prompt appears, as shown below.



Delete MDI Units Dialog Box - Starting Unit Number

2. Enter the unit number of the first unit in the range to delete, and then select OK. The second Delete MDI Units dialog box appears, as shown below.

   Note: By default, the unit number is the last unit of the MDI schedule. Override this number with the actual number of the unit you want to delete.



Delete MDI Units Dialog Box - Ending Unit Number

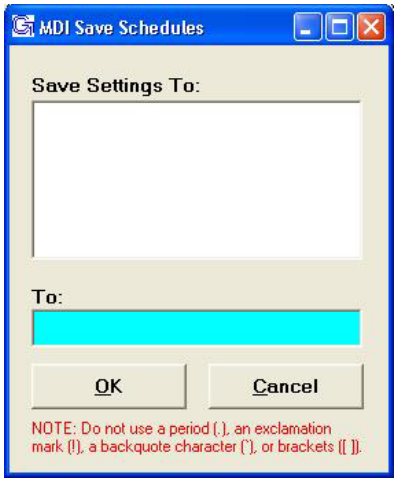
3. Enter the unit number of the last unit in the range to delete, and then select OK.

   Note: If you are only deleting one unit, type the unit number you entered in Step 2.

4. When the “Delete Units?” prompt appears, select Yes. All units in the range specified above are removed from the MDI schedule.

Saving an MDI Schedule

1. Enter all the pertinent information for the muntins you want to produce in the IG Unit Setup and Muntin Setup areas of the screen.
2. When all the unit information is complete and correct, select Save. The MDI Save Schedules dialog box appears, as shown below.

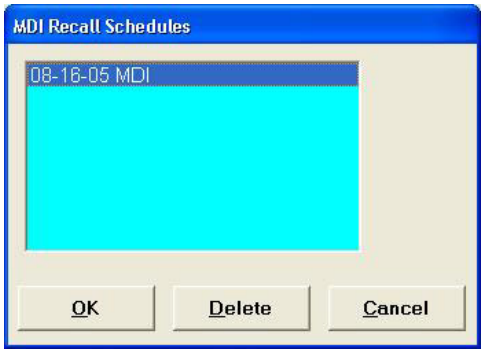


MDI Save Schedules Dialog Box

3. In the To: field, enter a name for the schedule, and then select OK.

Retrieving Saved MDI Schedules

1. From the MDI screen, select Load MDI. The MDI Recall Schedules dialog box appears, as shown below.



MDI Recall Schedules Dialog Box

2. Highlight the MDI schedule you want to access, and then select OK. The MDI schedule loads onto the MDI screen.

   Note: You can also delete an MDI schedule from this dialog box by selecting the Delete button. The highlighted schedule will be deleted.

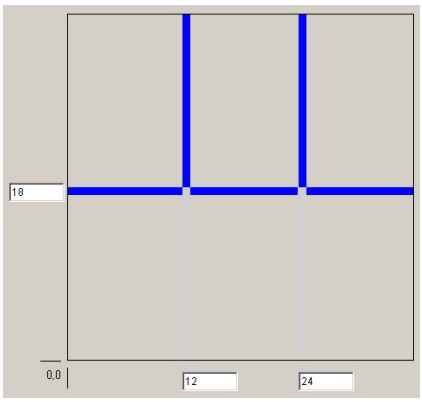
Custom Muntin Patterns

The Custom option, located under the Muntin Setup area of the MDI Screen, enables you to define the exact position of each muntin bar in the pattern. The position of each muntin is measured from the left or bottom side of the glass (plus or minus any left or bottom offsets defined on the IG Unit Setup screen).

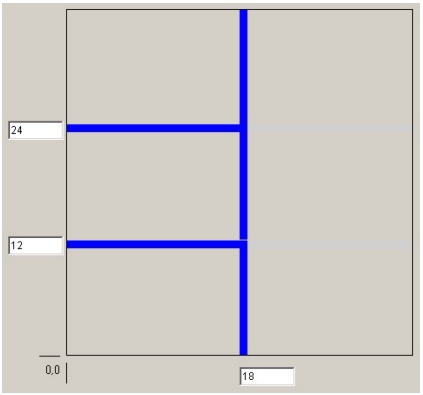
Note: There is a maximum of 20 vertical or horizontal components allowed per unit.

The Custom Muntin Patterns feature also allows you to create valance muntin patterns.

Examples of "top valance" and "side valance" muntin patterns are shown below.



Top Valance Muntin Pattern

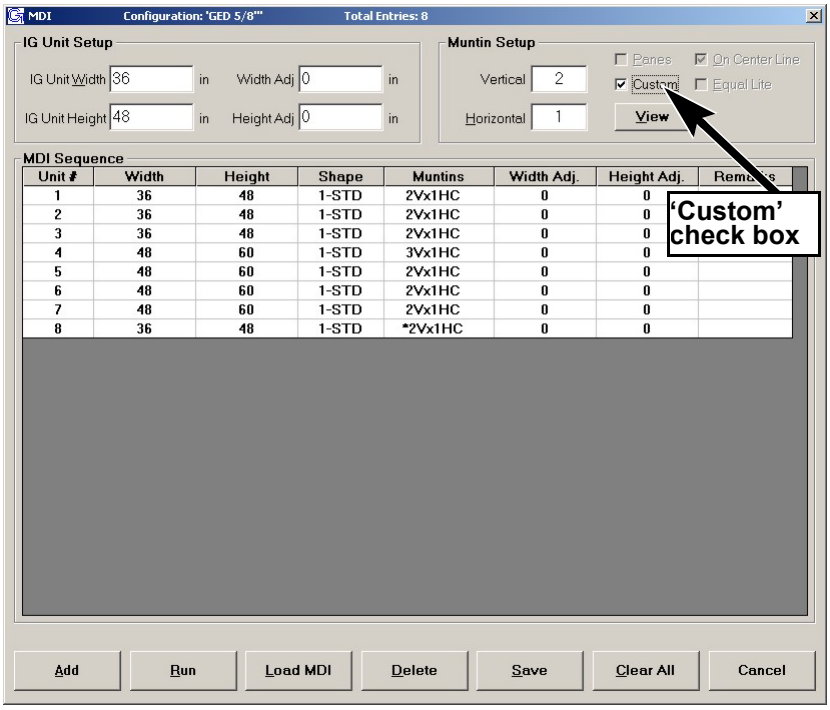


Side Valance Muntin Pattern

The procedure below explains how to create custom muntin patterns (valance or not).

To create custom muntins:

1. On the MDI screen, enter all the pertinent information for the muntins you want to produce in the “IG Unit Setup” and “Muntin Setup” areas of the screen. Once you define a value in the Vert and Horiz fields, the “Custom” check box becomes available. (See illustration below.)



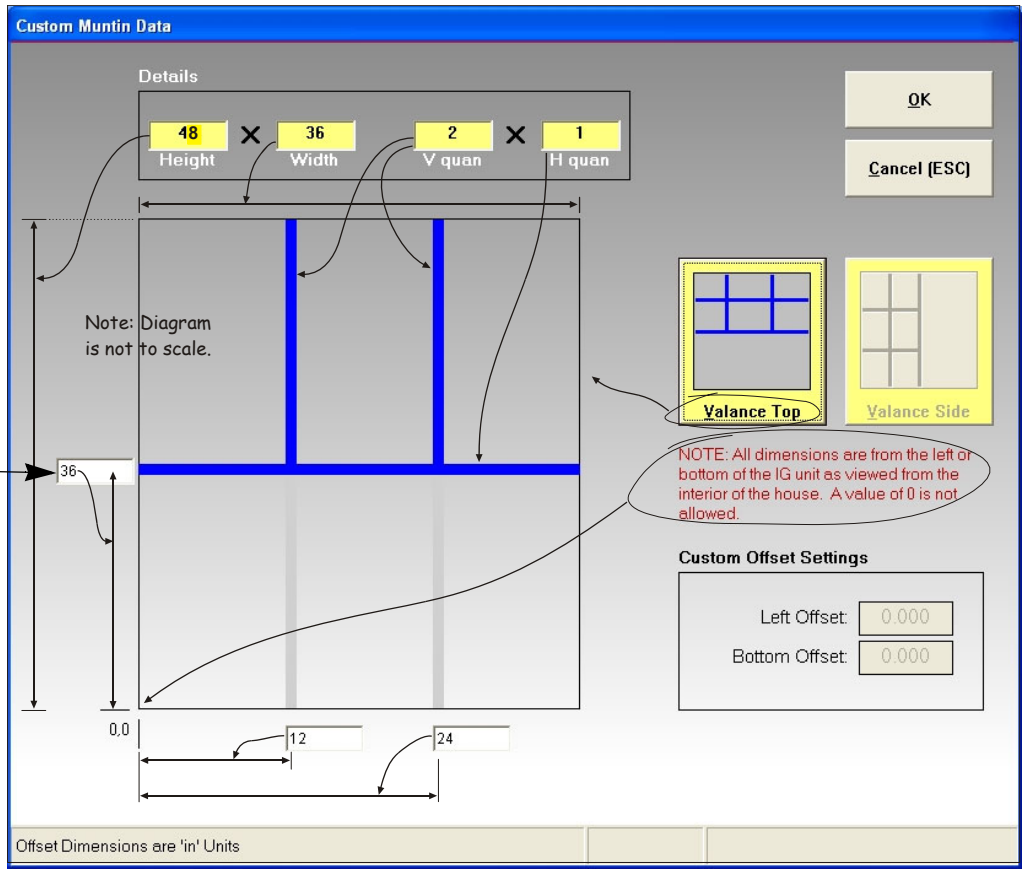
MDI Screen

2. Select the Custom check box. The View button appears beneath the check box. (The View button only appears if Custom is checked.

   Note: The Panes field must NOT be checked. If it is checked, the Custom check box is unavailable.

3. Select View.

   The Custom Muntin Data screen appears with dimension fields for the vertical and horizontal muntins you specified on the MDI screen. (See illustration below.)



When this screen opens, the cursor will already be in the vertical offset field of the lowest horizontal muntin bar. Enter the desired offset, then press tab to advance to the next offset field.

Custom Muntin Data Screen - Showing valance Option

4. Specify the desired position of each muntin bar by entering the appropriate offset value in the provided fields at the left and bottom of the diagram. When the above screen opens, the cursor will already be in the vertical offset field of the lowest horizontal muntin bar. Enter the desired offset, then press tab or enter on the keyboard to advance to the next offset field. Repeat until all offset fields are filled in.

   Note: The buttons labeled “Valance Top” and “Valance Side” will not appear until you have entered values in all the muntin offset fields.

   Note: The position of each muntin is measured from the left or bottom edge of the glass plus or minus any left or bottom offsets. Left Offset and Bottom Offset are determined by the currently selected IG Unit Setting. They appear on the above screen, but cannot be changed there. To use a different Left or Bottom Offset, refer to “IG Unit Setup” on page 4-10.

5. If you want to create a valance muntin pattern, Select either the “Valance Top” button or the “Valance Side” button. (If you choose the wrong button, select “Cancel (ESC)”, then try again.)
6. When the muntin pattern is set up the way you want it, select OK. When the “Add MDI Units” prompt appears, enter the desired number of units you want in the MDI schedule, and select OK.

4

Setup and Adjustment

Configuring the Software

Generally the machine is shipped with the software configured for the intended application. If changes become necessary, refer to the information in this section and this chapter.

Basic configuration involves the following steps:

1. Configure the General Settings.
2. Configure the Machine Parameters.
3. Create and Select the IG Unit Settings.
4. Configure the First Unit Length.
5. Backup the Controller Data (i.e. Machine Parameters). These parameters are specific to your Intergrid machine and your application. ***Do not skip this important step. See "Backing Up the Controller Data" on page 4-16.***
6. Add authorized Users by configuring user ID's and passwords. See "Setting up Users with Security Levels" on page 4-18.

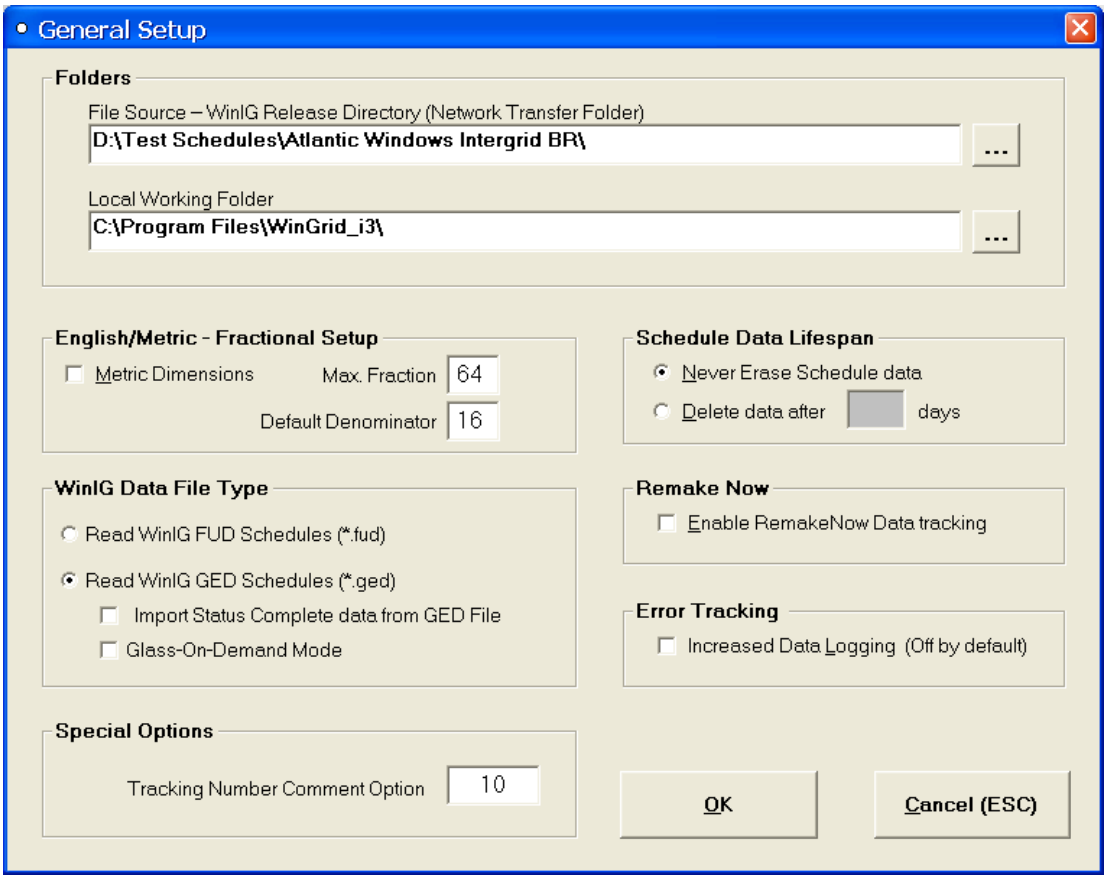
General Setup

From the Main screen, access the General Setup screen by selecting the following:

Setup > General

Note: If the General option is not available, use the Login option on the Maintenance menu to log in as an Administrator level user.

The General Setup screen is shown below and each item is defined.



General Setup Screen

File Source - WinIG Release Directory (Network Transfer Folder) - Specify the network drive from which the software will download the production files.

Local Working Folder - Specify the local drive to which the software will write the production files.

English/Metric - Fractional Setup - Defines whether or not you are using the metric system, and how you want fractions to appear in WinGrid™.

- **Metric Dimensions** - If checked, all measurements on your Intergrid machine use metric units.
- **Max Fraction** - Specify the smallest fractional increment that will be used in WinGrid™. Smaller values will be rounded to this increment. The default is 64, which means 1/64” increments. Smaller fractional values (such as 3/128”) are rounded to 64ths.
- **Default Denominator** - Specify the denominator that will automatically be used unless you specify a different denominator when entering a fraction. The default value is 16. For example, when an operator enters 22+3 or 22 space bar 3, the software automatically assigns a denominator of 16, for a value of 22 3/16.

WinIG Data File Type - Defines the type of production files the system imports from WinIG.

- **Read WinIG FUD Schedules (*.fud)** - If this option is selected, the machine will only import files with a .FUD extension when downloading production schedules from the WinIG release directory.
- **Read WinIG GED Schedules (*.ged)** - If this option is selected, the machine will only import files with a .GED extension when downloading production schedules from the WinIG release directory.

Import Status Complete Data From GED File - Select if you want the system to read the status from the GED file rather than the local database. Check this option if you are using the Glass On Demand feature. This check box is only available if the Read WinIG GED Schedules (*.ged) option is selected.

Glass on Demand Mode - Select to turn on the Glass on Demand feature.

Tracking Number Comment Option - The Tracking Number is the window manufacturer's own ID number that they have included in the WinIG schedule data. The Tracking Number associates each muntin to it's corresponding finished window. The 'Tracking Number Comment Option' value specifies which data field ("comment field") in the WinIG merge file contains the Tracking Number data. This enables WinGrid™ software to locate and display the Tracking Number.

Schedule Date Lifespan - Defines how long you want to store the WinGrid™ production files.

- **Never Erase Schedule Data** - Saves the production files indefinitely. In this mode, you must delete schedules manually.

  Note: If you do not delete the schedules periodically, the machine's PC hard drive will eventually become full and there will be no room for new files.

- **Delete data after ___ days** - Saves the production files for the number of days you specify in the blank field. Any production files older than the number of days you enter are automatically deleted.

Enable RemakeNow Data Tracking - Select to enable RemakeNow tracking of the data. If enabled, WinGrid™ sends confirmation to the RemakeNow server when all of the units in an eligible schedule are completed.

Track Communications - If selected, a very large log file is generated. This field is used for testing and diagnostics by GED technicians. GED recommends that you leave this option off (unchecked) unless a GED technician instructs otherwise.

Machine Constants

The Machine Constants settings give WinGrid™ software important information about the Intergrid machine.

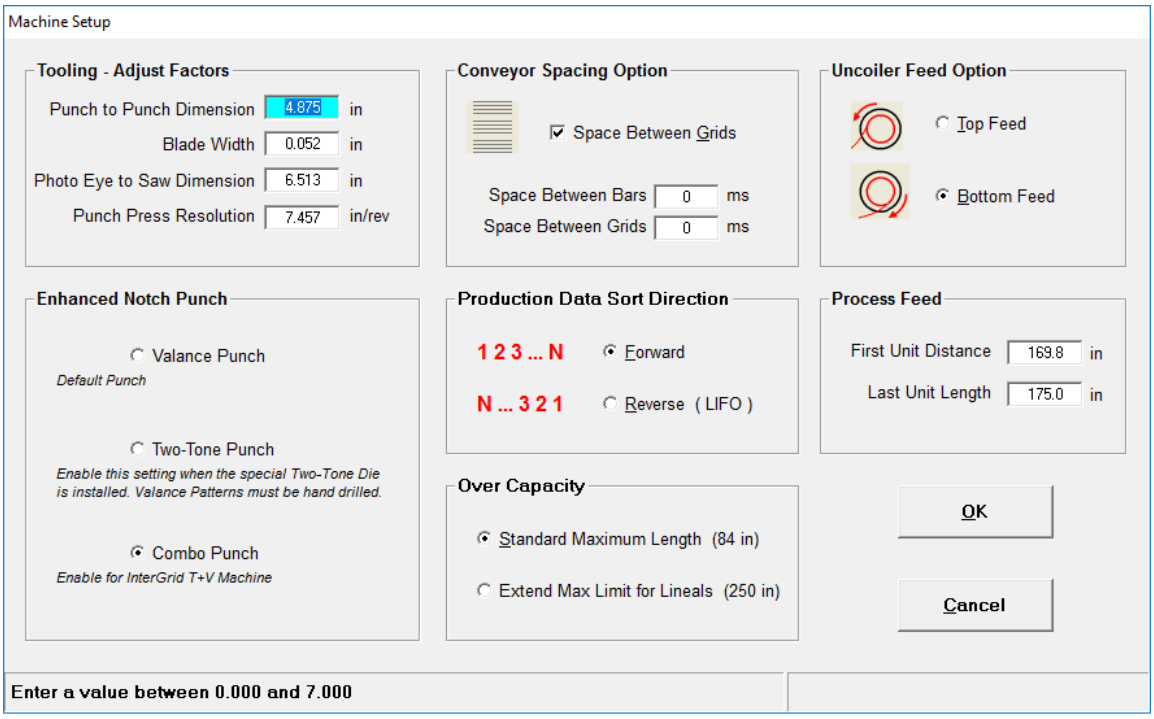
Most changes made here are effective as soon as OK is selected. Changes to the motor controller parameters do not take effect until the motion controller is re-powered.

When you have a data field highlighted, a message appears in the lower left corner of the screen indicating the acceptable range of values that can be input.

From the Main screen, access the Machine Constants screen by selecting the following:

Setup > Machine Constants

The Machine Constants screen is shown below and each item is defined.



Machine Constants Screen

Punch-to-Punch Dimension - Factory set. Do not change.

Blade Width - See "Setting the Actual Blade Width" on page 4-53.

Photo Eye to Saw Dimension - See "Cutoff Accuracy and Consistency" on page 4-58.

Punch Press Resolution - See "Setting the Feeder Press Resolution" on page 4-35.

Enhanced Notch Punch - These three options pertain to the machine's Feeder Press configuration. The option selected here must match the machine's Feeder Press Configuration.

Valance Punch - The "Valance Punch" option must be selected if the Feeder Press is configured for Valance muntin pattern capability.

Two-Tone Punch - The "Two-Tone Punch" option must be selected if the Feeder Press is configured for Two-Tone muntin capability. With this configuration, the Feeder Press punches the notch for vertical and horizontal bars on opposite sides so the colored side of the muntins match when assembled.

Combo Punch - The "Combo Punch" option must be selected if the Feeder Press has the capability to produce both Valance muntin patterns and Two-Tone muntin grids.

Over Capacity -

Caution

The Intergrid machine's conveyor guarding accommodates a muntin bar length of 84" maximum. Do not operate the machine without guards that protect personnel from contacting the ends of muntin bars exiting the machine. Personal injury could result.

Normally the first option in the Over Capacity box should be checked: "Standard Maximum Length (84.000 in)". However, if you need to produce muntin bar in lengths greater than 84 inches, you can select "Extend Max Limit for Lineals (250 in)". This may be useful, for example, if you want to produce bulk lineals that are greater than 84" long, and will be further processed off-line.

To make lineals in bulk, create a unit in MDI that has 0 vertical by 1 horizontal muntin bar in the unit. Then add the desired quantity of units to a batch, and run them. See "Using MDI (Manual Data Input)" on page 3-39.

Conveyor Spacing Option - Defines how you want the machine to fill the Conveyor.

- **Space Between Grids** - If this check box is checked, the machine leaves an empty slot on the Conveyor in between each complete muntin grid unit. If not checked, the machine fills every slot on the Conveyor as the units are produced.

  Note: The "Space Between Bars ms" and "Space Between Grids ms" fields are not used in this application.

Production Data Sort Direction - Defines the default method of sorting the items in the production schedules.

- **Forward** - If this option is selected, units are made in the order in which they were entered in the WinIG software.
- **Reverse (LIFO)** - If this option is selected, units are made in the opposite order in which they were entered in the WinIG software.

Uncoiler Feed Option - Select the direction in which you are operating the Uncoiler.

Process Feed - Displays the first unit length parameter. This field is view-only on the Machine Constants screen. To set the First Unit Length, see "Setting the First Unit Distance" below.

Process Feed -

First Unit Distance - Specifies how much material will feed out of the Feeder Press before the first bar reaches the conveyor. This field is view-only on the Machine Constants screen. To set the First Unit Distance, see "Setting the First Unit Distance" on page 4-8 below.

Last Unit Length - Specifies the length of scrap material used to push out all the muntins onto the conveyor at the end of a batch. If, for example, the last bar doesn't quite get fed out all the way, then increase this value.

Setting the First Unit Distance

The First Unit Distance is the distance from the Feeder Press registration punches to the Cutoff saw photoeye when the material in Loop 2 is just above the top photoeye (“tight loop”). This value is used to determine when the first legitimate muntin component reaches the Conveyor, and assures that the “Conveyor Data” displayed in the Run Production Screen matches the actual components on the Conveyor. This distance is approximately 172 inches.

The “First Unit Distance” is also the amount of material that will be ignored, and the amount of scrap that will be produced, when a batch is started after any of the following conditions:

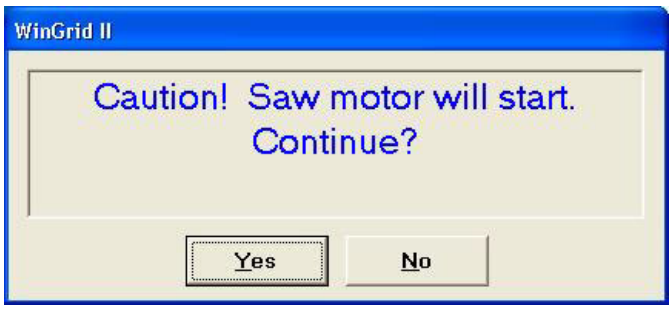
- an E-Stop
- a power-down
- a YES answer to “Feed all Material?” after a completed batch.

To set the First Unit Distance, follow the procedure below.

1. Make sure there is no punched material in the Rollformer.
2. Log in with an Administrator Level ID.
3. From the Main screen, selecting the following to access the Automatic Cycles screen:

   Diagnostics > Automatic Cycle Diagnostic

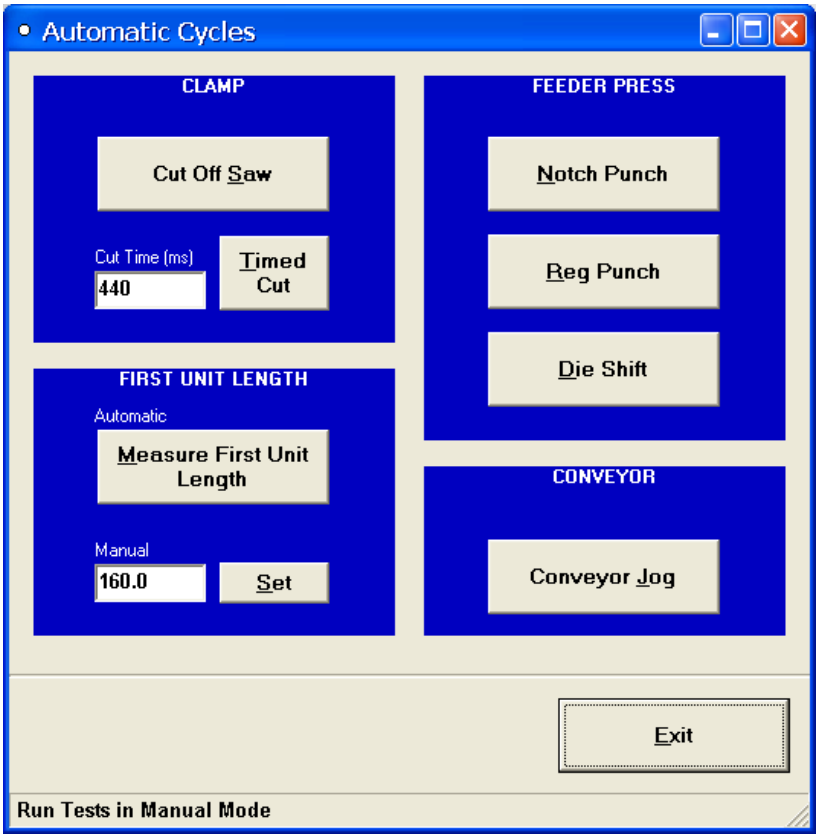
   The following caution prompt displays, warning that the saw motor will start during this procedure.



Saw Motor Caution Prompt

4. At the prompt, select Yes.

   The Automatic Cycles screen appears, as shown below.



Automatic Cycles Screen

	***WARNING*** *In the following step, the machine will energize and activate! Make sure all safety guards are installed, and all personnel are wearing safety gear and standing clear of the machine. Pinch points are present. Keep all body parts away from the saw blade; it is sharp and may cause injury!*

5. Select Measure First Unit Length.

   The machine will energize, and perform the following steps:

   a. Feed material until the Loop #2 Top Photoeye is no longer tripped.

   b. Make a single registration punch.

   c. Feed material until that single punch is detected by the saw photoeye.

   d. Cut the material.

The calculated First Unit Distance value (aka First Unit Length) appears on the screen. The software will automatically update the Machine Parameters to reflect the newly calculated First Unit Distance.

Manually Setting the First Unit Distance

You can manually set the First Unit Distance by entering the desired value in the 'Manual' field, and then pressing 'Set'. This is handy if you know what the value should be, or if you need to make a fine adjustment to the value.

IG Unit Setup

IG Unit Settings are a set of parameters that define the muntins the Intergrid machine is set up to produce. You can create several different sets of parameters and save each set as a different IG Unit Setting. This makes it fast and easy to re-configure the Intergrid machine to make different muntins. Just change the material and select a new IG Unit Setting.

You can switch between settings logged in as any user. But IG Unit Settings can only be created, changed, or deleted when in Administrator mode.

Selecting a Unit Setting

To switch to a different IG Unit Setting:

1. From the Main screen, select the following:

   Setup > Select IG Unit Configuration

   A dialog box with a list of IG Unit Settings will appear, as shown below.

Select Unit Setup

2. Highlight the desired setting.
3. Select the OK button.

During operation, the software will use the parameters defined in the Unit Setting you selected. Switch the material (if necessary) and then run a production schedule, as described in “Running Production” on page 3-20.

Creating a New Unit Setting

1. Log in with an Administrator level ID.
2. From the Main screen, select the following:

   Setup > New IG Unit Configuration

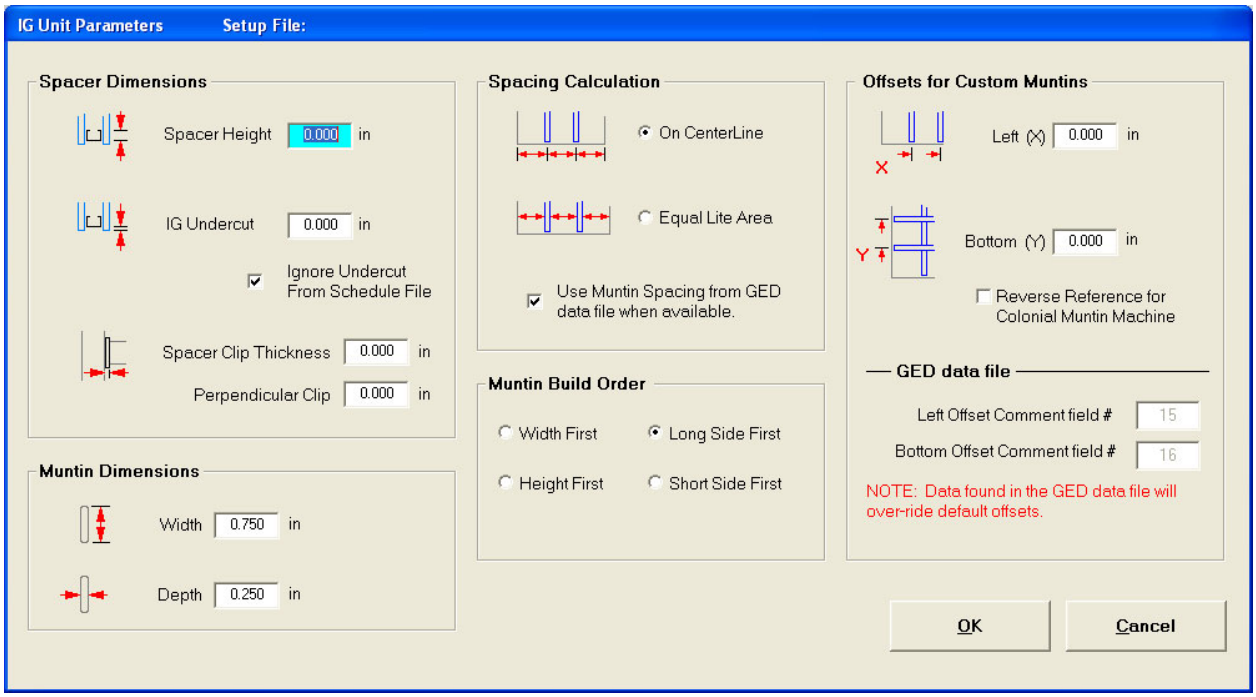
   A dialog box listing the IG Unit Settings appears, as shown below.

Create New Unit Settings Dialog Box

3. Highlight the Unit Setting that most closely matches the Unit Setting you want to create.
4. In the To: field, enter the name of the new Unit Setting, and select OK.

   Note: Each Unit Setting must have a unique name. If the name in the To: field matches an existing Unit Setting name, is too long, or contains invalid characters, an error message will appear. If this happens, select OK on the error message, and then enter a new, valid filename in the To: field.

The IG Unit Parameters screen appears, as shown below, displaying the current parameter settings for the Unit Setting you selected as the basis for the new Unit Setting.



IG Unit Parameters Screen

5. Change the parameters as necessary, referring to the IG Unit Settings table on “Unit Setting Parameter Definitions” on page 4-13.
6. When all the changes are complete, select OK.

Unit Setting Parameter Definitions

The following table describes the fields on the IG Unit Setup screen.

Field	Description
Spacer Height	Defines the height of the spacer being used with the muntins.
IG Undercut	Defines the difference between the size of the spacer frame and the size of the lites in the unit. The frame is slightly smaller.
Spacer Clip Thickness	If the clip creates a slight gap between the spacer and the muntin bar, enter the size of the gap in the Spacer Clip Thickness field.
Perpendicular Clip	This applies to a muntin "T" intersection (Valance type muntin intersection) where the end of one muntin buts up against the side of another muntin. If the clip creates a slight gap between the intersecting muntins, enter the size of the gap in the Perpendicular Clip field.
Muntin Dimensions	Defines the muntin width and depth. When the production schedule information is sent from WinIG®, only those units with muntins in the size specified here will display in the WinGrid™ production schedules. Units with no muntins, or different sized muntins will not appear.
Spacing Calculation	Defines how the muntin bars will be positioned in the finished IG unit: • **On CenterLine** - If selected, the muntin position in the IG unit is determined by the centerline of the muntin material. The small "window panes" inside the IG unit may not be equally sized. • **Equal Lite Area** - If selected, the muntins are positioned so that the small "window panes" inside the IG unit will be of equal size.
Use Muntin Spacing from GED data file when available	If selected, the muntins are positioned as specified in the GED file. You can select this option with either On Center or Equal Lite Area selected.
Muntin Build Order	Defines the order in which the muntin components are made: • **Width First** - If selected, the muntin width components are made first, regardless of their size. • **Height First** - If selected, the muntin height components are made first, regardless of their size. • **Shortest Side First** - If selected, the machine automatically produces the shortest side first, regardless of whether that side is the width or the height. • **Longest Side First** - If selected, the machine automatically produces the longest side first, regardless of whether that side is the width or height.

Field	Description
Offsets for Custom Muntins	Defines the default offset values to be applied to custom muntin patterns created in MDI. These offsets cause the muntin pattern to be shifted vertically and horizontally. • **Left (X)** - The amount in inches custom muntin patterns will be offset from the left. Values can be positive (+) or negative (-). Positive values shift the pattern toward the right; negative toward the left. • **Bottom (Y)** - The amount in inches custom muntin patterns will be offset from the bottom. Values can be positive (+) or negative (-). Positive values shift the pattern upward; negative downward.
Reverse Reference for Colonial Muntin Machine	If selected, the offsets for custom muntins are calculated from the bottom right of the frame.
GED data file	If WinGrid™ finds certain data in certain variable locations ("comment fields") in the GED data file, the data values will over-ride the Left (X) and Bottom (Y) Offsets explained above. **Left Offset Comment field # -** Reports the location of the Left Offset Comment field in the GED data file. **Bottom Offset Comment field # -** Reports the location of the Bottom Offset Comment field in the GED data file.

Changing Unit Settings

The parameters within the current Unit Setting can be permanently changed by an Administrator level user. You must be in Administrator mode in order to modify the current setting. The Default setting cannot be modified. If you do not want to make permanent changes, create a new Unit Setting, switch to it, then change it.

1. Log in with an Administrator level ID.
2. From the Main screen, select the following:

   Setup > IG Unit Setup
3. The IG Unit Parameters dialog box will appear on the screen. Make the needed changes, referring to the tables on the previous pages for information about the fields and parameters.
4. When the changes are complete, select OK button. These permanent changes will take effect at once.

Deleting IG Unit Settings

The active setting (the setting currently in use) and the default setting cannot be deleted.

1. Log in with an Administrator level ID.
2. From the Main screen, select the following:

   Setup > Delete IG Unit Configuration

   The Delete IG Unit Settings dialog box appears, as shown below.

Delete IG Unit Settings Dialog Box

3. Use the up and down arrow keys to position the highlight bar over the Unit Setting you want to delete.
4. Select OK.

   OR

   To exit this dialog box without deleting any IG Unit Setting, select Cancel.

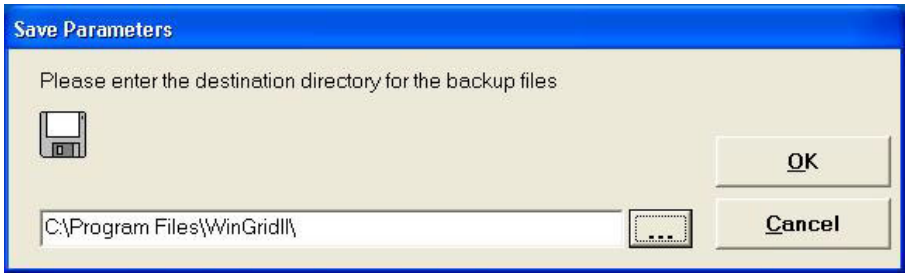
Backing Up the Controller Data

The Controller Data includes the settings in the various setup screens. Always make a back-up copy of the configuration files after making changes to the machine parameters, and after installing and configuring the software. If the configuration files on the production PC are accidentally damaged, or the production PC itself is replaced, the correct configuration can quickly and easily be restored.

1. From the Main screen, select the following:

   Maintenance > Back Controller Data

   The following Save Parameters prompt appears, as shown below.



Save Parameters Prompt

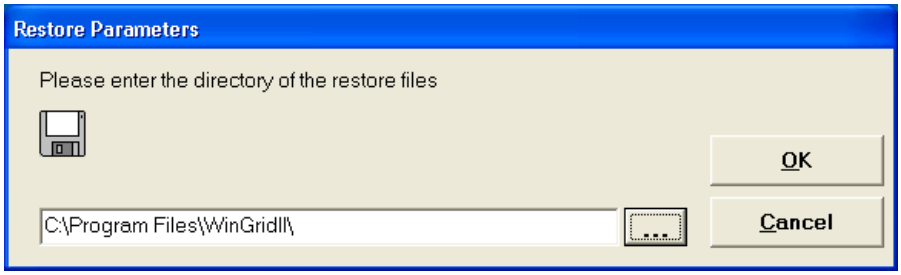
2. Specify the directory to which you want to backup the parameters, and then select OK.
3. When all the parameters are copied, a prompt will appear, informing you that the backup file has been successfully copied. Select OK.

Restoring Controller Data

1. From the Main screen, select the following:

   Maintenance > Restore Controller Data

   The following Restore Parameters prompt appears, as shown below.



Restore Parameters Prompt

2. Specify the directory where the backup parameters file is located, and then select OK.
3. When all the parameters are restored, a prompt will appear, informing you that the backup file has been successfully restored. Select OK.
4. Restart the PC to apply the restored parameters.

Security Levels, Logging on, and Changing Passwords

Setting up Users with Security Levels

The Software has two authorization levels:

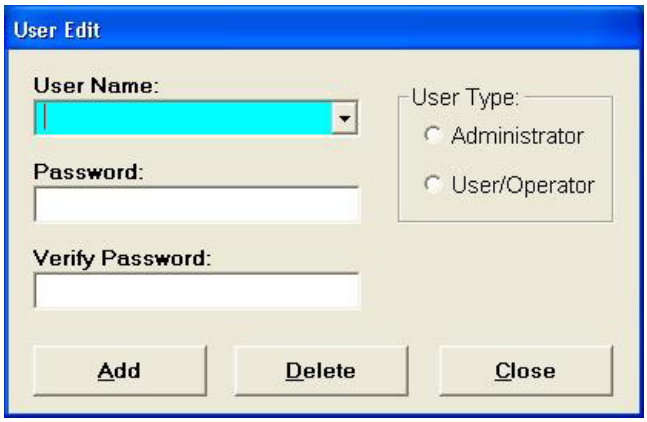
- User/Operator
- Administrator

Users with a User/Operator level User ID and Password have access to the menus and options used in daily operation of the Intergrid machine only. Administrator level users have full access to all software functions. Be sure to set each user's authorization level correctly.

Adding Users

1. Log in with an Administrator level ID. Display the User Edit screen by selecting:

   Setup > Users



User Edit Screen

2. In the User Name field, enter the new user's User ID.
3. In the Password field, enter the user's password.
4. In the Verify Password field, re-enter the user's password.
5. Select the desired User Type: Administrator or Operator.
6. Select Add.

   Note: To return to the Main screen without adding this user, select Cancel.

Deleting Users

1. Log in with an Administrator level ID.
2. Display the User Edit screen by selecting:

   Setup > Users
3. Select the dropdown list arrow at the right of the User Name field.
4. Highlight the user to be deleted.
5. Select Delete.

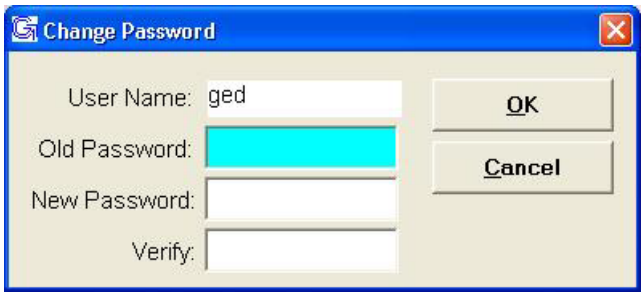
   Note: To return to the Main screen without deleting this user, select Cancel.

Changing a Password

Any authorized user can change their password at any time.

1. Display the Change Password dialog box as follows:

   Maintenance > Password
2. The Change Password dialog box will appear on the screen, along with your User Name. In the Old Password field, enter your current password.



Change Password Dialog Box

3. In the New Password field, enter your new password.
4. In the Verify field, re-enter your new password, exactly as it was entered above.
5. Select OK.

   If the Change Password box reappears on the screen with blank fields, the password change did not take effect. Repeat Steps 2 through 5.
6. Your password is changed. The next time you log in, use your new password.

   If the new password does not work, have an Administrative level user delete your User ID, and re-enter it with the new password.

Logging On and Switching to Administrator Level

The program has two authorization levels, User/Operator and Administrator. User/Operator level allows access to the normal operating functions. Administrator level allows access to the setup and diagnostic functions.

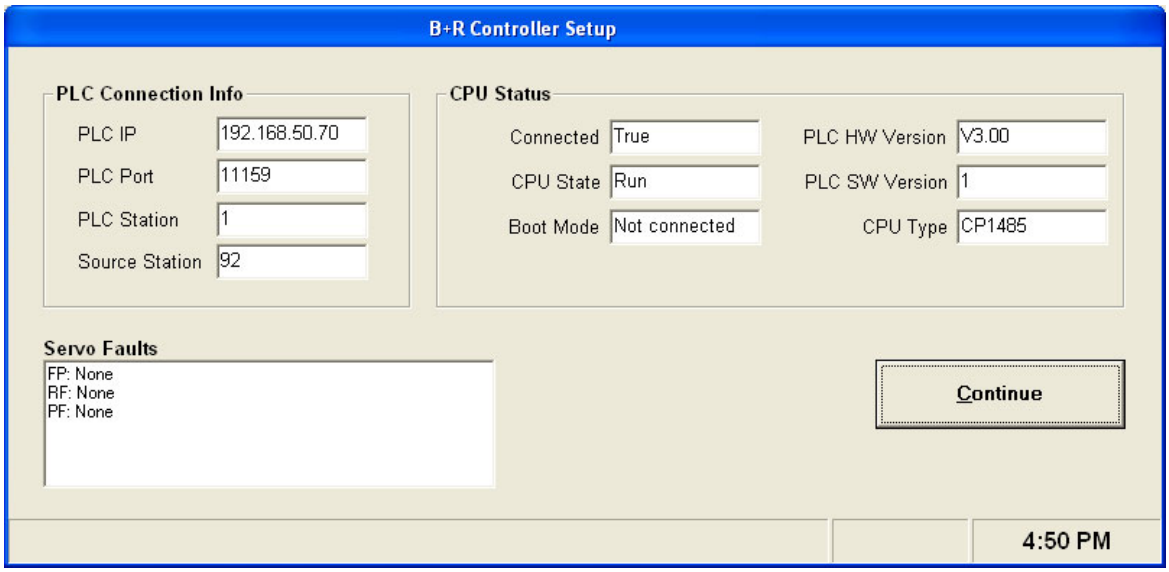
The software automatically starts in User/Operator level, no matter what a user's authorization level is. To switch to Administrator level, you must log on with an Administrator level User ID and password as follows:

1. Display the Logon dialog box as follows:

   Maintenance > Log On/Off.
2. Enter your User ID, and password. Then press OK.
3. If the User ID and/or password is not correct, an Incorrect “Log On! Please Try Again” prompt will appear on the screen. Re-enter your User ID and password.

PLC Setup

The machine’s PC and PLC communicate via a computer network. The B&R Controller Setup Screen (shown below) contains the fields that specify the PLC’s IP address and other network communication parameters. Do not change these fields unless instructed otherwise by a GED Customer Service Representative. To access this screen, select Setup > PLC Communications.



B&R Controller Setup Screen

PLC Connection Info

PLC IP - Specifies the PLC's IP address. (The PC's Ethernet controller must have a complementary IP address.)

PLC Port - Specifies the PLC's Ethernet port number.

PLC Station - Specifies the PLC's node on the network. On the front of the PLC are two small rotary dial switches that together specify a 2-digit hexadecimal value. The value in the PLC Station field must match the value defined by the two switches.

Source Station - Specifies the PC's node on the network.

CPU Status

Connected - Indicates whether or not the PLC is connected via the network to the PC.

CPU State - Indicates the state of the PLC's CPU.

Boot Mode - N/A

PLC HW Version - Reports the version number of the PLC's operating system firmware.

PLC SW Version - Reports the version number of the PLC's software program.

CPU Type - Reports the model number of the PLC's CPU.

Servo Faults - Reports any existing servo faults.

PC Ethernet Port Setup

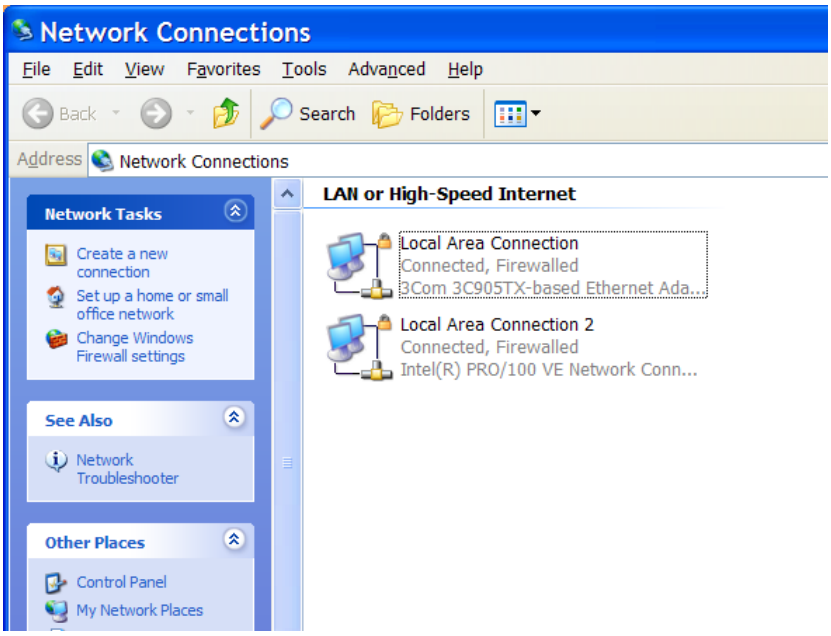
To communicate with the PLC, the InterGrid machine's PC must have an Ethernet port that is assigned its own unique IP address that is complimentary to the PLC. This assignment is performed during manufacture and does not need to be reconfigured unless the PC is repaired or replaced.

To setup the PC's Ethernet port:

1. From Microsoft Windows desk top, display the Network Connections Screen by selecting the following:

   Start > Settings > Network Connections.

   The Network Connections screen will display as shown below.

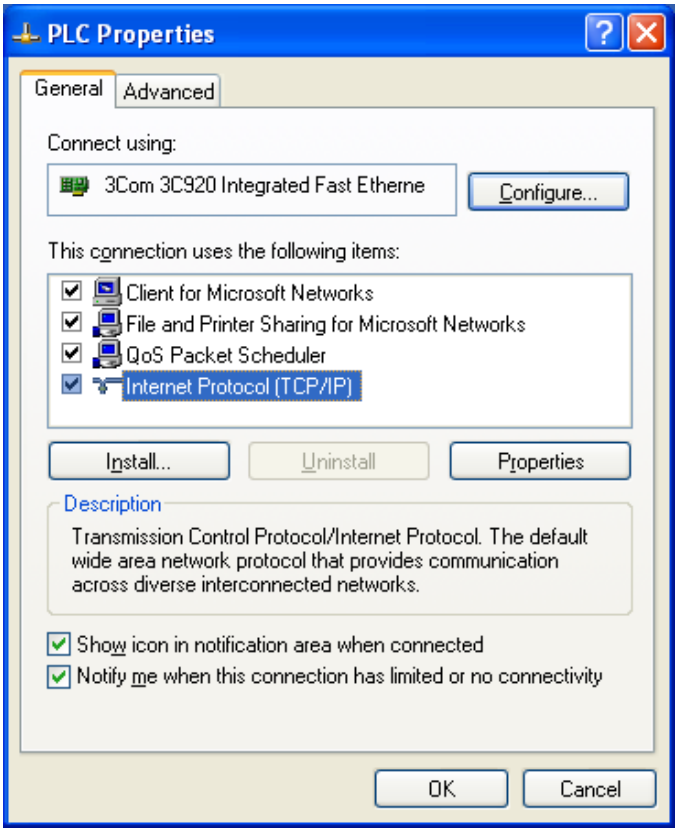


MS Windows Network Connections Screen

2. Referring to the screen shown above, under "LAN or High-Speed Internet", select the Ethernet connection (Local Area Connection) to be used for communicating with the PLC.

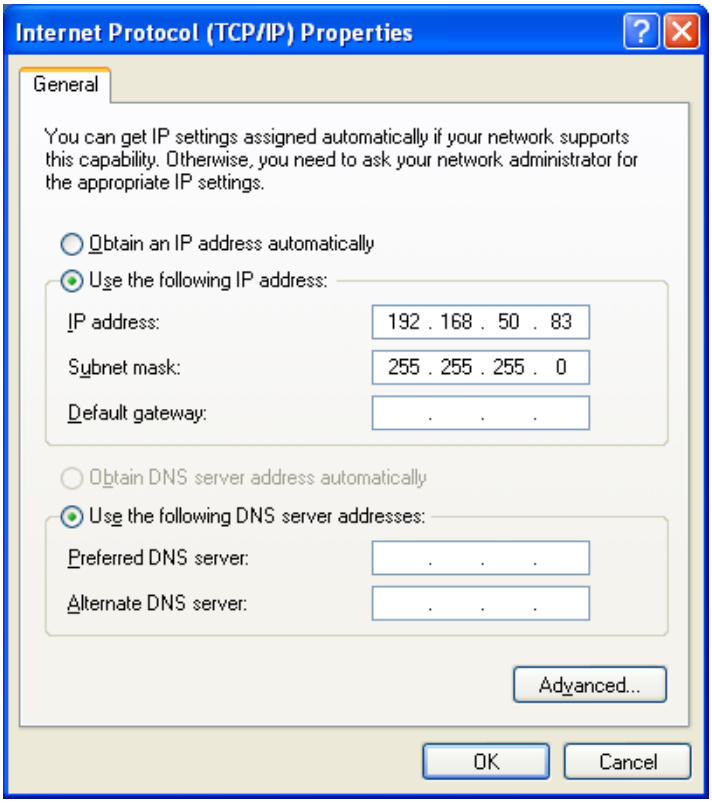
   The PLC Properties screen (shown below) will appear.

3. Referring to the screen shown below, from the General tab, select Internet Protocol (TCP/IP).



PLC Properties Screen

4. Referring to the screen shown below, select the radio button labeled “Use the following IP address:”



Internet Protocol (TCP/IP) Properties Screen

5. Set the IP address field to “192 . 168 . 50 . XX”, where XX can be any number from 0 to 255 except 70. (Note: If there are other GED machines on your plant network, make sure XX does not conflict with other machine’s IP addresses.)
6. Set the Subnet mask field to 255 . 255 . 255 .0.
7. Select OK.

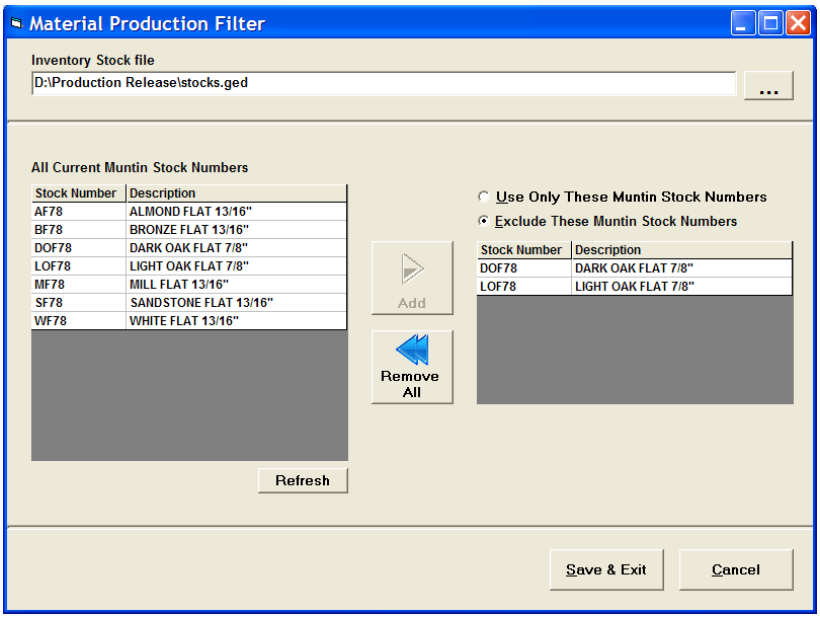
Material Production Filter

The Material Production Filter is a feature that allows you to filter out specific muntin stocks from production. Without the Material Production Filter, the machine still automatically filters out all muntin stock sizes except the size which the machine can produce. The Material Production Filter provides the additional capability for you to choose to filter out other stocks as well. For example, you may choose to filter out stocks that *could* be produced on this machine, but are not because they are actually fabricated elsewhere.

To access the Material Production Filter Screen, select

Setup > Material Production Filter.

The screen is shown and explained below.



Material Production Filter Screen

Inventory Stock file - This field specifies the location where WinGrid™ will go to get the muntin inventory stock data. Typically, the location of this data is specified in WinIG, and is contained in a file named stocks.ged. You can use the browse button to the right of this field to specify the path to the stocks.ged file.

All Current Muntin Stock Numbers - This table lists all the muntin stock numbers found in the available schedules. The table only lists stock numbers that the machine can produce. You can highlight items you want to filter, then click the 'Add' arrow to add the items to the table to the right.

Refresh - Selecting Refresh will cause the machine to re-read the inventory stock data, and re-populate the table with the new data.

Use Only These Muntin Stock Numbers - When selected, the machine will only “see” the muntin stock numbers appearing in the table below this item.

Exclude These Muntin Stock Numbers - When selected, the machine will “see” all muntin stock numbers except the ones appearing in the table below this item.

Remove All - Pressing Remove All will clear the filtering table (the table on the right) of all stock numbers.

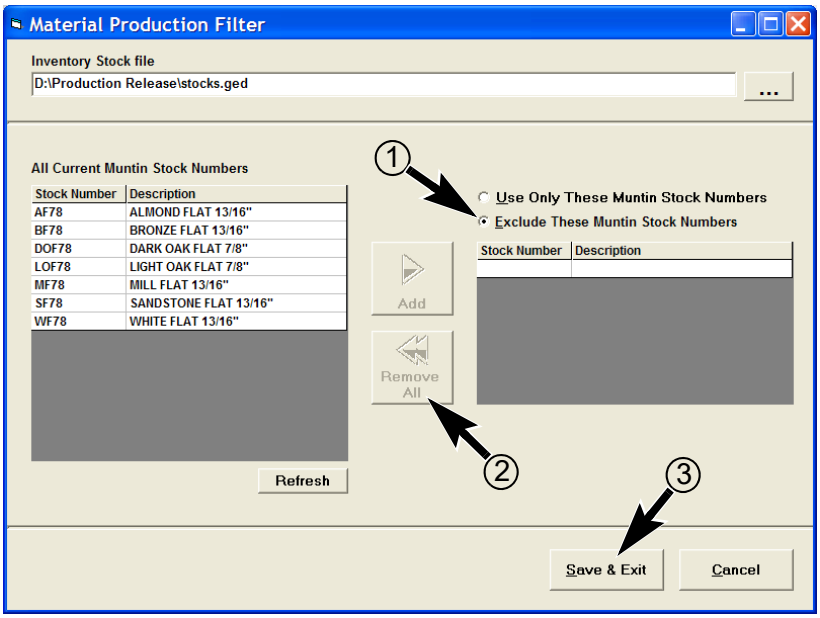
Save and Exit - You must select Save and Exit if you want the machine to save and use any changes you made in the Material Production Filter.

Cancel - Select Cancel if you want to close the screen without saving any changes you may have made.

Disabling the Material Production Filter

If you do not want to use the Material Production Filter, make sure it is set up to exclude nothing, as follows:

1. Select *Exclude These Muntin Stock Numbers*.
2. Make sure the table on the right is empty (select *Remove All*).
3. Press the ‘Save & Exit’ button. (See illustration below.)



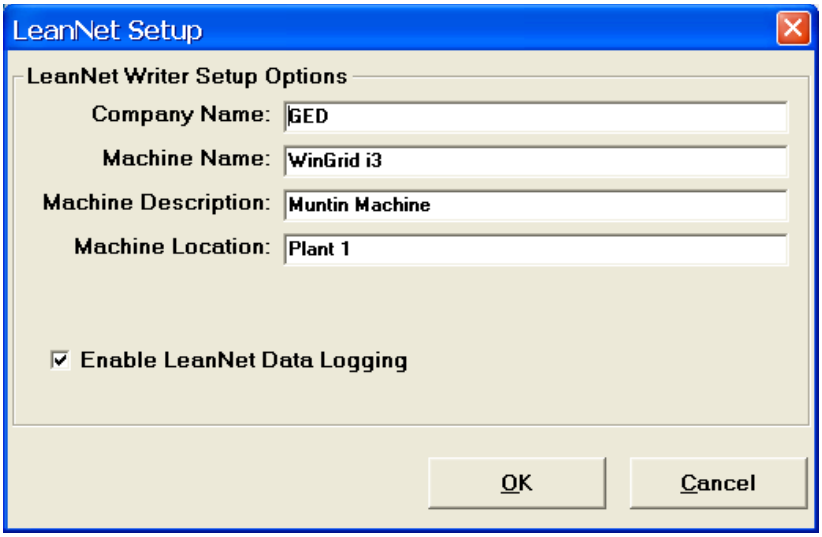
Material Production Filter Disabled

LeanNet Setup

GED's LeanNet is a system that provides you with information, data and trending, to improve the use of your GED Machines. LeanNet gathers, logs and displays data from any GED machine. The results of this process are viewed in a logical and coherent way (i.e. data and trending) so that efficiencies and processes are adjusted and ultimately improved upon.

The LeanNet Setup screen allows you to enable or disable LeanNet Data Logging for the InterGrid machine, and to specify basic information about the machine. The LeanNet Setup Screen is accessed via the following path:

Setup > LeanNet Parameters.



LeanNet Writer Setup Screen

Company Name - Enter your company name here.

Machine Name - Enter a name for the Machine e.g. "6000 Cutting Table".

Machine Description - Enter further descriptive information about the machine e.g. "Line 2".

Machine Location - Enter information describing the physical location of the machine e.g. "Plant 1".

LeanNet Data Logging Enabled - If this item is not checked, no LeanNet data is gathered, and hence the LeanNet feature is disabled.

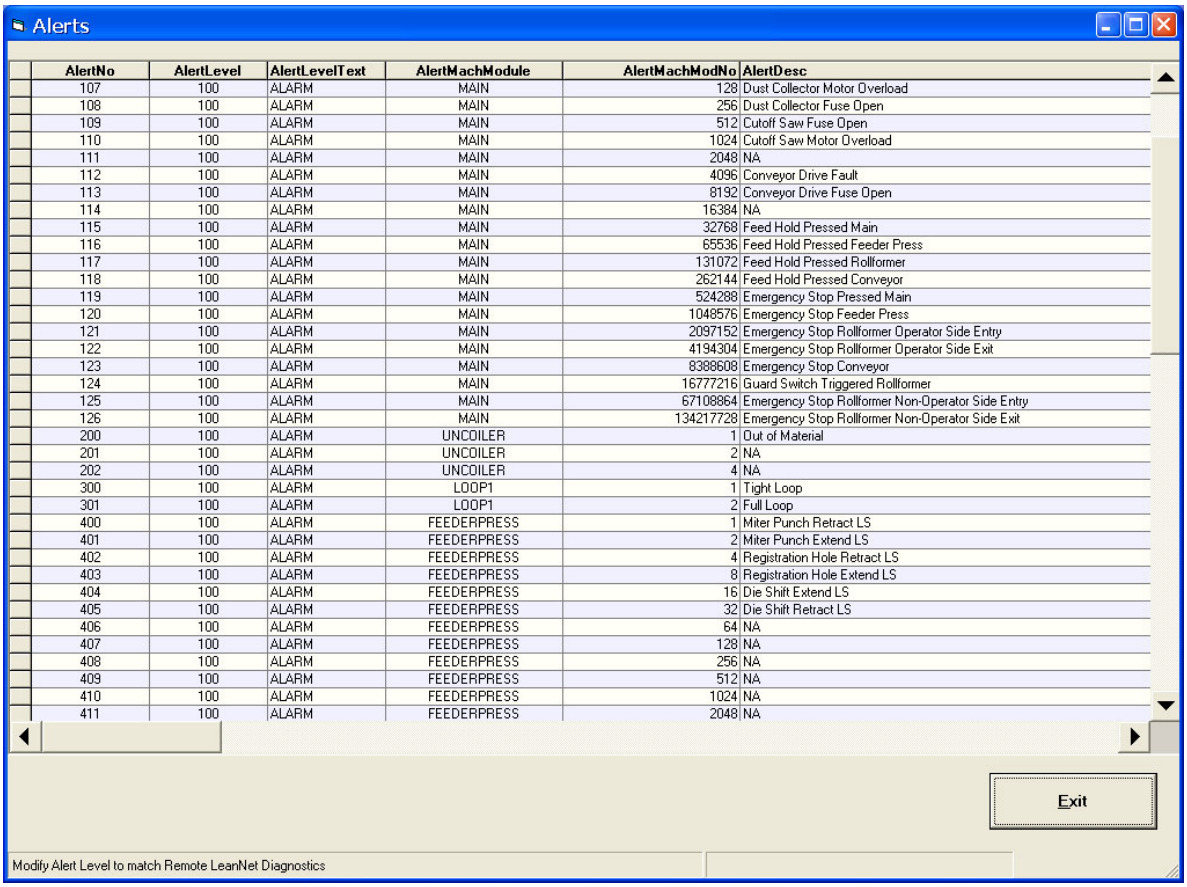
Clearing the LeanNet Writer Log

Typically the LeanNet system is managed on a remote computer system. However, if necessary, you can clear the InterGrid machine's LeanNet data log locally at the machine. To do this, select Maintenance > Clear LeanNet Writer Log.

Alerts

The Alerts feature acts upon machine data that has been logged in the machine PC's local database. If your machine is interfaced with other GED LeanNet products, the Alerts feature can automatically notify you when important process parameters have been breached.

In the screen shown below, you can enter codes in the Alert Level column that will trigger an event (e.g. wireless paging, e-mail, etc.) if an Alert condition occurs.



AlertNo	AlertLevel	AlertLevelText	AlertMachModule	AlertMachModNo	AlertDesc
107	100	ALARM	MAIN	128	Dust Collector Motor Overload
108	100	ALARM	MAIN	256	Dust Collector Fuse Open
109	100	ALARM	MAIN	512	Cutoff Saw Fuse Open
110	100	ALARM	MAIN	1024	Cutoff Saw Motor Overload
111	100	ALARM	MAIN	2048	NA
112	100	ALARM	MAIN	4096	Conveyor Drive Fault
113	100	ALARM	MAIN	8192	Conveyor Drive Fuse Open
114	100	ALARM	MAIN	16384	NA
115	100	ALARM	MAIN	32768	Feed Hold Pressed Main
116	100	ALARM	MAIN	65536	Feed Hold Pressed Feeder Press
117	100	ALARM	MAIN	131072	Feed Hold Pressed Rollformer
118	100	ALARM	MAIN	262144	Feed Hold Pressed Conveyor
119	100	ALARM	MAIN	524288	Emergency Stop Pressed Main
120	100	ALARM	MAIN	1048576	Emergency Stop Feeder Press
121	100	ALARM	MAIN	2097152	Emergency Stop Rollformer Operator Side Entry
122	100	ALARM	MAIN	4194304	Emergency Stop Rollformer Operator Side Exit
123	100	ALARM	MAIN	8388608	Emergency Stop Conveyor
124	100	ALARM	MAIN	16777216	Guard Switch Triggered Rollformer
125	100	ALARM	MAIN	67108864	Emergency Stop Rollformer Non-Operator Side Entry
126	100	ALARM	MAIN	134217728	Emergency Stop Rollformer Non-Operator Side Exit
200	100	ALARM	UNCOILER	1	Out of Material
201	100	ALARM	UNCOILER	2	NA
202	100	ALARM	UNCOILER	4	NA
300	100	ALARM	LOOP1	1	Tight Loop
301	100	ALARM	LOOP1	2	Full Loop
400	100	ALARM	FEEDERPRESS	1	Miter Punch Retract LS
401	100	ALARM	FEEDERPRESS	2	Miter Punch Extend LS
402	100	ALARM	FEEDERPRESS	4	Registration Hole Retract LS
403	100	ALARM	FEEDERPRESS	8	Registration Hole Extend LS
404	100	ALARM	FEEDERPRESS	16	Die Shift Extend LS
405	100	ALARM	FEEDERPRESS	32	Die Shift Retract LS
406	100	ALARM	FEEDERPRESS	64	NA
407	100	ALARM	FEEDERPRESS	128	NA
408	100	ALARM	FEEDERPRESS	256	NA
409	100	ALARM	FEEDERPRESS	512	NA
410	100	ALARM	FEEDERPRESS	1024	NA
411	100	ALARM	FEEDERPRESS	2048	NA

Alerts Setup Screen

To access the Alerts Setup screen, follow this path:

Setup > Alerts.

The fields are described below.

Alert Number - A distinct sequential number assigned to each Alert item.

Alert Level - A code used to trigger a specified event if an Alert condition occurs. You can change the code in the Alert Level column. This is the only field you can change. You specify the code based on the event you want to occur.

Alert Level Text - A short description of the action that would be executed if an Alert condition occurs.

Alert Machine Module No. - A code sent from a module to the machine's PC when an alert condition occurs. The code tells the PC what alert occurred and which module produced it. (A "module" is typically a machine hardware component e.g. a servo motor amplifier, but can also be a software module. A module is the source of alert messages.)

Alert Description - A short text description of the alert condition.

Alert Machine Module - A short text description of the machine's hardware or software component that is the source of the alert.

Checking Muntin Quality

Once every month, test the Intergrid machines to make sure the muntins meet the quality specifications. Follow the instructions in this section to test and check muntin quality. Promptly make any necessary adjustments to the Intergrid machine.

Creating the "Zeroes" IG Unit Setting

Create a special IG Unit setting called "Zeros" to use whenever you are running test muntins. This setting enables you to test using specific setting parameters without changing the actual IG Unit settings you use during production.

Note: The title bar at the top of the Run Production screen identifies the currently selected IG Setting. Always check the title bar to be sure the proper setting (a production setting or the special Zeros setting) is selected before running production or generating test muntins.

1. Create a new IG Unit setting, as described in "Creating a New Unit Setting" on page 4-11. Name the setting "Zeros."
2. Use the default parameters, except change the Height, Undercut, and Clip Thickness values to 0.000.
3. In the Spacing Calculation field, select "On Centerline."
4. Select OK to save the settings.

   Note: If any required parameters are set to zero when a production schedule is run, a message will appear before the schedule starts to force you to notice the setting being applied.

Making Test Muntins

WARNING!

Make sure all safety guards are fastened securely in place before attempting to operate the equipment.

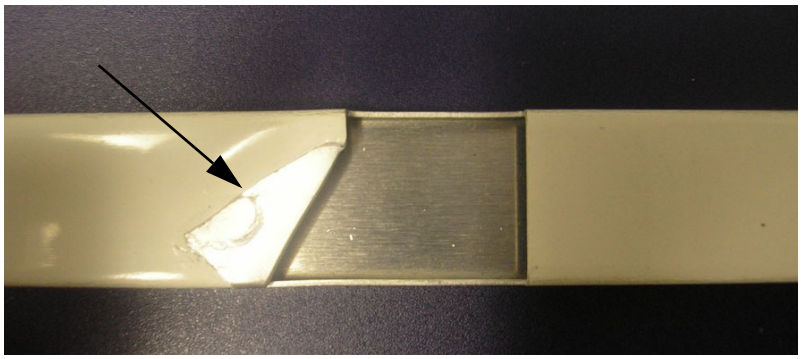
- Always wear safety gear when operating the equipment:
  - Ear and Eye Protection
  - Steel Toed Shoes
- Make sure all safety guards, rails, and other devices are securely fastened in the proper position.
- Make sure no tools or any loose items are resting anywhere on the system.
- Check the raw material carefully. Do not use dirty or damaged material, or material with too much camber. Refer to *ED-0059, Intergrid Raw Material Specifications*.
- Using MDI, make some test muntins. Use rollformed, unpunched test muntins to check for finished muntin quality, following the checklist on the next pages. When checking notches, use a notched muntin bar.
- If necessary, have a qualified maintenance person make any necessary adjustments, or contact GED Customer Service for further assistance.
- When the test muntins are acceptable, the machine is ready for production.

Checking the Test Muntins

When verifying the quality of the test muntin bars, check the items in the following sections in the order in which they are presented.

Fold-over

Once the muntin leaves the Feeder Press, make sure there is no fold-over at the notch. (See photograph below.)



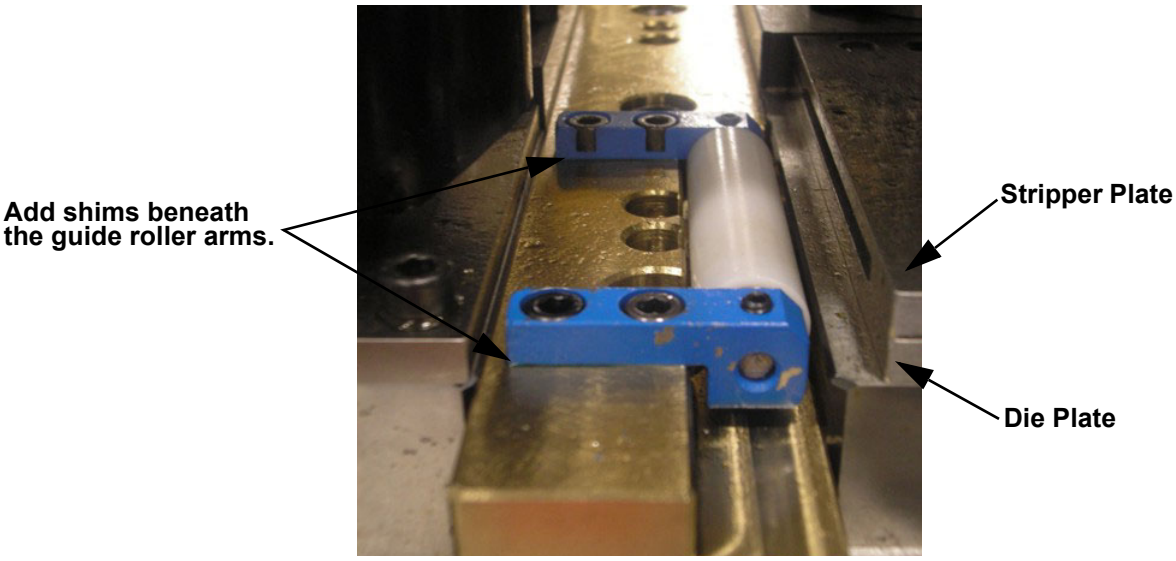
Fold-over on Finished Muntin

Possible Causes and Solutions

- The punch die is dull. Replace punch die and die plate.
- Air pressure is too low. Ensure the air pressure is set to 90 PSI.
- Cushion is being applied to the punch. Make sure the cushion control screw on the punch cylinder is backed out. Refer to the photograph below.

Cushion Control Screw

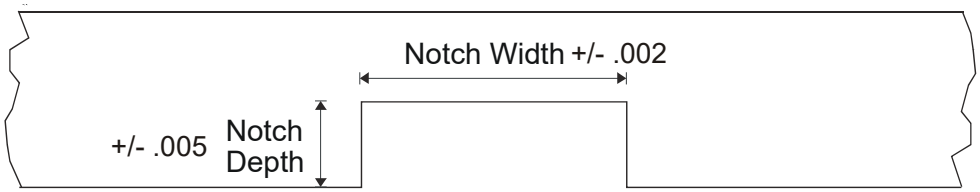
- The corner of the notch may be catching on the hole in the die plate. Place shims beneath the guide roller to raise it so the material is guided at a higher angle through the stripper and die plates. Refer to the photograph below.



Feeder Press Guide Roller

Notch Size

After material has exited the feeder press, measure the notch depth and width. The illustration below shows the notch width and depth measurement tolerances.



Measuring Notch Width and Depth

Make sure the size of the notch meets specification for the finished muntin size. Refer to *ED-0060, Intergrid Finished Muntin Bar Specification* for the dimension information.

Possible Causes and Solutions

If the notch **depth** is incorrect, one or both of the stop blocks require adjustment.

- If the notch is too deep, grind the corresponding stop block on a surface grinder.
- If the notch is too shallow, the corresponding stop block needs to be replaced or turned around 180º (if enough material is available on the opposite side).

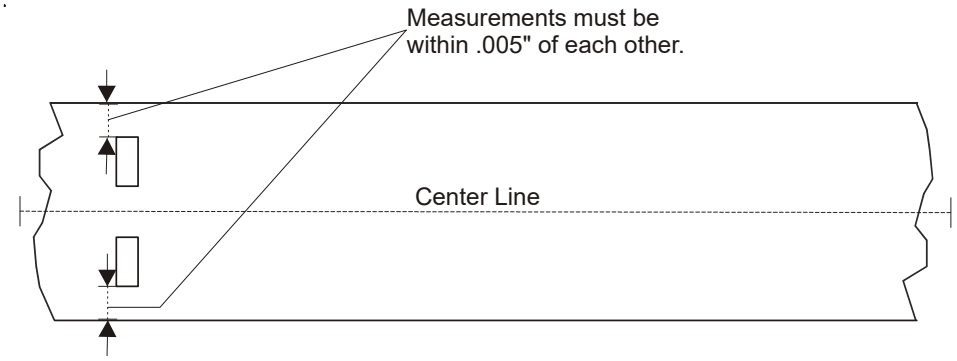
Caution

Be very careful that you do not grind off too much material from the stop block. The stop block could be rendered ineffective if over-ground.

If the notch **width** is incorrect, contact GED for assistance. The notch width is pre-set by the tooling and cannot be easily adjusted.

Registration Punches

To ensure that the two registration slots are aligned to each other after the material is rollformed, the registration punches must be centered on the material prior to rollforming. On material that has exited the Feeder Press, measure the distance from the side of each punch to the edge of the strip as shown below. The two measurements must be within .005” of each other for proper centering.

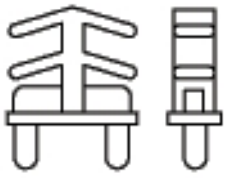


Centering the Registration Punches

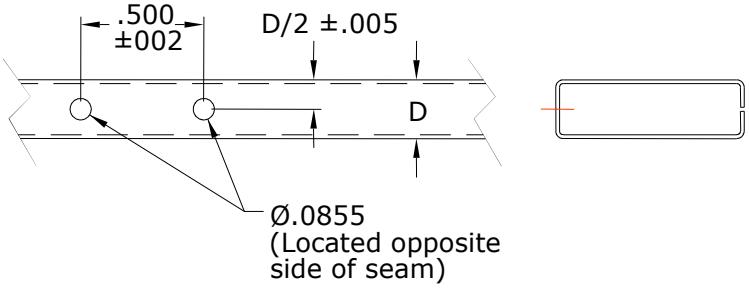
Joiner Clip Punch

The joiner clip punch is used with the valance grid feature. The valance grid feature provides the capability to make a T-joint or butt-joint. The joiner clip requires two punched holes in the muntin bar as shown below.

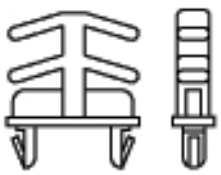
This hole configuration was designed to be used with 2-prong muntin bar keepers (joiner clips) manufactured by Allmetal. The Allmetal part numbers are 135138 and 135141. Other clips may be used if they conform to these specifications.



solid prong clip (press fit)



Joiner Clip Hole Spec



barbed prong clip

Setting the Feeder Press Resolution

The Feeder Press resolution is a linear parameter defined as the length of material travel per encoder revolution.

The following procedure describes how to adjust the Feeder Press Resolution.

Note: Always make sure the wheel on the Feeder Press Encoder is not slipping before attempting to adjust Feeder Press Resolution.

To set the Feeder Press resolution:

1. Select the “Zeroes” IG Unit Setting. For further information about the “Zeroes” IG Unit Setting, refer to “Creating the “Zeroes” IG Unit Setting” on page 4-29.
2. Create an MDI schedule containing 30 units, 24” x 24”, with 1 vertical and 0 horizontals.

   Note: If you do not have an accurate means of measuring (for example, only a tape measure), use 72” lengths. Resolution errors are easier to observe in longer lengths.
3. Run the schedule.
4. Measure the components (there is an error tolerance of +/- .015”).
5. If the length is not correct and outside of tolerance, adjust the Resolution parameter.
6. Determine the amount of adjustment required using the following formula:

$$\text{New Resolution} = \frac{\text{Actual Move x Current Resolution}}{\text{Desired Distance Moved}}$$

   Note: The resolution is measured in inches or mm per encoder revolution. (The English/Metric units option is in the General Setup Screen.)

   For example, assume the following:

   Current Resolution = 7.451 inches per revolution
   Actual Move = 24.019 inches
   Desired Distance Move = 24.00 inches

   Then, the New Resolution is 7.457 inches per revolution.
7. Close MDI. Select Setup > Machine Constants.
8. In the Machine Constants Screen, enter the new resolution value in the ‘Punch Press Resolution’ field, then select OK.
9. Repeat steps 3 through 8 until the resolution is correct.

Rollformer Setup

The Rollformer has been set up during manufacturing to provide maximum quality in the finished muntin. A Rollformer Setup Chart is enclosed with your machine that details the starting and final setup. If you experience quality issues with muntins after they have been rollformed, refer to this chart and ensure that all roll gaps and shims are still set correctly. Call GED Customer Service for assistance if any of these settings have changed.

Note: GED Customer Service can also provide you with a copy of your Rollformer Setup Chart if you have misplaced it.

Caution

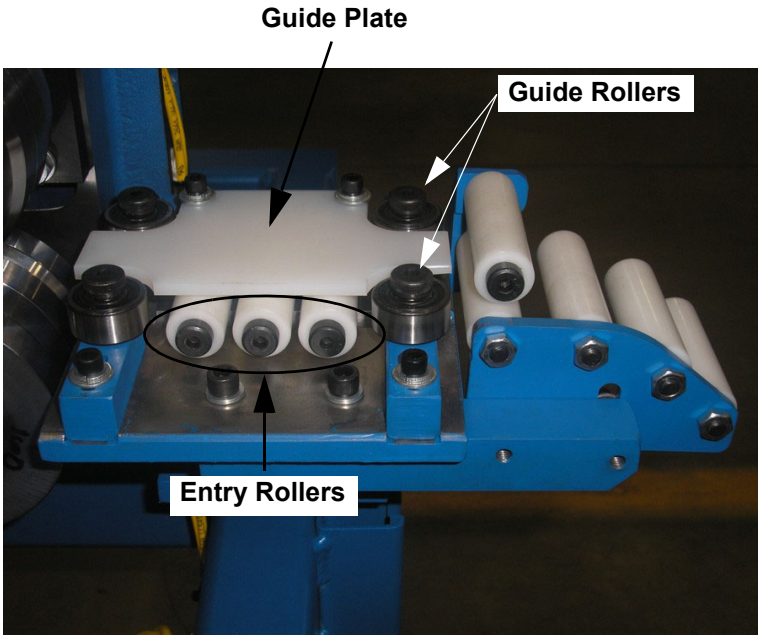
Adjustment of the rolls on the Rollformer should always be performed by a qualified GED technician or a maintenance technician with significant knowledge, experience, and understanding of GED equipment.

Adjusting Rollformer Entry Guide

Many muntin quality issues may be caused by misalignment of the entry guide on the Rollformer. The entry guide ensures that the material fed into the Rollformer is centered properly between the rolls. If the material is not centered, the finished muntin will appear asymmetrical.

To align the Rollformer entry guide:

1. Lock-out/tag-out the electrical power to the machine. Remove the Plexiglas guard from the Rollformer.
2. Remove the guide plate and entry rollers. Refer to the photograph below.



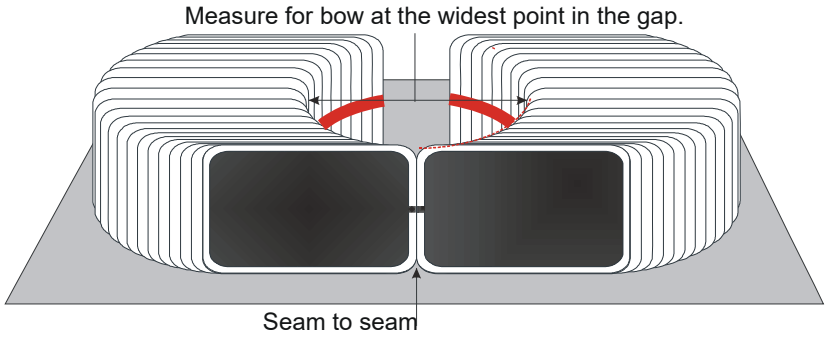
Rollformer Entry Guide

3. Loosen the nuts for the rolls at Pass #1. Split the rolls.
4. Place a straight edge tool, such as a 12-inch ruler, in the center of the rolls.
5. Ensure the mounting plate is square by using the mill cutout at the center of the plate.
6. On the non-operator side of the entry guide, move the guide rollers so that they are half the distance of the material strip width to the straight edge.
7. Remove the straight edge and close the rolls at Pass #1.
8. Move the guide rollers on the operator side to the full material strip width plus .002”. The .002” compensates for the variance in the width of the material.
9. Replace the guide plate and entry rollers on the entry guide mount. Replace all guards.

Up and Down Bow

As formed material leaves the Rollformer, it naturally tends to bend up or down. To ensure the highest quality of muntin product, the amount of bow should not exceed .010” bow per foot. The following procedure describes how to determine how much up and down bow is present in your finished muntin product.

1. Up and down bow must not exceed .010" per foot of formed, un-notched bar. Check for bow using two rollformed, unpunched bars 3 ft long.
2. Lay the bars face to face (sitting on the short leg) on a flat surface, so that the ends touch and the gap from the bow, if any, is in the middle, as shown in the illustration below. Measure the largest gap.



Measuring the Bow

3. Divide this number by 2 to find the amount of bow per bar.
4. Divide this number (the bow per bar) by 3 to find the amount of bow per foot (BPF). This number must be .010" or less.

Possible Causes and Solutions

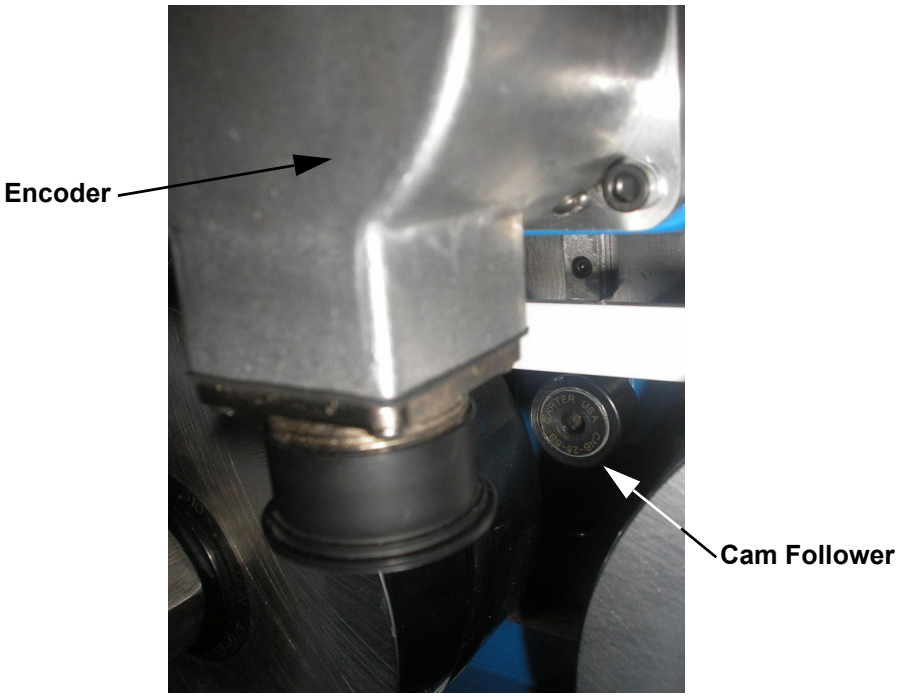
The cause of excessive up or down bow may be one of the following:

- The straightener plate at the exit end of the Rollformer is not at the correct level. Adjust the straightener plate, as described in “Adjusting the Straightener Plate” on page 4-39.
- The oiler is not dispensing enough oil. Adjust the spray pressure, as described in “Adjusting the Oiler” on page 4-41.

Adjusting the Straightener Plate

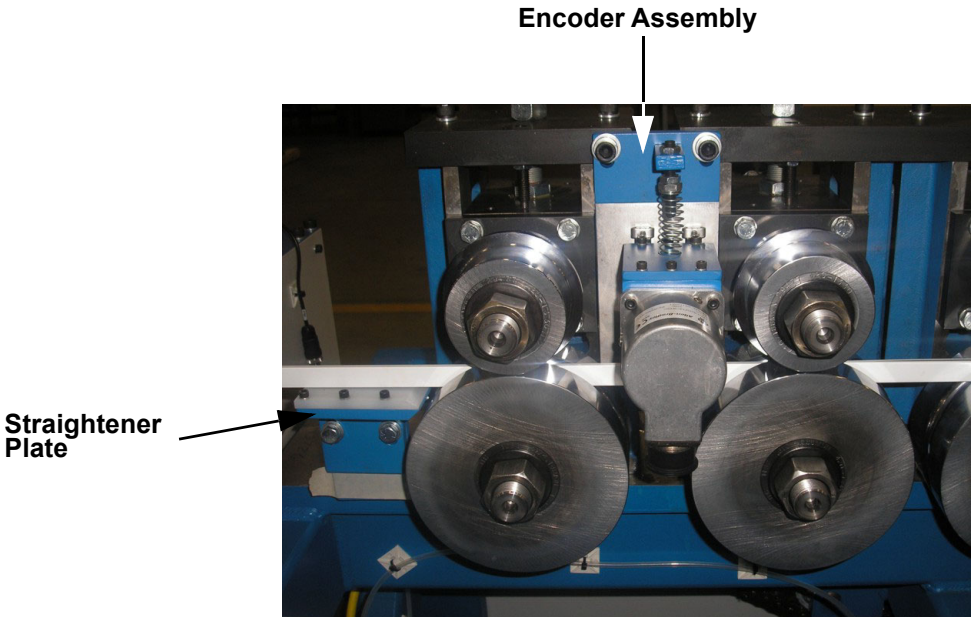
A straightener plate at the exit end of the Rollformer is designed to prevent up or down bow. Therefore, if the material is bending in either direction, raise or lower the straightener plate, as described in the following procedure.

1. Jog the material all the way through the Conveyor, ensuring there are no problems with the alignment of the Conveyor or any of the guides.
2. Push the Emergency Stop button on the machine. Remove the Plexiglas guard.
3. Raise the encoder (shown below) so that it does not contact the rollformed muntin bar.
4. Rotate the cam follower at the bottom of the bar. Ensure that the cam follower (shown below) does not contact the muntin bar.



Cam Follower with Encoder Raised

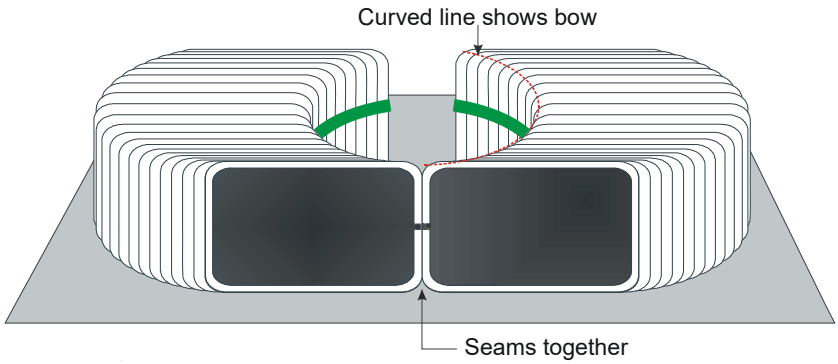
5. If the cam follower is contacting the muntin bar, adjust the elevation of the encoder assembly so that the cam follower does not contact the muntin bar while the encoder is raised. There must be less than 0.010” clearance between the bar and cam follower. Refer to the photograph below.



Straightener Plate and Encoder Assembly

6. Replace the Plexiglas guard, pull out the Emergency Stop button, and then press master start.
7. In MDI, Create a batch containing 50 units, 72” x 72”, with 1 vertical and 0 horizontals. This batch will produce 50 pieces of unnotched muntin bar.
8. When two of the bars have been created, push the Feed Hold button. Lay the pieces seam to seam and compare.

   • If the bow is towards the seams as shown below, lower the straightener plate.



Bow Towards the Seam

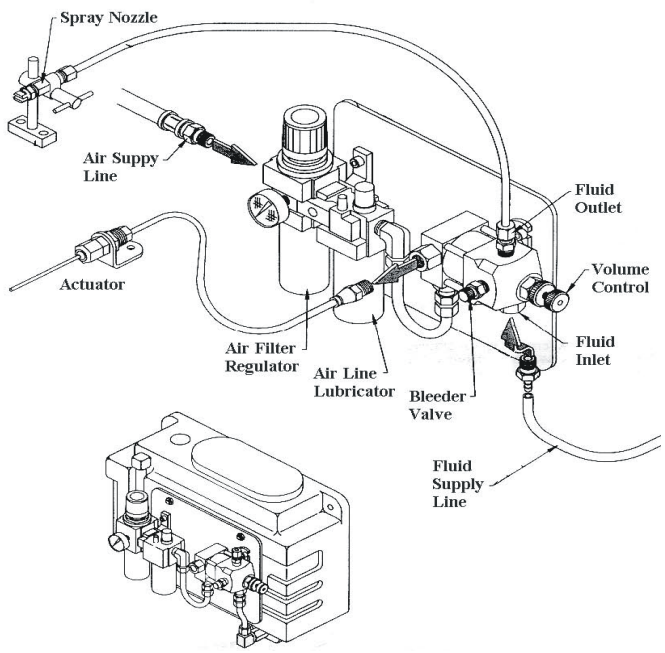
   • If the bow is away from the seam, raise the straightener plate.

9. Run two more pieces of muntin bar and examine them. Repeat step 8 until the bars are straight.

   Note: Over time, the plastic piece on the straightener plate will accumulate scars and cuts. Replace this piece when the damage has exceeded 25% of the surface.

Adjusting the Oiler

The oiler assembly on the Rollformer adds an evaporative oil to the material as it moves through Pass #11. The oil protects the painted finish of the muntin. The majority of the oil quickly evaporates into the air. Evaporation time is influenced by temperature, humidity, and amount of oil. The assembly consists of several components, as shown in the illustration below.



Oiler Assembly

If not enough oil is applied, the muntin may exhibit up or down bow. Adjusting the amount of oil dispensed from the oiler may correct an up or down bow issue.

To access the oiler assembly, use the door at the exit end of the Rollformer. The oiler assembly consists of the following components. Refer the diagram on next page for an illustration.

FRL (Filter, Regulator, Lubricator) - (Mounted on the oil reservoir.) Supplies clean, lubricated air to the pump at a constant pressure. The operating pressure range of the system is 0 to 150 PSI; however, the recommended working range is between 40 to 80 PSI. The pressure setting of the regulator determines the force of the spray as it exits the spray nozzle. This in turn, affects the dispersal pattern of the oil. If the pressure is too low, the oiler dispense only a single drop of oil. As the

pressure is increased, the spray pattern becomes a fine mist. Pressures beyond 80 PSI will not change the disbursement of the mist.

Oil Pump - (Located on the oil reservoir.) The oiler pump is a one shot, air operated cylinder. When the air pressure is exhausted through the actuator port, the pump makes one stroke. It will not spray again until the actuator port is closed and then reopened. The pressure setting of the FRL unit determines the amount of force with which the pump strokes. Note the following two components of the pump:

- **Bleeder Valve** - The bleeder valve is located on the side of the pump. It is used to bleed air out of the pump and prime the pump with oil.
- **Volume Control Valve** - The Volume Control Valve is located at the end of the pump. This valve is essentially a stroke limiter. Adjusting it in and out determines how much oil will be sprayed with each stroke of the pump.

Actuator - (Located on the chain side of the Rollformer and mounted on Pass #12.) The actuator is a mechanically activated relief valve. The top sprocket on Pass #11 has a mechanical trip block mounted on it. With each rotation of the sprocket, the trip block raises the arm of the actuator, which causes the pressure to the pump to exhaust through the relief valve.

Note: Note: Since the pump is a single shot, the oil does not continue to spray if the Rollformer stops in such a position as to hold the actuator open.

Spray Nozzle - (Located under the entry side of Pass #11.) The spray nozzle is simply a fine orifice designed to disperse the oil droplets in a fine mist. It should be mounted so as to direct the mist toward the center of Pass #11 bottom roll.

To set up the oiler:

1. Fill the oil reservoir to a level above the pump. Ensure you replace the reservoir cover.
2. Open the bleeder valve until a steady drip of oil comes out then close the bleeder valve.
3. Open the volume control valve all the way. The direction is counter-clockwise when facing the knob.
4. Set the air pressure at the regulator to 80 PSI.
5. Activate the Actuator repeatedly until oil sprays out of the spray nozzle.

   Note: Air bubbles are visible as they travel up the clear tubing toward the spray nozzle. If any air is in the lines, the oil will tend to sputter and drip out of the nozzle. Continue activating the actuator until there is no visible air in the lines, and the spray is a well dispersed mist.
6. Set the air pressure at the regulator to 50 PSI.
7. Close the volume control all the way.
8. Open the volume control knob one turn.
9. The final setting of the oiler is a balance between applying too much oil, which results in oil dripping from the bottom roll, and not having enough oil, which results in the finished muntin having severe up bow.

Side to Side Bow

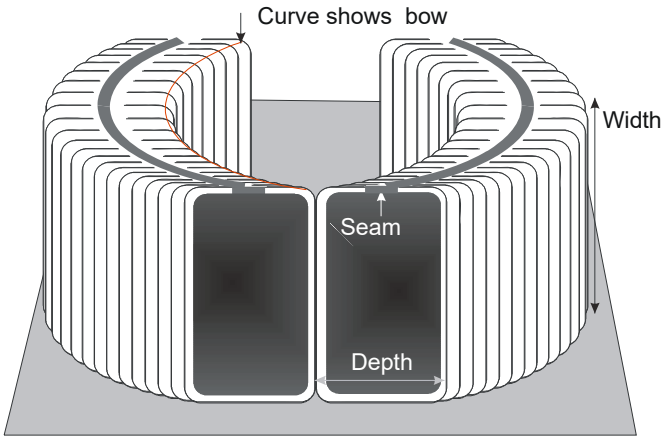
The most common reason for side to side bow is misalignment of the Rollformer entry guide. Misalignment of the rolls at Pass #9 may also cause side to side bow; however, always check the entry guide positioning first. For the procedure to adjust the Rollformer entry guide, refer to “Adjusting Rollformer Entry Guide” on page 4-37.

Caution

Adjustment of the rolls on the Rollformer should always be performed by a GED technician or a qualified maintenance technician with significant knowledge, experience, and understanding of GED equipment. Call GED for assistance if adjusting the rolls is required.

To ensure the highest quality of muntin product, the amount of side to side bow should not exceed .030” bow per foot. The following procedure describes how to determine how much side to side bow is present in your finished muntin product.

1. Side to side bow must not exceed .031" per foot on formed, un-notched bar. Check for bow using two rollformed, unpunched bars 3 ft long.
2. Lay the bars next to each other on a flat surface seam side up, so that the ends touch and the gap from the bow, if any, is in the middle, as shown in the illustration below. Measure the largest gap between the bars.



Checking for Side to Side Bow

3. Divide this number by 2 to find the amount of Bow per Bar.
4. Divide this number (Bow per Bar) by 3 to find the amount of Bow per Foot. This must be .031" or less.

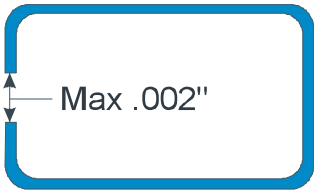
Seams - Gaps

Misalignment of the entry guide may cause gaps in the seams. If the entry guide is aligned and the gaps in the seams remain outside of the acceptable tolerance, contact GED for assistance with assessing and correcting problem rolls. For the procedure to adjust the Rollformer entry guide, refer to “Adjusting Rollformer Entry Guide” on page 4-37.

	***Caution*** *Adjustment of the rolls on the Rollformer should always be performed by a GED technician or a qualified maintenance technician with significant knowledge, experience, and understanding of GED equipment. Call GED for assistance if adjusting the rolls is required.*

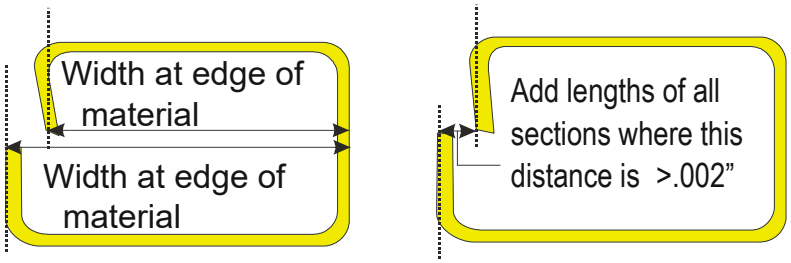
The following procedure describes how to determine the amount of gap present at the seams of the formed muntin.

1. Measure the any gaps in the seam with a feeler gauge. The maximum gap at any point should be .002" or less.



Measuring the Gaps in the Seam

2. The total length of all gaps in the seam should not exceed 10% of the bar length.
   - Use a 3' length of rollformed, unnotched bar. Measure the length of each gap, and write it down.
   - Add up the lengths. For a 3' bar, the total length of all gaps must be 3.6" or less.
3. Measure the width at both edges of the material, as shown in the illustrations below. The difference between the widths at the edges must be .004" or less (except for areas within 1" of a notch), without exceeding the width limits.



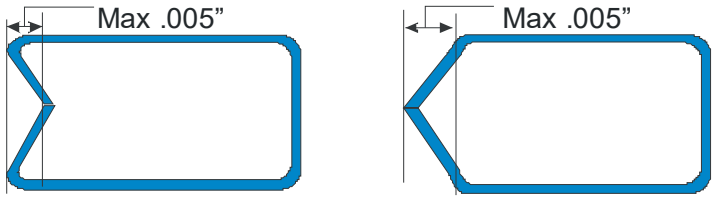
Measuring the Material Width

4. The total length of all sections with a width difference greater than .002" should not exceed 5% of the bar length.
   - Use a 3' length of rollformed, unnotched bar. Make sure the width difference at the edges of the material is never more than .004".
   - Find all sections with a width difference greater than .002". Measure the length of each section, and write it down.
   - Add up the lengths. For a 3' bar, the total length of all sections with a height difference greater than .002" should be 1.8" or less.

Seams - Peaks and Valleys

Peaks may occur at the seams if there is too much tension on the rolls at Pass #12; valleys may occur if there is too little tension. As shown in the illustration below, the maximum tolerance for the highest and lowest points on the seam is +/- .005”.

	Caution *Adjustment of the rolls on the Rollformer should always be performed by a GED technician or a qualified maintenance technician with significant knowledge, experience, and understanding of GED equipment. Call GED for assistance if adjusting the rolls is required.*

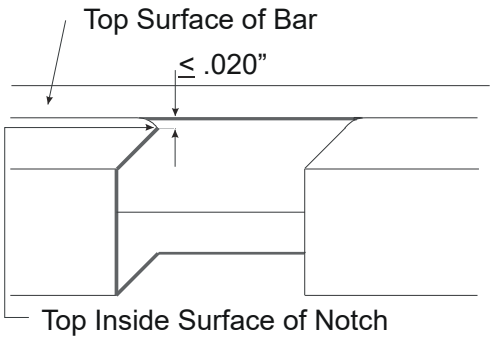


Measuring Peaks and Valleys of the Seam

Notches

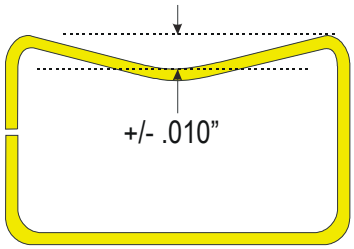
Check the quality of the notches on the finished muntin bar. The following procedure describes how to determine the quality of the finished surfaces of the muntin bar.

1. Use a 3' section of notched, rollformed bar.
2. Carefully measure the difference between the top surface of the bar and the top inside surface of the notch, as shown in the illustration below. The difference should be .020" or less.



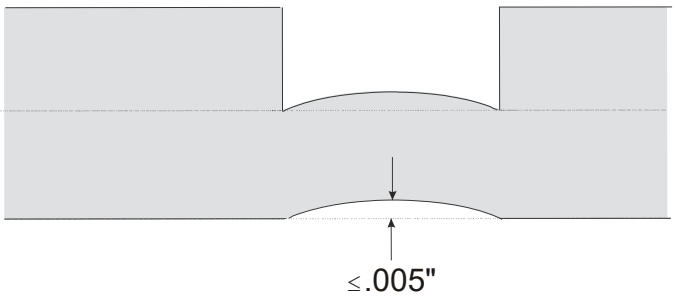
Measuring the Top Surfaces of the Notch

3. Measure the distance from the bottom surface of the bar (inside the notch) to the top (outside) surface, as shown in the illustration below. This measurement should be within +/- .010" of the nearest un-deflected section of bar.



Measuring the Top and Bottom Surfaces of the Notch

4. The length of the deflected section or dimple must be .25" or less.
5. Because the muntin material is notched before it is rollformed, the seam side of the notch may exhibit a slight bend. Make sure this bend is not more than +.005" from the intended straight line, as shown in the illustration below.



Measuring Notch Bend

Cut Ends

Carefully inspect the cut ends of the test muntin bars. The cuts should be clean and sharp.

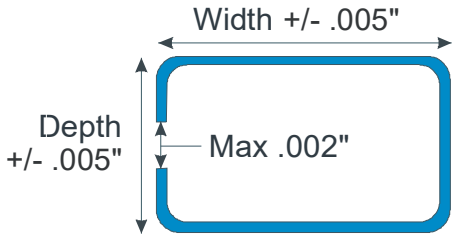
1. The maximum allowable burr on the outside surface of the depth (short legs) is .005".
2. The maximum allowable burr on the outside surface of the width (long legs) is .002".
3. Check the paint at the ends and notches. Make sure there are no burn marks or other damage from the cut.

Finish

1. Make a 3 ft section of bar. Wait 5 minutes, and inspect the surface and finish carefully.
2. Make sure there is no visible residue from the rollforming oil (5 minutes after the oil is applied).
   - The residue, if any, from the rollforming oil must be able to safely withstand the heat of the oven when the IG units are sealed. Make sure the rollforming oil does not leave any residue that will outgas volatile chemicals when the IG unit is processed through the oven.
3. Inspect the paint carefully at the slit edge (at the seam). Look for any spots where the paint peels.
   - Make sure the paint does not peel more than .001" away from the slit edge (at the seam).
   - If there are any places where the paint is peeling, measure the length of each section, and write it down. Then add up all the lengths. This total must not be more than 5% of the bar length.
   - For a 3 ft bar, the total length of all sections where the paint is peeling must be 1.8" or less.

Bar Size

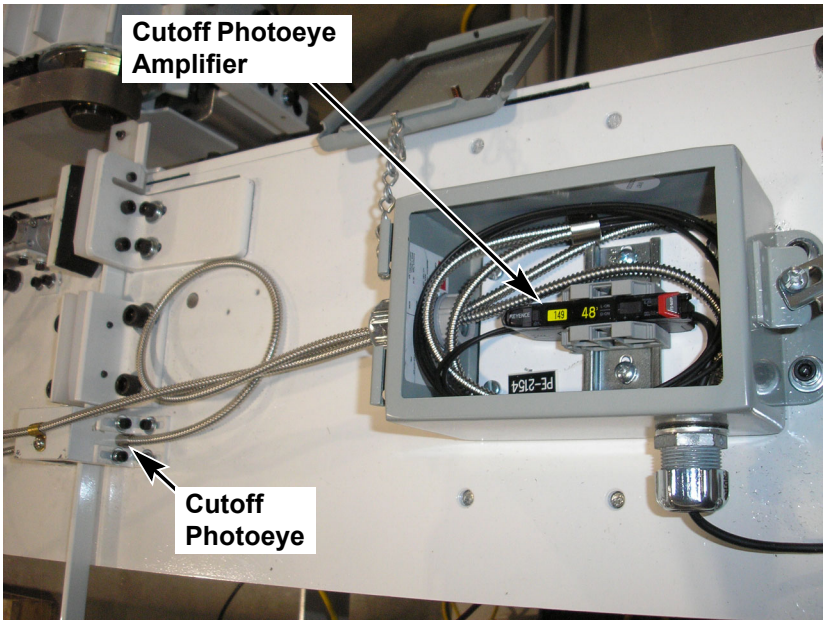
Measure all four sides of the outside of the bar carefully. Make sure the dimensions meet specification for the finished muntin size. The depth at each side of the bar can differ by as much as .005", but both dimensions must be within tolerance. Refer to *ED-0060, Intergrid Finished Muntin Bar Specification* for the dimension information.



Measuring Muntin Bar Depth and Width

Setting up the Cutoff Photoeye and Amplifier

The Cutoff Photoeye senses the registration notches in the muntin bar so the machine can cut the bars to the proper length. The locations of the Cutoff Photoeye and amplifier are shown below.



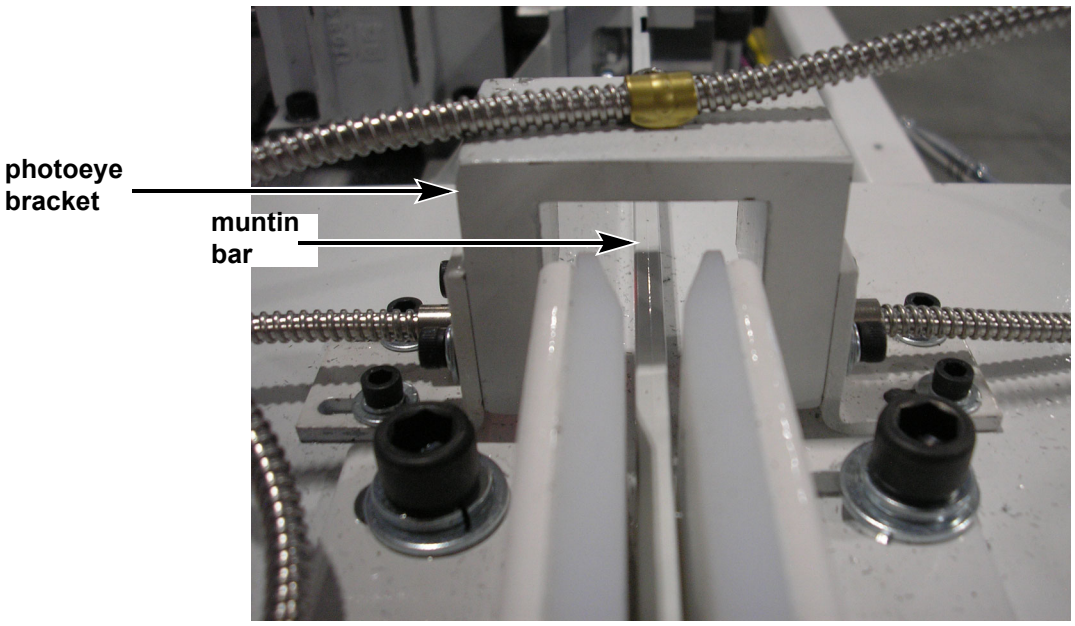
Cutoff Photoeye and Amplifier

To setup the Cutoff Photoeye and Amplifier:

1. Begin with the proper muntin material threaded all the way through the machine. A registration slot must be punched in the material.
2. Make sure the MAN/AUTO switch is set to MAN, the Main Power Disconnect is ON, and Master Start is pressed.
3. Jog the material to position the registration slot as close as possible to the Cutoff photoeye.
4. Press Emergency Stop. Lockout/tagout the power.

5. Align the Cutoff Photoeye as follows:

   a. Align the Cutoff photoeye bracket so that it is square to the muntin bar. (See photo below.)



Cutoff Photoeye Bracket

   b. Remove the clear plastic guard from the front (operator) side of the Rollformer.

   c. Move the registration slot to the center of the beam of light by placing a wrench on the roll retaining nut (Pass #10), and turning it to move the material.

   d. Adjust the photoeye bracket vertically so that the registration slot falls in the center of the circle of light.

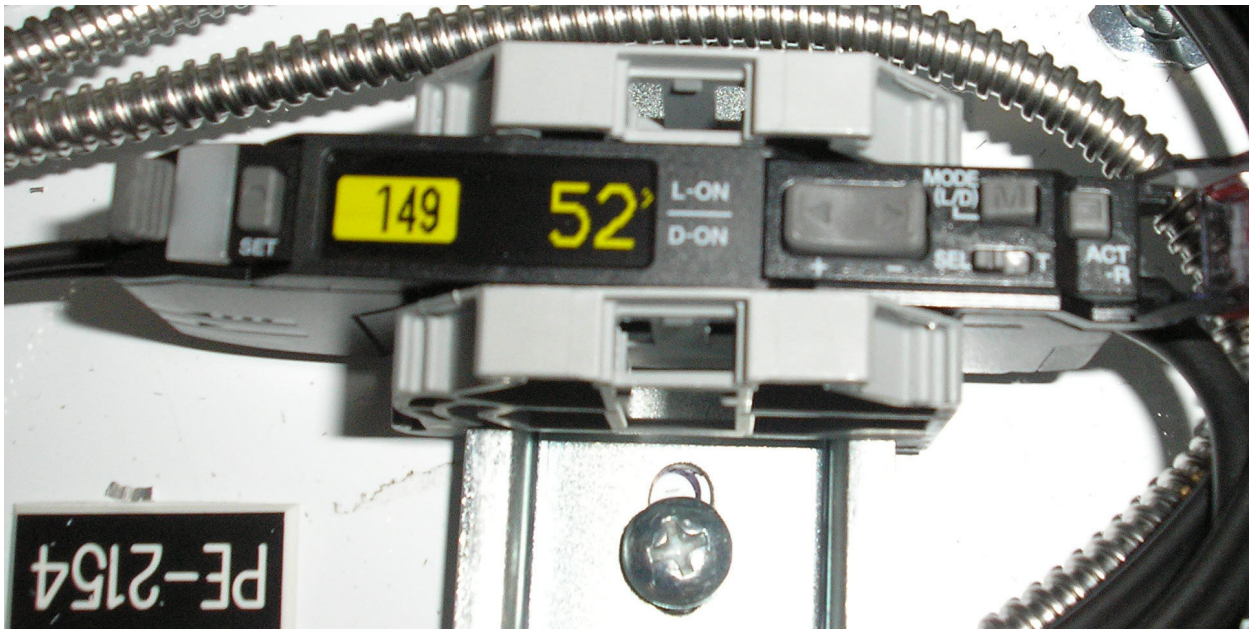
6. Make sure the photoeye amplifier parameters are set properly. Refer to the drawing set supplied on a flash drive with your machine. The parameter settings are located in the electrics drawing for the Cutoff station. At the time of this writing, the parameter settings are as shown below:

AMPLIFIER SETUP
SELECT POWER MODE SELECTION : hsp (HIGH SPEED) TURBO
SELECT TIMER FUNCTION SETTING : toff (TIMER OFF)
SELECT EDGE DETECTION MODE SELECTION: diff off (OFF)
SELECT POWER SAVE FUNCTION SETTING : Eco oFF (OFF)
SELECT SHIFT FUNCTION SETTING : ShFt oFF (OFF)
SELECT OUTPUT SELECTION : LIGHT-ON
SET SENSITIVITY: TWO POINT CALIBRATION

Cutoff Photoeye Amplifier Parameter Settings

To change the settings:

a. On the photo eye amplifier shown below, press and hold the Mode button, then use the +/- button to select “Advanced”.



Cutoff Photoeye Amplifier

b. Press Mode until the desired parameter appears.

c. Use the +/- button to change the value as necessary.

d. Repeat steps b and c until all parameters are set.

7. Fully block the photoeye beam by placing a wrench on the Rollformer roll retaining nut (Pass #10), and turning it to move the material so the beam is fully blocked. Then press SET on the photoeye amplifier. (The numerical display to the right of the SET button should display a lower number, and there should be no LED's lit to the left of the SET button.)
8. Remove all material from the path of the photoeye beam so the beam is NOT blocked, then again press SET on the photoeye amplifier. (The numerical display to the right of the SET button should display a higher number, and two LED's to the left of the SET button should be ON.)

Adjusting the Cutoff Saw Clamp

The fixed side of the saw clamp on the Cutoff saw must be aligned so that it is parallel to the muntin bar and is approximately 1/64" from the path of an unnotched section of bar. The cylinder clamp must strike and clamp evenly. The muntin bar entry guides must be set so that the bar enters the saw guard. The saw should raise high enough to cut through the bar without hitting the top plate.

To adjust the saw clamp:

1. Set the Main Power Disconnect to ON and the MAN/AUTO switch to MAN. Press Master Start.
2. Jog an unnotched section of muntin bar approximately 12" beyond the saw blade.
3. Disconnect the air pressure from the machine. This puts the machine in an emergency stop condition.
4. Remove the top saw guard.
5. Loosen the fixed side clamp bracket.
6. Loosen the clamp cylinder mounting screws.
7. Pull the cylinder clamp forward and pinch the muntin bar between the cylinder clamp and the fixed clamp. The muntin bar should move 1/64". If it does not, repeat steps 6-7.
8. Tighten the fixed side clamp bracket and cylinder mounting screws.
9. Pull the cylinder clamp away from the muntin bar and verify that the bar moves away from the fixed side clamp by 1/64". If it does not, repeat this step.
10. Replace the top saw guard.
11. Press Master Start.
12. Set the MAN/AUTO switch to AUTO. The saw motor should start running.
13. Manually activate the Saw Clamp solenoid.
14. Manually activate the Saw Raise solenoid.

15. Make certain that the blade cuts completely through the bar and that it hits the stop nuts. If the stop nuts are too high, the bearings and/or drive belt will hit the top plate.

Caution

Before making any further adjustments, push in the Emergency Stop button to deactivate the machine. Serious injury can occur if the machine begins to run while you are adjusting the saw clamps.

16. Set the MAN/AUTO switch to MAN. The saw motor should turn off.
17. Manually activate the Saw Raise solenoid. Check the position of the extend and retract limit switches.
18. Jog approximately 12” of muntin bar past the saw.
19. Access the Automatic Cycles menu by selecting Diagnostics > Automatic Cycle Diagnostics.
20. Select Cut Off Saw to run the Cutoff saw test routine and ensure the saw functions smoothly.

Setting the Actual Blade Width

Whenever you change the saw blade on the Cutoff, you must enter the actual blade width in the Blade Width parameter on the Machine Constants screen. To find the actual blade width, measure a partial cut made to the material, as described in the following procedure.

Note: Change the blade on the Cutoff when the cut on the material has burs measuring greater than .005”.

1. Make sure the machine is powered up, and Master Start is enabled.
2. Make sure you are logged on as an administrator.
3. Set the AUTO/MAN switch to MANUAL.
4. Make sure the CONT JOG switch on the Feeder Press is set to ON. Then, using the Rollformer Jog switch on the Rollformer, jog the Rollformer forward until the muntin bar is at least approximately 2” past the saw.
5. Display the Automatic Cycles Screen by selecting Diagnostics > Automatic Cycle Diagnostic.
6. In the Automatic Cycles Screen, select ‘Timed Cut’. The saw cylinder will extend for the amount of milliseconds specified in the ‘Cut Time (ms)’ field. The saw should cut about half way through the bar then retract. If it did, continue with the following steps. If it did not, increase or decrease the Cut Time as necessary

to achieve a half cut, then close the Automatic Cycles Screen and repeat steps 4 through 6.

7. Jog the Rollformer forward until the partial cut is about 12” past the saw.
8. In the Automatic Cycles Screen, select ‘Cut Off Saw’ to make a complete cut through the bar.
9. Remove the bar.
10. Using feeler gauges or calipers, carefully measure the width of the partial cut made by the saw.
11. Access the Machine Constants screen by selecting:

    Setup > Machine Constants

12. In the ‘Blade Width’ field, enter the width you measured in step 8, then select OK.

Cut Squaring

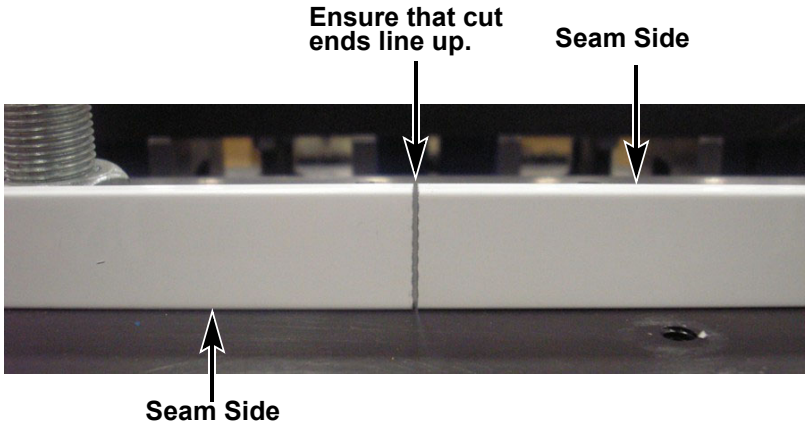
As the components of a muntin grid are cut, the end of one piece is the start of the next. Even if the cut is at an angle, when the cuts are placed together, they will fit together. However, if you turn over the second piece so that the seams of both pieces are on opposite sides, and the cuts do not line up evenly, then the cut is not square.

Squaring the cut is accomplished by tipping the saw frame. Before squaring the cut, ensure that the muntin has no up, down, or side-to-side bow, as described in “Up and Down Bow” on page 4-38 and “Side to Side Bow” on page 4-43. If the cut is squared and then the muntin is straightened, the cut will require squaring again.

To square the cut:

1. In MDI, create a batch containing 50 units, 12” x 12”, with 1 vertical and 0 horizontals. This batch will produce 50 pieces of unnotched muntin bar.
2. Run the batch.
3. Number the ends of the first two components.
4. Press the Feed Hold button on the Rollformer.

5. Place the two components against a straight edge with the seams opposing each other. If the saw cuts are at an angle to the straight edge when forced together, the cut requires squaring.

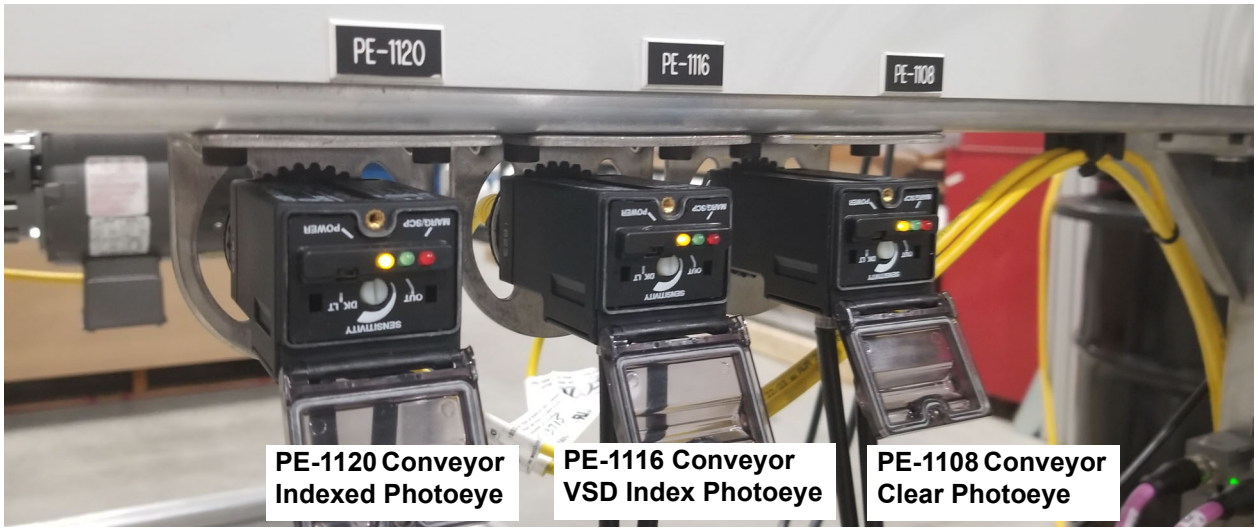


Example of Squared Cut

6. Loosen all of the fasteners on the bracket that ties the saw frame to the Rollformer.
7. Adjust the leveling screws in the saw frame foot pads to tip the frame in the direction indicated by the angle of the muntin bars.
8. Remove the Rollformer Feed Hold and repeat steps 2 through 7 until the cut is square.

Adjusting the Exit Conveyor Photoeyes

There are three photoeyes on the Exit Conveyor as shown and described below:



Photoeyes on Exit Conveyor

Conveyor Clear Photoeye (PE-1108) - Located between the Cutoff and Exit Conveyor, the Conveyor Clear Photoeye reads the muntin bars as they enter the Conveyor (turns ON) and indicates when the Conveyor is clear (turns OFF).

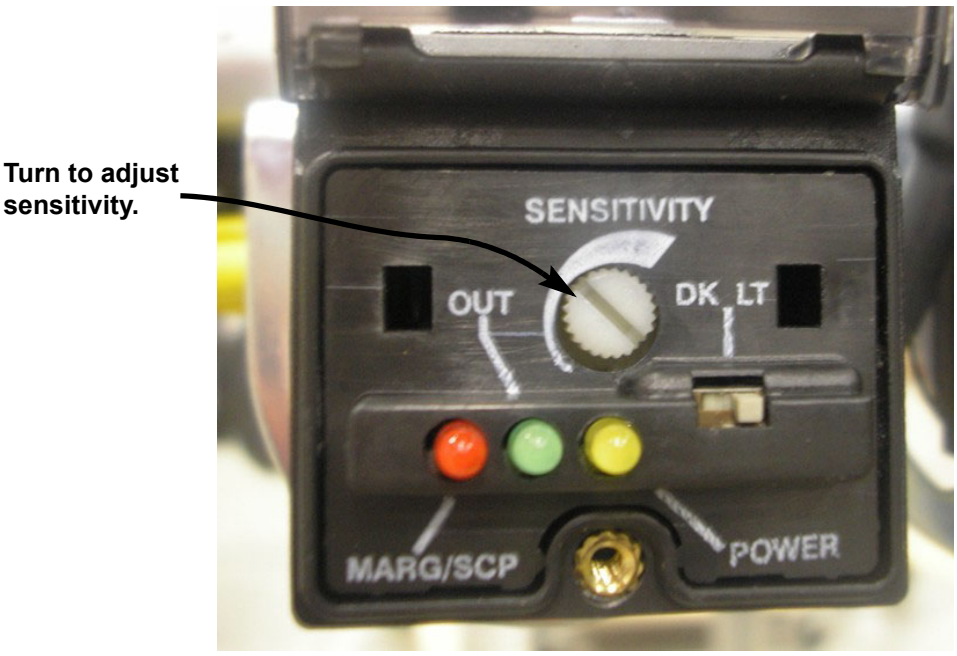
Conveyor VSD Index Photoeye (PE-1116) - Signals the Controller to turn off the Exit Conveyor once the index point has been read. The Conveyor VSD Index Photoeye is located between the second and third belts and is closest to the center of the Conveyor.

Conveyor Indexed Photoeye (PE-1120) - Ensures the Exit Conveyor is in the correct indexing position. The Conveyor Indexed Photoeye is located between the second and third belts and is closest to the outside of the Conveyor.

The Conveyor photoeyes are calibrated at the time of manufacturing. You should rarely need to adjust them. However, you may need to readjust the photoeyes if the Conveyor is no longer indexing correctly.

To adjust the photoeyes:

1. Adjust PE-1116 mounting bracket to be roughly in the center of the slotted holes.
2. Adjust the main photoeye mounting plate so that the face of the sensors is less than 1/2" away from the Conveyor teeth on the second belt and either PE-1116 or PE-1120 is aligned with a tooth.
3. On the photoeye that is aligned with a Conveyor tooth, increase the sensitivity by turning the tapered screw clockwise until the output light illuminates. Refer to the photograph below.



Photoeye Sensitivity Adjust Screw

4. Turn the MAN/AUTO switch to MAN.
5. Select:

   Diagnostics > Automatic Cycle Diagnostic

   The Saw Motor initializes.
6. Turn down the sensitivity of all three photoeyes all the way.
7. On the screen, select the Conveyor Jog button. The Conveyor belts run continuously.
8. Increase the sensitivity of PE-1116 until the Conveyor stops.
9. On the screen, select the Conveyor Jog button and jog the Conveyor three more times.
10. Align PE-1120 with the nearest tooth.
11. Increase the sensitivity of PE-1120 until the output (green) and stability (red) lights come on.

12. Jog the Conveyor ten more times, each time checking the following and increasing the sensitivity or relocating the photoeye as necessary:
    a. The output (green) and stability (red) lights of PE-1120 come on.
    b. The location of PE-1120 in reference to the Conveyor tooth is correct.
13. Locate PE-1108 so that it is off to the side of the pulley for the belt.
14. Hold a piece of muntin bar in front of the sensor in roughly the position that the bar will come through the machine.
15. Increase the sensitivity of PE-1108 until the output (green) and stability (red) lights come on, and then increase it a little bit more.

Cutoff Accuracy and Consistency

The following procedure verifies that the Cutoff is consistent and accurate enough to achieve component lengths which are within the +/- .015" specification.

For cutoff accuracy and consistency, it is important that the Cutoff Photoeye is setup and aligned properly, and the cut is square. Therefore, before adjusting the Cutoff accuracy, make sure these items are properly adjusted, as described in the following sections:

- “Setting up the Cutoff Photoeye and Amplifier” on page 4-49
- “Cut Squaring” on page 4-54

Cutoff Activation Routine Explained

The Cutoff Activation routine positions the registration slot into the proper position for the cutoff cut. The output from the Cutoff photoeye is connected directly to the Controller. The input which it toggles is a high speed dedicated Registration Input. This input is not scan-time sensitive and is disarmed as soon as it sees an input. It will remain disarmed until the control logic resets it. As soon as the Registration Input goes high, it writes the actual position of the Rollformer to a memory location. When the control program recognizes that the input has been tripped, it redefines the command position of the Rollformer to be equal to the position of the Rollformer at the point of the trip plus the value of the ‘Photoeye to Saw Dimension’ entered in the Machine Constants Screen. When the Rollformer is stopped at its new command position and is locked within one encoder pulse and has an average velocity less than .01 inches per sec, the saw cut routine is activated and the Registration Input is rearmed.

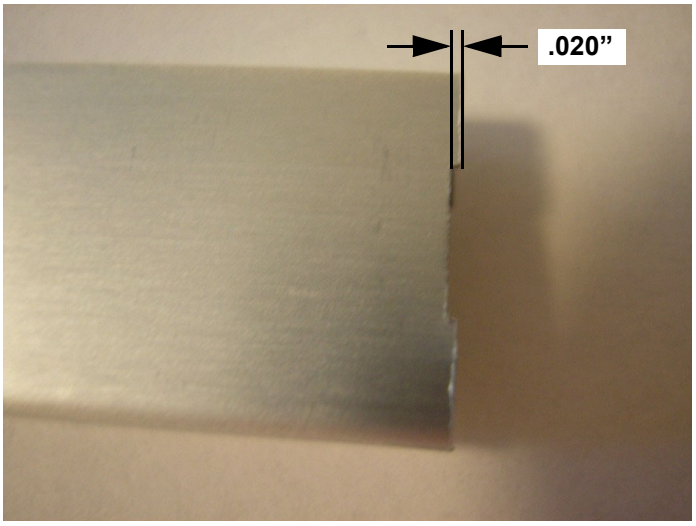
Example:

A batch is started and at the press of the Cycle Start Push Button:

1. Rollformer Actual Position is set to Zero.
2. Rollformer Command Position is set to 250 inches. The Rollformer goes into a continuous move of 250 inches.
3. While in the move to 250", one of the registration slots passes by the Cutoff photoeye and trips the Registration Input.
4. Registration Input immediately stores the Actual Position of the Rollformer at the time of the trip. In this example, the input occurred when the Rollformer's Actual Position was 24".
5. When the program logic sees that there has been a Registration Input, it takes the stored value, 24", and adds the Photoeye to Saw Dimension, 6.5" in this example, to it. It then redefines the Rollformer Command Position to the sum of the two.
6. Rollformer Command Position = 30.5".
7. The Rollformer stops at 30.5"
   a. Waits until it is locked within one encoder pulse.
   b. Waits until its average velocity is less than .01 in/sec.
8. The Cutoff routine activates and cuts the bar.
9. Steps 1 through 8 keep repeating.

Testing and Adjusting the Cutoff Accuracy

1. Adjust the ‘Photoeye to Saw Dimension’ (in the Machine Constants Screen) so that the distance from the end of the bar to the back of the registration slot is approximately .020". See photo below.



Distance from end of muntin bar to back of registration slot

2. Create a batch containing 30 units, 24” x 24”, with 1 vertical and 0 horizontals. This batch will produce 30 pieces of unnotched muntin bar.
3. Run the batch and number the ends until you have 30 pieces.
4. Measure and record the distance from the end of the bar to the back of the notch on each piece.
5. The overall range of the measurements should not exceed .014". If the range of measurements exceeds .014", check the following:
   a. Recheck the photoeye alignment and setup, as described in “Setting up the Cutoff Photoeye and Amplifier” on page 4-49.

      Note: While straightening the bar and squaring the cut, the relationship between the photoeye and the bar may have changed.

   b. Recheck the square of the cut, as described in “Cut Squaring” on page 4-54.
6. Readjust the Photoeye to Saw Dimension (in the Machine Constants Screen) so that the blade cuts through the center of the slot.

Chain Tension Adjustment

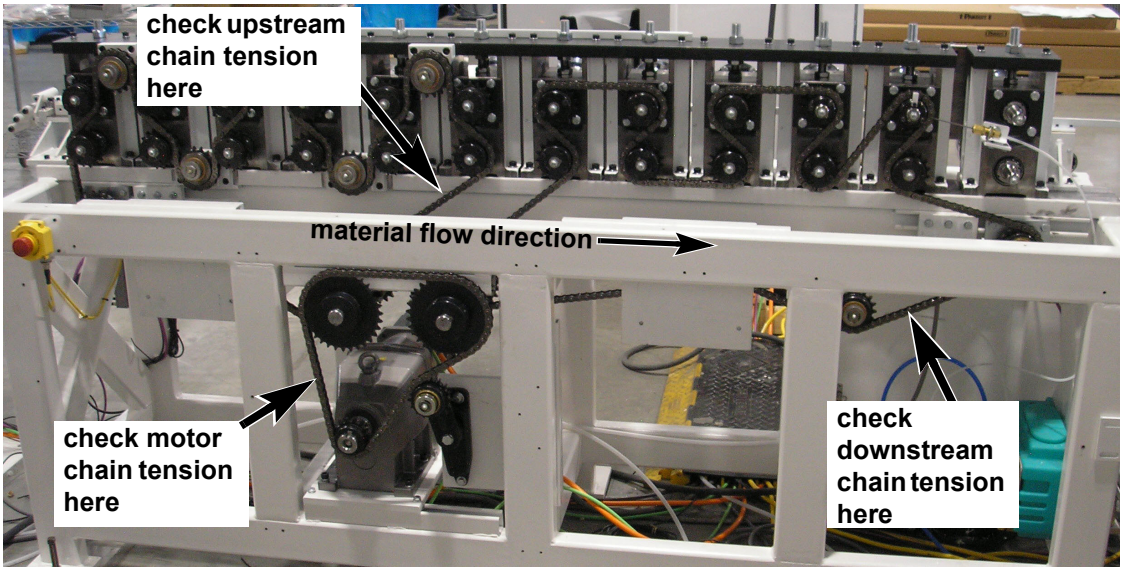
There are three chains in the system that drives the Rollformer rolls. All three chains have two tensioners each: one rigid and one spring loaded. Adjust the rigid tensioners first, then the spring-loaded tensioners.

Check and adjust tension per the following procedures.

Checking Chain Tension

Check tension of the three chains as follows:

1. Lock-out/tag-out the electrical power. Remove the guards.
2. Grasp chain at mid point between two sprockets (see photo below). Firmly push and pull in plane with sprockets. Chains should feel tight. Deflection should be in the range of 3/8” to 1/2” with a firm push/pull action.



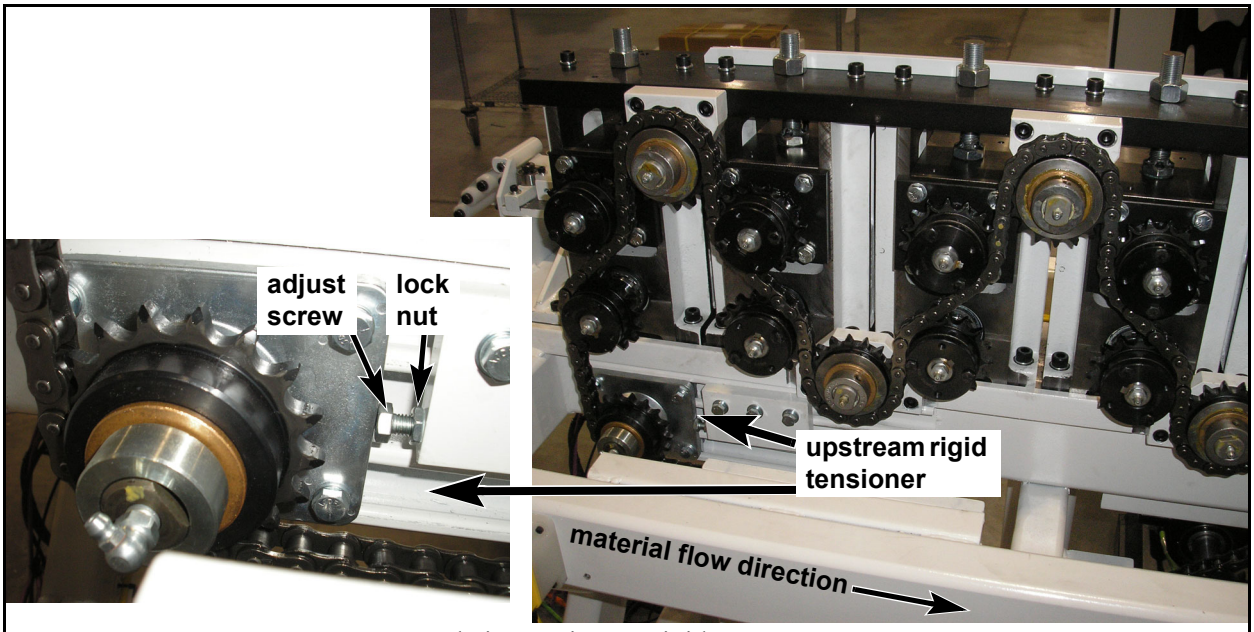
Rollformer Chains

Adjusting the Rigid Chain Tensioners

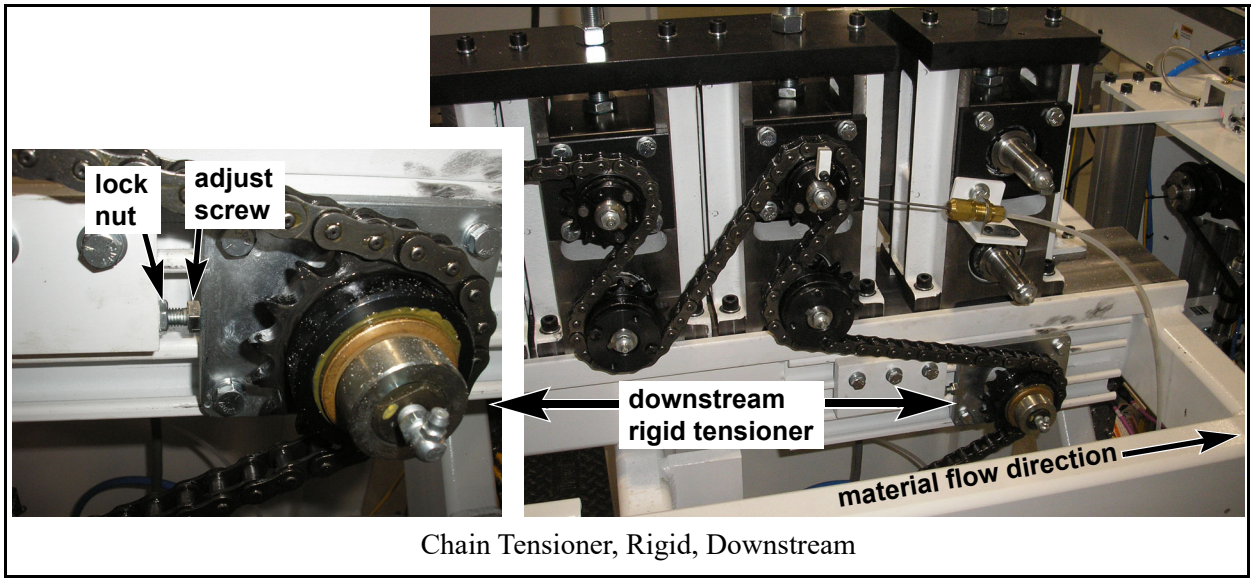
Adjust the rigid tensioners first (before the spring-loaded tensioners). Set to the tension described above (3/8” to 1/2” deflection).

Refer to the following photographs for locations of the rigid tensioners. With all rigid tensioners, you must first loosen their four mounting bolts before moving the tensioner. When finished, make sure you have fully tightened all tensioner mounting bolts and lock nuts.

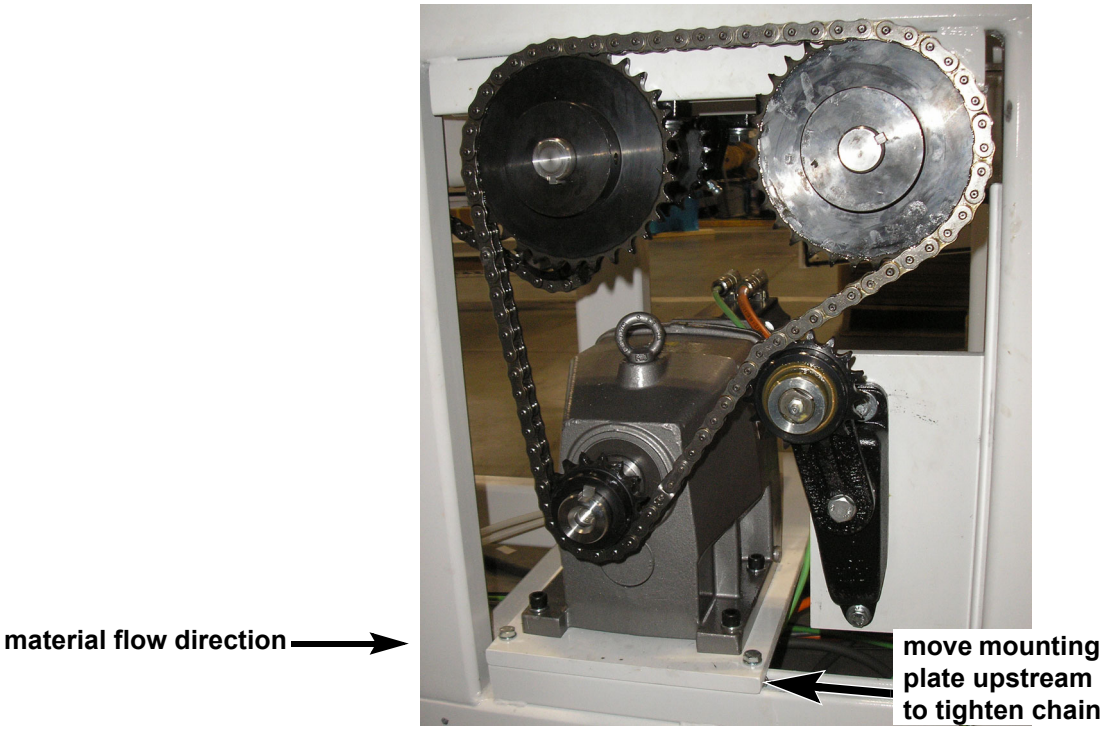
The locations of the rigid tensioners are shown in the photos below.



Chain Tensioner, Rigid, Upstream

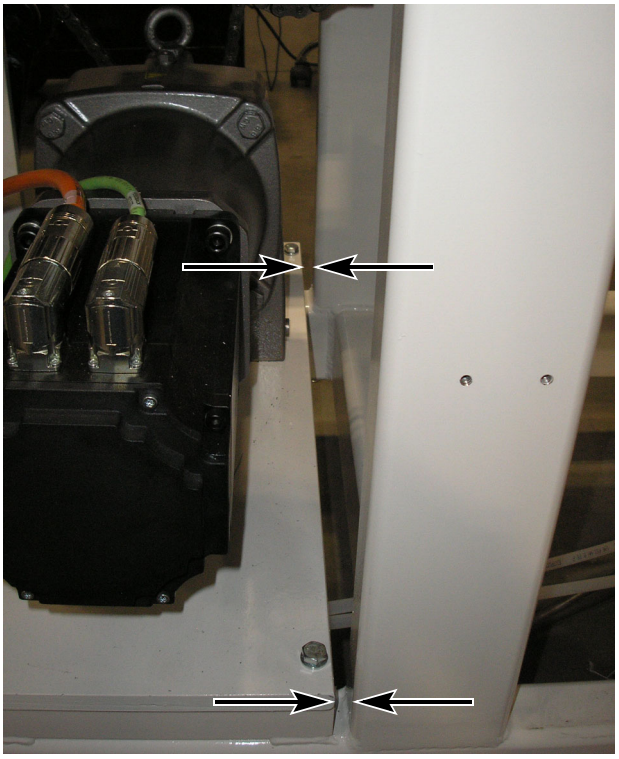


Chain Tensioner, Rigid, Downstream



The motor mounting plate is the motor chain's rigid tensioner

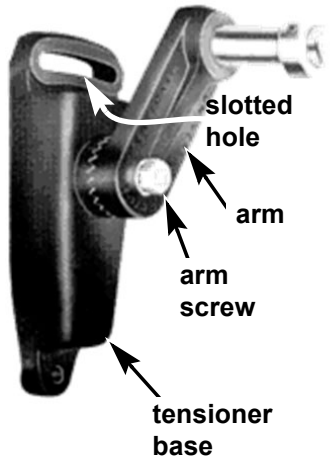
When adjusting motor chain tension, make sure the motor mounting plate remains square to the machine. Measure from the plate to the machine frame in two places as shown below to verify squareness.

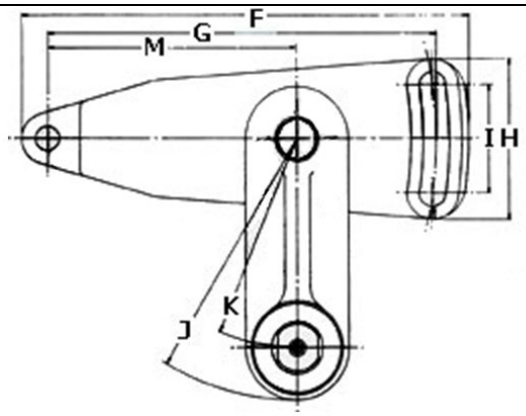


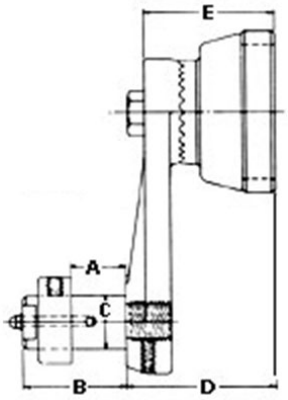
Measure squareness of motor mounting plate

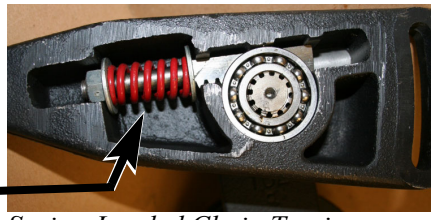
Setting the Spring-Loaded Chain Tensioners

There are three spring-loaded chain tensioners; one for each chain. As shown below, the tensioners have a pivoting arm. From its relaxed position, the arm can rotate approximately 45 degrees in either direction (clockwise or counterclockwise). As the arm rotates, its spring compresses.





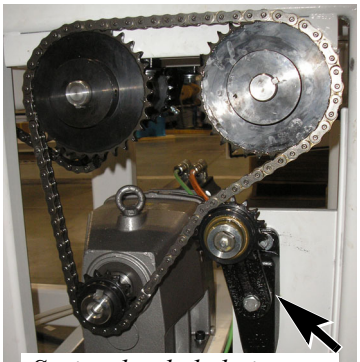




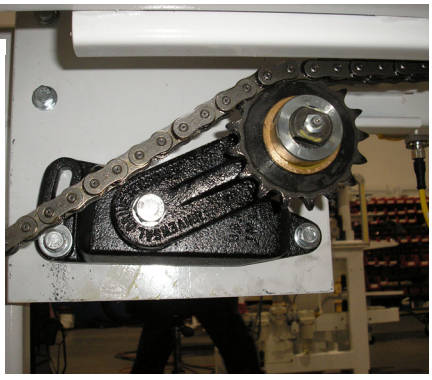
Spring-Loaded Chain Tensioner

The spring-loaded tensioners are factory set in the orientations shown below, and generally do not require further adjustment.

Downstream spring-loaded chain tensioner



Spring-loaded chain tensioner for motor chain

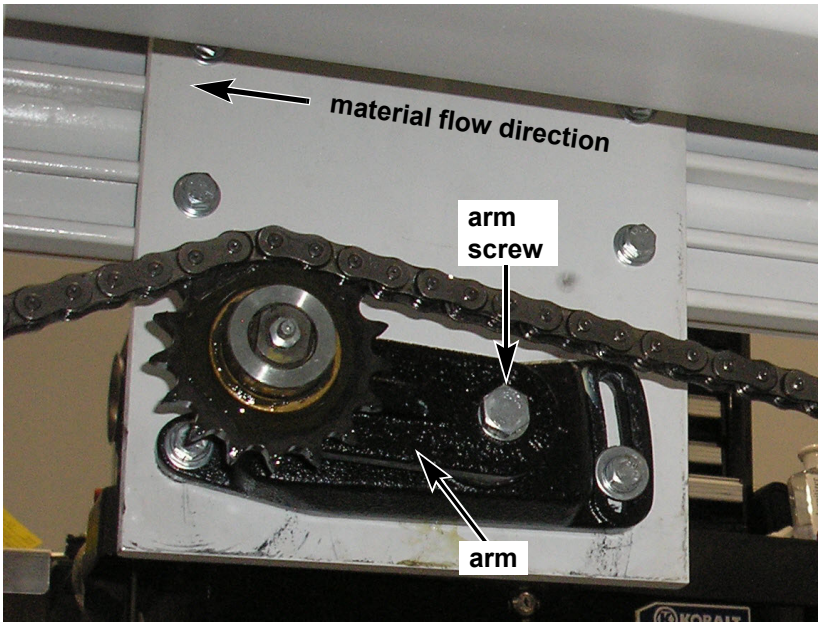


Upstream spring-loaded chain tensioner

If a tensioner has to be replaced or reinstalled for any reason, **refer to the above photographs and/or your machine assembly drawings for proper orientation of tensioners.**

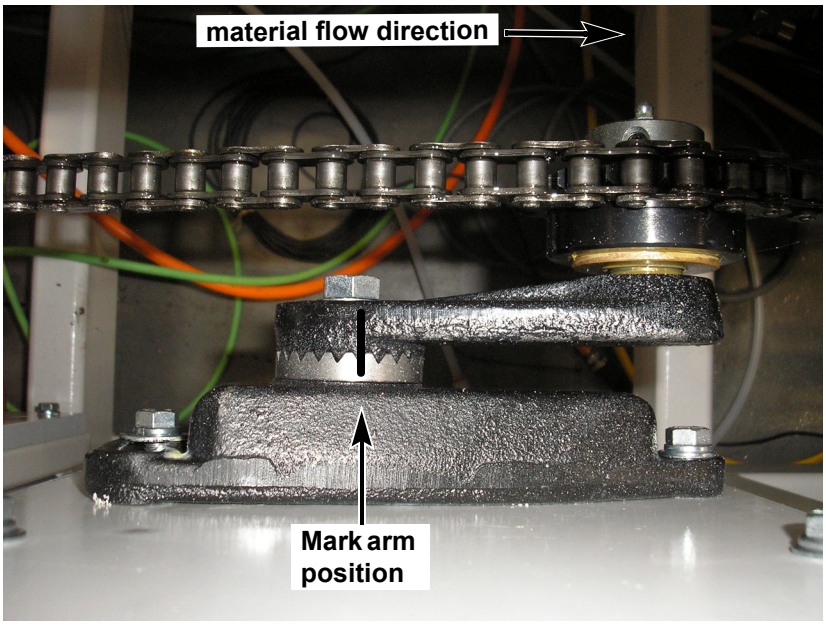
When the tensioner is properly installed, the pivoting arm will be near its maximum travel limit such that the internal spring is almost fully compressed. The photos and procedure below explain how to set the downstream spring-loaded tensioner. (Setting the other two spring tensioners is similar.)

1. Mount tensioner base horizontally similar to photo below. Leave both mounting screws slightly loose so tensioner base can pivot.
2. Loosen arm screw. Temporarily set arm position such that sprocket engages chain while tensioner is relaxed (arm will be angled upward).



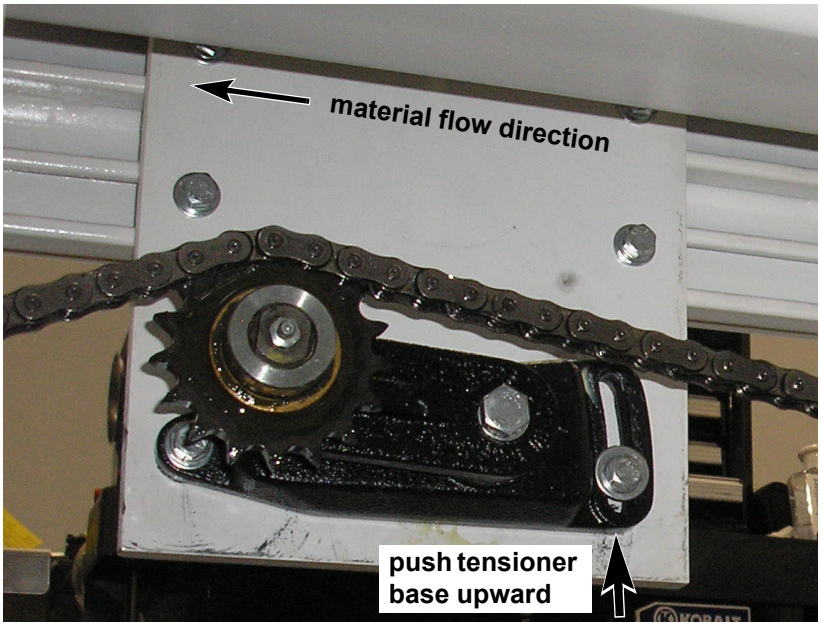
Downstream chain tensioner

3. Mark arm position as shown below.



Downstream chain tensioner as viewed from above

4. Remove mounting screw from slotted hole to allow base to pivot farther. Then rotate arm about 40 - 45 degrees (3 to 4 notches) in direction that would place tension on chain. Tighten arm screw.
5. Push tensioner base upward so its spring is almost fully compressed as shown below. Install mounting screw in slotted hole. Tighten both mounting screws.



Downstream Chain Tensioner

Maintaining the Databases

Compacting the Database

Once a month, you should run the Compact Database feature to restore unused storage space to the WinGrid™ database.

To access this feature, log into WinGrid™ with an Administrator-level ID. From the Main screen, select:

Maintenance > Compact Database

The system compacts the database. When the process is complete, the system returns you to the Main screen.

Creating a New Production Database

WinGrid™ software recognizes only one database, named proddata.mdb. When the New Database option is selected, the old proddata.mdb is overwritten (permanently erased). All data in the old proddata.mdb is deleted, and cannot be retrieved. Make sure you do not need any data in the old proddata.mdb before creating a new database.

1. Log in with an Administrator level ID.
2. From the Main screen, select the following path:

   Maintenance > Create New Database
3. At the “Delete current Proddata.mdb and create new Proddata.mdb?” prompt, select Yes.

   The system deletes the current database and creates a new one. When the process is complete, the system returns you to the Main screen.

Upgrading the Motion Controller Software

The B&R motion controller's software program resides on a CF (Compact Flash) memory card in the motion controller. If GED provides you a controller software upgrade, you can use the procedure below to write the new software to the CF card.

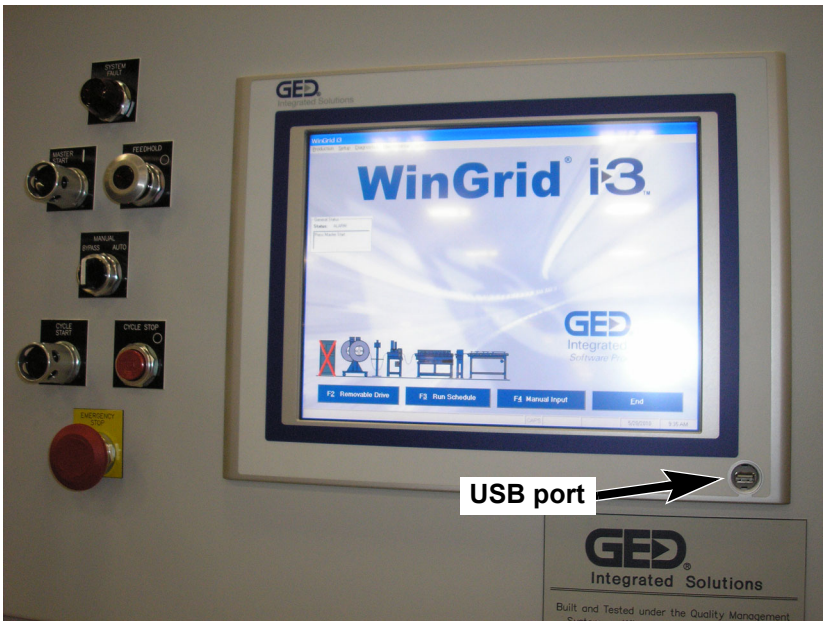
This procedure assumes that:

- a program currently resides in the controller and
- communication is established between the machine's PC and the B&R controller.

The data required for the upgrade is a set of files provided by GED. These files may reside on a USB flash drive, a CD, a hard drive, or a network drive; it doesn't matter as long as you can access the file set from the machine's PC.

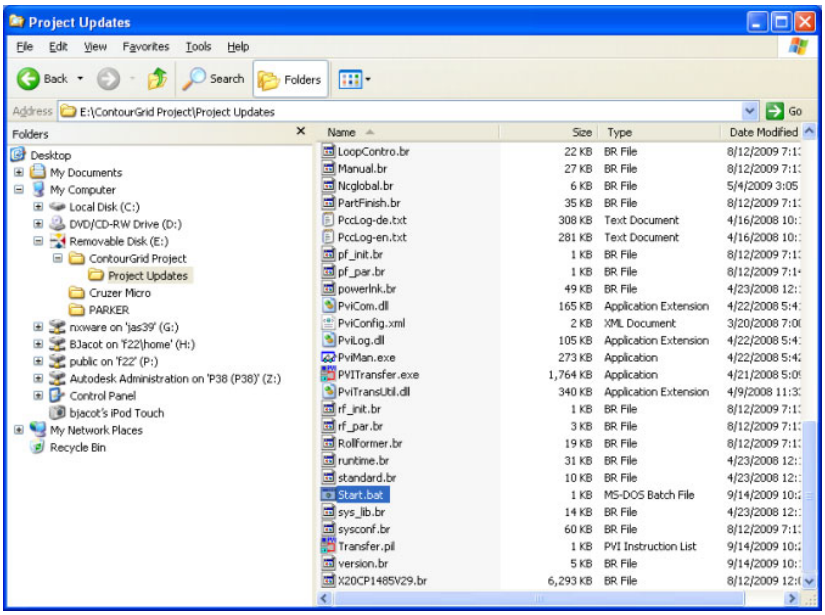
The following procedure explains how to perform the controller software upgrade.

1. Make sure the machine is powered up.
2. Close all applications including WinGrid™. To close WinGrid™, double-touch the End button, or select Production > Exit.
3. If your upgrade files reside on some type of external USB drive, connect the removable drive to the USB port near the lower right corner of the monitor. (See photo below.)



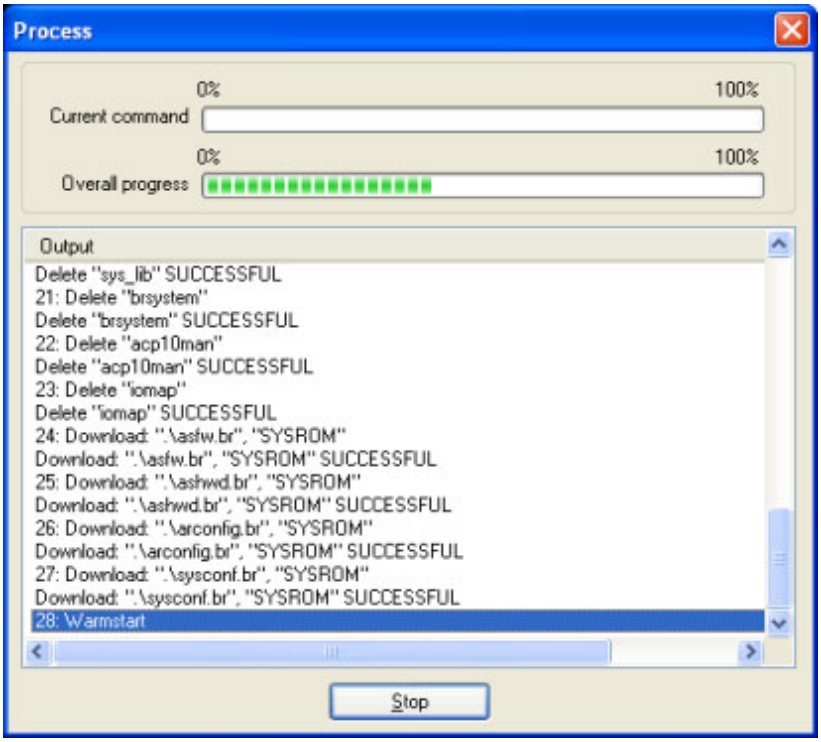
USB port at lower right of monitor

4. Start Windows Explorer. On the drive containing your upgrade files, navigate to ...\Project Updates, similar to the example screen shot below.



Example of updates folder and files location

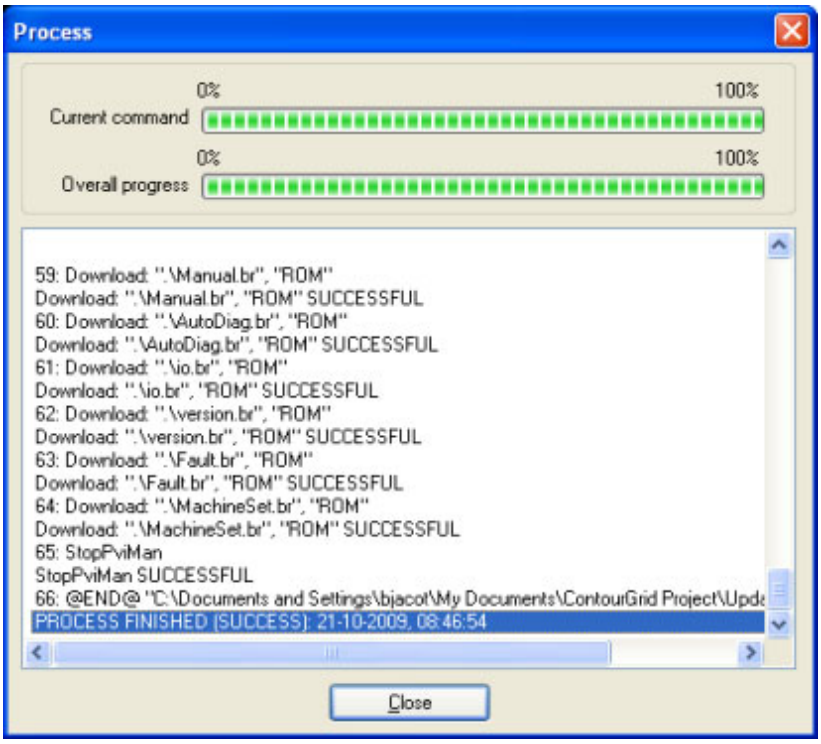
5. Double-click Start.bat to begin updating the controller software. The Process screen, similar to the example shown below, will appear.



Controller Software Upgrade Process Status Screen

The process will start. The controller will be reset several times.

When the procedure is finished, the Process display will appear with the progress bars indicating 100% as shown in the example below.



Controller Software Upgrade Process Status Screen

6. Close Windows Explorer.
7. Restart the WinGrid™ software by double-clicking the "WinGrid" icon.

5

Periodic Maintenance

Introduction

Proper maintenance is essential to keeping the machine in good working condition, and can help eliminate expensive, unnecessary repairs.

Always observe all necessary safety precautions when performing maintenance! Wear appropriate safety gear. Use lock outs and tag outs on the power and air supplies to prevent accidental re-connection.

The “Maintenance Chart” in this chapter is a summary checklist of the necessary maintenance items. Refer to this chart for an overview of the required maintenance.

Following the Maintenance Chart are topics that explain in greater detail how to perform some of the maintenance items listed in the Maintenance Charts.

The “Maintenance Log” is a feature built into the HMI that notifies you when important routine maintenance procedures are required, and makes it fast and easy for you to keep accurate maintenance records. See “Using the Maintenance Log” on page 5-14 for more information.

Once a month, check the quality of the muntins. Routine quality checks allow you to detect and correct small problems quickly. See “” on page 5-16

To obtain replacement parts, contact GED Customer Service at:

31100 Diamond Pkwy.
Glenwillow, OH 44139
(330) 963-5401
Fax: (216) 539-0677
www.gedusa.com

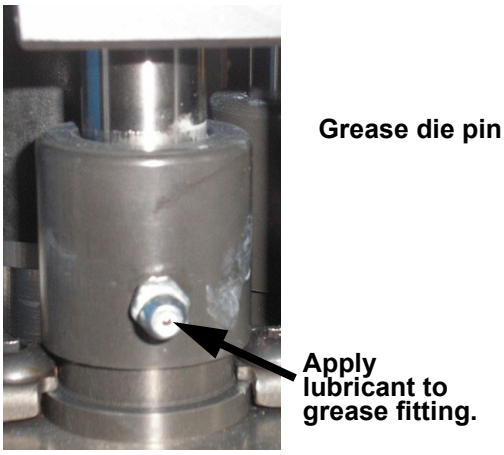
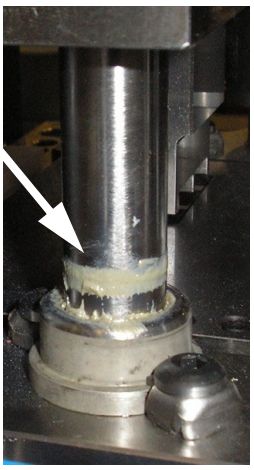
Lubrication

Type	Details
Air Oil	• Always lock-out the air supply before refilling the oil bowls. • Always use a non-detergent (ISO grade 32) air tool oil only! Do not use any other type of oil. Contact GED Service Department to obtain the proper oil.
Rollformer Oil	Always use a light duty vanishing oil. Do not use any other type of oil. Other oils may cause IG unit fogging. Contact GED Service Department to obtain the proper oil.
Grease	• Always turn the Main Power Disconnect OFF and use the provided pneumatic and electrical lock-outs before lubricating the machine. • Always wipe off excess grease drips. Never allow grease drops on the Press! Drips could cause the punch cylinder operation to slow, or punched material pieces to jam inside. • Excess grease drops can contaminate muntin material. • For bearings, use a multi-purpose lithium based grease (630 - AA NLGI # 1 grade). • For gears, use Mobilgear #630 Industrial Gear Oil. Do not substitute! • For sealed gearbox assemblies, use Mobil SCH634 Synthetic Worm Gear Oil. • For chains, use Mobilgear629 brushed. Do not substitute.

Maintenance Chart

The following maintenance chart is suggested for machines that operate one 8-hour shift per day. Equipment under heavier use requires more frequent maintenance.

Frequency	Machine	Maintenance Item
Daily	Feeder Press	• Clean feeder pinch roll, feeder wheel, and encoder wheel using rubbing alcohol. • Ensure the air pressure is set at 75 - 90 PSI. Ensure the low pressure limit switch is set to 50-60 PSI. • Empty the water trap bowl and refill the lubricator bowl if necessary. For the detailed procedure, refer to “Emptying the Water Trap, and Refilling the Lubricator Bowl” on page 5-9. • Empty punch material piece bin.
	Rollformer	Check lubricator oil reservoir. Add light duty vanishing oil as needed.
	Cutoff	• Check the air pressure, make sure it is 75 - 90 PSI. • Clean the saw photoeye with a soft cloth. Do not use alcohol. • **Clean aluminum fines from all surfaces and floor**. Use soft natural fiber brush or squeegee. Scoops must be conductive and non-sparking. (Do NOT use synthetic fiber bristle brushes and plastic or other non-conductive scoops because they tend to accumulate strong static charges which can be a source of ignition.) Aluminum fines must NOT be allowed to build up anywhere in the operating area. See Combustible and Explosible Aluminum Fines Warning on page 1-8.

Frequency	Machine	Maintenance Item
Weekly	Feeder Press	• Check the oil level in pneumatic lubricator bowl. Add 5W air tool oil, if necessary. For detailed procedure, refer to "Emptying the Water Trap, and Refilling the Lubricator Bowl" on page 5-9. • Clean the punch and die with clean cloth. For the detailed procedure, refer to "Removing, Cleaning, and Inspecting the Die Assemblies" on page 5-10. • Grease the die pins. If equipped with ceramic coated bearings (shown below), apply a standard (non-silicon) lubricant to the grease fitting. **Caution!** Do not use a silicon lubricant on the ceramic coated bearings!  *Ceramic Coated Bearings*  *Brass Coated Bearings*
	Rollformer	• Check the roll lubricator reservoir. Add oil if necessary. Make sure you do not add excess oil. • Check the rolls for dirt. If necessary, clean each roll carefully with a soft, dry cloth. If build-up is significant, use graffiti cleaner or a strong paint solvent, with a 3M™ Scotch-Brite™ #7445 Light Duty (White) Finishing Pad., refer to "Cleaning the Rolls" on page 5-12. • Check the pacer encoder wheel. Clean it with alcohol and a clean cloth.
	Cutoff	• Check the blade. Replace if it is no longer sharp. • Inspect the belts for wear or damage. Clean or replace the belts as necessary. • Check the oil level in the FRL. Add 5W air tool oil, if necessary.

Frequency	Machine	Maintenance Item
Monthly	Main Enclosure	Compact the WinGrid™ database to restore unused storage space, as described in “Compacting the Database” on page 4-67.
	Uncoiler	• For a Single Uncoiler, check the anchors securing the Uncoiler to the floor. Make sure they are tight. • Check the oil level in the gearbox. Add Mobil SHC634 Synthetic Warm Gear oil, if necessary.
	Loop Control	• Check face of transponder. • Check the mounting fasteners. Make sure they are secure. Tighten loose mountings as necessary. • Make sure the Strip Centering Weight rollers are in good condition and turn freely.
	Feeder Press	• Check for aluminum or paint build-up on dies. Clean them as necessary. • Check for proper alignment of punched strip. • Make sure the strip guide is adjusted and secure. Clean, if necessary. • Remove, clean and lightly oil dies and grease die pins. • Remove the strip guides on the entry and exit side of the press, and clean with alcohol. • Check encoder wheel and bottom press feed wheel for wear. Replace worn or grooved parts.
	Rollformer	• Check the oil level in the gear box. Add oil if necessary. • Lightly grease chains and sprockets. Grease the shafts every six months. For detailed procedure, refer to “Greasing Chains, Sprockets, and Shafts” on page 5-13. • Inspect the roll lubricator nozzle output and adjust as necessary. For detailed procedure, refer to “Checking the Roll Lubricator Nozzle Output” on page 5-12.

Frequency	Machine	Maintenance Item
Monthly	Cutoff	• Grease the bearing fittings on the saw shaft. • Check the belt tension. • Grease the saw shaft. • Clean the photoeye on the Cutoff with a soft cloth.
	Exit Conveyor	• Carefully wipe off each photoeye and the proximity switch at the exit end of the Conveyor with a soft cloth. Do not use alcohol. • Inspect the belts. Adjust the tension if necessary. • Check the oil level in the gear box. Add oil if necessary. Refer to the photograph below.
	(finished muntins)	Test for muntin quality. See “Checking Muntin Quality” on page 4-29.
	HMI	Back up the controller data. See “Backing Up the Controller Data” on page 4-16.
Every Six Months	Exit Conveyor	Grease the pillow blocks.
Yearly	Feeder Press	Ensure the die is sharp. Look for and remove any aluminum build up.
	Cutoff	• Replace the belt. • Grease the pivot shaft.

Before Maintenance

1. Turn the Main Power Disconnect OFF and tag it out.
2. Clean away all dirt and debris.
3. Inspect all safety labels. Make sure they are readable. If a label is damaged or not readable, contact GED immediately to obtain a replacement label.
4. Check the air pressure on the Press and Cutoff. Make sure they are 75 - 90 psi.
5. Turn OFF the main air supply and tag it out.

WARNING

If it is necessary to remove a safety guard or device to do maintenance, ALWAYS securely re-attach the guard or device in the proper position BEFORE restoring power or attempting to operate the machine!

6. Update the WinGrid™ Maintenance logs, as described in “Using the Maintenance Log” on page 5-14.

Uncoiler Maintenance

Electrical Hazard

Ensure the connector is latched into position and that power cable is not kinked or damaged. “Master Start” must be OFF when unplugging or plugging Uncoiler connector!

Lubrication

Lube fittings (two) on motor drive shaft bearings monthly with multipurpose lithium grease.

NOTICE

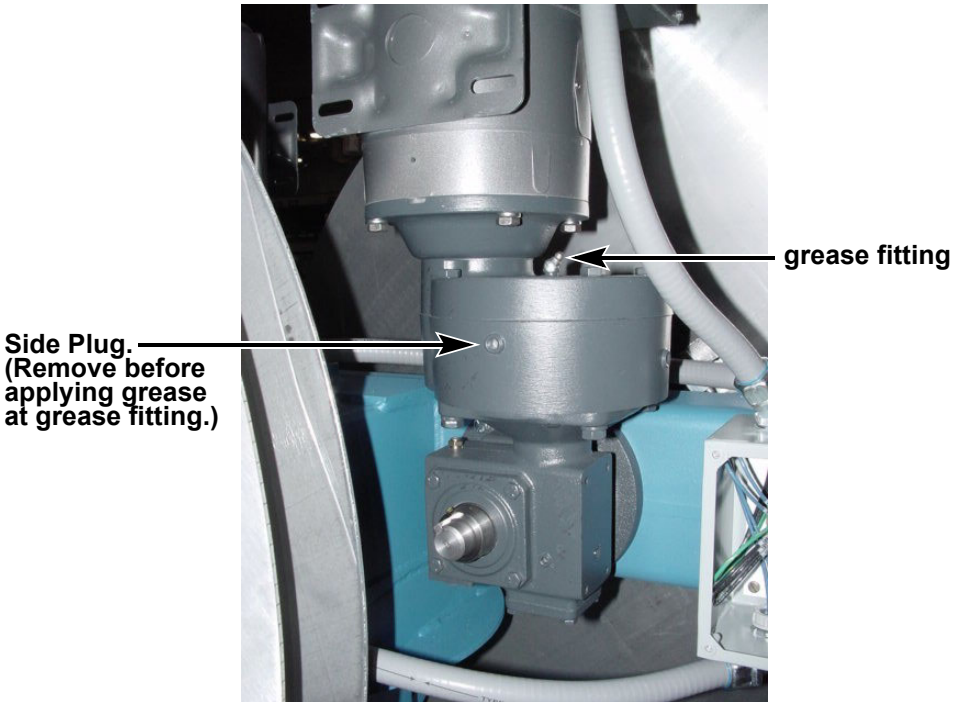
Do not over-lube. Also, lube fitting on the underside of carousel monthly.

Check lubrication in gear reducers. Older single stage gear reducers use 90w gear oil.

Newer machines have a two-stage gear reducer (shown below) which is lubricated at the factory and should not require additional lubrication. However, if needed, the first stage (nearest the motor) is

lubricated with Lubriplate #555. The second stage is filled with Mobil synthetic gear lube SCH-634.

	***Caution*** *Remove the side plug before applying grease to the fitting. Because the unit is sealed, failure to remove the side plug could result in damage to the seals.*



Two Stage Gear Reducer on Newer Machines

Limit Switches

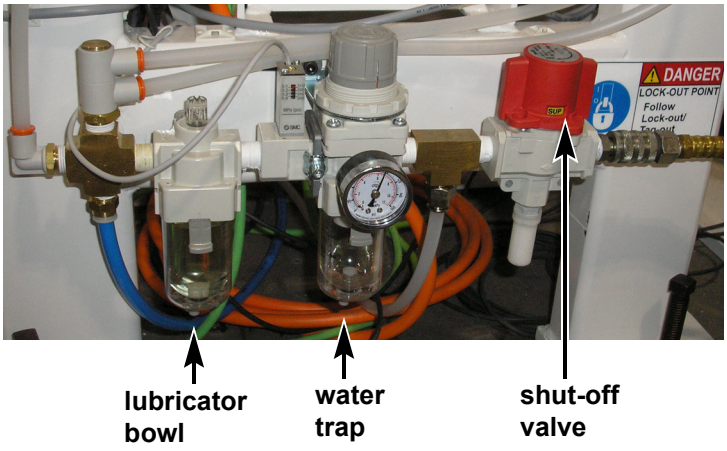
Limit switch (two, one for each motor on Dual Uncoiler only) must be adjusted so that the applicable motor is activated only when locked into position on the operator side.

Loosen lock nut on switch control arm and position arm so that motor activation occurs when foot pedal push rod is in the full up position. Retighten locknut securely and verify that applicable motor will not energize unless fully locked into position.

Feeder Press Maintenance

Emptying the Water Trap, and Refilling the Lubricator Bowl

1. Drain the water trap by opening the valve on the bottom (see photo below).
2. Turn off the air supply at the FRL by turning the shut-off valve (red handle) on the FRL OFF. Refer to the photograph below.



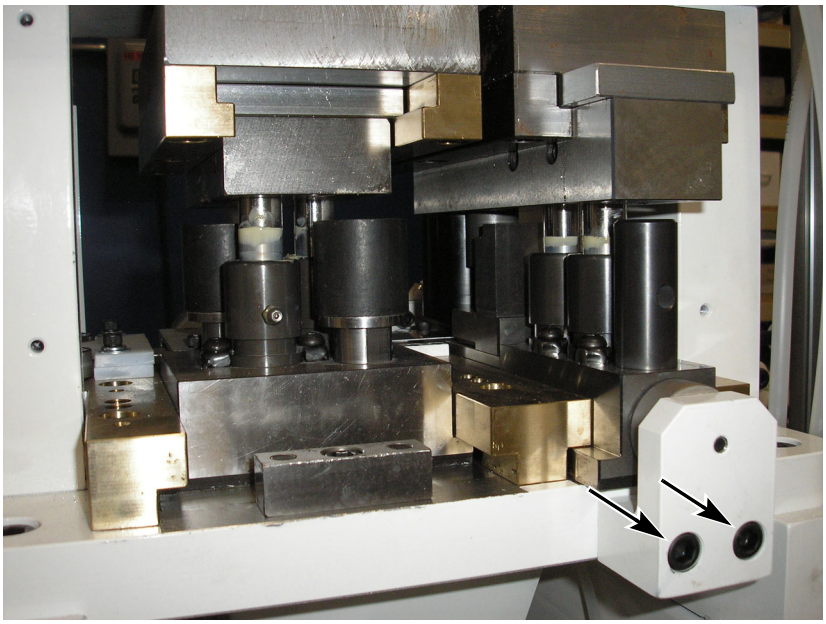
FRL on the Feeder Press

3. To refill the lubricator bowl, turn the main air supply OFF, and lock and tag it out.
4. Remove the lubricator bowl by pushing it up gently, turning it 1/4 turn counter-clockwise, then gently pulling it down.
5. Fill with 5W air tool oil to the line on the bowl or 3/4 full.
6. Replace the bowl by gently pushing it back into place and twisting it clockwise.
7. Remove the lockout/tagout, and turn the main air supply ON. Turn the shut-off valve on the FRL back ON.
8. After completing all maintenance, check for leaks around the FRL components.

Removing, Cleaning, and Inspecting the Die Assemblies

There are two die assemblies.

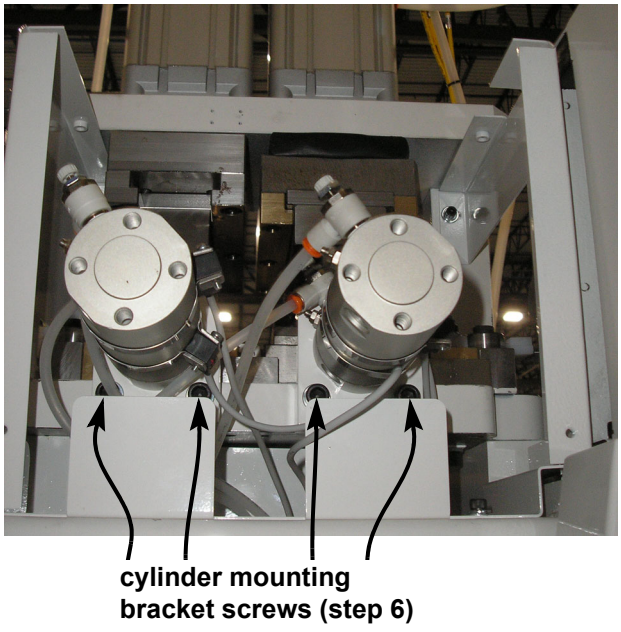
1. Turn OFF the Main Power Disconnect and the main air supply, and lock and tag them out.
2. On the operator side of the Feeder Press, remove the two screws that hold the registration/valance clip punches and dies in place, as shown in the photograph below.

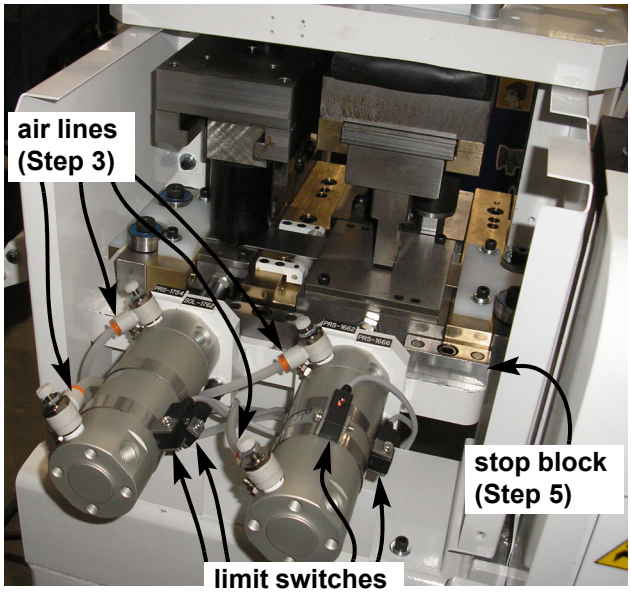


Remove these two screws on operator side of the feeder press

3. From the non-operator side of the Feeder Press, disconnect the pneumatic air lines on both cylinders. (See following photo.)
4. Mark the positions of the limit switches with a marker, then remove them from the cylinders.
5. Remove the stop block shown in following photo.

6. Remove the two screws on each cylinder's mounting bracket (shown in photograph below).
7. Carefully slide each cylinder, mounting bracket, and die assembly straight out of the Feeder Press non-operator side. Pull the assemblies straight out; do not wiggle them from side to side.





Die Assemblies, Non-Operator Side

8. Place the assemblies on a sturdy, clean, flat, surface.
9. Remove the top sections.
10. Carefully clean the dies with a soft, dry cloth, or a soft cloth moistened with air tool oil.
11. Check the dies carefully for wear or damage. Contact GED to obtain replacements for worn or damaged dies.
12. Re-assemble the dies.
13. Re-install the assemblies into the Press. Push them straight in; do not wiggle them from side to side.
14. Re-install the cylinder mounting bracket screws securely. Tighten them to 75 ft-lbs.
15. Test the machine before starting production.

Rollformer Maintenance

Cleaning the Rolls

1. Turn OFF the Main Power Disconnect, and lock and tag it out.
2. Remove the guards.
3. Clean each roll carefully with a soft, dry cloth. If build-up is significant, use graffiti cleaner or a strong paint solvent, with a 3M™ Scotch-Brite™ #7445 Light Duty (White) Finishing Pad.
4. Re-attach the guards. Make sure they are securely fastened in place.
5. Make sure no one else is working on the machine. Make sure it is safe to re-connect the power. Remove the lock and tag, and turn the Main Power Disconnect ON.
6. Turn the MAN/AUTO switch to MAN, and press Master Start.
7. Use either Rollformer JOG switch to jog the Rollformer just enough to turn the rolls 1/2 turn.
8. Press MASTER STOP. Turn the Main Power Disconnect OFF, lock and tag it out.
9. Remove the guards.
10. Clean each roll carefully with a soft, dry cloth. If build-up is significant, use graffiti cleaner or a strong paint solvent, with a 3M™ Scotch-Brite™ #7445 Light Duty (White) Finishing Pad.
11. Re-attach the guards. Make sure they are securely fastened in place.
12. After all maintenance is complete, remove the lock and tag from the Main Power Disconnect.

Checking the Roll Lubricator Nozzle Output

1. Make sure all safety guards are securely fastened in place.
2. Make sure no one else is working on the equipment, and that it is safe to operate the machine.
3. Make sure the muntin material is NOT threaded through the machine (the machine is empty).
4. Turn the Main Power Disconnect ON.
5. Turn the MAN/AUTO switch to MAN, and press Master Start.
6. Use either Rollformer JOG switch to jog the Rollformer for about 30 seconds.
7. Turn the Main Power Disconnect OFF, and lock and tag the power out.
8. Remove the guards.
9. Check the Pass #11 bottom roll for lubrication, make sure it is “wetted”.

Greasing Chains, Sprockets, and Shafts

1. Lock-out/tag-out the electrical power. Remove the guards.
2. Lightly grease each chain, sprocket, and shaft.
3. Check each sprocket and shaft for damage. Replace any damaged parts.
4. Check each chain for wear, damage, and proper tension. Replace worn or damaged chains. Adjust chain tension as necessary. See “Chain Tension Adjustment” on page 4-61.
5. Re-install the guards.

Cutoff Maintenance

NOTICE: Always keep aluminum fines cleaned up. See Combustible/Explosible Fines warning on page 1-8, and Maintenance Chart, page 5-3.

Greasing the Bearing Fittings on the Saw Shaft

1. Turn the Main Power Disconnect OFF, and lock and tag it out.
2. Remove the guards.
3. Grease the bearing fitting on the saw shaft.
4. Re-install the guards.

Checking the Belt

1. Turn the Main Power Disconnect OFF, and lock and tag it out.
2. Inspect the belt carefully for wear or damage. Replace it if necessary.
3. Tug on the belt to test the tension. Adjust as necessary.

After Completing Maintenance

1. Remove all tools, cleaning supplies, and other maintenance equipment.
2. Make sure all safety guards and devices are securely fastened in the proper position.
3. Make sure no one else is working on the machine, and that it is safe to restore power.
4. Unlock and remove the tag out and re-connect the main air supply.
5. Unlock and remove the tag out and turn the Main Power Disconnect ON.
6. Press each Emergency Stop button. Make sure each button shuts off the power. Then, pull the Emergency stop back out and restart the machine.

WARNING

If ANY Emergency Stop button fails this test, have the machine repaired immediately. Do NOT attempt to use the machine for production until it is repaired!

Using the Maintenance Log

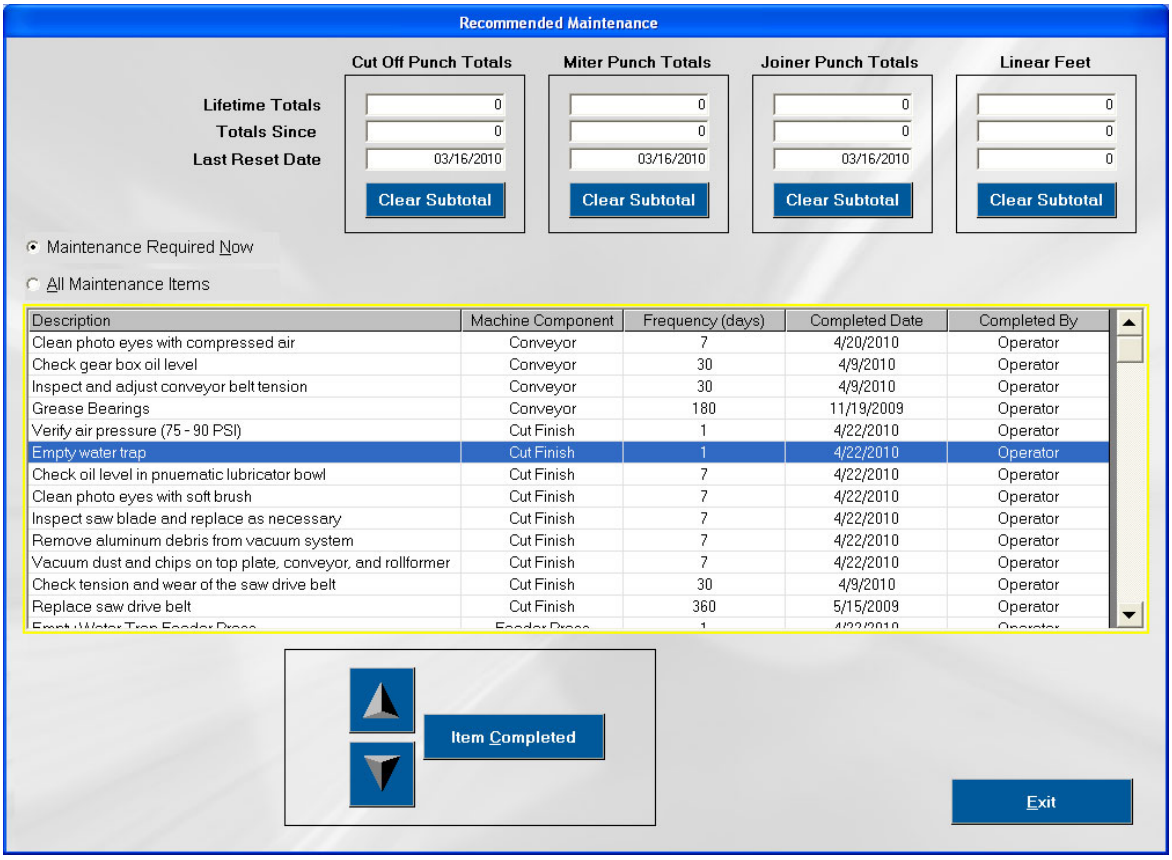
The Maintenance Log automatically appears on the screen when the Main Power Disconnect is turned ON and software starts. You can also display and work with the Maintenance Log at any time by selecting:

Maintenance > View Maintenance Schedule.

The following explains how to use the Maintenance Log.

1. Complete all recommended maintenance. Replace any worn or damaged components. Contact GED Customer Service if you need any spare parts or supplies, or have any questions about the equipment.
2. Make sure it is safe to restore power to the machine. Remove any lock and tag outs.
3. Turn the Main Power Disconnect ON.

4. When the Maintenance Log appears on the screen, make sure the ‘Maintenance Required Now’ option is selected.



Recommended Maintenance Screen

5. Use the up and down arrow keys to highlight the first completed maintenance item.
6. Select ‘Item Completed’. The item you selected is removed from the ‘Maintenance Required Now’ list. The software will automatically update the Maintenance Log.
7. Repeat Steps 5 and 6 for each completed maintenance item.
8. When all maintenance items are logged in, select Exit.

6

Troubleshooting

Troubleshooting Tips

Follow the maintenance recommendations. Regular maintenance can prevent many problems. Make sure only qualified personnel have access to restricted functions and passwords.

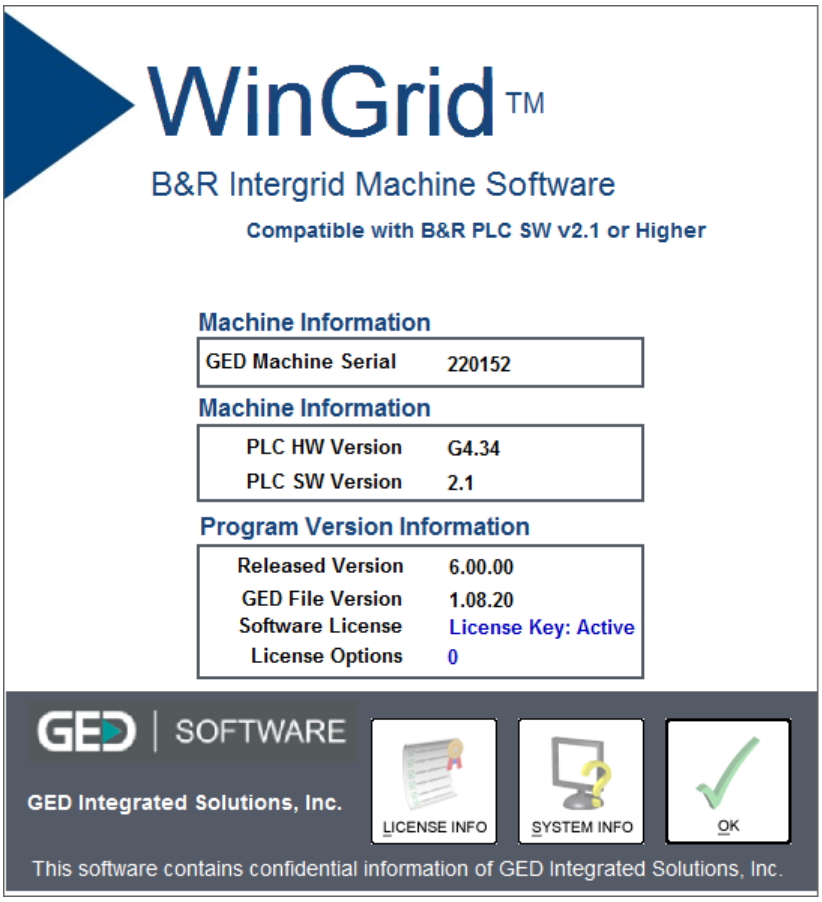
When troubleshooting any piece of equipment, check operator adjustments or parameters first. If a parameter, setting, or adjustment is not correct, the machine may appear to be malfunctioning when it is actually performing according to the specified settings.

Next, check for wear items, such as filters or belts. Replace wear items on a regular basis. Check for blown fuses. Check each component carefully.

Follow the troubleshooting steps on the following pages in the order they are shown. These steps should correct most machine problems.

Also, refer to the supplied machine drawings for additional information.

If the problem still exists, contact GED Customer Service for additional assistance. If possible, have the information from the About Screen available when contacting GED. To display the About Screen, select Help > About. The screen is shown below.



About Screen

Contact information:

31100 Diamond Pkwy.
Glenwillow, OH 44139
(330) 963-5401
Fax: (216) 539-0677
www.gedusa.com

Using Intergrid Diagnostics

If a problem occurs during production, check the computer screen. WinGrid™ software will list possible problems on the screen. A red "X" will appear over the picture of any part of the system that is not operating properly (Main Electrical Cabinet, Uncoiler, Loop Control 1, Feeder Press, Loop Control 2, Rollformer, Cutoff, and Exit Conveyor). Usually, following the on-screen suggestions will quickly eliminate the problem. Yellow "Xi will appear and disappear as the machine operates.

If the problem requires more extensive troubleshooting, WinGrid™ software provides sophisticated, time-saving troubleshooting tools to help get the machine back up and running quickly, including PLC Tables, I/O Statuses, Event Logs, and Remote Diagnostics.

Using the Remote Diagnostics

The Remote Diagnostics feature allows GED to communicate directly with your WinGrid™ system. Do not activate this option unless instructed to do so by a GED Technical. Contact GED Customer Service at (330) 963-5401 for more information.

Reviewing the Logs

WinGrid™ software keeps a log of all events and errors. To view these logs, you must first log-in with an Administrator level ID.

Reviewing the Daily Run Log

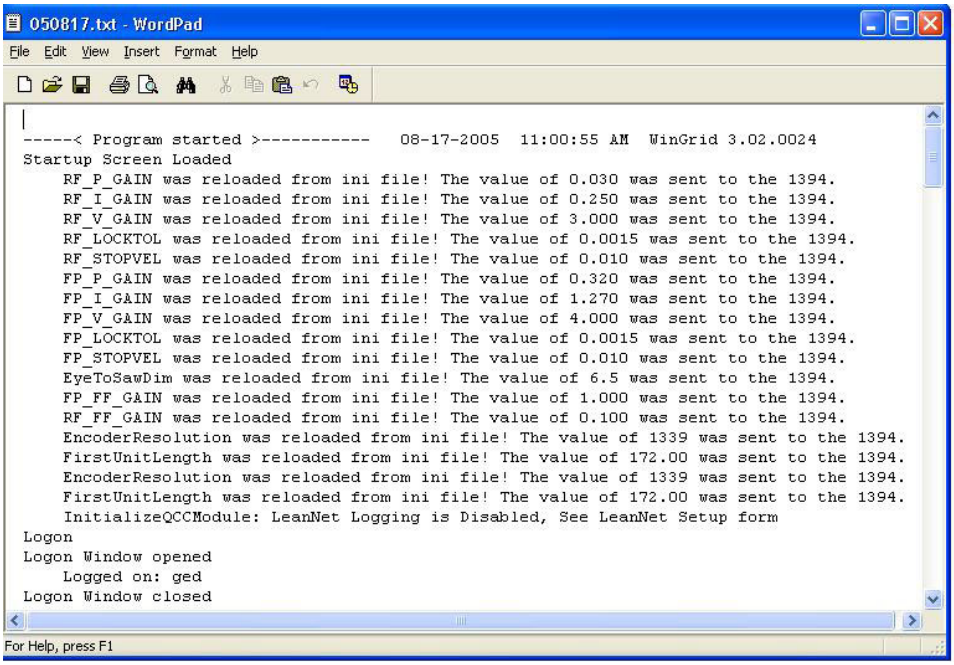
The software keeps a log of all events and errors. To view the log, you must first log-in with an Administrator level ID.

Note: A new log is created every day. Each log file is kept for 1 week.

1. From the Main screen, select the following:

   Maintenance > View Daily Run Log

The Daily Run Log displays, as shown below. It is displayed in the Microsoft® WordPad application.



Daily Run Log

2. When you are finished viewing the log, close WordPad to return to the WinFrame Main screen.

Checking the Inputs and Outputs

The Input/Output Table, shown below, displays the current state of all the digital inputs and outputs of the motion controller at the time the screen is opened.

Each input or output in the table has a circular indicator:

Red = ON / TRUE

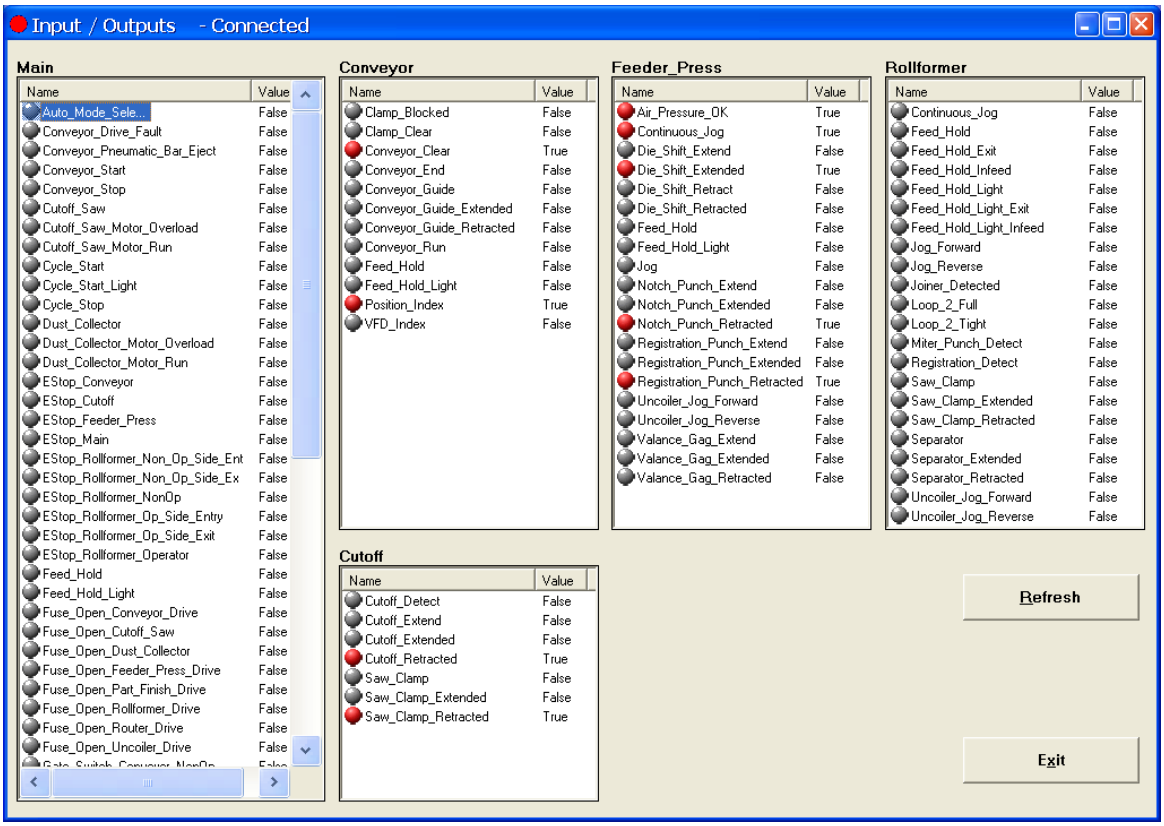
Gray = OFF / FALSE

To update the data in the screen, press the Refresh button. (The screen may not correctly represent rapidly changing data.)

(You cannot manually turn outputs on and off from the I/O screen.)

To access the Input/Output Table screen, select the following:

Diagnostics > Input and Output Tables



Input/Output Table

Automated Test Routines

WinGrid™ provides five automated test routines which emulate the sequence of operation for the machine when it is running in Automatic mode. Running these routines enables you to test the inputs and outputs on the PLC.

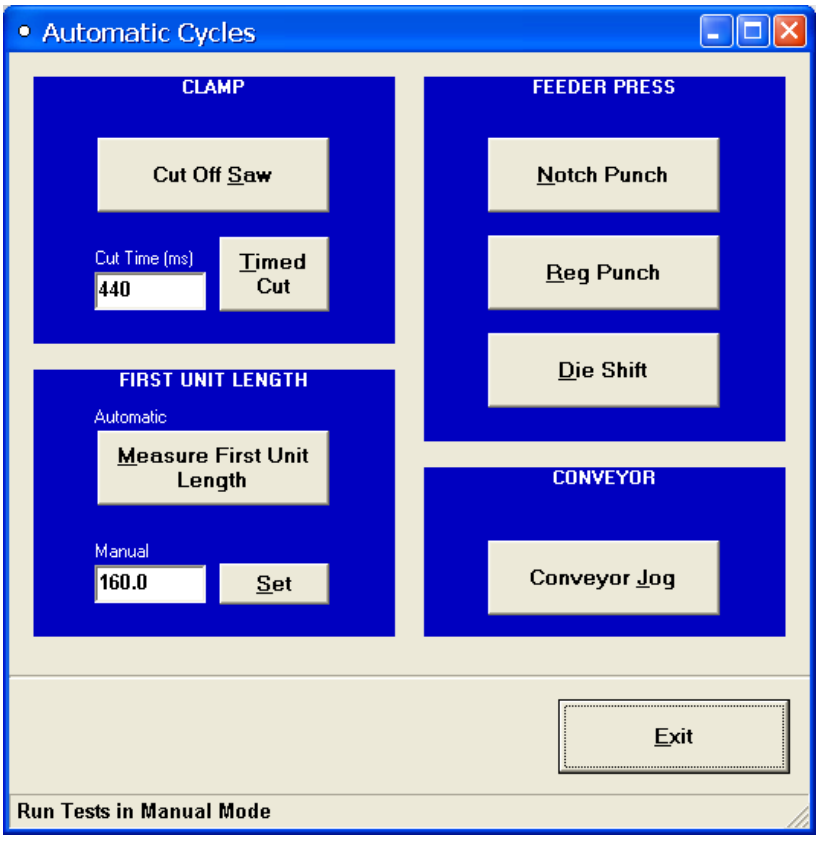
To access the automated test routines:

1. Press Master Start.
2. Turn the AUTO/MAN switch to MAN.
3. From the Main screen, select the following:

   Diagnostics > Automatic Cycle Diagnostic

   A prompt appears that reads, “Caution! Saw motor will start. Continue?”
4. Ensure all guards are in place around the Cutoff saw, and then select Yes.

   The Automatic Cycles Screen appears, as shown below.



Automatic Cycles Screen

5. Select the appropriate button to initiate the action you want to test. Refer to the following sections for information about the logic of each test routine.

Note: The “Measure First Unit Length’ option is explained under “Setting the First Unit Distance” on page 4-8.

Conveyor Jog

The Conveyor Jog button turns the Conveyor on until it is read by the Conveyor VSD Index Photoeye. When you select the Conveyor Jog button, the following routine occurs:

1. The system first checks that Master Start is ON and Auto mode is not ON. If this is true, the system proceeds to logic in Step 2.
2. The system then checks that the Conveyor Clear Photoeye (PE-1) and Conveyor Full Prox. are not ON. If this is true, the system proceeds to the logic in Step 3.
3. The system checks that Conveyor Jog button in WinGrid™ has been selected. If this is true, the system then performs the following actions:
   a. Starts the Conveyor Motor.
   b. When the Conveyor VSD Index Photoeye (PE-2) comes ON, the system stops the Conveyor. Test complete.

Notch Test

The Notch Test button extends the dies in the Feeder Press that make the notch on the material. When you select the Notch Test button, the following routine occurs:

1. The system first checks that Master Start is ON and Auto mode is not ON. If this is true, the system proceeds to logic in Step 2.
2. The system then checks that the Feeder Press Notch Punch Retract limit switch (Input 3, LS-8) is ON. If this is true, the system proceeds to the logic in Step 3.
3. The system checks that the Notch Test button in WinGrid™ has been selected. If this is true, the system proceeds to the logic in Step 4.
4. The system checks that the Feeder Press Jog button is NOT pressed. If this is true, the system then performs the following actions:
   a. Activates the Feeder Press Notch Punch solenoid (Output 10, Sol-1).
   b. Waits for the Feeder Press Notch Punch Extend limit switch (Input 4, LS-9) to be initiated.
   c. Deactivates the Feeder Press Notch Punch solenoid and waits until the Feeder Press Notch Punch Retract limit switch is initiated. Test complete.

Registration Punch Test

The Registration Punch Test button extends the registration punch block. When you select the Reg Punch Test button, the following routine occurs:

1. The system first checks that Master Start is ON and Auto mode is not ON. If this is true, the system proceeds to logic in Step 2.
2. The system then checks that the Feeder Press Registration Slot Punch Retract limit switch (Input 7, LS-16) is ON. If this is true, the system proceeds to the logic in Step 3.
3. The system checks that the Reg Punch Test button in WinGrid II i-3 has been selected. If this is true, the system proceeds to the logic in Step 4.
4. The system checks that the Feeder Press Jog button is NOT pressed. If this is true, the system performs the following actions:
   a. Activates the Feeder Press Registration Slot Punch solenoid (Output 11, Sol-4).
   b. Waits for the Feeder Press Registration Slot Punch Extend limit switch (Input 8, LS-17) to initiate.
   c. Deactivates the Feeder Press Registration Slot Punch solenoid (Output 11, Sol-4) and waits until the Feeder Press Registration Slot Punch Retract limit switch is initiated. Test complete.

Cut Off Saw

The Cut Off Saw button raises and lowers the Cutoff saw. When you select the Cut Off Saw button, the following routine occurs:

1. The system first checks that Master Start is ON and Auto mode is not ON. If this is true, the system proceeds to logic in Step 2.
2. The system then checks that the Saw Motor Contactor is ON and the Saw Motor Overload is not tripped. If this is true, the system proceeds to the logic in Step 3.
3. The system then checks that the Saw Clamp Retract (Input 9, LS-10) and the Cutoff Retract (Input 12, LS-13) limit switches are initiated. If this is true, the system proceeds to the logic in Step 4.
4. The system checks that the Cut Off Saw button in WinGrid II i-3 has been selected. If this is true, the system proceeds to the logic in Step 5.
5. The system checks that the Rollformer Jog Forward and Reverse Switch is not ON. If this is true, the system energizes the Saw Clamp solenoid (Output 13, Sol-2) and waits for the Saw Clamp Extend limit switch (Input 10, LS-11) to initiate.

6. Once the Saw Clamp Extend limit switch initiates, the system performs the following actions:
   a. Energizes the Cutoff Saw solenoid (Output 14, Sol-3) and waits for the Cutoff Extend limit switch (Input 11, LS-12) to initiate.
   b. Once the Cutoff Saw Extend limit switch initiates, the system de-energizes the Cutoff Saw solenoid and waits for the Cutoff Retract limit switch to initiate.
   c. Once the Saw Retract limit switch initiates, the system de-energizes the Saw Clamp solenoid and waits for the Saw Clamp Retract limit switch. Test complete.

Note: The Timed Cut button causes the saw cylinder to extend for a short period of time specified in the 'Cut Time (ms)' field, then retract. This is used for making a partial cut in the muntin bar for measuring the blade width.

Die Shift

Select the Die Shift button once to extend the Feeder Press notch die; select Die Shift again to retract the notch die. When you select the Die Shift button, the following routine occurs:

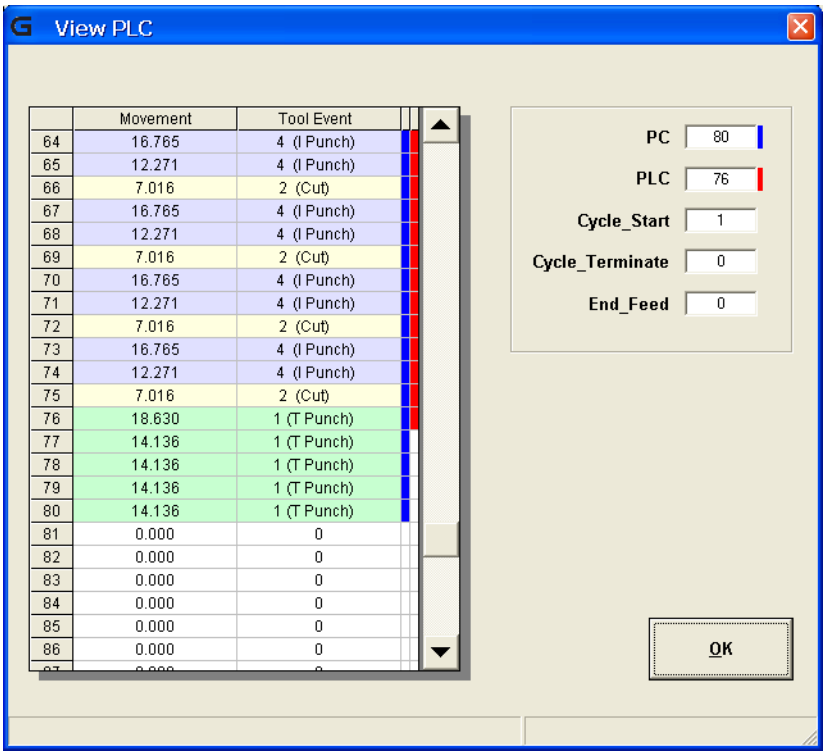
1. The system first checks that Master Start is ON and Auto mode is not ON. If this is true, the system proceeds to logic in Step 2.
2. The system then checks that the Die Shift button in WinGrid® II i-3 has been selected. If this is true, the system activates the Die Shift Extend solenoid (Output 4, Sol-5).
3. The system waits for the Die Shift Extend limit switch (Input 15, LS-19) to initiate.
4. If the Die Shift button in WinGrid® II i-3 is selected again, the activates the Die Shift Retract solenoid (Output 5, Sol-6).
5. The system waits for the Die Shift Retract limit switch (Input 10, LS-18) to initiate. Test complete.

Checking the PLC Table

The PLC Table is a powerful troubleshooting tool. It shows the actual movement and tooling events that were sent from the PC to the motion controller.

To access the View PLC Table screen (shown below), select the following from the Main menu:

Diagnostics > PLC Table



View PLC Screen

The View PLC screen shows a history of the last 100 data points sent to the motion controller. Use the arrow keys to scroll down through the data.

The Punches tooling events show which tool was engaged after the last move.

- A #1 tool event is a “notch”.
- A #2 tool event is a “Cutoff registration punch”.
- A #3 tool event is a “Cutoff registration punch followed by a conveyor jog”.

The Conveyor advances after every cut off. A #3 tool event adds an extra conveyor jog after the event. This leaves an empty Conveyor slot between muntin unit IDs during production.

PC - Reports the last movement/event the PC has calculated. This is also indicated by the blue vertical bar at the right side of the table.

PLC - Reports the last movement/event received by the PLC from the PC. This is also indicated by the red vertical bar at the right side of the table.

Cycle Start - A flag bit indicating the PLC has received a cycle start signal.

Cycle Terminate - A flag bit indicating the PLC has processed the last of the movement/tool events sent by the PC.

End Feed - A flag bit indicating the PLC has received a command signal to feed the last muntin bar out of the Rollformer.

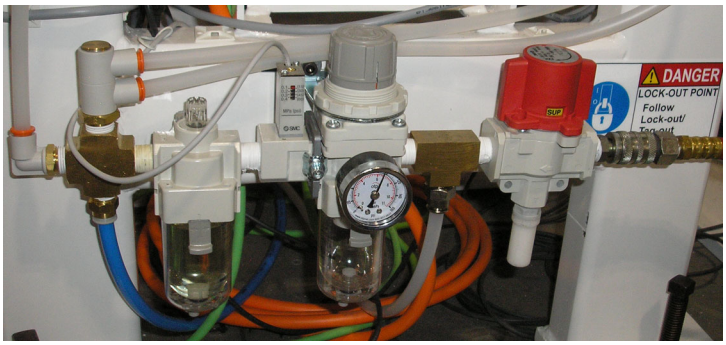
General Troubleshooting Steps

If a problem develops during production software will try to help you solve the problem. Check the computer screen. Follow any on-screen suggestions that appear. If any part of the Intergrid® system is marked with a red "X", refer to the section for that part in the following pages (for example, if the Uncoiler is marked with an "X", check the Uncoiler section in this chapter) and follow the suggestions listed there.

The problems listed in the following table are general problems, and may not appear on the screen.

Symptom	Solution
There is no display on the Computer Monitor	1. Ensure the Main Power Disconnect is ON. 2. Ensure the computer and monitor are turned ON (look for green glowing LEDs on the computer and monitor). 3. Ensure the cables from the computer and monitor are firmly plugged in. 4. Ensure the video cable is connected tightly and securely to the back of the computer and the monitor. 5. Adjust the brightness and contrast controls located on the back or side of the monitor. 6. Ensure the monitor and computer are both plugged into the UPS located next to the computer. 7. Ensure the ON/OFF switch on the UPS is ON and glowing. If not, press the reset button located below the ON/OFF switch. 8. Ensure the UPS located inside the Main Electrical Cabinet is ON, and the battery is not dead. Contact GED for assistance with the UPS.

Symptom	Solution
Master Start will not come ON	1. Ensure the Main Power Disconnect is ON. 2. Ensure the MANUAL/AUTO switch is set to MANUAL. 3. Ensure all Emergency Stop buttons are pulled out (see diagram below for location of all Emergency Stop buttons). 4. Ensure all safety guards are securely fastened in place. Make sure all safety gates are closed (see diagram below for locations of safety gates). 5. Return to the Main screen, and then turn the Main Power Disconnect OFF. Wait one minute, and turn it back ON. 6. Check the air pressure. It should be set at 90 psi @ 6 CFM. 7. Check the pressure limit switch. It should be set at 40 - 50 PSI.
Nothing happens when Cycle Start is pressed, or Master Start is lost when Cycle Start is pressed	1. Press Cycle Stop, select Start on the computer screen, then press Cycle Start again. 2. Check the screen. Follow any on-screen suggestions. If any machines in the picture of the Intergrid® system are “X”-ed out in red, refer to the troubleshooting suggestions for those machines. 3. Ensure the MODE switch on the Main Electrical Cabinet is in the AUTO position. 4. Ensure the material is not jammed anywhere in the machine. 5. Ensure the air pressure is ON and set correctly. 6. Ensure all safety guards are in place. 7. Access the Main screen. Turn the Main Power Disconnect OFF. Wait one minute, and turn it back ON.
Movement in AUTOMATIC Mode Trips out Master Start	1. Check the screen. Follow any on-screen suggestions. If any machines in the picture of the Intergrid® system are “X”-ed out in red, refer to the troubleshooting suggestions for those machines. 2. Ensure the Loop Controls do not have tight loops. If so, see the Loop Control sections. 3. Ensure the material strip is not caught or hung up between the Uncoiler and the Press. 4. Turn the Main Power Disconnect OFF. Wait one minute, and turn it back ON. 5. Check the air pressure. Make sure it is 90 psi @ 6 CFM.
Air Pressure and Saw Motor OK, Machine Guards in Place	If an alarm appears on the screen, but the machine will not operate, ensure all Emergency Stop and Feed Hold buttons are pulled out.

Symptom	Solution
Feeder Press Guard Switch, Rollformer Guard, Switch Saw Guard Switch	1. The message shown below indicates that one (or possibly more) safety guards are not securely fastened in place. **Caution:** *Never attempt to operate the machine unless ALL safety guards and devices are securely fastened in the proper position!* • Carefully check the guards for the station that appears in the error message. Ensure they are securely fastened in the correct position. • Ensure the safety gates at the Exit Conveyor are shut. • Ensure the safety barriers around the Loop Controls are in place. • Ensure all Emergency Stop buttons are pulled out (see diagram).
Low Air Pressure on Machine	1. Ensure the main air pressure is ON. 2. Check the FRL on the Feeder Press, as shown in the photograph below. Ensure the air is ON and the pressure is set to 90 PSI.  *FRL on the Feeder Press*

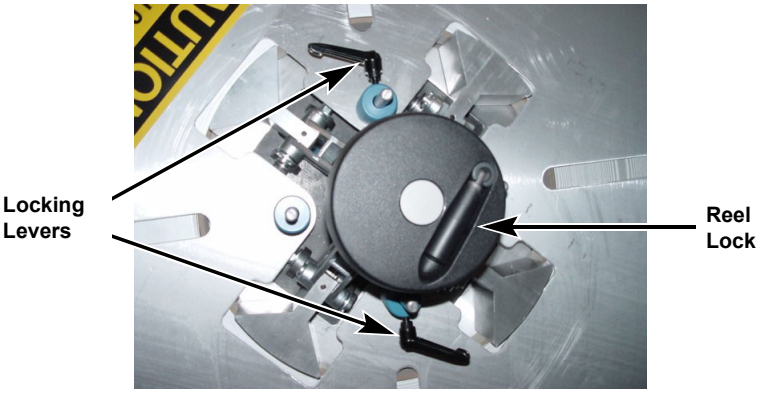
Uncoiler

The Uncoiler holds and unrolls the raw muntin material. Always inspect the material before mounting it. Poor quality material will produce poor quality muntins, and may cause the machine to malfunction. Do not jam the metal cover plate against the material coil, but be sure to close the locking handles tightly. Always make sure the Uncoiler cart is secured to the floor and firmly plugged in before operating the machine.

When a large "X" appears over the Uncoiler, follow the on-screen troubleshooting suggestions and carefully inspect the Uncoiler and material.

The table below lists common symptoms and solutions for the Uncoiler.

Symptom	Solution
The Uncoiler will not Jog	1. Ensure the material is not caught or hung up, and that it can unroll freely. 2. Ensure the MODE switch on the Main Electrical Cabinet is set to MAN. 3. Ensure the Main Power Disconnect and Master Start are ON. 4. If you are jogging another station (Feeder Press, Rollformer) make sure the Continuous Jog switch on the Feeder Press control panel is ON. When Continuous Jog is OFF, the Uncoiler and/or Feeder Press will not operate when another station is jogged. 5. Ensure the power cord is firmly plugged into the Uncoiler, and that the coils are securely locked in position 6. Ensure the coil carousel is fully rotated into position and the locking pin is engaged. 7. Reset the machine as follows: a. Turn the Main Power Disconnect OFF. Wait 1 minute. b. Ensure the material coil is mounted correctly and securely. c. Ensure the MODE switch is set to MAN. Press Master Start. d. Try jogging the Uncoiler again.

Symptom	Solution
The Uncoiler operates, but the material does not uncoil, or uncoils slowly.	1. Ensure the reel locking hand wheel is tight. To tighten, turn the reel lock counter-clockwise; to loosen, turn clockwise. Refer to the photograph below.  *Uncoiler Locking Mechanisms* 2. The cover plates are too tight against the coil. Ensure there is a slight gap between the cover plate and the coil so that the material does not scratch the cover plate. 3. The Uncoiler drive parameters may be incorrect or the Uncoiler has lost its programming parameters. For the proper parameters, refer to the electrical drawings included with your machine.
The Uncoiler "Ran Away" in AUTO Mode	1. Make sure the material is not jammed or tangled on the Uncoiler. 2. Make sure the material is threaded through a strip centering weight. 3. Try to jog the Uncoiler as follows: a. Turn the MODE switch to MAN. b. Cut the material strip close to the Feeder Press. c. Press Master Start. d. Try jogging the Uncoiler forward (use the Uncoiler Jog FWD switch on the Feeder Press control panel). If it won't jog, see Uncoiler Will Not Jog. 4. Make sure Loop Control 1 is working properly. 5. Reset the machine as follows: a. Turn the Main Power Disconnect OFF. Wait 1 minute. b. Make sure the material coil is mounted correctly and securely, and threaded through a strip centering weight. c. Turn the Main Power Disconnect back ON. d. Make sure the MODE switch is set to MAN. Press Master Start. e. Try jogging the Uncoiler again, using the Uncoiler Jog FWD switch on the Feeder Press control panel.

Symptom	Solution
Out of material message	1. Do not use the last 10' of material on a coil. 2. Check the new material before loading it. Do not use dirty or damaged material. Do not use material that is too large, too small, or has too much camber. Refer to C*hapter 3 - Operation*, “Loading and Changing Coils” on page 3-16. 3. Load the new material.

Loop Control 1

Loop Control 1 monitors how much material is unrolled off the Uncoiler, and how much material the rest of the Intergrid line is using. Its job is to make sure that there is always enough material available for the Feeder Press, but not so much that the material is dragging on the floor.

When a large “X” appears over the Loop Control 1, follow the on-screen troubleshooting suggestions and carefully inspect Loop Control 1 and material.

The table below lists common symptoms and solutions for Loop Control 1.

Symptom	Solution
Loop Control 1 will not maintain proper loop	1. If the problem occurs in MAN mode, make sure the Continuous Jog switch is ON. If Continuous Jog is OFF, the Uncoiler will not operate when the Feeder Press is jogged. This will cause a tight loop. 2. Ensure the material is threaded through a strip centering weight. The weight keeps the material within the area that the Loop Control can “see”, and allows the Loop Control to accurately determine the amount of material in the loop. 3. For a Dual Uncoiler, make sure the Uncoiler cart is properly centered and locked into place. 4. Test the Loop Control, make sure it is working properly. Refer to “Testing the Loop Control” on page 6-17.

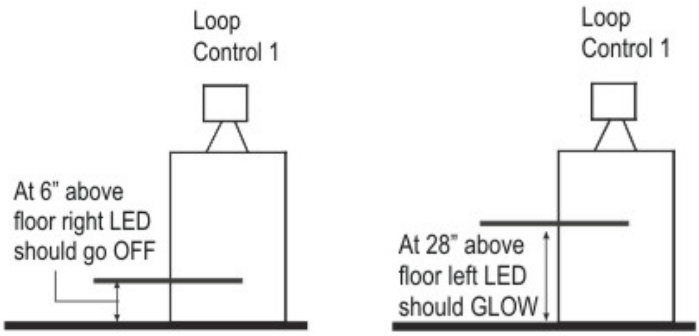
Symptom	Solution
Loop Control 1 has a tight loop	1. If the problem occurs in MAN mode, make sure the Continuous Jog switch is ON. If Continuous Jog is OFF, the Uncoiler will not operate when the Feeder Press is jogged. This will cause a tight loop. 2. Ensure the material is not jammed or tangled on the Uncoiler or Feeder Press. 3. Ensure the material is threaded through a strip centering weight. 4. Cut the material strip close to the Feeder Press, and press Master Start. 5. Try to jog the Uncoiler. a. Turn the MODE switch to MAN. b. Press Master Start. c. Try jogging the Uncoiler forward. If it won't jog, see Uncoiler Will Not Jog. 6. Make sure the Loop Control is working properly. Refer to “Testing the Loop Control” on page 6-17.
Loop Control 1 has a full loop	1. Ensure the material is threaded through a strip centering weight. 2. Press the Feed Hold button on the Feeder Press. 3. Turn the MODE switch on the Main Electrical Cabinet to MANUAL. 4. Jog the Uncoiler in REVERSE to take up the excess material. 5. Ensure the material is loaded correctly and securely on the Uncoiler.

Testing the Loop Control

Test Procedure

1. Use a piece of wood or metal long enough to reach under the transducer as a target. Refer to the electrical schematics for programming parameters.
2. Start at the floor, and slowly raise the target. The right LED (LED # 2 Full Loop) should go out when the target is approximately 49" from the transducer.
3. Continue to raise the target. The left LED (LED #1 Tight Loop) should go out when the target is approximately 24" from the transducer.

4. If either one fails to light properly, ensure the program (mode settings) are correct in Loop Control.



Testing the Loop Control

Checking the Loop Control 1 Mode Settings

1. Press either the M-UP or M-DN buttons. “A1” will appear in the display.
2. To display the current value of Mode 1, press V-UP or V-DN.
3. Continue to press M-UP or M-DN to step through the modes.
4. Press V-UP or V-DN to display the value for any mode.
5. To change the values for any mode, first enable the programming as described in “Enabling and Disabling Programming for Loop 1”. Be sure to disable the programming when finished.

Enabling and Disabling Programming for Loop 1

To enable programming:

1. Press M-UP or M-DN until the display reaches Mode 34.
2. Press V-DN. The display will read “EEEE”.
3. Press these keys in order: M-DN, M-UP, V-DN, V-UP. The EEEEs on the display will disappear as key is pressed.
4. As the last E disappears, “0000” will flash on the display for one second, then the distance will reappear. The unit is ready for programming.

To disable programming:

1. Press M-UP or M-DN until the display reaches Mode 34.
2. Press V-UP. The display will read “EEEE”.
3. Press these keys in order: M-DN, M-UP, V-DN, V-UP. The EEEEs on the display will disappear as key is pressed.
4. As the last E disappears, “PPPP” will flash on the display for one second, then the distance will reappear. The programming mode is off.

Lundahl Loop Controller - Loop 1 Mode Values

Note: Mode 30 must be set first before changing other parameters when changing to/from metric.

Mode	English Values	Metric Values	Description
1	40	40	Sensitivity
2	.78	.78	Minimum range in feet
3	10	10	# of sensor pulses per reading
4	2	2	# of samples to average
5	1	1	# of out-of-range samples to ignore
6	12.0	.30	Out-of-range distance (inches or meters)
7	24.0	.61	Tight loop activation point (inches or meters)
8	25.0	.63	Tight loop deactivation point (inches or meters)
9	2	2	Tight loop hysteresis type
10	48.0	1.22	Full loop deactivation point (inches or meters)
11	49.0	1.24	Full loop activation point (inches or meters)
12	5	5	Full loop hysteresis type
13	35.0	.89	not used
14	39.0	.99	not used
15	0	0	not used
16	40.0	1.01	not used
17	44	1.11	not used
18	0	0	not used
19	44	1.14	Endpoint for 0vdc signal output (inches or meters)
20	30.0	.76	Endpoint for 10vdc signal output (inches or meters)
21	0	0	Signal output fine tuning (factory set)
22	3860	3860	Signal output fine tuning (factory set)
24	0	0	not used
25			
26	1	1	Multiplier

Mode	English Values	Metric Values	Description
27	0	0	not used
28	0	0	not used
29	0	0	not used
30	6	3	Units displayed in: tenths of inches or meters
31	0	0	Temperature compensation off
32	77	77	Reset enable/disable
33			
34			Programming enable/disable

Feeder Press

The Feeder Press punches slots and notches in the raw muntin material. The notches are used to assemble the finished muntins. The Intergrid® system uses the registration slot to determine the beginning and endpoints (cut off point) for each muntin.

When a large "X" appears over the Feeder Press image on the bottom of the Production Screen, follow the on-screen troubleshooting suggestions and carefully inspect the Feeder Press and material.

The table below lists common symptoms and solutions for the Feeder Press.

Symptom	Solution
Material jams in the punching dies or does not punch cleanly	1. Check the computer screen. If software displays a specific Feeder Press error message, follow the steps suggested for that error message in the following pages. 2. Inspect the material. Make sure it is not damaged or dirty. 3. Check for width and camber. Do not use material that does not meet the size specifications, or that has excessive camber. 4. The dies are contaminated with metal or paint build-up. Remove and clean the dies, as described in "Removing, Cleaning, and Inspecting the Die Assemblies" on page 5-10. 5. The feed rolls are not parallel with the guide rollers on the die. The die assembly may need to be repositioned with respect to the feed rolls. 6. The dies are dull and require replacement. Verify that an excessive burr is not present after the notches have been punched.

Symptom	Solution
“Feed Hold” alarm received	1. Check the Exit Conveyor. If it is full, remove several muntins and press the Foot Switch located on the floor beneath the Conveyor. 2. Ensure all Feed Hold buttons are pulled OUT. Make sure the safety gate on the Conveyor guard is securely closed. 3. Try operating the machine again (if a batch is already loaded, select Start, then press Cycle Start on the Main Electrical Cabinet). 4. Ensure the Cutoff saw is working. 5. Ensure the Uncoiler and Conveyor drives are not faulted.
In a batch, “PC Pointer = PLC Pointer” alarm received	The machine is waiting for data from the PC. 1. On the Run Production screen, select Stop. 2. Select Start, and then press Cycle Start to restart the batch. 3. If the error occurs again, have a qualified maintenance person check all cables and connections. Refer to the drawings. 4. Ensure the PC and motion controller are communicating with each other. 5. If the problem persists, contact GED Customer Service.

Symptom	Solution
Waiting on... **Notcher Retract LS** **Notcher Extend LS** **Registration Hole Retract LS** **Registration Hole Extend LS** **Die Shift Retract Extend LS**	The notcher or registration slot punch or dies are not working properly. The message on the screen should specify the exact source of the problem. Damaged, dirty, or poor quality material can cause problems. Always inspect raw muntin material carefully, and do not attempt to use substandard material. Check for width and camber, do not use material that does not meet the size specifications, or that has excessive camber. 1. Ensure the Main Air Pressure is ON. 2. Check the air pressure on the Feeder Press, make sure it is set to 90 psi. 3. Remove and clean the punches and dies. Regular cleaning can help prevent problems, see *Chapter 4 - Maintenance*, "Removing, Cleaning, and Inspecting the Die Assemblies" on page 5-10. 4. Ensure the limit switches mounted on the punch cylinders are working. Adjust or replace them as necessary. Refer to the drawings as necessary. 5. If the problem still occurs: a. Turn the Mode switch on the Main Electrical Cabinet to MAN. b. Log on with a valid Administrator ID and password. c. Select Diagnostics > Input and Output Tables. d. Check the inputs and ensure they are correct. e. Select Diagnostics > Automatic Cycle Diagnostics. Do a notch or punch test and note any changes on the I/O Table. • For Notcher errors, press the Notch Test button. • For Registration Slot errors, press the Reg Punch Test button. Red inputs or outputs indicate the input or output module is active. To correct the errors, close the WinGrid HMI application by selecting Production > Exit, and then lock-out/tag-out electrical power to the machine. Refer to the appropriate drawing to investigate the errors. Check all connections, wires, and fuses. Repair or replace components as necessary.

Symptom	Solution
"Waiting on Lock Status" alarm received	1. Cycle the MAN/AUTO switch: a. Turn the Mode switch on the Main Electrical Cabinet to MAN. b. Press Master Start. c. Turn the Mode switch on the Main Electrical Cabinet to AUTO. d. Select Start on the Run Production screen, then press Cycle Start to restart production. 2. If the problem occurs again, have a qualified maintenance person perform the following checks, making repairs or replacing components as necessary. a. Turn the Main Power Disconnect OFF, and tag it out. a. Check the Feeder Press encoder cable, refer to the drawing to locate the correct cable. Make sure all connections are secure and the cable is not damaged. b. Check the quick disconnect cables in the junction boxes on the Feeder Press and Main Electrical Cabinet. Make sure they are secure and undamaged. c. Check the resolver and power cables on the servo motor and motion controller.
"Feeder Press Axis Runaway" alarm received	1. Cycle Emergency Stop. a. Turn the Mode switch on the Main Electrical Cabinet to MAN. b. Press Master Start. c. Turn the Mode switch to AUTO. d. Make sure all Emergency Stop buttons are pulled out. e. Select Start on the Run Production screen**,** then Cycle Start to restart the batch. 2.If the problem persists, contact GED Customer Service.

Symptom	Solution
100 & 200 Level Errors	Errors with 100 or 200 level numbers should rarely occur. For all 100 or 200 level errors: 1. Press the Emergency Stop button on the Main Electrical Cabinet. 2. Pull out all Emergency Stop switches. 3. Close the program and shut down the machine by pressing Production > Exit. Turn the Main Power Disconnect to OFF. 4. Turn the Main Power Disconnect ON. 5. Turn the Mode switch to MAN and press Master Start. 6. Turn the Mode switch to AUTO. Restart the batch by pressing **ALT + S**, then Cycle Start. 7. For errors: 101 - Encoder Noise or Loss Fault 104 - Position Error Tolerance Fault 200 - Resolver Loss Fault Have a qualified maintenance person check all cables and connections, including the Feeder Press encoder cable. Refer to the drawings as necessary. 8. If the problem persists, contact GED Customer Service.

Loop Control 2

Loop Control 2 monitors the amount of material that exits the Feeder Press and enters the Rollformer. Its job is to make sure that there is enough punched material ready to feed into the Rollformer, but not so much that the material drags on the floor.

When a large “X” appears over Loop Control 2, follow the on-screen troubleshooting suggestions and carefully inspect Loop Control 2 and material.

The table below lists common symptoms and solutions for Loop Control 2.

Symptom	Solution
Loop Control 2 has a tight loop	1. Press Feed Hold on the Rollformer Control Panel. 2. Turn the Mode switch on the Main Electrical Cabinet to MAN. 3. Turn Continuous Jog on the Feeder Press Control Panel to ON. 4. Press and hold Jog Feed on the Feeder Press Control Panel until Loop Control 2 has a sufficient loop. 5. Wipe off photoeyes with a soft cloth. Do not use solvents. 6. If the problem occurred during production, the software will not know how much additional material was jogged through the Feeder Press, so it will not be able to make the current muntin correctly. Be sure to add this muntin to your Remake list.
Loop Control 2 has a full loop	1. Turn the Mode switch on the Main Electrical Cabinet to MAN. 2. Turn Continuous Jog on the Feeder Press Control Panel OFF. 3. Wipe off photoeyes with a soft cloth. Do not use solvents. 4. Use either Rollformer Jog switch to jog the Rollformer FWD until the excess material is taken up. 5. If the problem occurred during production, turn the Mode switch on the Main Electrical Cabinet back to AUTO, and press Cycle Start.

Rollformer

When operating the Rollformer in MAN mode, turn the Continuous Jog switch on the Feeder Press ON, so that a loop will remain between the Rollformer and the Feeder Press.

If finished muntins have too much bow, and the material does not have too much camber, have a qualified maintenance person adjust the plate at the exit end of the Rollformer. If the finished muntins have a mottled or dirty looking finish, and the raw material is fine, clean the Rollformer rolls.

When a large “X” appears over the Rollformer, follow the on-screen troubleshooting suggestions and carefully inspect the Rollformer and material.

The table below lists symptoms and solutions for the Rollformer.

Symptom	Solution
Rollformer will not jog in manual Mode	1. Ensure Master Start on the Main Electrical Cabinet is ON (the button is glowing), and the Mode switch on the Main Electrical Cabinet is set to MAN. 2. Check for and remove any jammed, doubled-up or damaged material lodged in the Rollformer. 3. Ensure Loop Control 2 has sufficient material. If Loop Control 2 has a tight loop, see Loop Control 2 has a Tight Loop. 4. Ensure the Conveyor is at an indexed position. 5. Ensure the Cut Off saw is clear (the cylinders are fully retracted). 6. Reset the machine. • Turn the Main Power Disconnect OFF. Wait 1 minute. • Ensure the material coil is mounted correctly and securely. • Ensure the Mode switch is set to MAN. Press Master Start. 7. Try jogging the Rollformer again.
“Feed Hold” alarm received	1. Ensure all Feed Hold buttons (see diagrams) are pulled out. 2. Press Cycle Start on the Main Electrical Cabinet.
“Waiting on Lock Status” alarm received	1. Cycle Emergency Stop: • Press the Emergency Stop button on the Main Electrical Cabinet, then pull it out. • Turn the Mode switch on the Main Electrical Cabinet to MAN. • Press Master Start. • Turn the Mode switch on the Main Electrical Cabinet to AUTO. • Press **ALT + S**, then Cycle Start to restart production. 2. If the problem appears again, have a qualified maintenance person perform the following checks, making repairs or replacing components as necessary. • Turn the Main Power Disconnect OFF, and lock and tag it out. • Check the Rollformer encoder cable, refer to the drawing. Ensure all connections are secure and the cable is not damaged. • Check the cables on the Rollformer and Main Electrical Cabinet. • Check the resolver and power cables at both ends.

Symptom	Solution
"Rollformer Axis Runaway" alarm received	1. Cycle Emergency Stop: • Press Emergency Stop on the Main Electrical Cabinet, then pull it out. • Turn the Mode switch on the Main Electrical Cabinet to MAN. • Make sure all the Emergency Stop buttons are pulled out. • Press Master Start. • Turn the Mode switch to AUTO. • Select Start, then Cycle Start to restart the batch. 2. If the problem persists, contact GED Customer Service.
100 & 200 Level Errors	Errors with 100 or 200 level numbers should rarely occur. For all 100 or 200 level errors: 1. Press the Emergency Stop button on the Main Electrical Cabinet, then pull it out. 2. Close the program and shut down the machine. Navigate to the File menu, and then select the Exit option. Turn the Main Power Disconnect OFF. Wait 1 minute. 3. Turn the Main Power Disconnect ON. 4. Turn the Mode switch to MAN, and press Master Start. 5. Re-start the batch. 6. For errors: 101 - Encoder Noise or Loss Fault 104 - Position Error Tolerance Fault 200 - Resolver Loss Fault 7. Check all cables and connections, including the Feeder Press encoder cable. Refer to the drawings as necessary. 8. If the problem persists, contact GED Customer Service.
Irregular Rollformer operation such as overshoot, rough motion, excessive motor humming	Make sure: • The Encoder Wheel is not slipping on the material. • The Encoder Coupling is secure. • The Motor Coupling is secure. • The rolls are adjusted properly. • The chain is lubricated and tight. • The material is not dragging (i.e. Loop 2 not pulled tight). • The sprockets have not shifted, and are not worn.

Cutoff

The Cutoff saws the notched, formed muntin material into individual muntin bars. Dull, worn, or damaged saw blades will produce poor cuts, inspect the cut ends of the finished muntin bars, and replace or adjust the saw if necessary.

When a large “X” appears over the Cutoff, follow the on-screen troubleshooting suggestions and carefully inspect the Cutoff and material.

The table below lists common symptoms and solutions for the Cutoff.

Symptom	Solution
Saw Clamp Extended LS **Saw Clamp Retract LS** **Cutoff Saw Extend LS** **Cutoff Saw Retract LS**	1. Make sure the Main Air Pressure is ON. Ensure the pressure is 90 psi. 2. Have a qualified maintenance person check the saw clamp and blade assemblies, and repair or replace components as necessary. Check the components indicated on the WinGrid® II i-3 screen first. 3. If the problem still occurs, turn the Mode switch on the Main Electrical Cabinet to MAN. 4. Access the Input and Output Tables by selecting Diagnostics > Input and Output Tables from the Main screen. 5. Do a notch or punch test, and note any changes on the I/O Table. Select the Cut Off Saw button. Red inputs or outputs mean the input or output is ON. 6. Select Exit. When the Main screen appears, close by selecting the Run Production menu, then **X** to close the program. 7. Turn the Main Power Disconnect OFF, and lock and tag it out. Refer to the drawings to investigate any errors. Check all connections, wires, and fuses. Repair or replace components as necessary.
Cutoff Saw Motor Errors	1. If the error message indicates the Saw Motor Overload is tripped, have a qualified maintenance person lock out the Main Power Disconnect and reset the overload. 2. Have a qualified maintenance person make sure the motor start coil is working properly.

Exit Conveyor

The Exit Conveyor moves the finished muntin bars from the point where they exit the Cutoff to the operators station, where the operator removes the bars from the Conveyor. Each Conveyor slot is numbered, and corresponds to a row on the Muntin Table on the Production screen. Match the Conveyor Slot ID to the Table on the screen to determine which unit a particular muntin bar belongs with.

A proximity switch located near the operators station is triggered when the last slot in the Exit Conveyor is filled, putting the whole system in a Feed Hold state. Clear some of the slots in the Conveyor, and press the Foot Switch to resume production.

When a large "X" appears over the Exit Conveyor, follow the on-screen troubleshooting suggestions and carefully inspect the Exit Conveyor and material.

The table below lists common symptoms and solutions for the Exit Conveyor.

Symptom	Solutions
"Conveyor Full, Waiting on Foot Switch" alarm received	Every available slot on the Conveyor is full; the machine cannot put any more muntins in the Conveyor. 1. Remove muntins for at least one unit from the Conveyor. Refer to the WinGrid® II i-3 screen as necessary to determine which unit or units the muntins belong to. 2. Press the Foot Switch located on the floor beneath the Conveyor. The machine should resume production. 3. Clean the proximity switch with a soft, dry cloth.
Exit Conveyor will not advance when the foot switch is pressed	1. Ensure there are no muntin bars in the last slot (the slot closest to the operator). 2. Clean the proximity switch. 3. Ensure all Feed Hold buttons are pulled out (see diagram). 4. Ensure Master Start is ON (button was pressed and is glowing). 5. Select Start to start the batch. 6. Press Cycle Start to begin production.
"Drive Fault" alarm received	Cycle the Emergency Stop: • Press the Emergency Stop button on the Main Electrical Cabinet, then pull it out. • Turn the Mode switch on the Main Electrical Cabinet to MAN. • Press Master Start. • Turn the Mode switch on the Main Electrical Cabinet to AUTO. • Select Start, then Cycle Start to restart production.

Symptom	Solutions
“Conveyor not at an Indexable Position” alarm received	1. Ensure the photoeyes are clean, and securely fastened in the proper location. Refer to the drawings for the location of photoeyes. 2. Align the Conveyor photoeyes.

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