DICKEY-john®
A DIVISION OF TSI®

Operator's Manual

GAC® 2700-AGRI

Grain Analysis Computer

CONTENTS

SAFETY NOTICES

Safety notices are one of the primary ways to call attention to potential hazards. An absence of specific alerts does not mean that there are no safety risks involved.

This product is intended for indoor use.

Description of Caution/Warning Symbols

This Safety Alert Symbol identifies important safety messages in this manual. When you see this symbol, carefully read the message that follows. Be alert to the possibility of personal injury or death.

Use of the word WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Use of the word CAUTION with the Safety Alert Symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Use of the word CAUTION without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in equipment damage.

DISCLAIMER

DICKEY-john® reserves the right to make engineering refinements or procedural changes that may not be reflected in this manual. Material included in this manual is for informational purposes and is subject to change without notice.

Liability

DICKEY-john® designed the GAC® 2700 to measure moisture content in grains, oilseeds, and other products. We rigorously test and calibrate each instrument before it leaves the factory. Use of the instrument in the field, however, is subject to environmental and operating conditions beyond our control. DICKEY-john® disclaims all liability for damages resulting from environmental and operating conditions beyond our control and for any damages that might follow incorrect results due to those environmental or operational conditions. **IN NO EVENT SHALL DICKEY-JOHN OR ANY OF ITS AFFILIATES, OFFICERS, DIRECTORS, SUCCESSORS OR ASSIGNS BE LIABLE FOR ANY DAMAGES WHATSOEVER, INCLUDING SPECIAL, INDIRECT, CONSEQUENTIAL OR INCIDENTAL DAMAGES OR DAMAGES FOR LOSS OF PROFITS, REVENUE, USE, OR DATA AS A RESULT OF CLAIMS, REGARDLESS OF THEORY BROUGHT, ARISING OUT OF OR CONNECTED WITH ANY USE OR RELIANCE ON THE GAC® 2700.**

The operator is responsible for ensuring the results of the testing are as accurate as possible by following approved maintenance procedures on a regular basis, making sure the calibrations are up to date and the latest version is being utilized, by cleaning the instrument and its sensors on a regular and as-needed basis depending on the amount of dust, dirt, and debris encountered in the instrument's use, by monitoring performance using daily check samples and by adhering to the check procedures set forth in the manual. As with any kind of precision instrument, optimal results depend in part on proper cleaning and maintenance.

For questions concerning these issues, refer to the product warranty, or call your DICKEY-john® representative.

INTRODUCTION

The DICKEY-john® Grain Analysis Computer GAC® 2700 quickly tests grain and automatically calculates moisture content, grain temperature, and test weight (bulk density) of the sample. The unit prompts for sample loading, tests the sample, and displays the results.

Accessories

The following list of components are included with the unit and can be ordered as replacement parts:

- Detachable AC power cord p/n 203150002 (US)
- Quick Start Guide p/n 6015416
- Cleaning brush p/n 206410003
- Grain drawer p/n 468071541
- Grain drawer bottomless (optional) p/n 468071542
- Allen wrench (5/32”) p/n 468072300

Replacement parts can be obtained by contacting your dealer or distributor.

Unit Overview

1. Power (on/off) button
2. Hopper
3. Hopper full sensors
4. Touch screen display
5. USB connections (2) front (2) back
6. Sample drawer
7. Bubble level
8. Adjustment feet (4)

Figure 1 GAC® 2700 Overview (Front of Unit)

Features

- Color touch screen display guides users through testing and setup
- Easy-to-use user interface
- Fast, accurate grain analysis
- Alpha/numeric sample identification with the ability to add an optional external keyboard or bar code reader using USB
- Error messages display when out-of-limits moisture, grain weight, or grain temperature occur
- Customizable work environment
- Long-term storage of grain tests
- 8 calibration slots that can be programmed to specific producer requirements.
- Internal memory capacity to handle future upgrades
- Printing capabilities

Specifications

- Operating temperature: 36 to 113 degrees F (2 to 45 degrees C)
- Power: 36 W, Max
- Voltage: 100-120, 220 / 230-240 VAC
- Frequency: 60 / 50 Hz
- Humidity: 20 to 90% noncondensing
- Grain temperature: -4 degrees F to +113 degrees F (-20 degrees to +45 degrees C) depending on grain calibrations
- Storage/transit temperature: -4 to +140 degrees F (-20 to +60 degrees C)
- Moisture range: 5 to 45% (grain, calibration, and temperature dependent)
- Approximate Weight: 29 lbs.
- Approximate dimensions: 17”H x 16”W x 14”D
- IP rating: IPX0

Grain Calibrations

GAC 2700-AGRI is shipped with eight common calibrations for producers. These calibrations are the same as the calibrations used by elevators with the GAC 2700-UGMA grain moisture analyzer.

Please refer to the DICKEY-john® calibration website for a complete list of calibrations for the GAC® 2700.

Regulatory Compliance Information

The GAC® 2700 is in conformity with the provisions of the following directives and regulations:

Safety

- 2014/35/EU - Low Voltage Directive (LVD)
- EN61010-1:2017 - Safety requirements for electrical equipment for measurement, control, and laboratory use
- UL 61010-1
- UL-IEC61010-1:2012 Ed.3+R:19Jul2019
- CB – IEC 61010-1:2010/AMD1:2016, Certificate # US/8703/ITS

EMC Emissions

- 2014/30/EU - Electromagnetic Compatibility (EMC) Directive
- EN 61326-1:2013 Class A Group 2 (Electrical Equipment for Measurement, Control, and Laboratory use)
- FCC Part 18.109:2021
- ICES-001:2020 Class A Group 2
- CISPR11, Group2, Class A
- EN 61000-3-2:2014
- EN 61000-3-3:2013
- KN 11 Group 2 Class A

This product creates an RF signal for measurement purposes and meets the EMC requirements of the United States (FCC 47 CFR, Part 18.109.(c), ISM Class A and ANSI C63.4:2014) and Canada (ICES-001, CISPR11 Group 2, Class A).

EMC Immunity

- 2014/30/EU - Electromagnetic Compatibility (EMC) Directive
- EN 1326-1:2013, Basic Levels (Electrical Equipment for Measurement, Control, and Laboratory use)
- KN 35

The GAC® 2700 product series is exempted from the Radio Equipment Directive 2014/53/EU as the RF signal internal to the product is not used for communications. The RF signal power is below the threshold limit to be of concern for EMF Directive 2013/35/EU and therefore no MPE calculation was determined necessary.

RoHS

We, TSI Incorporated, hereby declare that the GAC® 2700 product and all product variants are in full compliance with RoHS Directive 2011/65/EU with Amendment EU Directive 2015/863/EU.

WEEE

- 2012/19/EU

The Declaration of Conformity is available upon request.

External Communication Connections

- 4 USB-A ports (2 in front, 2 in back) to connect a keyboard, mouse, printer or flash drive.
- 1 USB-C port to connect the GAC® 2700 to a PC for downloading of software to the device, installing calibrations, or remotely accessing data from the instrument (Authorized Service Centers Only).
- 1 RJ45 Ethernet jack for connection to LAN (Future Availability)
- 1 RS232 serial port printer connection

NOTE: USB, Ethernet, and serial (RS-232) cable lengths are recommended to be less than three meters.

Figure 2 External Communication Connections (Back of Unit)

CAUTION

Be sure to leave enough space around the rear of the instrument to avoid damage to the input power connector and to facilitate easy disconnection of the unit.

Unpacking

Carefully unpack the GAC® 2700. Refer to the packing list below to verify that all items are present. Contact DICKEY-john® if items are missing or broken.

Retain the packaging for use when shipping the instrument; use of other packaging for shipment may result in damage to the instrument.

Packing List

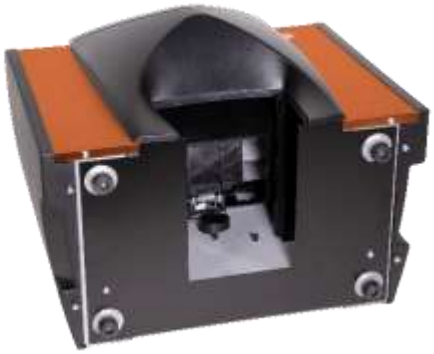
Qty	Description
1	Model GAC® 2700-AGRI Grain Moisture Analyzer
1	Quick Start Guide
1	AC Power Cord
1	Allen Wrench
1	Cleaning Brush
1	Grain Drawer

Setting up the GAC® 2700

Setting up the GAC® 2700 requires the following procedures:

1. Open the carton and remove the Allen wrench from the upper foam insert.
2. Remove the GAC® 2700 from the plastic bag. Save the bag, the packaging material, and the carton to use for future transport of the instrument.
3. Ensure the installation location is level using the bubble level at the top of the instrument; adjust the feet if necessary. Unit must be kept level, making sure that there is sufficient clearance between the GAC 2700 and the countertop so that the grain drawer is cleanly inserted into the instrument.
4. Remove the grain drawer and place the unit gently on backside to locate the shipping brackets on the left and right side walls.

   IMPORTANT: Be careful when placing the unit on its backside to avoid damage to the security switch.



5. Loosen and then remove the hex bolt from the bracket on the left side wall.

6. Press down on the bracket to release.

7. Slide the bracket toward the bottom of the instrument.

8. Insert the hex bolt into the operating location hold and tighten using the Allen wrench.

9. Perform the same procedure to the bracket on the right side wall.

10. Once both brackets are tightened to the operating location, place unit upright.

Reverse the process to re-install the brackets for transportation. This locks the weighing mechanism to prevent damage when moving.

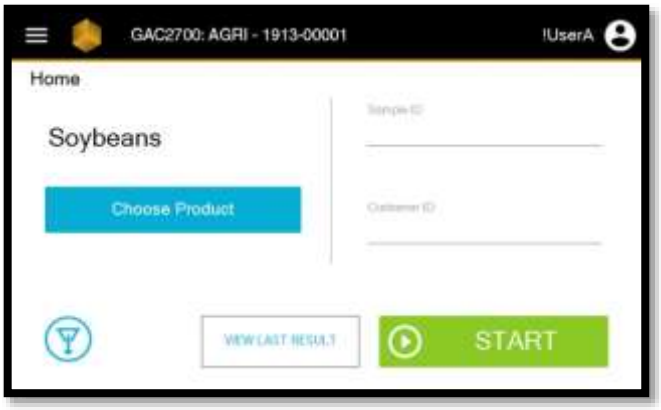
Initial Setup

The GAC® 2700-AGRI is ready to begin grain analysis immediately upon power up after successful setup. The instrument will proceed to the Home screen after power-up.

Prior to conducting grain measurements, please register the instrument at the following website: http://www.dickey-john.com/gac2700reg

Conducting Grain Analyses

The GAC® 2700 is designed to provide minimal user interaction to run grain moisture measurements. From the Home screen:



1. Press the **Choose Product** button to select the grain or crop that will be analyzed.
2. Enter **Sample ID** (If desired).
3. Enter **Customer ID** (If desired).
4. Pour the sample into the Upper Hopper.
5. The **START** button will change to Green when there is enough grain in the hopper to properly run a sample.
6. Press the **START** button.
7. No further action is required. When the measurement is complete, the Moisture %, Test Weight, and Temperature will be displayed.

NAVIGATION

The user interacts with the GAC® 2700 using the LCD touch screen display. Screen interaction by finger touch.

Refer to Maintenance section for cleaning display.

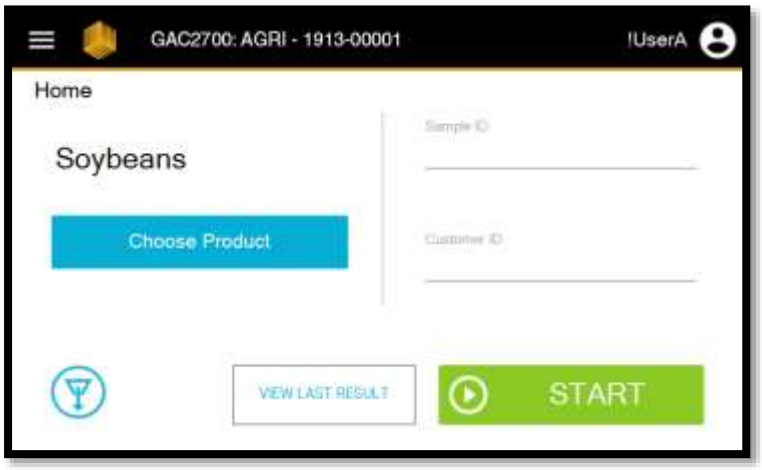
CAUTION

Do not use any sharp objects on the display. Damage to screen can result.

The following methods allow navigation through and interface with the unit:

1. Text input boxes
2. Buttons
3. Keyboard

Figure 3 LCD Touch Screen Display



The default view for the GAC® 2700 is the Home screen as described above. In order to conduct a measurement the user will need to follow the following steps.

Operation	Description
Choose Product	Press this button to select the grain desired for moisture measurement. A pop-up window will appear showing all grain calibrations installed on the instrument. Press Grain Name and the product calibration will automatically transfer to the home screen for analysis.

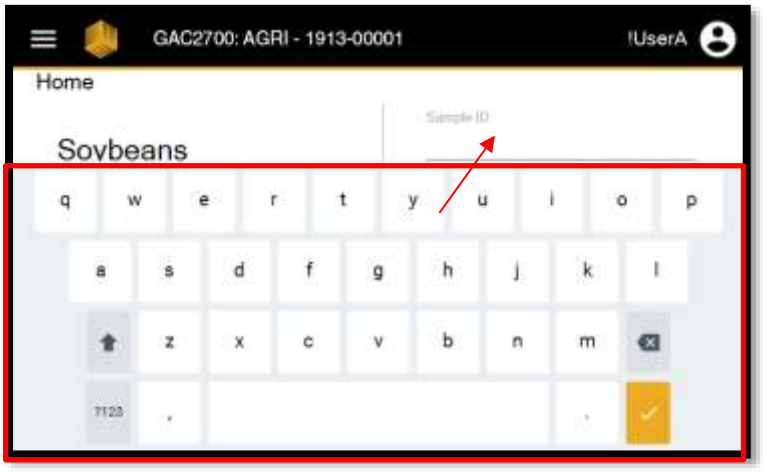
SampleID	Press the line to bring up a keyboard if it is desired to track the identification of the sample. Type using the keyboard and press ✓.
CustomerID	Press the line to bring up a keyboard if it is desired to track the identification of the customer. Type using the keyboard and press ✓.
 **Dump Button**	Press to transfer the sample from the upper hopper to the grain drawer. This is helpful if the user decides not to measure the sample of grain.
	Press this button to review the results from the last sample that was run through the GAC® 2700.
	Press this button to initiate the measurement process. This button will turn Green when the instrument is ready to take a measurement. If the button is Yellow, text will be displayed to indicate action necessary to conduct a grain measurement.

Using External Devices

The following external devices can be used to enter data and navigate through the screens by connecting to the USB ports (2 front / 2 back):

- Keyboard
- Mouse
- Barcode Scanner

On-Screen Keyboard



Select the line to bring up keyboard and to enter content.

Icon	Description
	Upper Case/Lower Case button is available to switch between upper/lower case letters.
	Delete button is used to delete letter or space.
	Enter button is used to return to the screen and close out of the keyboard option.
	Spacebar button is used to add spaces between letters/words.

Touch Screen Button Functions

Icon	Description
	Home button is available on most screens and, when pressed, returns to the Main screen.
	Drop-down Menu - press this button to select the desired menu option.
	Date - press to change the date.

	**Time** - press to change the time.
	**Print** button allows printing test results to a local printer. Refer to the Setup section for print requirements.
	**Left** button returns to the previous option within the screen.
	**Right** button advances to the next option within the screen.
	**Abort** button dumps grain from hopper, empties the cell, and aborts test.
	**Drawer Full Button** - The button is programmed to turn Blue when the drawer is in the condition required for measurement to occur. The button will be gray when it needs to be emptied. The purpose of the button is to ensure that grain does not overflow the drawer into the instrument and onto the workspace.
	**Moisture**
	**Test Weight**
	**Temperature**
	**USB** button is used when installing or exporting calibrations or result data to a USB memory device.
	**User** button appears on the Main Menu screen only if a User ID has been enabled in System Setup.
	**Details** - press to view additional results or calibration data.
	**Filter** - press to filter between data.

ANALYSIS RESULTS

NAVIGATION FROM ☰ SCREEN:

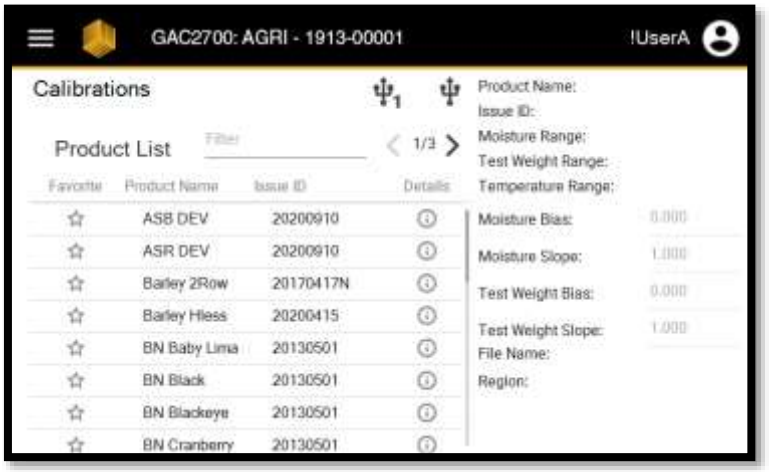
The GAC® 2700 is equipped with memory to store approximately 3,000 moisture measurement results consisting of all parameters of the measurement. Items such as the grain name, moisture and test weight results, the temperature of the grain at time of measurement, user ID, sample, ID, etc. are all available on this screen.

Operation	Description
Default View	Results are listed in sequential order.
Sorting	Results can be sorted by pressing on any of the column headers. Switch between Increasing and Decreasing by clicking on the Column Header.
Details	Press ⓘ to view additional data (User ID, Sample ID, etc.)
Filter	Press the word “Filter” to search for a specific product calibration, etc. After the click, the keyboard is displayed. Type in the desired words and select ✓ to execute the Filter action.
Advanced Filter	Press to filter the results by a certain amount of days (24 hour increments), a specific number of results, or even by name of the user.
Download	Press ⬇ to download results to USB memory device.

	Note: Results will be downloaded in the format as specified in the Settings Page.
Print	Press  to send results to installed printer, third party scale or financial management software system.
Delete Records	Press  to delete results. Enter the quantity of result records to delete in the dialog box that appears on the screen. Results will be deleted starting with the oldest in the database.

CALIBRATIONS

NAVIGATION FROM ☰ SCREEN:



Users are able to use this menu to view detailed information of the currently installed grain calibrations, add new calibrations, modify existing calibrations, or to delete calibrations.

HELPFUL TIP: Additional calibrations are available for download at the DICKEY-john calibration website: http://cal.dickey-john.com/calibrations.aspx.

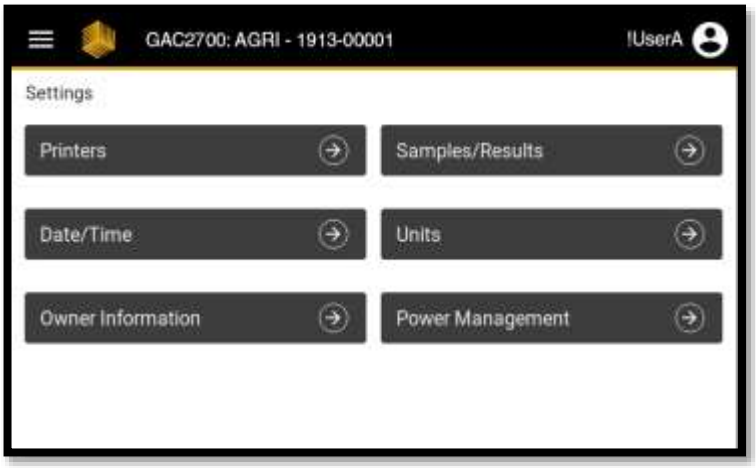
Operation	Description
Calibration List	List of calibrations installed on the current region of the GAC® 2700. Scroll through the list to find the desired calibration.
Calibration Details	Press either the calibration name or ⓘ to view specific details regarding the calibration.
Delete	Once a calibration has been selected to view the details, the 🗑 button is displayed on the screen. Press this button to permanently delete a calibration from the GAC® 2700. *Note: The GAC® 2700 is programmed to require the user to press the delete button twice as a safeguard to prevent unintended calibration deletion.*

Modify Existing Calibrations	The GAC® 2700 will permit the user to modify existing calibrations. 1. Press the desired calibration name so the details screen is displayed. If the calibration is Unofficial, then the Bias & Slope values for the moisture and test weight parameters will be in black font. 2. Press on the line to bring up a keyboard to modify the bias or the slope. 3. Press to save the value. 4. Press to save the calibration. Pressing will delete the modifications from the GAC 2700.
Copy Icon	The GAC® 2700 will permit the user to create a new calibration based upon a previously created calibration. 1. The user should first select the desired calibration to copy. 2. Press . 3. Enter a name for the new calibration. *Note: The GAC® 2700 will always default to "New" in the name.* 4. Enter an Issue ID for the new calibration. *Note: The GAC 2700 will default to the current date.* 5. Press to save the calibration to the GAC 2700.
Sorting by Column Header	Press the column header (Favorite, Product Name, etc.) to sort the calibration list by the identifier. Press the header twice to switch between ascending and descending values.
Filter	Press the line, type in the calibration name on the on-screen keyboard, press the Enter key, and the GAC 2700 will display calibrations installed in the region. This is helpful to save the user time if multiple calibrations have been downloaded onto the GAC 2700 for the same grain such as low moisture, regular moisture, or high moisture.

USB Symbol	Press  to access calibration bundles saved on a USB memory stick inserted into one of the USB-A ports of the GAC® 2700. Follow the on-screen prompts to download the calibrations to the GAC® 2700. Press  to upload a single calibration. Press  to export calibrations to a USB memory stick.

SETTINGS

NAVIGATION FROM ☰ SCREEN:



The GAC® 2700 can be configured to meet the needs of any application globally where grain or crops are analyzed to determine moisture content. Because operators are able to configure the GAC® 2700 specifically to their operational needs, they are able to realize time, labor, and other resource savings.

Operation	Settings to Change
Samples / Results	Configure the functionality of the GAC® prior to and post measurement.
Units	Configure the GAC for imperial or metric units.
Power Management	Adjust the screen brightness for readability based upon the specific lighting of the application.
Printers	Configure the data stream output of the GAC 2700 to a printer or third-party software program.
Date/Time	Align the instrument date / time with the application. The date and time are recorded during each grain measurement.
Owner Information	Enter name, address, and other relevant information on the application where the GAC is used.

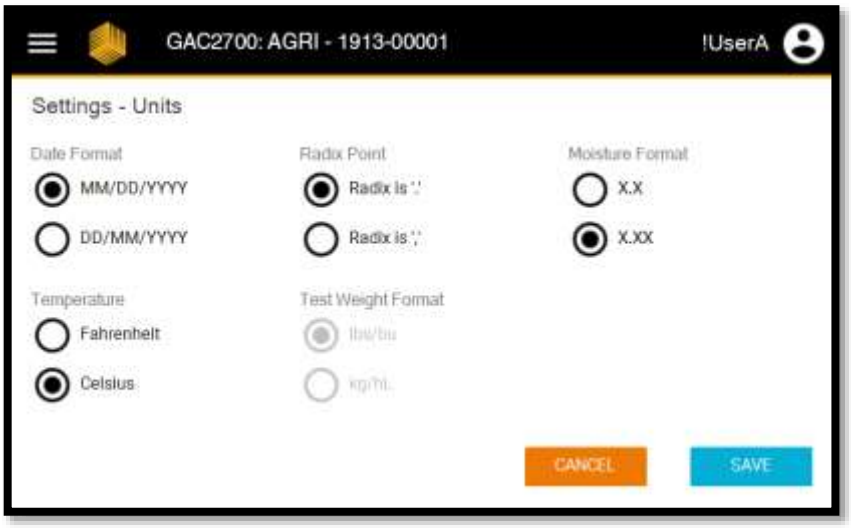
Samples/Results

The GAC® 2700 is designed to provide advanced customization options based upon operator preferences, application requirements, or regulatory specifications. The operator is permitted to change both the operation pre-measurement (sample settings) and post measurement (results settings). The settings in this screen are adjusted using a Toggle Bar: Press to toggle between Off ( ) and On ( ). Settings in black font can be modified while setting in gray font cannot be modified.

Operation	Process to Change the Setting
Automatically Return to Dashboard	Toggle to force the GAC® 2700 to return back to the Home page between 1 to 20 seconds after each measurement.
Display Test Weight on Result	Toggle to the On position so that the GAC® 2700 will display the Test Weight value of each measurement on the Results screen.
Display Temperature on Result	Toggle to the On position so that the GAC 2700 will display the temperature value of each measurement on the Results screen.
Ignore Drawer Sensor	Toggle to permit the grain measurement process without the drawer inserted into the instrument. This is useful for operations that utilize a bottomless drawer. *Note: Selecting this option without a grain collection process in place will result in grain spillage on the counter.*
# of Drops Before Grain Drawer Must Be Emptied	Determine the quantity of samples that can be run before the GAC 2700 will require that the grain drawer be emptied to prevent grain mess on the counter. The first option is the infinity symbol, which should be selected if the

	instrument will be used in Bottomless Drawer Mode. The other options are 1 drop or 3 drops.
Sample ID Required	Toggle to require the operator to enter an identification (ID) for each sample prior to analysis start.
Automatically Sequence Sample ID	Toggle to have the GAC® 2700 automatically increase the increments of the Sample ID. The GAC® 2700 is capable of detecting numbers in the sample ID and then will automatically increase the number if this feature is enabled.
Customer ID Required	Toggle to require the operator to enter an identification (ID) for each customer prior to analysis start.
Cancel	Select to exit the menu with no changes
Save	Select to save the changes

Units



The GAC® 2700 is capable of delivering results in both imperial and metric units in order to meet the needs of the global grain moisture measurement market. Settings in black font can be modified while setting in gray font cannot be modified.

Operation	Process to Change the Setting
Date Format	Click on the desired format for date presentation.
Radix Point	Click on the desired format for number separation (XXX, XXX or XXX.XXX).
Moisture Format	Click on whether the moisture result will be displayed and saved with one decimal point or two.

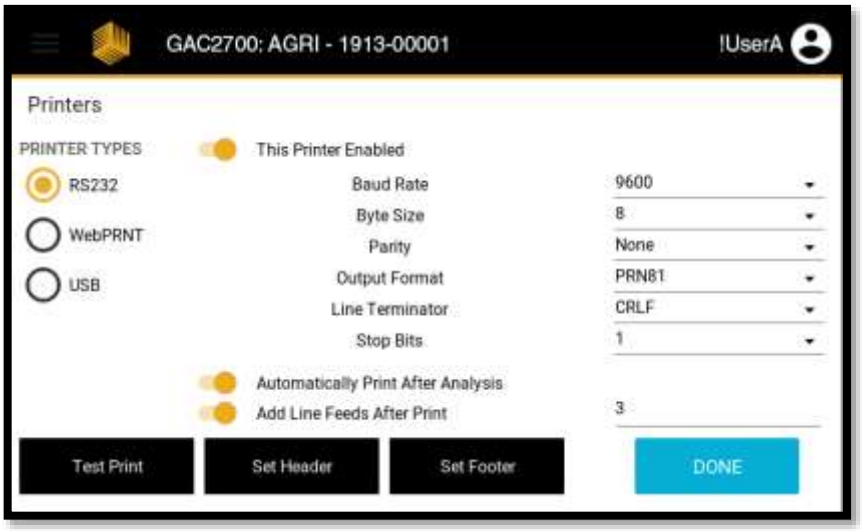
Temperature Format	Click on whether the measurement results are displayed in Fahrenheit or Celsius.
Test Weight Format	Click on whether the test weight results are displayed in pounds per bushel (lbs/bu) or kilogram per hectoliter (kg/hl).
Cancel	Select to exit the menu with no changes.
Save	Select to save the changes.

Power Management

The GAC® 2700 is equipped with the ability to modify the brightness of the touchscreen in order to provide the clearest visibility to the operator.

Operation	Process to Change the Setting
Left Arrow	< to decrease the screen brightness.
Right Arrow	> to increase the screen brightness.
Cancel	Select to exit the menu with no changes.
Save	Select to save the changes.

Printers



NOTES:
1. It may be necessary to contact the scale system / accounting software vendor to obtain the specific data streaming requirements for this setting.

*2. Call **DICKEY-john Technical Support** at 1-800-637-3302 with any questions regarding printers / data streaming.*

The GAC® 2700 is designed to provide an onscreen moisture measurement result and relevant data to external printers. It can also be configured for third party scale or accounting software programs. Because each application is different, the GAC® 2700 will need to be configured to the specific output device as required by the end customer.

Currently, the GAC® 2700 supports three types of printer/data streaming:

1. A Star 742WebPRNT printer as manufactured by Star Micronics. This printer communicates to the GAC 2700 using the Ethernet port located on the back panel of the instrument. Star has recently released the Star 742CloudPRNT, a replacement of the WebPRNT. Either of these printers will work when this option is selected.
2. RS232 Enabled Printers / Data Streaming. The RS232 port is the standard among the grain industry for printer communication and data streaming to third party software programs. This capability is accessed using the RS232 port on the back panel of the instrument. The GAC 2700 incorporates a modern operating system for firmware and software. Customers with older printers should check with their dealer / distributor to determine compatibility with the GAC 2700.
3. USB Printing when connecting to a Star SP712 USB Printer.

   Note: After initial setup of a USB printer with the GAC 2700, a power cycle of the GAC is recommended to ensure proper communications are established with the printer.

   The GAC 2700 has been designed to permit data export to two devices at the same time. This is useful for operations that stream the data to a truck scale software program via the RS232 port and to a printer using the Ethernet port or USB. To enable dual export, simply toggle the “This Printer Enabled” button to the On position for both printers.

Operation (General)	Process to Change the Setting
Printer Type	Select whether the GAC® 2700 will communicate results data to the Star 742WebPRNT printer or an RS232 compatible device.
Test Print	Press this button to test print the data to the output stream.
Set Header	Press this button to enter text that will print on the top of each measurement result.
Set Footer	Press this button to enter text that will print on the bottom of each measurement result.
Done	Select to save the changes and exit.

NOTE: Star has recently released the Star 742CloudPRNT, a replacement of the WebPRNT. Either of these printers will work when this option is selected.

Operation (WebPRNT)	Process to Change the Setting
This Printer Enabled	Toggle to enable this printer.
WebPRNT IP Address	1. Manually enter the IP address of the printer that is connected to the network. 2. Select the line and a keyboard will be displayed. 3. Manually enter the IP address using the keyboard. 4. Press ✓ to save the value.
Output Format	It is possible to choose between different widths for the print out of measurement results. Choose the desired option from the drop-down box.
Line Terminator	Choose the desired option for the end of the line of the result being sent to the printer. This directs the printer at the point to move to a new line.
Automatically Print After Analysis	Toggle to automatically send the result to the printer after each analysis rather than pressing the Printer button on the measurement results screen.
Add Line Feeds After Print	Toggle to direct the printer to add empty lines after each measurement result. Once activated, it is necessary to manually enter a number of blank lines: 1. Select the line so that the keyboard is displayed. 2. Select the appropriate number. 3. Press ✓ to save the value. *Note: This setting will not have an effect on a printer that has an auto-cut feature that is enabled.*
Done	Select to save the changes and exit.

Operation (USB)	Process to Change the Setting
This Printer Enabled	Toggle to enable this printer / data streaming device.
Output Format	It is possible to choose between different widths for the print out of measurement results. Choose the desired option from the drop-down box.
Line Terminator	Choose the desired option for the end of the line of the result being sent to the printer. This directs the printer at the point to move to a new line.
Automatically Print After Analysis	Toggle to automatically send the result to the printer after each analysis rather than pressing  on the measurement results screen.
Add Line Feeds After Print	Toggle to direct the printer to add empty lines after each measurement result. Once activated, it is necessary to manually enter a number of blank lines: 1. Select the line so that the keyboard is displayed. 2. Select the appropriate number. 3. Press  to save the value.

Operation (RS232)	Process to Change the Setting
This Printer Enabled	Toggle to enable this printer / data streaming device.
Baud Rate	Select the desired baud rate from the Drop-down menu.
Byte Size	Select the desired byte size from the Drop-down menu.
Parity	Select the desired parity from the Drop-down menu.
Output Format	It is possible to choose between different widths for the print out of measurement results. Choose the desired option from the drop-down box.
Line Terminator	Choose the desired option for the end of the line of the result being sent to the printer. This directs the printer at the point to move to a new line.
Stop Bits	Select the desired stop bits from the Drop-down menu.
Automatically Print After Analysis	Toggle to automatically send the result to the printer after each analysis rather than pressing  on the measurement results screen.

Add Line Feeds After Print	Toggle to direct the printer to add empty lines after each measurement result. Once activated, it is necessary to manually enter a number of blank lines: 4. Select the line so that the keyboard is displayed. 5. Select the appropriate number. 6. Press ✓ to save the value.
Done	Select to save the changes and exit.

Date/Time

Throughout the course of the instrument life, it may be necessary to adjust the date or the time on the GAC® 2700 so that the measurement is accurately recorded. This screen allows the authorized user to change the date and/or time.

Operation	Process to Change the Setting
Date	1. Press 📅. A calendar is displayed. 2. Select the correct date. 3. Press Close.
Time	1. Press 🕒. A clock is displayed 2. Select the correct time. 3. Select OK.
Cancel	Select to exit the menu with no changes
Save	Select to Save the changes

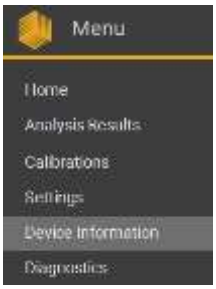
Owner Information

The GAC® 2700 permits the user to apply owner information into the instrument memory in order to aid with asset tracking.

Operation	Process to Change the Setting
Owner Name	1. Press on a line and the on-screen keyboard is displayed. 2. Type the necessary information. 3. Press ✓ at the bottom right of the keyboard to exit the keyboard.
Owner Address	1. Press on a line and the on-screen keyboard is displayed. 2. Type the necessary information. 3. Press ✓ at the bottom right of the keyboard to exit the keyboard.
Owner Phone Number	1. Press on a line and the on-screen keyboard is displayed. 2. Type the necessary information. 3. Press ✓ at the bottom right of the keyboard to exit the keyboard.
Cancel	Select to exit the menu with no changes
Save	Select to save the changes

DEVICE INFORMATION

NAVIGATION FROM ☰ SCREEN:

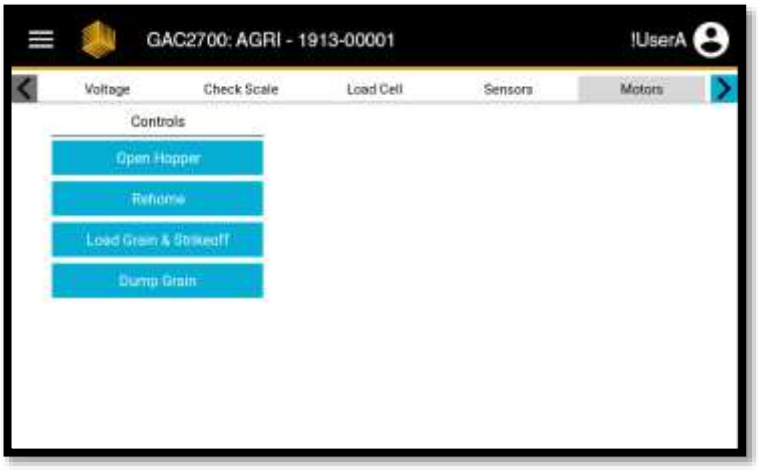


This screen displays the information potentially required during field audits by regulatory agencies. This information is pre-populated either at the factory or by Authorized Service Centers and cannot be changed by end users.

Operation	Description
Model	Specific model number within the GAC® 2700 product platform. Examples include “UGMA” for the United States, “INTL” for International applications, and “AGRI” for producer applications.
Software Versions	Series of digits that indicate the levels of the application software and the firmware software.
Last Service Date	Optional for Authorized Service Centers to enter this information to increase frequency of service intervals.
Region	Region currently being used on the GAC® 2700.

DIAGNOSTICS

NAVIGATION FROM ☰ SCREEN:



The purpose of this menu is to provide the specific data required by technicians to diagnose, troubleshoot, and resolve issues that may occur on the GAC® 2700. This section is only intended for authorized service personnel and cannot be changed or modified by end users.

CLEANING / MAINTENANCE

NOTE: For customers that require a more extensive cleaning procedure with debris buildup in the cell, contact and schedule your instrument for cleaning with your dealer or Authorized Service Center.

IMPORTANT: It is recommended the unit be regularly inspected and cleaned to ensure continued and consistent results.

For optimum performance, extensive cleaning should be performed weekly or more often, as needed, based on surrounding environmental conditions. Factors such as dust, temperature extremes, grain dust, and external humidity vary from location to location. If there are any questions about the cleanliness or instrument performance, contact your local Authorized Service Center.

Note: The following recommendations are provided as a guideline to maintain a robust and quality operating instrument. It should not be interpreted as an exhaustive maintenance program. Dust and debris may periodically accumulate in areas not specified in this manual. The owner is responsible for ensuring overall equipment cleanliness. If any questions arise regarding the maintenance or performance of the instrument, contact your dealer or local Authorized Service Center.

External Cleaning

The LCD display may require periodic cleaning. Use a commercial cleaner for glass lenses to remove dust.

CAUTION

Do not apply water, organic solvent or chemicals, such as acid and alkali to the LCD display.

The GAC® 2700 surface can be cleaned with any cleaner designed for plastic and stainless steel surfaces.
Periodically use a rag to wipe the grain hopper and the (2) upper grain hopper sensors.

Figure 4 Grain Hopper Sensors

Internal Cleaning

Performing continuous tests can result in material accumulation around the critical internal components and adversely affect the measurement.

Two types of cleaning are recommended on an as needed basis:

- Daily clean
- Extensive clean

Daily Clean Method

A daily clean method allows cleaning the cell and door using an automated process. During the cleaning sequence, the hopper door automatically opens.

To start the cleaning process:

1. At the Main Menu screen, press the **Device Information** button.
2. Press  .
3. Cleaning mode as active will appear.
4. Remove the grain drawer.
5. Using the supplied brush, manually remove any loose or stuck grain or dust from the measuring cell.
6. Press the **CLOSE** button to return instrument to normal operation.

CAUTION

Hands should be clear from inside the instrument before pressing the CLOSE button.

7. Insert grain drawer.
8. To exit, press the menu (drop-down) button and select HOME.

Extensive Cleaning Method

NOTE: For customers that require a more extensive cleaning procedure with buildup in the cell, contact and schedule your instrument for cleaning with your dealer or authorized service center.

The daily cleaning method should be performed first before proceeding to the extensive cleaning method.

IMPORTANT: Extensive cleaning should be performed weekly or more often, as needed, based on surrounding environmental conditions. Factors such as dust, temperature extremes, grain dust, and external humidity vary from location to location. If there are any questions about the cleanliness or instrument performance, contact your local authorized service center.

Tool required for internal mechanism cleaning:

- Brush p/n 206410003 (included with instrument)

Extensive cleaning of the instrument involves two steps to ensure optimum instrument performance:

1. Internal mechanism cleaning
2. Temperature sensor probe cleaning

To Clean the Instrument:

1. Power down the instrument.

Figure 5 Power Down

2. Unplug power cord.

Figure 6 Unplug Power Cord

3. Remove other accessory cords (USB and printer).

Figure 7 Remove Accessory Cords

4. Remove grain drawer.

Figure 8 Remove Grain Drawer

5. Place the instrument on its back side.

Figure 9 Place Instrument on Back Side

6. Manually pull down on trap door.

Figure 10 Pull Down on Trap Door

7. Clean surfaces around measurement cell including hinge, trap door, and edge of cell with the supplied brush.

Figure 11 Clean Surface Area around Cell, Hinge, Trap Door, Edge of Cell

8. Close the trap door and clean hinge under trap door with brush.

Figure 12 Clean Under Trap Door

9. Proceed to instruction for cleaning the temperature sensor probe.

Cleaning the Temperature Sensor Probe

IMPORTANT: Any particles in front of the sensor's optics can affect measurement performance. Therefore it is crucial to sufficiently clean the sensor. For excessive dust and/or foreign material buildup on or around the temperature sensor, it is recommended the instrument be returned to DICKEY-john® Service or authorized service center.

The temperature sensor may require cleaning due to dust buildup and/or foreign material that has collected around the sensor that could potentially cause temperature error readings during analysis. Temperature sensor cleaning should be performed weekly or more often, as needed, based on surrounding environmental conditions. Factors such as dust, temperature extremes, grain dust, and external humidity vary from location to location. It is important the temperature sensor is visually inspected and cleaned each time a regular maintenance check of the instrument is conducted. If there are any questions about the cleanliness or instrument performance, contact your local authorized service center.

Tools required for cleaning the temperature sensor probe:

1. Standard 6" long cotton swab
   (i.e. McMaster-Carr p/n 7074T12)
2. 99% Isopropyl Alcohol
3. 10" flat head screw driver

TEMPERATURE SENSOR LOCATION

With the instrument placed upside down and looking inside the instrument, the sensor probe is located in the middle of the instrument toward the top and front attached to a circuit board.

Figure 13 Sensor Probe Location

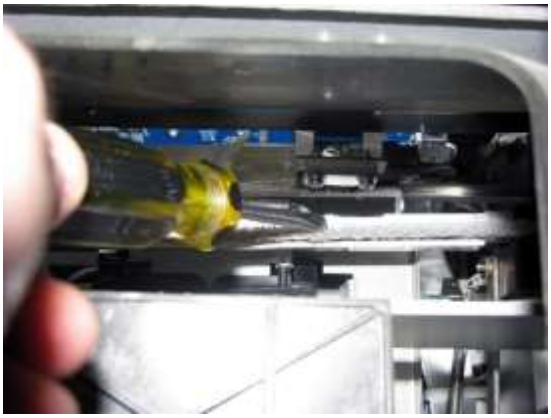
To Clean the IR Temperature Sensor:

1. Gently place instrument upside down.

Figure 14 Place Instrument Upside Down

2. Carefully place the head of the screw driver (10” length recommended) at the bristles and use a sweeping side-to-side motion through the entire length of the bristles no fewer than three times.

Figure 15 Cleaning the Brush Assembly



3. Select the appropriate cotton swab as described.
   Wet one end of the cotton swab with 99% Isopropyl alcohol.
4. Swab method for cleaning sensor:
   - Gently clean the entire IR temperature sensor surface with the wet end of the cotton swab as depicted in (Figure 16).

Figure 16 Magnified View of Proper Cleaning with Cotton Swab

5. Allow the temperature sensor to dry for 90 seconds then gently clean with the dry end of the cotton swab.
6. Visually inspect the temperature sensor as well as all other areas cleaned to ensure the instrument is free from debris. If there is any question about the cleanliness of the instrument, it should be returned to a dealer or authorized service center.
7. If cleaning is acceptable, return instrument to upright position and replace the drawer.
8. Reconnect power cable and accessory cords.
9. Power on instrument.

IMPORTANT: The foregoing recommendations are provided as a guideline to maintain a robust and quality operating GAC® 2700. It should not be interpreted as an exhaustive maintenance program. Dust and debris may periodically accumulate in areas not specified in this manual. The owner is responsible for ensuring overall equipment cleanliness. If any questions arise regarding the maintenance or performance of the instrument, contact your dealer or local authorized service center.

TROUBLESHOOTING

The GAC® 2700 utilizes an RF frequency of 149 MHz to make measurements within the machine. It is not a strong signal strength. If potential interference is determined to originate from the GAC® 2700 simple corrective steps can be taken; move the products further apart from each other, re-orientate the products to each other.

ERROR CODE	ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
1	**Empty Cell Measurement Out of Spec**	Moisture or dirt buildup in cell.	Dump grain and verify cell is clean and free of grain in and surrounding the cell.
2	**Empty Cell Weight Out of Spec**	Empty cell measurement is out of tolerance.	Ensure shipping brackets have been moved to the Unlocked position. Dump grain and verify cell is clean and free of grain in and surrounding the cell.
3	**No Products Installed**	No product calibrations were found on the machine.	Install product calibration files.
4	**Fill Motor Jammed**	The motor has stalled while loading grain from a possible obstruction.	Clear blockage from cell.
5	**Invalid Grain Calibration File**	An invalid calibration file was selected.	Re-install the selected calibration file.
6	**Moisture Too High**	Measured product is above the moisture upper limit of the calibration.	Verify sample filled the cell.
7	**Moisture Too Low**	Measured product is below the moisture lower limit of the calibration.	Verify sample filled the cell.
8	**Instrument Low Temp Limit Exceeded**	Instrument temperature is less than the allowed limit of 2 degrees C.	Move unit to a warmer environment or allow to warm up.
9	**Grain High Temp Limit Exceeded**	Grain temperature has exceeded the grain calibration specification to analyze grain.	Allow grain to cool and then re-analyze.
10	**Grain Low Temp Limit Exceeded**	Grain temperature has exceeded the grain calibration specification to analyze grain.	Allow grain to warm and then re-analyze.
11	**Sample Weight Too High**	Test weight is greater than the range specified for the calibration selected.	Use a more representative sample and re-analyze grain. Verify correct grain calibration is selected.
12	**Sample Weight Too Low**	Test weight is lower than the range specified for the calibration selected.	Use a more representative sample and re-analyze grain. Verify correct grain calibration is selected.
13	**No Communication**	An internal communication failure has occurred and communication has been lost.	Power unit off and turn back on to reset.
14	**Instrument High Temp Limit Exceeded**	Instrument temperature is higher than the allowed limit of 45 degrees C.	Check unit ventilation or move to a cooler environment.
15	**Unit to Grain Differential**	The difference between grain temperature and machine temperature has exceeded the unit specification to analyze grain.	Allow grain and machine temperature to equalize and then re-analyze.
16	**Internal Power Supply Out of Spec**	Unit internal voltage is out of specification.	Service is required. Contact **DICKEY-john Tech Support** at 1-800-637-3302.
17	**Unable to Predict Moisture**	A corrupt instrument calibration file or other unexpected error.	Dump sample and re-analyze.
18	**Pre-Analysis Timeout**	Power unit off and turn back on to reset.	Contact **DICKEY-john Tech Support** at 1-800-637-3302 if problem persists.

19	**Instrument Needs Updated**	Firmware in the instrument is out of date for this application.	Update device with new firmware.
21	**File I/O Error**	An unexpected file i/o error has occurred.	An obstruction has occurred in the cell. Blockage must be cleared before testing can resume.
22	**Error RF Interference**	RF interference detected. Unable to compute moisture. Bad relay on cell board could be the issue.	Contact **DICKEY-john Tech Support** at 1-800-637-3302 if problem persists.
23	**No Locale**	A region name is not present in imported Region.ini file.	Contact **DICKEY-john Tech Support** at 1-800-637-3302.
25	**Could not Create Default Locale**	An error has occurred while attempting to create a default locale.	Contact **DICKEY-john Tech Support** at 1-800-637-3302.
50	**Weight Measurement Device Error**	An error has occurred with the load cell.	Power unit off and turn back on to reset. Service unit if failure continues.
51	**Invalid Password**	A service function with an invalid password was attempted.	If service is required, contact **DICKEY-john Technical Support** at 1-800-637-3302 for assistance on how to obtain the password and proper service procedure.
52	**Date/Time Incorrect**	The programmed machine date is less than expected.	Program the instrument date and time. If problem persists, then the battery backup for the internal clock may need to be replaced. Contact **DICKEY-john Technical Support** at 1-800-637-3302 for service.
53	**Cold Sample Moisture Too High**	The sample is too high in moisture to accurately read at its current temperature.	Warm the sample above the low temperature threshold specified in the product calibration file and rerun the measurement.
55	**Dump Motor Timeout**	The dump mechanism does not appear to be closing.	Check that the dump motor optical sensor is clean and there is no interference in the dump mechanism. Press the Green button to retry. If error persists, contact **DICKEY-john Technical Support** at 1-800-637-3302.
56	**I/O Board Power Off Error**	Power unit off and turn back on to reset.	Contact **DICKEY-john Tech Support** at 1-800-637-3302 if problem persists.
60	**Network Unavailable**	Confirm network cables are properly connected.	Verify the network settings are correct.
100	**Unexpected Application Crash**	The application has encountered an unexpected error.	Press the Initiate (green) button or cycle power to reboot the instrument. If problem persists, contact **DICKEY-john Tech Support** at 1-800-637-3302.

DICKEY-john® WARRANTY

Dealers have the responsibility of calling to the attention of their customers the following warranty prior to acceptance of an order from their customer for any DICKEY-john® product.

DICKEY-john® warrants to the original purchaser for use that, if any part of the product proves to be defective in material or workmanship within one year from date of original installation, and is returned to DICKEY-john within 30 days after such defect is discovered, DICKEY-john will (at our option) either replace or repair said part. This warranty does not apply to damage resulting from misuse, neglect, accident, or improper installation or maintenance; any expenses or liability for repairs made by outside parties without DICKEY-john's written consent; damage to any associated equipment; or lost profits or special damages. Said part will not be considered defective if it substantially fulfills the performance expectations. **THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES OF MERCHANTABILITY, FITNESS FOR PURPOSE, AND OF ANY OTHER TYPE, WHETHER EXPRESS OR IMPLIED.** DICKEY-john neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with said part and will not be liable for consequential damages. Purchaser accepts these terms and warranty limitations unless the product is returned within fifteen days for full refund of purchase price.

Operator's Manual

GAC® 2700-AGRI

Grain Analysis Computer

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A DIVISION OF TSI®

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