Read this manual before using product. Failure to follow instructions and safety precautions can result in serious injury, death, or property damage. Keep manual for future reference.
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1. Introduction

Thank you for purchasing a AGI APEX Control System. This equipment will allow safe and efficient operation when you read and follow all of the instructions contained in this manual. With proper care, your control system will provide you with many years of trouble-free operation.

Keep this manual handy for frequent reference and to review with new personnel. A sign-off form is provided on the inside front cover for your convenience. If any information in this manual is not understood or if you need additional information, please contact your local distributor or dealer for assistance.

This manual should be regarded as part of the equipment. Suppliers of both new and second-hand equipment are advised to retain documentary evidence that this manual was provided with the equipment.

1.1. Intended Use

The control system is designed solely for use in the intended agricultural use as listed below. Use in any other way is considered as contrary to the intended use. Compliance with and strict adherence to the conditions of operation and maintenance as specified by the manufacturer, also constitute essential elements of the intended use.

The control system should be operated, maintained, serviced, and repaired only by persons who are familiar with its particular characteristics and who are acquainted with the relevant safety procedures.

Accident prevention regulations and all other generally recognized regulations on occupational health and safety must be observed at all times.

Any modifications made to the control system may relieve the manufacturer of liability for any resulting damage or injury.

**Intended use for the control system:**
- Designed for automatic control of dryer components such as fans, burners, fill and unload equipment.

Use in any other way is considered as contrary to the intended use and is not covered by the warranty.
2. Safety

2.1. Safety Alert Symbol and Signal Words

This safety alert symbol indicates important safety messages in this manual. When you see this symbol, be alert to the possibility of injury or death, carefully read the message that follows, and inform others.

**Signal Words:** Note the use of the signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTICE** with the safety messages. The appropriate signal word for each message has been selected using the definitions below as a guideline.

- **DANGER:** Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death.
- **WARNING:** Indicates a hazardous situation that, if not avoided, could result in serious injury or death.
- **CAUTION:** Indicates a hazardous situation that, if not avoided, may result in minor or moderate injury.
- **NOTICE:** Indicates a potentially hazardous situation that, if not avoided, may result in property damage.

2.2. General Product Safety

**YOU** are responsible for the **SAFE** use and maintenance of your control system. **YOU** must ensure that you and anyone else who is going to work around the control system understands all procedures and related **SAFETY** information contained in this manual.

Remember, **YOU** are the key to safety. Good safety practices not only protect you, but also the people around you. Make these practices a working part of your safety program. All accidents can be avoided.

- It is the control system owner, operator, and maintenance personnel's responsibility to read and understand **ALL** safety instructions, safety decals, and manuals and follow them when operating, or maintaining the equipment.

- Owners must give instructions and review the information initially and annually with all personnel before allowing them to operate the control system. Untrained users/operators expose themselves and bystanders to possible serious injury or death.

- The control system is not intended to be used by children.

- Use the control system for its intended purposes only.

- Do not modify the control system in any way without written permission from the manufacturer. Unauthorized modification may impair the function and/or safety, and could affect the life of the control system. Any unauthorized modification will void the warranty.

- Follow a health and safety program for your worksite. Contact your local occupational health and safety organization for information.
3. Features

This section covers the main features of the control system.

AGI APEX Control Systems are built for use in either continuous flow mode or batch mode.

Figure 1. AGI APEX Control System and Sensors

(drawing not to scale)
4. Installation

Before continuing, ensure you have completely read and understood this manual’s Safety section, in addition to the safety information in the section(s) below.

4.1. Installation Safety

⚠️ WARNING

• The equipment shall be installed in accordance with applicable local codes and regulations.
• All installation and servicing operations are to be carried out by qualified technicians.
• Do not take chances with safety. The components can be large, heavy, and hard to handle. Always use the proper tools, rated lifting equipment, and lifting points for the job.
• Always have two or more people installing the control system.
• Make sure you have sufficient lighting for the work area.
• Tighten all fasteners according to their specifications. Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.

4.2. Check Shipment

Inspect the control system and accessories on receipt to ensure that all items have arrived and that none are damaged.

Report missing or damaged parts immediately to ensure that proper credit is received from Westeel or your distributor/dealer, and to ensure that any missing parts can be shipped quickly to avoid holding up the installation.

**Important**

Do not use damaged components.

4.3. Before You Begin

Before you assemble the control system:

• Familiarize yourself with all the sub-assemblies, components, and hardware that make up the equipment.
• Have all parts and components on hand, and arrange them for easy access.
• Separate the hardware (bolts, nuts, etc.) and lay them out into groups for easier identification during assembly.

4.4. Bolt Tightening

Remember the following basic considerations when tightening bolts:

• Tighten all fasteners to the torque specified in . Do not replace or substitute bolts, nuts, or other hardware that is of lesser quality than the hardware supplied by the manufacturer.
4.5. General Assembly Instructions

**Important**
The following portion of this manual along with the accompanying Non-Original Equipment Manufacturer (OEM) assemblies instructions give the necessary assembly details and drawings to enable you to successfully complete the construction of these AGI APEX Control System.

1. Determine the main power disconnect location.
2. Mount and Install the PLC and HMI.
3. Connect the power to the PLC.
4. Install the top fill switch.
5. Install the OPTIONAL wet bin empty sensor.
6. Install the full storage sensor.
7. Install the low grain sensor.
8. Install the OPTIONAL dry bin full sensor.
9. On batch units, install the batch empty sensor.
10. Install the grain temperature probes and cables from these probes to the PLC.
11. Install the plenum temperature sensor.
12. Install the static pressure sensor.
13. Install the outside humidity and temperature sensor.
14. Wire the HMI - PLC connections.
15. Wire the HMI-PLC Cat6 cable connection.
16. Wire the wet and dry transport panels to the PLC.
17. Wire fans and heaters to PLC connections.
18. Wire the dump relay to PLC connections.
19. Wire aeration fan to PLC connections.

**Important**
Not following the manufacturer’s installation instructions correctly or not wiring these Controls for this product and system correctly will void all Westeel warranties.
4.6. Install the PLC and HMI

PLC and HMI come standard with an internal heater and thermostat to allow operation in frigid temperatures.

1. Choose the locations for the PLC (Programmable Logic Controller) panel and HMI (Human Machine Interface) panel.
   a. Mount the PLC on or near the bin. Mount the PLC so that it is always in the shade. To reduce the length of wiring required, position the PLC near the fans and heaters.
   b. Locate the HMI indoors. If it is necessary to place the unit outside subject to temperature and weather extremes, an optional weather enclosure kit is available. Do not install the touch screen in direct sunlight. Place it on the side of the bin that is always in shade. Ultraviolet light from the sunlight will damage the touch screen.

2. Connect the power to PLC.
   a. After connecting power to the PLC, make sure to lockout and tag out all power to the PLC, only then continue the installation.

   **WARNING** After connecting power to the PLC, make sure to lockout and tag out all power to the PLC, only then continue the installation.
4.7. Sensor Assemblies

**WARNING** Before installing any sensors, switches, or probes, Shut Off, Lockout, and Tag-out all power to the system. The power must remain locked out and tagged out until the installation is complete.

4.7.1 Rotary Level Indicator Sensors

**Important**
Read all Bin Master® Sensor instructions for wiring and further installation instructions.

*Figure 4. *Bin Master® Sensors General Installation (Rotary Level Indicator)
Install the Top Fill Switch

The Bin Master® Maxima+ fill switch controls when the transports start and stop filling the plenum with wet grain.

1. Set a jumper inside the switch so it will send signals to the system properly. See the Maxima Plus Switch note in the AGI APEX Control System Wiring instructions (Part Number GI7972).

2. At the selected EasyDry bin roof sheet, measure 30” (762 mm) from the top of the sheet and drill a 2” (51 mm) hole. (See Figure 5.)

3. Install the top fill switch as shown in Figure 6.

Figure 5. Drill the Top Fill Switch Hole
Figure 6. Install the Top Fill Switch

Westeel recommends using a cotter pin inside the bin instead of the provided roll pin to allow easier disassembly! *

* Use a 3/32” diameter x 1 1/4” stainless steel cotter pin.

Completed Top Fill Switch Assembly Drawing

AGI APEX – CONTROL SYSTEM
4. INSTALLATION
Install the Wet / Dry / Low / Full Storage Sensors

Full Storage Sensor
Install the full storage sensor (Westeel Part Number M006441) at a minimum distance of 32” [813 mm] below the fan(s) entrance level. Install this sensor near the ladder or reachable from the spiral stairs. This sensor is used to prevent grain from entering into the fans or heaters. See Figure 7 for installation instructions.

Wet Bin Empty Sensor (Optional)
Install the wet bin empty sensor (Westeel Part Number M006443) at the lowest part of the wet bin sidewall. This sensor indicates when the wet grain supply is empty. See Figure 7 for installation instructions.

Dry Bin Full Sensor (Optional)
Install the dry bin full sensor (Westeel Part Number M006443) at the highest fill location in the dry storage bin. See Figure 7 for installation instructions.

Figure 7. Example — Wet / Dry / Low / Full Storage Sensors Installation

Use a cotter pin* inside the bin instead of the provided roll pin to allow easier disassembly. (Cotter pin not supplied)

* Use a 3/32” diameter x 1 ¼” stainless steel cotter pin.
**Low Grain Sensor (Optional)**

Determine how high to place the low grain sensor (Westeel Part Number M006443) based on the slope on the center well of the type of grain that will most frequently be put in this bin. Install the switch as shown in **Figure 8**.

**Figure 8. Low Grain Sensor Location**
Install the Batch Empty Sensor

Install the batch empty sensor (Westeel Part Number M006443) through the bin wall and plenum flashing. Install the sensor in the position closest to the plenum floor at a location where two plenum flashing sheets overlap. Make sure the sensor can rotate freely. See Figure 9 — Figure 11.

**Important**

Install the batch empty sensor side mount plate and field drill batch empty sensor holes during flashing installation. Refer to EasyDry Bin Dryer Manual (Part Number 250050) for flashing installation instructions.

Figure 9. Batch Empty Sensor Installation
Figure 10. Batch Empty Sensor Installation — Side View

Figure 11. Completed Batch Empty Sensor Assembly — Side View
4.7.2 Temperature, Humidity and Static Pressure Sensors

Important
Read all Dwyer® Probe and Sensor instructions before installation.

Install Grain Temperature Probes
1. Remove one knockout in the temperature probe (Westeel Part Number M006437) for the cable gland. Install the cable gland and secure with inner plastic nut.

   Note
   Refer to AGI APEX Control System Wiring Instructions (Part Number GI7972) to correctly complete the temperature probe cable wiring installation for the temperature probes.

2. Install the probes to the temperature probe brackets using the self-drilling screws packaged with the probes.

3. Identify the location of the grain probes around the lowest ring of the plenum grain bands.
   a. Space the probes equally around the bin diameter.
   b. Locate the temperature probes away from and approximately equally spaced from the fans / between-fans center-line.

   Figure 12. Locating the Grain Temperature Probes — Two Fans
   Figure 13. Locating the Grain Temperature Probes — One Fan

4. Install the temperature brackets to the grain bands using 5/16” x 1” bin bolts and 5/16” flanged hex nuts. Locate the probe approximately 8” — 9” above the plenum sheet.
5. Run the probe cable towards the PLC.
   a. Run the cable up the back side of the grain band post angle and along to the top of the uppermost grain band.
   b. Run the cable along the top of the grain band until the point is reached under the roof rib near to the PLC.
   c. Use cable clips, zip ties, or the like to secure the cables.
Figure 15. Routing the Grain Temperature Probe Cable

6. Span the cable from the top of the grain band to the under-side of roof rib above the exit location. Secure the cable to the roof rib bolts using cable bolt clips (not supplied by Westeel).

7. Exit the cable from the grain bin at the roof rib bird stop location.

8. Run the cable down the bin to the PLC.
Figure 16. Cabling from the Grain Temperature Probes to the PLC

* - GRAIN TEMPERATURE PROBE

(_SHADED) FOUR GRAIN BAND POSTS WITH PROBES

ROOF SHEET
EXIT ROOF RIB
CABLE COMING FROM PROBES
SAMPLING HATCH
PUMP UNIT
PLC

* - GRAIN TEMPERATURE PROBE

Δ - CABLE EXIT LOCATION
Install Plenum Temperature Sensor
This sensor signals the heater when to turn on and off.

1. Position the plenum temperature sensor (Westeel Part Number M006437) to the side of the one or two fans.
   - **If there is one fan:** locate the sensor near the fan but at least 2’ (610 mm) to the side of the fan.
   - **If there are two fans:** locate the sensor in the middle between both fans.

2. Field drill a 3/8” hole in the bin wall at the install location. Install the sensor using 3/4” x #10 self-drilling TEK screws.

3. Apply caulking around screws.

**Figure 17. Installing the Plenum Temperature Sensor**

![Diagram of Plenum Temperature Sensor installation](image)

Install Plenum Static Pressure Sensor
1. Select a mounting location for the static pressure sensor (Westeel Part Number M006665). Consider the items below when choosing a sensor location.
   - clean and dry,
   - free from excessive vibration, and
   - temperature will remain between 20 °F to 122 °F (-6 °C to 50 °C)

2. Westeel recommends to place the sensor in the fan / heater control panel, in a vertical orientation only, with pressure connections pointing down.

   **Note**
   Always install or route the tubing below the sensor input port to prevent any condensation that may build up in the line from reaching the sensor and shorting it out.

3. Run the supplied tubing between a location near the fan to the static pressure sensor. This tubing will make an airway between the inside-bin and sensor.
Install Outside Humidity and Temperature Sensor

1. Install the outside humidity and temperature sensor (Westeel Part Number M006421) outside the bin anywhere on the side of the bin that is always shady.

   **Note**
   Westeel recommends installing this sensor near/close to the PLC outside of direct sunlight for more accurate readings.

2. Mount with the sensor pointing downward to prevent water collection in the housing.
4.8. Wire Between HMI and PLC

**WARNING** Before installing any wires or equipment to the HMI or PLC, Shut Off, Lockout, and Tag-out all power to the system. The power must remain locked out and tagged out until all wires and equipment installations to the HMI or PLC are complete.

**Important**
Follow the AGI APEX Control System Wiring Instructions (Part Number GI7972) for all required field connections.

1. HMI-PLC wire connections.
   a. Use 16 gauge AWG 600 Volt minimum or higher rated wire for all connections.
   b. Connect like named terminals in the HMI with the like named terminals in the PLC.

Figure 21. PLC Wiring Terminals

![PLC Wiring Terminals Diagram]

2. HMI-PLC Cat6 cable connection.
   a. Run a standard shielded Cat6 Ethernet Cable from the HMI to PLC panel at the designated locations in each box.
Figure 22. HMI-PLC Cat6 Cable Connection
Figure 23. HMI — Interior View

Figure 24. PLC — Interior View
4.9. Wire Wet and Dry Transport Panel to PLC

Run wires from the wet and dry transport panels back to the PLC. See the AGI APEX Control System Wiring Instructions (Part Number GI7972).

4.10. Wire Fans and Heaters to PLC

1. Run all wires to fans and heaters from the PLC. System will include either:
   a. one fan and one heater; or,
   b. two fans and two heaters.
2. Install the fan relay kit into the fan and heater control box(es).
3. Install the relay wiring as indicated in the AGI APEX Control System Wiring Instructions (Part Number GI7972).
   Important
   All field installed relays are mandatory to be installed, but are sold optionally by Westeel. Relay kits sold by Westeel are available for required field installed relays.

4.11. Wire HPU Dump Relay Box to the PLC

Run wires from the Hydraulic Pump Unit (HPU) Dump relay box to the PLC. See the AGI APEX Control System Wiring Instructions (Part Number GI7972).

4.12. Wire Aeration Fan to the PLC

Run wiring back to the PLC. Install this required relay inside the fan control box. See the AGI APEX Control System Wiring Instructions (Part Number GI7972).
   Important
   All field installed relays are mandatory to be installed, but are sold optionally by Westeel. Relay kits sold by Westeel are available for required field installed relays.
5. Operation

Before continuing, ensure you have completely read and understood this manual’s Safety section, in addition to the safety information in the section(s) below.

5.1. Operation Safety

- Ensure appropriate safety accessories are installed. Selection and use of safety accessories for the specific installation is the responsibility of the customer.
- Ensure the heater is connected to the appropriate gas supply and the gas selector valve is properly set.
- The area around the heater should be kept clear and free from combustible materials and other flammable liquids.
- Ensure the fan inlet, outlet, bin floor ductwork and roof vents are not plugged with any foreign material.
- Keep away from fan impeller/blade; high suction can pull a person toward the inlet. Contact with an unguarded impeller/blade will cause severe injury.
- Always operate with guards, covers, and shields in place.
- Do not operate the fan if there is excessive vibration or noise.
- Ensure maintenance has been performed and is up to date.
- Have another trained person nearby who can shut down the equipment in case of accident.
- Never allow anyone to enter the grain bin when a fan and heater is operating. Gases given off by the burner (including carbon monoxide and carbon dioxide) could cause death.
- Ensure that electrical cords are in good condition; replace if necessary.
- When heater is not in use, shut off gas valve on heater and at gas source.
5.2. EMERGENCY STOP Control

The AGI APEX Control System is equipped with an EMERGENCY STOP button that, when pushed, immediately initiates the EMERGENCY STOP sequence.

**WARNING**

The equipment and power equipment connected to the AGI APEX Control System includes moving parts, rotating fans, extreme heat, and electrical power, all of which can cause death or injury when the appropriate safety procedures are not followed.

Activate the EMERGENCY STOP if necessary to limit or avert danger to persons or damage to equipment.

**To activate the EMERGENCY STOP, push the emergency stop button on the HMI or PLC.**

**Figure 25. Emergency Stop Button Location**

“PUSH” the emergency stop on the HMI or PLC to completely STOP from running and shut off power to any equipment controlled by the AGI APEX Control System!

After the safety concern is resolved, reset the emergency stop by twisting the EMERGENCY STOP button. Twisting the button will return the system to normal operating mode.
5.3. HMI Buttons, Icons, and Features Identification

**Note**
In every case, buttons appear BLUE when turned on and appear BLACK when turned off.

**Inactive Buttons or Sensors**
- BLACK SENSOR / PUSH BUTTON
- GRAY VALUE DISPLAY WINDOW READ ONLY NO CHANGE
- DARK VALUE DISPLAY WINDOW USER ADJUSTABLE WITHIN RANGE LIMITS

**Active Buttons or Sensors**
- BLUE SENSOR / PUSH BUTTON
- BLUE VALUE DISPLAY WINDOW COMPLETE

**Icon Identification**
- ALARM
- WARNING
- STOPPED LAMP
- RUNNING LAMP
- HELP
- LOGIN

**Menus**
- DROPDOWN BOX
- SERVICE CONTACT INFORMATION
5.4. The Human Machine Interface (HMI)

For AGI APEX Control System Systems that use an AGI APEX Control System, the AGI APEX Control System uses the Human Machine Interface (HMI) to setup, operate, and monitor system operation. The HMI consists of a graphical, touch-sensitive display that allows the operator to access a variety of “screens”, each of which provides access to information and control of the system.

HMI screens include:

- MAIN
- MANUAL
- SETUP
- TEMPS
- TEMPERATURE LIMITS
- TIMERS
- ADVANCED TIMERS 1
- ADVANCED TIMERS 2
- RECIPES
- STATUS
- TREND GRAPHS
- ACTIVE ALARMS
- ALARM HISTORY

By tapping the appropriate on-screen “button”, display box, or other feature on the HMI’s touch-sensitive screen, the operator can open other screens, turn equipment ON and OFF, select boxes to enter values or change parameters, and perform other setup and control functions.

To operate any item of equipment in the system, press the button (on the screen) for that equipment to turn it ON. Tap the button again for that equipment to turn it OFF.

The following pages provide information on each of these screens.
5.4.1 The Popup Keypad

During the setup and operation process alpha-numeric information must be entered into the HMI. A alpha-numerical keypad is displayed whenever a number or text field that requires input is selected.

To use the keypad:

1. Select a field that requires text or numeric input.
   The alphabetic keypad appears.
2. Enter the text as required.
3. To enter a numeric value, tap the 123 button.
   The keypad changes to a numeric keypad.
4. To enter a symbol, tap the ?$! button.
   The keypad changes to a symbol keypad.
5. After entering a value, tap ENTER to return to the previous screen.

**Note**
To exit the keypad tap the ESC (escape) button.

![Figure 26. The Popup Keypad](image-url)
5.4.2 The MAIN Screen

The MAIN screen is the starting point for operation of the AGI APEX Control System. From this screen the operator can select the type and mode of operation, START and STOP the system, monitor pressure, temperatures, remaining drying time, dump count and the operational status of the system. Pressing buttons on a menu bar across the bottom of the screen allows the operator to navigate to other screens to access additional information and setup/control functions.

When power is applied to the system after it has been off, the first screen to appear will be the MAIN screen. However, during the power on process the following notification may appear first.

Figure 27. “The USB Device is Connected” Notification

1. Tap the X icon to clear this message.

The MAIN screen should appear.

Figure 28. The MAIN Screen
### Table 1. MAIN Screen Options and Descriptions

<table>
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<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>BATCH</td>
<td>Button</td>
<td>Tapping this button selects BATCH operation. To operate the unit in BATCH mode, first tap AUTO, and then tap BATCH.</td>
</tr>
<tr>
<td>2</td>
<td>AUTO</td>
<td>Button</td>
<td>Tapping this button selects AUTO mode of operation. Selecting AUTO will immediately switch the system out of MANUAL mode, and the MANUAL button will become deselected.</td>
</tr>
<tr>
<td>3</td>
<td>START</td>
<td>Button</td>
<td>Tapping this button STARTs the dryer.</td>
</tr>
<tr>
<td>4</td>
<td>STOP</td>
<td>Button</td>
<td>Tapping this button STOPs the dryer.</td>
</tr>
<tr>
<td>5</td>
<td>RUN STATUS</td>
<td>Indicator</td>
<td>This indicator is lit when the system is running.</td>
</tr>
<tr>
<td>6</td>
<td>STATIC PRESSURE</td>
<td>Pressure value</td>
<td>This indicator displays the static pressure measured by a system pressure sensor.</td>
</tr>
<tr>
<td>7</td>
<td>PLENUM TEMP</td>
<td>Temperature value</td>
<td>This indicator displays the temperature of the plenum as measured by the plenum temperature sensor.</td>
</tr>
<tr>
<td>8</td>
<td>GRAIN TEMP</td>
<td>Temperature value</td>
<td>This indicator displays the temperature of the grain as measured by a grain temperature sensor.</td>
</tr>
<tr>
<td>9</td>
<td>DRYING TIME REMAINING</td>
<td>Time value</td>
<td>This indicator displays the calculated drying time remaining in the current operation.</td>
</tr>
<tr>
<td>10</td>
<td>DUMP COUNT</td>
<td>Numeric value</td>
<td>This displays the current number of dumps. To reset this value, tap this counter display. A popup window will be displayed asking if you want to reset the dump counter. Tap YES on the popup window to complete the reset operation.</td>
</tr>
<tr>
<td>11</td>
<td>AERATION FAN</td>
<td>ON/OFF</td>
<td>Tapping this button turns ON or OFF the aeration fan. Ensure there is grain covering the bin floor to prevent possible damage to the bin floor.</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.
5.4.3 The MANUAL Screen
(for burners with HIGH/LOW control)

**Figure 29. The MANUAL Screen (for burners with HIGH/LOW control)**

Table 2. MANUAL Screen Options and Descriptions

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MANUAL Button</td>
<td>Tapping this button toggles between MANUAL and AUTO modes of operation.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>STOP Button</td>
<td>Tapping this button STOPs the system.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>DRY 1 Button</td>
<td>Tapping this button toggles between DRY 1 ON and OFF</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>DRY 2 Button</td>
<td>Tapping this button toggles between DRY 2 ON and OFF</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>WET 1 Button</td>
<td>Tapping this button toggles between WET 1 ON and OFF</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>WET 2 Button</td>
<td>Tapping this button toggles between WET 2 ON and OFF</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>FAN 1 Button</td>
<td>Tapping this button toggles between FAN 1 ON and OFF</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>BURNER 1 LOW</td>
<td>Tapping this button toggles between BURNER 1 LOW ON and OFF.</td>
<td>After the button is pressed the pre-purge timer will delay for 15 seconds before attempting to ignite the burner for 10 seconds. If the burner fails to ignite after 10 seconds, the unit will wait another 15 seconds before trying a second ignition attempt. If the burner fails to ignite after three attempts, you must reset the burner by tapping BURNER 1 LOW again. This will turn it OFF and reset the sequence. Selecting BURNER 1 LOW again restarts the sequence of three more attempts to ignite. If ignition fails after the second series of attempts, see the troubleshooting section of this manual.</td>
</tr>
<tr>
<td>9</td>
<td>BURNER 1 HIGH</td>
<td>Tapping this button toggles between BURNER 1 HIGH ON and OFF.</td>
<td>After the burner ignites (on BURNER 1 LOW) continue to leave BURNER 1 LOW selected, then select BURNER 1 HIGH to increase the flame to the HIGH FLAME setting. With both BURNER 1 LOW and BURNER 1 HIGH selected at the same time, BURNER 1 will continue to operate at the BURNER 1 HIGH setting.</td>
</tr>
</tbody>
</table>
Table 2  MANUAL Screen Options and Descriptions (continued)

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>DUMP CHUTES</td>
<td>Button</td>
<td>Tapping this button toggles between DUMP CHUTES ON and OFF</td>
</tr>
<tr>
<td>11</td>
<td>FAN 2</td>
<td>Button</td>
<td>Tapping this button toggles between FAN 2 ON and OFF</td>
</tr>
<tr>
<td>12</td>
<td>BURNER 2 LOW</td>
<td>Button</td>
<td>Tapping this button toggles between BURNER 2 LOW ON and OFF. After the button is pressed the pre-purge timer will delay for 15 seconds before attempting to ignite the burner for 10 seconds. If the burner fails to ignite after 10 seconds, the unit will wait another 15 seconds before trying a second ignition attempt. If the burner fails to ignite after three attempts, you must reset the burner by tapping BURNER 2 LOW again. This will turn it OFF and reset the sequence. Selecting BURNER 2 LOW again restarts the sequence of three more attempts to ignite. If ignition fails after the second series of attempts, see the troubleshooting section of this manual.</td>
</tr>
<tr>
<td>13</td>
<td>BURNER 2 HIGH</td>
<td>Button</td>
<td>Tapping this button toggles between BURNER 2 HIGH ON and OFF. After the burner ignites (on BURNER 2 LOW) continue to leave BURNER 2 LOW selected, then select BURNER 2 HIGH to increase the flame to the HIGH FLAME setting. With both BURNER 2 LOW and BURNER 2 HIGH selected at the same time, BURNER 2 will continue to operate at the BURNER 2 HIGH setting.</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.

5.4.4 The SETUP Screen

On the SETUP screen you can configure the HMI with the equipment and sensors that you have on your system.

Figure 30. The SETUP Screen
<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td># OF FAN HEATERS</td>
<td>1 or 2</td>
<td>Enter the number of FAN/HEATER units installed (1 or 2)</td>
</tr>
<tr>
<td>2</td>
<td>HEATER STYLE CONTROL</td>
<td>HIGH/LOW or ON/OFF</td>
<td>This selection is based on the style of heater and heater controls the system is equipped with. The heater control style HIGH/LOW operates the heater using HIGH and LOW gas valves. The ON/OFF style operates the heater by turning the heater ON and OFF.</td>
</tr>
<tr>
<td>3</td>
<td>TEMPERATURE UNITS</td>
<td>°F or °C</td>
<td>Select the preferred temperature units (°F or °C)</td>
</tr>
<tr>
<td>4</td>
<td>DUMP WITH FANS ON?</td>
<td>YES or NO</td>
<td>Select NO for Continuous Flow Operation. Select YES for Batch Operation.</td>
</tr>
<tr>
<td>5</td>
<td># OF DRY TRANSPORTS</td>
<td>2, 1 or 0</td>
<td>Select the number of dry transports (2, 1 or 0)</td>
</tr>
<tr>
<td>6</td>
<td>DRY UNLOAD MODE</td>
<td>AUTO or MANUAL</td>
<td>In MANUAL, when the full storage sensor is tripped it will shut down the system equipment. Dry transports ONLY start when manually turned on. The dry transports can be turned on using the MANUAL screen controls. They will then run for the length of time in MANUAL UNLOAD SHUTDOWN (which is set in ADVANCED TIMERS 2 screen). In AUTO, when the full storage sensor is tripped, the dry unload equipment will start running. When in AUTO mode, the transports may still be operated manually using the MANUAL screen. They will continue to run until the operator turns them OFF, presses STOP, or presses the EMERGENCY STOP</td>
</tr>
<tr>
<td>7</td>
<td>DRY BIN SENSOR</td>
<td>YES or NO</td>
<td>Select YES if the system includes a DRY BIN SENSOR</td>
</tr>
<tr>
<td>8</td>
<td>LOW GRAIN SENSOR</td>
<td>YES or NO</td>
<td>Select YES if the system includes a LOW GRAIN SENSOR. After the AGI APEX is unloaded this sensor will shut off the dry transports.</td>
</tr>
<tr>
<td>9</td>
<td># OF WET TRANSPORTS</td>
<td>2, 1 or 0</td>
<td>Select the number of wet transports (2, 1 or 0).</td>
</tr>
<tr>
<td>10</td>
<td>WET LOAD MODE</td>
<td>AUTO or MANUAL</td>
<td>In AUTO wet load mode, after the plenum is full, the wet transports shut off. For continuous flow operation, AUTO wet load mode wet transports start automatically when the grain level is low.</td>
</tr>
<tr>
<td>11</td>
<td>WET BIN SENSOR</td>
<td>YES or NO</td>
<td>Select YES if the system includes a WET BIN SENSOR</td>
</tr>
<tr>
<td>12</td>
<td>BATCH SWITCH</td>
<td>YES or NO</td>
<td>Select YES if the system includes a BATCH SWITCH even if electing to use Continuous Flow. Otherwise, select NO for Batch Operation and YES for Continuous Flow Operation.</td>
</tr>
<tr>
<td>13</td>
<td>RECIPES</td>
<td>Button</td>
<td>Tap to open the RECIPES screen.</td>
</tr>
<tr>
<td>14</td>
<td>TECHNICIAN</td>
<td>Button</td>
<td>Technician use only (Main access to Control parameters)</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.
### 5.4.5 The TEMPS Screen

The TEMPS screen displays several temperature values, and one humidity value, as measured by several sensors in the system.

**Note**

To open the TEMPERATURE LIMITS or the TREND GRAPHS screens, you must open the TEMPS screen first, and select the appropriate button.

**Figure 31. The TEMPS Screen**

![The TEMPS Screen](image)

**Table 4. TEMPS Screen Options and Descriptions**

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>GRAIN 1 PROBE</td>
<td>Temperature value</td>
<td>This display indicates the temperature of GRAIN 1 PROBE (sensor).</td>
</tr>
<tr>
<td>2</td>
<td>GRAIN 2 PROBE</td>
<td>Temperature value</td>
<td>This display indicates the temperature of GRAIN 2 PROBE (sensor).</td>
</tr>
<tr>
<td>3</td>
<td>GRAIN 3 PROBE</td>
<td>Temperature value</td>
<td>This display indicates the temperature of GRAIN 3 PROBE (sensor).</td>
</tr>
<tr>
<td>4</td>
<td>GRAIN 4 PROBE</td>
<td>Temperature value</td>
<td>This display indicates the temperature of GRAIN 4 PROBE (sensor).</td>
</tr>
<tr>
<td>5</td>
<td>AMBIENT TEMPERATURE</td>
<td>Temperature value</td>
<td>This display indicates the ambient air temperature.</td>
</tr>
<tr>
<td>6</td>
<td>AMBIENT HUMIDITY</td>
<td>Humidity %</td>
<td>This display indicates the ambient air humidity.</td>
</tr>
<tr>
<td>7</td>
<td>GRAIN AVERAGE</td>
<td>Temperature bar graph</td>
<td>This display shows a bar graph of the average grain temperature (average of the four grain temperature sensors).</td>
</tr>
</tbody>
</table>
Table 4  TEMPS Screen Options and Descriptions (continued)

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>PLENUM TEMP</td>
<td>Temperature bar graph</td>
<td>This display show a bar graph of the plenum temperature.</td>
</tr>
<tr>
<td>9</td>
<td>TEMP LIMITS</td>
<td>Button</td>
<td>Select to open the TEMPERATURE LIMITS screen.</td>
</tr>
<tr>
<td>10</td>
<td>TREND GRAPHS</td>
<td>Button</td>
<td>Select to open the TREND GRAPHS screen.</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.

5.4.6 The TEMPERATURE LIMITS Screen

On the TEMPERATURE LIMITS screen you can set the TEMPERATURE LIMITS (alarm and shutdown) and STATIC PRESSURE limits.

To open the TEMPERATURE LIMITS screen:

1. At the bottom of any screen, tap TEMPS to open the TEMPS screen.
2. On the TEMPS screen, tap TEMP LIMITS to open the TEMPERATURE LIMITS screen.

Figure 32. The TEMPERATURE LIMITS Screen
### Table 5. TEMPERATURE LIMITS Screen Options and Descriptions

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PLENUM SETPOINT</td>
<td>Numeric value</td>
<td>This is the target temperature for the below-plenum-air.</td>
</tr>
<tr>
<td>2</td>
<td>PLENUM RANGE ±</td>
<td>Numeric value</td>
<td>This is the range (±) that the plenum temperature can vary without triggering the ON/OFF or HIGH/LOW switching of the heater. Set this to a value that prevents fans and heaters from constantly alternating between ON/OFF or HIGH/LOW. Minimum setting is 5°F (3°C).</td>
</tr>
<tr>
<td>3</td>
<td>PLENUM HIGH TEMP ALARM</td>
<td>Numeric value</td>
<td>This is the plenum temperature at which fans and heaters will automatically shut off. Typically set this to: PLENUM SETPOINT plus PLENUM RANGE ± plus at least 20°F (11°C). This setting is dependent on the grain type and is used to prevent grain damage or fire.</td>
</tr>
<tr>
<td>4</td>
<td>GRAIN TEMP SETPOINT</td>
<td>Numeric value</td>
<td>This is the target temperature for the grain in the plenum.</td>
</tr>
<tr>
<td>5</td>
<td>GRAIN HIGH TEMP ALARM</td>
<td>Numeric value</td>
<td>This is the grain temperature at which the fans and heaters will automatically shut off. Set this at least 20°F (11°C) higher than the GRAIN TEMP SETPOINT. This setting is dependent on the grain type and is used to prevent grain damage or fire.</td>
</tr>
<tr>
<td>6</td>
<td>SAFE LIMIT</td>
<td>Numeric value</td>
<td>This is the minimum level of static pressure required for the burners to start. This value must be exceeded for the heaters to fire. If this value is not reached then the system will alarm and shut down.</td>
</tr>
<tr>
<td>7</td>
<td>WARNING LIMIT</td>
<td>Numeric value</td>
<td>This is a warning to the operator only. If the below-plenum air static pressure is too high, the HMI will trigger an alarm. The system operation will continue to function as normal. This limit indicates the plenum floor (screens) are becoming plugged and static pressure is getting too high, which will result in the grain not drying as intended.</td>
</tr>
<tr>
<td>8</td>
<td>ALARM LIMIT</td>
<td>Numeric value</td>
<td>This is the static pressure at which the fans and heaters are shut down. When this value is reached, the alarm is activated and the system shuts down.</td>
</tr>
<tr>
<td>9</td>
<td>TREND GRAPHS</td>
<td>Button</td>
<td>Tap this button to navigate to the TREND GRAPHS screen</td>
</tr>
<tr>
<td>10</td>
<td>BACK</td>
<td>Button</td>
<td>Tap this button to navigate back to the previous screen</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.

**Note**

The GRAIN TEMP SETPOINT and the GRAIN HIGH TEMP ALARM are measured by the four grain temperature probes. These are used to prevent over-dried or damaged grain and to prevent a fire.
5.4.7 The TIMERS Screen

On the TIMERS screen you can set up the DRYING TIME, the length of time the chutes are lowered, and the length of time the dry transports run. You can also access the ADVANCED TIMERS 1 and 2 screens.

Figure 33. The TIMERS Screen

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DRYING TIME</td>
<td>Numeric value (minutes)</td>
<td>This value determines the length of time the system will dry the grain (the time from when the heater fan(s) turn on until the timer expires). This timer works in tandem with the grain TEMPERATURE SETPOINT. The DRYING TIME must end AND the grain TEMPERATURE SETPOINT must be reached before the dump chutes will start to lower. Set the DRYING TIME to a value that will ensure the grain is dried adequately. If the grain is too wet, increase the DRYING TIME; if it is too dry, decrease the DRYING TIME. Set this field per recommendation or user experimentation. Drying time is based on the grain type, grain and air temperatures, fan/heater settings, humidity, and customer experience.</td>
</tr>
<tr>
<td>2</td>
<td>CHUTES LOWERED</td>
<td>Numeric value (seconds)</td>
<td>This is the time the chutes are in the lowered position. For BATCH use, this is the time required for the plenum to fully unload. For CONTINUOUS FLOW use, this is the time required for 1/3 of the plenum grain to unload. The default time for this timer is 30 seconds. Increase or decrease the CHUTES LOWERED time in order to achieve the desired amount of grain unloaded from the plenum (typically 1/3 of the plenum grain).</td>
</tr>
</tbody>
</table>
Table 6  TIMERS Screen Options and Descriptions (continued)

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>DRY TRANSPORT RUN TIME</td>
<td>Numeric value (minutes)</td>
<td>When this timer has finished running the dry transports shut off. The DRY BIN FULL sensor and the AGI APEX LOW GRAIN sensor also have the ability to shut off the dry transports. These two sensors take priority over the DRY TRANSPORT RUN TIME timer and will shut off the dry transports even if the timer is not finished running.</td>
</tr>
<tr>
<td>4</td>
<td>ADVANCED TIMERS 1</td>
<td>Button</td>
<td>Tap this button to open the ADVANCED TIMERS 1 screen.</td>
</tr>
<tr>
<td>5</td>
<td>ADVANCED TIMERS 2</td>
<td>Button</td>
<td>Tap this button to open the ADVANCED TIMERS 2 screen.</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.

5.4.8 The ADVANCED TIMERS 1 Screen

On the ADVANCED TIMERS 1 screen you can set times delays that ensure the system operates safely, and prevent high startup current surges, and start and stop equipment in a manner that ensures effective drying.

To open the ADVANCED TIMERS 1 screen:
1. At the bottom of any screen, tap TIMERS to open the TIMERS screen.
2. On the TIMERS screen, tap ADVANCED TIMERS 1 to open the ADVANCED TIMERS 1 screen.

**Note**
If you are on the ADVANCED TIMERS 2 screen, tap ADVANCED TIMERS 1 to open the ADVANCED TIMERS 1 screen.

Figure 34. The ADVANCED TIMERS 1 Screen
<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>TRANSPORTS SAFETY TIME</td>
<td>Numeric value (seconds)</td>
<td>This is the time allotment for the transports to start after the transports are signaled to start. If the transports do not start running in this allotted time the equipment is shut off and an alarm is displayed on the HMI. The purpose of this is to protect the transport equipment from damage.</td>
</tr>
<tr>
<td>2</td>
<td>FANS SAFETY TIME</td>
<td>Numeric value (seconds)</td>
<td>This is the time allotment for the fans to start after the fans are signaled to start. If the fans do not start running in this allotted time the equipment is shut off and an alarm is displayed on the HMI. The purpose of this is to protect the equipment from damage.</td>
</tr>
<tr>
<td>3</td>
<td>WET 1 START DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay occurs before each wet transport starts. It helps prevent multiple pieces of power equipment from starting at the same time, which could cause an excessive current draw on the system.</td>
</tr>
<tr>
<td>4</td>
<td>WET 1 STOP DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay is set up to stop the wet transport 1 before wet transport 2 is stopped. This delay, and the WET 2 STOP DELAY, allow topping off the plenum grain above the plenum full sensor. These delays allow for plenum fill adjustment without relocating the full grain sensor.</td>
</tr>
<tr>
<td>5</td>
<td>WET 2 START DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay occurs before each wet transport starts. It helps prevent multiple pieces of power equipment from starting at the same time, which could cause an excessive current draw on the system.</td>
</tr>
<tr>
<td>6</td>
<td>WET 2 STOP DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay is set up to stop the wet transport 2 when this timer is finished running. It allows the wet transport 2 to clear out before stopping. This delay, and the WET 1 STOP DELAY, allow topping off the plenum grain above the plenum full sensor. These delays allow for plenum fill adjustment without relocating the full grain sensor.</td>
</tr>
<tr>
<td>7</td>
<td>DRY 1 START DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay occurs before each dry transport starts. It helps prevent multiple pieces of power equipment from starting at the same time, which could cause an excessive current draw on the system.</td>
</tr>
<tr>
<td>8</td>
<td>DRY 1 STOP DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay allows the dry transport to continue running for an additional allotted time before stopping.</td>
</tr>
<tr>
<td>9</td>
<td>DRY 2 START DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay occurs before each dry transport starts. It helps prevent multiple pieces of power equipment from starting at the same time, which could cause an excessive current draw on the system.</td>
</tr>
<tr>
<td>10</td>
<td>DRY 2 STOP DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay allows the dry transport 2 to clear out before stopping.</td>
</tr>
<tr>
<td>11</td>
<td>ADVANCED TIMERS 2</td>
<td>Button</td>
<td>Tap this button to navigate to the ADVANCED TIMERS 2 screen.</td>
</tr>
<tr>
<td>12</td>
<td>BACK</td>
<td>Button</td>
<td>Tap this button to navigate to the previous screen.</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.
**Note**
When a condition of any safety timer (such as the TRANSPORTS SAFETY TIME) is not met within the timer allotted time, an alarm will be triggered.

**Note**
Stop delays allow equipment to continue running for the delay time allotted after the stop is sent.

### 5.4.9 The ADVANCED TIMERS 2 Screen

On the ADVANCED TIMERS 2 screen you can set times delays that ensure the system operates safely, and prevent high startup current surges, and start and stop equipment in a manner that ensures effective drying.

To open the ADVANCED TIMERS 2 screen:

1. At the bottom of any screen, tap TIMERS to open the TIMERS screen.
2. On the TIMERS screen, tap ADVANCED TIMERS 2 to open the ADVANCED TIMERS 2 screen.

**Note**
If you are on the ADVANCED TIMERS 1 screen, tap ADVANCED TIMERS 2 to open the ADVANCED TIMERS 2 screen.

**Figure 35. The ADVANCED TIMERS 2 Screen**
### Table 8. ADVANCED TIMERS 2 Screen Options and Descriptions

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MASTER FAN 1 START DELAY</td>
<td>Numeric value (seconds)</td>
<td>This is the time allotted before FAN 1 will attempt to start. Set this delay different than the delay for other fans to prevent multiple pieces of equipment from starting at once, causing too much current draw on the system.</td>
</tr>
<tr>
<td>2</td>
<td>SLAVE FAN 2 START DELAY</td>
<td>Numeric value (seconds)</td>
<td>This is the time allotted before FAN 2 will attempt to start. Set this delay different than the delay for other fans to prevent multiple pieces of equipment from starting at once, causing too much current draw on the system.</td>
</tr>
<tr>
<td>3</td>
<td>BURNERS START DELAY</td>
<td>Numeric value (seconds)</td>
<td>This is the delay time from when fans are started until gas is turned on. It allows the fans to come up to full speed and the static pressure to reach proper levels before starting the burners.</td>
</tr>
<tr>
<td>4</td>
<td>BURNERS LOW PURGE DELAY</td>
<td>Numeric value (seconds)</td>
<td>This delay is a safety timer that allows the heater controller to go through its startup, purge and ignition sequence. If this timer expires before the burner is started, an alarm is set.</td>
</tr>
<tr>
<td>5</td>
<td>BURNERS HIGH SAFETY TIME</td>
<td>Numeric value (seconds)</td>
<td>This safety time occurs after the signal is sent to turn the burners to HIGH. If the HIGH valve does not turn on within this allotted safety time, an alarm message is triggered and the AGI APEX system equipment will shut down.</td>
</tr>
<tr>
<td>6</td>
<td>BATCH DUMP STOP DELAY</td>
<td>Numeric value (seconds)</td>
<td>When using continuous flow mode nothing needs to be done with this field. This delay allows enough time for the plenum grain to completely empty after the BATCH EMPTY sensor has tripped.</td>
</tr>
<tr>
<td>7</td>
<td>FINAL LOAD DRYING TIME</td>
<td>Numeric value (seconds)</td>
<td>If the system includes a WET BIN EMPTY sensor, this timer sets a drying time for the last load of grain to enter the plenum during a drying cycle. The last load of grain will normally not fill the plenum, so this shorter drying cycle is used for drying the last batch of grain.</td>
</tr>
<tr>
<td>8</td>
<td>OUT OF WET GRAIN TIMER</td>
<td>Numeric value (seconds)</td>
<td>This timer is used when the wet load mode is set to AUTO and a WET BIN sensor is installed. This timer starts when the wet transport 2 starts. It ends when either the plenum is full, or when this timer expires. If this timer expires before the plenum full sensor is tripped, an alarm will be triggered and the system equipment will shut down. This timer is used to notify the operator of a potential clog in the wet grain supply, and to prevent excessive wear on the wet loading equipment. The time should be set 1 to 2 minutes longer than it normally takes to fill the completely empty plenum.</td>
</tr>
<tr>
<td>9</td>
<td>MANUAL UNLOAD SHUTDOWN</td>
<td>Numeric value (seconds)</td>
<td>When DRY UNLOAD MODE is set to MANUAL, the dry transports can be turned on using the MANUAL screen controls. The dry transports will then run for the length of time set in this timer. After this timer expires the dry transports will automatically shut down. To lengthen the run time simply increase the timer value.</td>
</tr>
<tr>
<td>10</td>
<td>ADVANCED TIMERS 1</td>
<td>Button</td>
<td>Tap this button to open the ADVANCED TIMERS 1 screen.</td>
</tr>
<tr>
<td>11</td>
<td>BACK</td>
<td>Button</td>
<td>Tap this button to return to the previous screen.</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.
5.4.10 The RECIPES Screen

A recipe is a set of settings that has been saved for later use. On the RECIPES screen you can load, create, modify, rename, save, and delete recipes.

Recipes are stored in recipe group folders, similar to a computer file folder.

The Defaults recipe group-folder contains recipes preset at the factory, which cannot be deleted, modified, or renamed, but which can be used as templates.

The User Saved recipe group-folder contains recipes that can be created, modified, renamed and deleted by the user.

To open the RECIPES screen:

1. At the bottom of any screen, tap SETUP to open the SETUP screen.
2. On the SETUP screen, tap RECIPES to open the RECIPES screen.

Figure 36. The RECIPES Screen
### Table 9. RECIPE Screen Options and Descriptions

<table>
<thead>
<tr>
<th>Callout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Recipe List</td>
<td>Tabular list</td>
<td>Displays all values in the recipe and allows the user to edit those values.</td>
</tr>
<tr>
<td>2</td>
<td>Upload from USB Drive</td>
<td>Button</td>
<td>Tap this button to upload a recipe from the USB drive.</td>
</tr>
<tr>
<td>3</td>
<td>Save to USB Drive</td>
<td>Button</td>
<td>Tap this button to save the current recipe to the USB drive.</td>
</tr>
<tr>
<td>4</td>
<td>Status indicator</td>
<td>Indicator light</td>
<td>This indicator display various colors to indicate the current status. E.g. Blue during Compare operations; green during Snapshot operations, etc.</td>
</tr>
<tr>
<td>5</td>
<td>Message Area</td>
<td>Message text</td>
<td>This area displays various text messages about recipe creation, compare, etc.</td>
</tr>
<tr>
<td>6</td>
<td>Folder List</td>
<td>Dropdown box</td>
<td>Provides a dropdown list of recipe group-folders.</td>
</tr>
<tr>
<td>7</td>
<td>Recipe name</td>
<td>Dropdown box</td>
<td>Provides a dropdown list of the recipe names in the current folder.</td>
</tr>
<tr>
<td>8</td>
<td>Create New</td>
<td>Button</td>
<td>Tap this button to open the popup keypad and to allow you to enter a new name for a recipe.</td>
</tr>
<tr>
<td>9</td>
<td>Load</td>
<td>Button</td>
<td>Tap this button to load a recipe and display the recipe values in the Recipe list</td>
</tr>
<tr>
<td>10</td>
<td>Send</td>
<td>Button</td>
<td>Tap this button to send the currently displayed recipe to the PLC.</td>
</tr>
<tr>
<td>11</td>
<td>Defaults</td>
<td>Button</td>
<td>Tap this button to load the Default recipe.</td>
</tr>
<tr>
<td>12</td>
<td>Compare</td>
<td>Button</td>
<td>Tap this button after Sending a recipe to the PLC, to verify that it loaded. If the settings match, the Status indicator light will turn blue and the Message Area will display “Compare Match”. If the settings are different, the Status indicator will turn yellow, and the Message Area will display “Compare Mismatch” and differences between settings will be displayed.</td>
</tr>
<tr>
<td>13</td>
<td>Delete</td>
<td>Button</td>
<td>Tap this button to delete the current recipe.</td>
</tr>
<tr>
<td>14</td>
<td>Snapshot</td>
<td>Button</td>
<td>Tap this button to transfer values into the Recipe List, making them ready to load and save. The status indicators above the Folder List dropdown will temporarily turn green and then back to white.</td>
</tr>
<tr>
<td>15</td>
<td>Save</td>
<td>Button</td>
<td>This will save the recipe to the HMI for future use. Up to 20 recipes can be saved to the HMI. Recipes may also be saved to a USB flash drive. If an error message appears while saving, read the message and proceed based on the contents of the message.</td>
</tr>
<tr>
<td>16</td>
<td>BACK</td>
<td>Button</td>
<td>Tap this button to return to the previous screen</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.
5.4.11 The STATUS Screen

The STATUS screen provides multiple points of continuously updated information on a graphical display representing your system.

Figure 37. The STATUS Screen
5.4.12 The TREND GRAPHS Screen

The TREND GRAPHS screen provides a running graphical representation of system temperatures versus time. It can display in real time or allow review of recorded data. It provides insight into dryer performance over time.

Data displayed on the TREND GRAPHS screen includes temperature readings from:

- GRAIN 1, 2, 3 and 4 sensors
- Plenum temperature
- Ambient temperature

To open the TREND GRAPHS screen:

1. At the bottom of any screen, tap TEMPS to open the TEMPS screen.
2. On the TEMPS screen, tap TEMPERATURE LIMITS to open the TEMPERATURE LIMITS screen.
3. On the TEMPERATURE LIMITS screen, tap TREND GRAPHS to open the TREND GRAPHS screen.

Figure 38. The TREND GRAPHS Screen
Table 10. TREND GRAPHS Screen Options and Descriptions

<table>
<thead>
<tr>
<th>Cal-lout #</th>
<th>Item</th>
<th>Value or Purpose</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Calendar</td>
<td>Button</td>
<td>This button will bring up a calendar that allows the user to select previous dates and view the temperatures from those times.</td>
</tr>
<tr>
<td>2</td>
<td>X-axis time base</td>
<td>Numeric value (minutes)</td>
<td>Adjust this value to change how many minutes are displayed on the X-axis. This will allow the display on this screen of anywhere from a few minutes of temperature readings in one view, up to a few hours of temperature in one view.</td>
</tr>
<tr>
<td>3</td>
<td>Move Left</td>
<td>Button</td>
<td>This button moves the graph to the left.</td>
</tr>
<tr>
<td>4</td>
<td>Freeze</td>
<td>Button</td>
<td>This button “freezes” the graph in one position. It stops the graph motion.</td>
</tr>
<tr>
<td>5</td>
<td>Play</td>
<td>Button</td>
<td>This button sets the graph in motion at the typical recording speed.</td>
</tr>
<tr>
<td>6</td>
<td>Move Right</td>
<td>Button</td>
<td>This button moves the graph to the right.</td>
</tr>
</tbody>
</table>

Similar to all other screens, the bottom menu bar provides buttons to access the screens most often used for system operation (MAIN, STATUS, TIMERS, TEMPS, ALARMS, MANUAL, SETUP). The button for the current screen is highlighted.

5.5. Making a Recipe

Before operating your AGI APEX Control System for the first time you must create a “recipe”—a set of parameters specific to your installation and requirements, and the product you will be drying. Different recipes may be required for different products, situations and conditions. This section takes you through the process of entering a recipe into the control system via the HMI. It also covers how to save and retrieve recipes from the HMI and an external memory device.

To do so you will need to know the specifics of your system, and understand the requirements of the HMI screens. Before beginning this System Setup, make sure you have carefully read and understand the information contained in Section 5.4 – The Human Machine Interface (HMI) on page 31 section of this manual.

Note
Normally the dealer will assist with the first time system setup and the initial system startup operation.

Important
Equipment such as fans, burners, augers, and auxiliary equipment have their own power systems. Verify that each of these power systems are functional.

5.5.1 First Time System Setup

Note
Normally the dealer will assist with the first time system setup and the initial system startup operation.

Important
Equipment such as fans, burners, augers, and auxiliary equipment have their own power systems. Verify that each of these power systems are functional.
Powering On the HMI

1. Make certain the system is wired correctly per the AGI APEX Control System Wiring Instructions (Part Number GI7972).
2. Turn the power ON to the system.
3. Wait for the program to load and the MAIN screen to appear.
4. If the following notification appears, tap the X icon to clear the message.

Figure 39. “The USB Device is Connected” Notification

The USB device is connected.

The MAIN screen appears.

Figure 40. The MAIN Screen

Note
For more information about the MAIN screen, see Section 5.4.2 – The MAIN Screen on page 33.
5.5.2 Configuring the SETUP Screen

1. On the MAIN screen, tap the SETUP button to open the SETUP screen.

   **Note**
   For more information, see Section 5.4.4 – The SETUP Screen on page 36.

Figure 41. The SETUP Screen

2. On the SETUP screen:
   a. Enter the # OF FAN HEATERS installed: 1 or 2
   b. Select the HEATER STYLE CONTROL: HIGH/LOW or ON/OFF
   c. Select the type of TEMPERATURE UNITS: °F or °C
   d. Select whether to DUMP WITH FANS ON?: YES or NO
   e. Enter the # OF DRY TRANSPORTS: 2, 1, or 0
   f. Enter the # OF WET TRANSPORTS: 2, 1, or 0
   g. Select the DRY UNLOAD MODE: AUTO or MANUAL
   h. Select the WET UNLOAD MODE: AUTO or MANUAL
   i. Set up the sensors that are installed:
      - DRY BIN SENSOR: YES or NO
      - WET BIN SENSOR: YES or NO
      - LOW GRAIN SENSOR: YES or NO
      - BATCH SWITCH (empty) grain level sensor: YES or NO
5.5.3 Configuring Temperature Settings

1. On the SETUP screen, tap the TEMPS button to open the TEMPS screen.

2. On the TEMPS screen, tap the TEMPERATURE LIMITS button to open the TEMPERATURE LIMITS screen.

   **Note**
   For more information, see Section 5.4.6 – The TEMPERATURE LIMITS Screen on page 39.

**Figure 42. The TEMPERATURE LIMITS Screen**

3. On the TEMPERATURE LIMITS screen:
   a. Set the PLENUM SETPOINT (the heater target temperature for below-plenum air).
   b. Set the PLENUM RANGE ±. Set this to a value that prevents fans and heaters from constantly alternating between ON/OFF or HIGH/LOW. Minimum setting is 5°F (3°C).
   c. Set the PLENUM HIGH TEMP ALARM. Typically set this to: PLENUM SETPOINT plus PLENUM RANGE ± plus at least 20°F (11°C).
   d. Set the GRAIN TEMP SETPOINT. (Target temperature for the grain in the plenum.)
   e. Set the GRAIN HIGH TEMP ALARM. Set this at least 20°F (11°C) higher than the GRAIN TEMP SETPOINT.
   f. Set the STATIC PRESSURE limits:
      - Set the SAFE LIMIT— the minimum level of static pressure required for the burners to start.
      - Set the WARNING LIMIT— the point at which the HMI alarms indicating below-plenum air static pressure is too high.
      - Set the ALARM LIMIT— the point at which the fans and heaters shut off.

5.5.4 Configuring Timers

1. At the bottom of any screen, tap TIMERS to open the TIMERS screen.

   **Note**
   For more information, see Section 5.4.7 – The TIMERS Screen on page 41.
2. On the TIMERS screen:
   a. Set the DRYING TIME to a value that ensures the grain will dry adequately.
   b. Set the CHUTES LOWERED time.
   c. Set the DRY TRANSPORT RUN TIME.
3. On the TIMERS screen, tap ADVANCED TIMERS 1 to open the ADVANCED TIMERS 1 screen.
   
   **Note**
   For more information, see *Section 5.4.8 – The ADVANCED TIMERS 1 Screen on page 42.*

4. On the ADVANCED TIMERS 1 screen:
   a. Set the TRANSPORTS SAFETY TIME.
b. Set the FANS SAFETY TIME.
c. Set the WET 1 START DELAY.
d. Set the WET 1 STOP DELAY.
e. Set the WET 2 START DELAY.
f. Set the WET 2 STOP DELAY.
g. Set the DRY 1 START DELAY
h. Set the DRY 1 STOP DELAY
i. Set the DRY 2 START DELAY
j. Set the DRY 2 STOP DELAY

5. On the ADVANCED TIMERS 1 screen, tap ADVANCED TIMERS 2 to open the ADVANCED TIMERS 2 screen.

   Note
   For more information, see Section 5.4.9 – The ADVANCED TIMERS 2 Screen on page 44.

Figure 45. The ADVANCED TIMERS 2 screen

6. On the ADVANCED TIMERS 2 screen:
   a. Set the MASTER FAN 1 START DELAY.
   b. Set the SLAVE FAN 2 START DELAY.
   c. Set the BURNERS START DELAY.
   d. Set the BURNERS LOW PURGE DELAY.
   e. Set the BURNERS HIGH SAFETY TIME.
   f. If you will be doing batch drying, set the BATCH DUMP STOP DELAY.
   g. If your system has a wet bin empty sensor, set the FINAL LOAD DRYING TIME.
   h. Set the OUT OF WET GRAIN TIMER to 1 to 2 minutes longer than it takes to completely empty the plenum.
   i. Set the MANUAL UNLOAD SHUTDOWN timer.
5.5.5 Saving a Recipe

1. At the bottom of any screen, tap SETUP to open the SETUP screen.
2. On the SETUP screen, tap RECIPES to open the RECIPES screen.

**Note**
For more information, see Section 5.4.10 – The RECIPES Screen on page 46.

**Figure 46. The RECIPES Screen**

3. Tap the folder list (top) dropdown box and select the recipe group-folder “USER SAVED” from the dropdown list.

4. Tap the CREATE NEW button to open the popup keypad.

5. Enter a unique name for the new recipe (to replace the suggested name that appears).

6. Tap the SNAPSHOT button.

   The indicator light above the Message Area will turn green and then back to white.

   All the settings you put into the HMI in the previous steps will be transferred into the Recipe List and display on the left side of the screen in a scrolling window. These values are now ready to be loaded into the PLC or saved.

7. Scroll through the list and check to make sure all values are correct and as intended.

8. If any values are incorrect, or need to be changed, touch the desired list entry and enter corrected values.

9. Tap the SAVE button

   This will save the recipe to the HMI for future use.

   **Note**
   Up to 20 recipes can be saved to the HMI.

10. To save the recipe to a USB drive:

    a. Insert a USB drive in the USB port.

    b. Tap the Save to USB Drive button.
Note
If an error message appears while saving, read the message and proceed based on the contents of the message or tap X to ignore it.

Figure 47. Example Error Message

5.5.6 Loading a Previously Saved Recipe
To load a previously saved recipe:
1. Tap the folder list (top) drop down box and select USER SAVED or DEFAULT from the drop down list.
2. In the recipe name (lower) dropdown box, select the name of the desired recipe.
3. Tap the Load button.
   The settings for the recipe appears in the Recipe List scrolling window on the left of the screen.
4. Tap the Send button.
   This sends the recipe to the PLC.
5. To verify that the recipe is loaded, tap the Compare button.
   If the settings match, the Status indicator light turns blue and the Message Area displays “Compare Match”.
   If the settings are different, the Status indicator turns yellow, and the Message Area displays “Compare Mismatch” and differences between settings are displayed.

5.6. Manual Operation

Important
All grain system equipment controlled by the AGI APEX Control System may be operated manually if desired. The user can use the manual controls to perform a single operation, part of an operation, or all of the operation. However, using MANUAL mode operation is usually less efficient than AUTO mode operation.

Important
When in manual mode the wet (transports) and dry (transports) stop delays still apply for the loading and unloading equipment controlled by the PLC.

NOTICE
“Controls intelligence” is fully removed in MANUAL mode operation. When operating in manual mode, the operator assumes full responsibility and liability for all aspects of the equipment operation. The system is in manual mode when the MANUAL button on the screen is selected.
5. OPERATION

Order of Selection

Important
To operate any item of equipment in the system, select the button for that equipment to turn it on. Deselect the button for that equipment to turn it off.

1. Turn on electrical power to the system.

2. On the HMI screen:
   a. Select MANUAL to enter MANUAL mode. The MANUAL screen appears.
   b. Select FAN 1 (and FAN 2 if there are two fans) to start the fans running.
   c. Select BURNER 1 LOW.

      The pre-purge timer will delay for 15 seconds to allow the fan to purge the heater. Then the heater will attempt to ignite the burner for 10 seconds.

      If the burner fails to ignite after 10 seconds, the unit will wait another 15 seconds before trying a second ignition attempt. If the burner fails to ignite after three attempts, you must reset the burner by pressing BURNER 1 LOW again. This will turn it OFF and reset the sequence.

      Selecting BURNER 1 LOW again restarts the sequence of three more attempts to ignite. If ignition fails after the second series of attempts, see the troubleshooting section of this manual.

3. Initially set the pressure regulator at a mid-range position between 5 and 10 psi (34 and 69 kPa).

   A higher drying temperature requires a higher pressure setting. A lower ambient temperature also requires a higher pressure setting.

4. After the burner ignites, continue to leave BURNER 1 LOW selected, then select BURNER 1 HIGH to increase the flame to the HIGH FLAME setting.

   With both BURNER 1 LOW and BURNER 1 HIGH selected at the same time, BURNER 1 will continue to operate at the BURNER 1 HIGH setting.

   If the burner runs at the high fire rate continuously, and does not cycle to low flame, it probably means that insufficient gas is available to generate the heat necessary to satisfy the thermostat setting.

   To rectify this situation:

5. Gradually increase the gas pressure.

   If the burner stays on LOW, never cycling to high flame, the gas pressure is probably set too high and should be reduced gradually.

6. After adjustments are made to the regulator, the ball valve may need to be repositioned so that a frequency of 50% high and 50% low fire is achieved.

7. Test BURNER 2 using the same steps used to test BURNER 1.
5.7. HMI AUTO Mode Start-Up and Operation

AGI APEX Control System AUTO mode theory of operations:

1. At the main screen tap the AUTO button to select AUTO mode.
2. Tap the START button to START the operation.
3. The RUN STATUS lamp flashes green.
4. After a delay time, wet 2 transport starts (if included in this system).
5. After a delay time, wet 1 transport starts (if included in this system).
   a. Wet transports continue to run until the PLENUM FULL sensor is covered with grain, or the OUT OF WET GRAIN timer expires.
   b. If the system shuts down before the plenum fills, extend the OUT OF WET GRAIN timer length by adding a few minutes.
6. The plenum full sensor becomes covered with grain.
7. After a delay timer fan 1 starts.
8. After a delay timer fan 2 starts.
9. Static pressure is measured to make certain it is above the minimum setting (found in TEMPS > TEMPERATURE LIMITS > SAFE LIMIT).
10. After a delay heaters start up at low flame and then increase to high flame.
11. After the desired upper plenum temperature limit is reached, the high flame cycles off, and the heater is on low flame only.

Important

Regardless of the mode the equipment is in (MANUAL or AUTO mode), to immediately STOP the equipment, push in the EMERGENCY STOP button on the HMI or the PLC. (See Section 5.2 – EMERGENCY STOP Control on page 29.)
12. The DRYING TIME begins to count down after the fans start. When this timer expires the system checks to see if the GRAIN TEMP SETPOINT has been reached.

13. Drying continues until both the GRAIN TEMP SETPOINT is satisfied and the DRYING TIME expires.

14. After both conditions are satisfied the dump chutes begin to lower, and the CHUTES LOWERED timer begins to count down, dumping approximately 1/3 of the grain (for continuous flow operation) or all of the plenum grain (for batch operation). (The user has the option to turn the fans and heaters off during the dump cycle, if desired.)

15. After the CHUTES LOWERED timer expires the chutes raise back to normal position. (The drying timer then is automatically reset.)

16. The plenum full sensor is now uncovered and the wet transports will start loading wet grain into the plenum.

**Important**
Regardless of the mode the equipment is in (MANUAL or AUTO mode), to immediately STOP the equipment, push in the EMERGENCY STOP button on the HMI or the PLC. (See *Section 5.2 – EMERGENCY STOP Control on page 29.*

### 5.7.1 Frequently Visited Operation Screens

**Figure 49. The Main Screen**
Figure 50. The STATUS Screen

Figure 51. The TEMPS Screen
6. Maintenance

Before continuing, ensure you have completely read and understood this manual’s Safety section, in addition to the safety information in the section(s) below.

6.1. Maintenance Safety

**WARNING**

- Keep components in good condition. Follow the maintenance procedures.
- Ensure the service area is clean, dry, and has sufficient lighting.
- Do not modify any components without written authorization from the manufacturer. Modification can be dangerous and result in serious injuries.
- Lock out power source and shut off gas valves.
- All gas components, connections, and appliances are to be serviced or maintained by a qualified gas technician.
- All electrical maintenance must be performed by a qualified electrician in accordance with all applicable local codes and standards.
- When the power is locked out, fans can still be dangerous because of potential “windmilling.” Always block the impeller/blade before working on any moving parts.
- After maintenance is complete, replace all guards, service doors, and/or covers.
- Use only genuine Westeel replacement parts or equivalent. Use of unauthorized parts will void warranty. If in doubt, contact Westeel or your local dealer.

6.2. Maintenance Schedule

Proper maintenance habits mean a longer life, better efficiency, and safer operation. Please follow the Maintenance Schedule below. Keep good records of the hours the control system has been operated and the maintenance performed.

<table>
<thead>
<tr>
<th>Daily:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 6.3 – Visually Inspect the Control System on page 63</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Annually or as needed:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 6.4 – Pre Dryer Season Maintenance on page 63</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>As Required:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Section 6.5 – Vendors and OEMs on page 63</td>
<td></td>
</tr>
</tbody>
</table>
6.3. Visually Inspect the Control System

Check the following during a visual inspection:
1. Ensure all guards are in place and in good working order.
2. Examine the control system for damage or unusual wear.
3. Be sure all safety decals are in place and are legible.
4. Inspect all moving or rotating parts to see if anything has become entangled in them. Remove any entangled material.
5. Check all components. Replace damaged or worn parts before using the control system.
6. Check tightness of bolts/nuts, fasteners, and hardware (re-torque if necessary).

6.4. Pre Dryer Season Maintenance

Check to perform using the Manual screen:
1. Turn on the fan(s).
2. Turn on the heater(s). Then turn them off.
3. Turn off the fan(s).
4. Lower and raise the dump chutes to make certain the hydraulic cylinder system is working.
5. Check to make certain the wet and dry transports operate properly.

Other checks to perform:
1. Make certain the grain level sensors are rotating and working.
2. Monitor closely the first few dryer usages.
3. Check to make certain the desired recipe is loaded and ready for use.
4. Check to make certain all recipe settings are as desired.

6.5. Vendors and OEMs

Westeel takes pride in choosing quality vendors and products in association with the design and manufacture of our products:
- OEM products have a service life related to operating conditions and usage.
- Contact the OEM product manufacturer for service, replacement, or warranty concerns.
7. Troubleshooting

7.1. The CURRENT ALARMS Screen

The CURRENT ALARMS screen displays only the currently active alarms. Once the alarm is corrected, the alarm message disappears from the screen and will then only be found on the alarm history screen.

**Note**
On the CURRENT ALARMS screen, the alarm messages scroll across the top of the screen from left to right in sequence.

Figure 52. The CURRENT ALARMS Screen
7.2. The ALARM HISTORY Screen

The ALARM HISTORY screen records all system-detectable alarms and errors. Use this list of alarms and errors to determine and aid in resolving any operation problems that result in a system-detectable error or alarm.

Figure 53. The ALARM HISTORY Screen

![ALARM HISTORY Screen](image-url)
8. Appendix

8.1. Recommended Bolt Assembly

When tightening bolts, tighten the nut on the bolt until a “snug-tightened condition” has been achieved. A “snug-tightened condition” is defined in Specification for Structural Joints Using ASTM A325 or A490 Bolts (Research Council on Structural Connections: June 2004), which states:

“The snug-tightened condition is the tightness that is attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench to bring the connected plies into firm contact.”

A properly tightened bolt will compress the sealing washer noticeably. All assembly crew members must be made aware of this requirement, and must know how to achieve a snug-tightened condition using common bin-building tools.

It is important that the bolts in the vertical wall sheet seams are tightened enough to squeeze the caulking and bring the wall sheet surfaces into firm contact with each other. This is especially important to monitor when installing bolts in temperatures approaching -10°C (14°F).

The following table shows the minimum impact gun torque capacity necessary to achieve a snug-tightened condition for bolts used in the assembly process.

<table>
<thead>
<tr>
<th>Bolt Diameter</th>
<th>Bolt Grade</th>
<th>Grade Mark</th>
<th>Recommended Torque Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in-lb</td>
<td>ft-lb</td>
<td>N-m</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>Grade 8.2</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>5/16&quot;</td>
<td>Grade 8.2</td>
<td></td>
<td>215</td>
</tr>
<tr>
<td>3/8&quot;</td>
<td>Grade 8.2</td>
<td></td>
<td>370</td>
</tr>
<tr>
<td>7/16&quot;</td>
<td>Grade 8.2</td>
<td></td>
<td>600</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>Grade 8.2</td>
<td></td>
<td>960</td>
</tr>
<tr>
<td>5/8&quot;</td>
<td>Grade 8.2</td>
<td></td>
<td>1800</td>
</tr>
<tr>
<td>3/4&quot;</td>
<td>Grade 5</td>
<td></td>
<td>3230</td>
</tr>
</tbody>
</table>

For proper sealing, do not overtighten the wall seam connections. Sealing is not critical on upright splice connections; these connections should be tightened securely to prevent loosening.

Hold the bolt head securely when tightening the nut to prevent damage to the sealing washer.

Important
ALWAYS TIGHTEN THE NUT, NOT THE BOLT!

Avoid bin assembly at temperatures below -10°C (14°F) if possible. Erection in low temperatures does not ensure strong, well sealed connections. Do not substitute bolts in place of those supplied by Westeel.
9. AGI APEX Control System Warranty

Westeel (the Company) makes the following warranty to the initial retail purchaser of its products (the Customer).

MATERIALS and WORKMANSHIP:

The Company warrants products manufactured by it to be free from defects in materials and workmanship in normal use and service for a period of one (1) year after date of delivery to the Customer.

COMPANY’S OBLIGATION and CUSTOMER’S EXCLUSIVE REMEDY:

The Company's sole obligation and the Customer's exclusive remedy under this warranty is as follows:

If within one (1) year after delivery to the customer the product fails to function properly due to a defect in either materials or workmanship, the Company will at its option, either repair the defective part or replace the defective part with a new or reconditioned part. Labor charges for removing defective parts and installing replacement parts, shipping charges with respect to such parts, and applicable sales and other taxes, if any, shall not be covered by this warranty.

CONDITIONS, LIMITATIONS, AND EXCLUSIONS:

There are no warranties or merchantability or fitness for a particular purpose with respect to any product manufactured or sold by the Company. Motors provided by the Company are in most instances warranted by the manufacturer thereof and are not warranted by the Company. The Company shall not be responsible under this warranty or otherwise for personal injury or for Incidental or Consequential Damages, including, without limitation, loss of use and lost profits. This warranty does not apply to defects or damages caused by misuse, improper maintenance, or improper installation of the Company's product or any equipment attached to or used in connection with the Company's product. The Company reserves the right to make changes or improvements to its products without incurring any obligation with respect to previously manufactured products. Field modification of this product without the expressed written permission of the Company constitutes a misuse of the product. The Company shall have no liability under this warranty until payment in full for the product in question has been made by the customer. The foregoing is the sole warranty made by the Company. No one is authorized to make other warranties on behalf of the Company.