LCD DISPLAY TOUCH SCREEN CALIBRATION

The LCD display touch screen may not respond as it should with a finger touch or stylus after a period of time or if subjected to extreme temperature changes. The display can be re-calibrated to improve responsiveness.

1. At the Service Data screen, press the **Display Touch Screen Calibration** button and follow onscreen instructions.
2. Carefully press and hold finger on the center of the target.
3. Repeat as the target moves around the screen.
4. With a keyboard attached, press the **Enter** button to accept new settings or the **Esc** button to keep previous settings. Without an attached keyboard, press anywhere on the screen to accept.

*Figure 36*

**Display Calibration**

- **Service Data**
  - **GAC2500-AGRI**
  - **Service Note:** Frank from DICKEY-john 457-2222 basic checkout
  - **Service Date:** 03/10/2013
  - **Resettable Counter:** 2000
  - **Total Cycles:** 100,000

- **Press Target with finger or stylus**
  - Carefully press and briefly hold stylus on the center of the target.
  - Repeat as the target moves around the screen.
  - Press the Esc key to cancel.

- **New calibration settings have been measured.**
  - Press the Enter key to accept the new settings.
  - Press the Esc key to keep the old settings.
DATA STORAGE CAPACITY

The unit is capable of storing a maximum of 3,000 test results. The database can be cleared at any time by selecting the Clear Database button located under the System Setup screen. When stored data has reached approximately 2,500 records, a warning screen automatically appears when attempting a grain measurement that indicates memory capacity is getting low. Analysis can still occur until the maximum allowed records of approximately 3000 is reached. Once maximum storage is reached, grain analysis cannot continue until cleared.

NOTE: Records cannot be exported to a USB memory device at this screen. If a backup is required, this can be accomplished at the View Results screen found under the Results button.

To Delete Records:

1. At the System Setup screen, press the More button until the Clear Database button displays.
2. Press the Clear Database button to display the Delete Results screen.
3. At the Delete Results screen, press the Delete All Results button.
   – A Delete Engineering Data button appears if Engineering log files are present. This button must be pressed to clear those records.
4. Press Yes to proceed with clearing records.
   – Press No to abort record deletion.

Figure 37
Memory Capacity Low Screen
CHECK SCALE

Check Scale performs an instrument scale measurement for a weight accuracy comparison with an external scale. The readings displayed onscreen are actual temperature and weight product results.

To perform a Check Scale:

1. At the System Setup screen, press the More button until the Check Scale button displays.
2. Press the Check Scale button to display the Check Scale screen.
3. Fill hopper with a sample. When the hopper is full, the next screen automatically displays.

Figure 38
Performing a Check Scale

4. Press the Measure button to start the process.
   – This is the last screen that allows returning to the previous screen or returning to the Home screen.
5. Measurement process automatically begins measuring tare then loading and weighing the sample.
6. At the Scale Measurement Results screen, dump any excess material that fell into the drawer during the strike off process. The sample weight and temperature captured during the measurement appears on this screen.
7. Insert drawer into instrument.
8. Press the **Dump Sample** button to dump sample into drawer.
9. Remove drawer and weigh the grain in the drawer on an external scale and compare to reading on the display.
10. Press the **Retest** button to perform another check scale or **Exit** button to return to the Setup screen.

*Figure 40*

**Dumping Sample**

![Diagram of Scale Measurement Results and System Setup with buttons labeled Dump Sample, Retest, and Exit. Weight = 263.90 g, Temp: 22.72°C]
NETWORK SETUP

Network setup specifies ethernet settings for the instrument. This feature should be enabled by an authorized service technician or by contacting DICKEY-john Tech Support.

UPDATE INSTRUMENT

Update Instrument allows a software update to the instrument via a USB memory device. This feature should be enabled by an authorized service technician or by contacting DICKEY-john Tech Support.

Figure 41

Network Setup
STARTUP

The GAC® 2500-AGRI is powered on by pressing the on/off switch located on the front panel (Figure 1). A series of Startup screens load after the system is turned on. A status bar indicates self checks are occurring and upon completion, the Instrument Information screen displays before the Main Menu screen appears.

IMPORTANT: On initial power up of the unit, the system defaults with open access to all screens. To ensure that the unit’s settings are protected and accessible by qualified users, an administrative level with password should be created. Refer to the System Setup section for further information.

Figure 42
Startup Screens
POWER DOWN

The unit can be powered down from any screen by pressing the on/off switch located on the front panel.

A virtual Power Down button is also available on some top level screens and powers off the unit in the same manner as the on/off switch.

A Power Down screen must be acknowledged before the unit shuts down.

Figure 43
Power Down Screen

![Power Down Screen](image-url)
ANALYZING GRAIN

The Main Menu screen appears after all Startup screens have loaded. This is the “Home” menu through which all other menus are accessed.

At the Main Menu screen, three functions are performed:

1. To analyze grain
2. To access test results
3. To setup/customize the unit

Figure 44
Main Menu (Home) Screen

USER LOGIN (OPTIONAL)

A User Login is an optional feature that requires a user to login before grain can be analyzed. The unit default is no user login required. If a user login is required, a User button appears on the Main Menu screen. The User cannot proceed to test grain until a login name is entered. The User Login feature records the user name with a grain test in the unit database and prints on each grain ticket.
USER LOGIN

1. At the Main Menu screen, press the **User** button.
2. GUEST appears as the default User Name and must be replaced with a different user name. Press the keypad icon to enter a new user name.

3. Press the **Enter** button to accept. The user name will appear as the current user on the Main Menu screen.

The unit will continue to analyze grain with the active user name until the user logs off or the power is turned off.

USER LOG OFF

1. At the Main Menu screen, press the **User** button.
2. At the User Login screen, press the **Clear User Name** button. GUEST will default as the new user name.
3. Press the **Enter** button to return to the Main Menu screen.
4. A new user name must be entered before additional grain analysis is allowed.

NOTE: Refer to the System Setup, Sample Setup section to enable user login.
SELECTING PRODUCT

To select a grain for testing:

1. At the Main Menu screen, press the Analyze button.
   - Grains are saved in a “last used” order.
   - A grain selected on the first Select Product screen proceeds to Sample ID screen or the Analysis screen.
3. To view additional grains not viewable on the top level Select Product screen, press the More button.
   - Press the Up and Down buttons to view grains.
   - Select the desired grain in the product table.
   - Once selected, press the Initiate button to accept.
4. Grain is ready for analysis.

Figure 46
Select Product

PERFORMING A GRAIN ANALYSIS

Screens that display during analysis will vary based on what configurations are enabled or disabled at the System Setup/Sample Setup screens:

- Automatic grain measurement when hopper is full
- Sample ID and/or Customer ID screen prompt step
- User Login requirement
- Empty drawer requirement after each test
NOTE: To eliminate this screen before each analysis, disable at the Sample Setup screen.

To begin analysis:

1. If enabled, the Enter Sample ID screen appears. The selected product and Issue ID displays at the top of the screen.
   – **Dump** button dumps product from the hopper.
2. A Sample ID name can be entered by pressing the keypad located next to the input box.
   – If automatic number sequencing is enabled, the next higher number is automatically entered with additional tests of the same grain (1,2,3, etc). If auto sequence is not selected, the previous tests sample ID is cleared.
3. A Customer ID can be entered by pressing the keypad located next to the input box.
4. Press the **Initiate** button to proceed.
5. Pour grain into the hopper heaping grain slightly up to the hopper full sensors.

**Figure 47**
**Sample ID Screen**

<table>
<thead>
<tr>
<th>Enter Sample ID</th>
<th>GAC2500-AGRI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product:</strong> Corn</td>
<td>Issue ID: 070109</td>
</tr>
<tr>
<td>Sample ID:</td>
<td>Sample ID</td>
</tr>
<tr>
<td>Customer ID:</td>
<td>Customer ID</td>
</tr>
</tbody>
</table>

**CAUTION**

Do not insert fingers or foreign objects into the opened hopper doors.

**HOPPER LEVEL INDICATOR**

During analysis, hopper level status is indicated via the **Initiate** button.

– Yellow indicates hopper is empty and must be filled before proceeding.
– Green indicates hopper is full and testing can proceed.
6. Press the **Initiate** button (green) to begin test. Grain will dump into the measurement cell from the hopper. A test will only perform when the **Initiate** button is green.

7. The cell fills and the striker arm swings across the top of the test cell to wipe away excess grain.

8. During analysis, a testing status bar indicates progress.

9. An audible alarm indicates when test is complete and automatically advances to the Analysis Results screen.
NOTE: To automatically return to the Sample ID screen without pressing the Initiate button refer to the System Setup, Results Setting section for enabling Automatic Return.

10. The Analysis Results screen displays:
   – Product tested
   – Sample name
   – Moisture content %
   – Test Weight lbs/bu or kg/hl (optional)
   – Temperature (optional)

11. Test results are automatically saved to the unit.
12. Press the Initiate button to perform another test.

Grain automatically dumps into the drawer for removal in Manual or Automatic advance.
   – A requirement that grain be dumped after each test can be enabled at the Result Setup screen.

Drawer capacity holds approximately 3 tests. After 3 tests the drawer must be emptied before proceeding.

IMPORTANT: When using a bottomless grain drawer with flow-through counter, the bottomless drawer feature should be enabled under System Setup, Result Settings to perform unlimited grain tests to eliminate error messages.

Grain will not dump out of the cell if drawer is not present or secure.

Figure 50

Analysis Screen

Other Actions:
   – Print button sends test results to a local printer.
   – Home button returns to the Main Menu screen.
   – Enter Sample ID button to enter a Sample ID for next analysis. Does not allow changing the current Sample ID.
GENERAL CLEANING TIP

Some material accumulation around the measuring cell can possibly occur over time and could possibly affect measurement results. It is recommended the unit be regularly cleaned to ensure continued and consistent results. Refer to the Maintenance section for cleaning steps.

NOTE: Refer to the Error Message section for probable causes and corrective actions if errors occur during analysis.

NOTE: Refer to the Save Results section and Printing Options section for output options.
DATABASE MEMORY MESSAGES

DATABASE MEMORY FULL WARNING

When stored data has reached approximately 2,500 records, a warning screen automatically appears when performing a grain analysis indicating memory capacity is getting low. Analysis can still occur until the maximum allowed records of approximately 3000 is reached.

To clear Database Records:

1. At the Memory Low screen, press Yes to delete results.
   – Select No to return to previous screen and abort deleting records.
2. At the Delete Results screen, the number of records in the database is indicated. Press the Delete All Results button to confirm record deletion.
3. Press the Yes button to verify and begin deleting records.
   – Select No to return to previous screen and abort record deletion.

Figure 51
Clear Database Screen

NOTE: Records cannot be exported to a USB memory device at this screen. If a backup is required, this can be accomplished at the View Results screen found under the Results button.
OUT OF MEMORY

A Database Full screen displays when performing a grain analysis and the database has reached maximum storage capacity. Analysis cannot continue until records are deleted. Follow onscreen instructions to remove records.

Figure 52
Out of Memory

DATA DRIVE MEMORY LOW

GAC 2500-AGRI instruments automatically have engineering data enabled. Engineering data is stored separate from the Results Database. Therefore the Results database can be empty but the Data Drive can exceed capacity causing a memory low error. Analysis can continue but the data drive should be cleared soon.

Figure 53
Data Drive Memory Low Warning
DATA DRIVE OUT OF MEMORY

A Data Drive Out of Memory screen appears when the data drive is out of space. An analysis cannot be performed until data is cleared.

Figure 54

Data Drive Out of Memory Warning

![Data Drive Out of Memory Warning]

The Data Drive is Out of Space. Please remove data by clearing the results database and purging the engineering data. Would you like to delete data now?

Yes

No
The Results screen provides access to grain test results and product list.

**To View Test Results:**

1. At the Main Menu screen, press the **Results** button.
2. At the Results screen, press the **View Results** button.

**NOTE:** A momentary pause can occur before test results appear on screen. Do not press any buttons during this time.

3. The Results screen default displays all test results with Sample ID, % Moisture, Weight, Temperature, Product, Issue No., Customer ID, User ID, Date and Time.
4. Press the **Filter** button to choose what events display on the test results record. Refer to Refine Query Options for criteria options.
5. Press the **Print** button to print results as displayed in the table on the Results screen.
6. Insert USB memory device and press the **USB** button to transfer product results to a computer. All results are transferred to USB regardless of Filter setting.
REFINE QUERY OPTIONS

Figure 56

Product Like Criteria Example

Results can be filtered to display based on one or all of the following criteria:

QUERY ONLY LAST NUMBER OF RECORDS

Allows entry of a specified number of records to query so that only a specific last number of records are returned. When the Query Only Last option is checked, the title of what is queried will contain an asterisk to indicate that all returned results are displayed per the limit of records entered but there could be more older records in the database that meet the same criteria.

PRINT ONLY LAST NUMBER OF RECORDS

Allows entry of a specified number of records to print starting with the last sample taken, such as printing the last 5 samples taken.
NOTE: A status bar indicates progress of retrieving filtered data. Results can take several minutes to load while retrieving data. Do not press any buttons during this time.

NOTE: User Like and Sample ID Like filter function works the same as the Product Like filter. Refer to (Figure 56)

ALL PRODUCTS
Displays all sample tests stored on instrument.

PRODUCT LIKE
Allows entry of part or all of the product name to perform a product search. All records that fit criteria entered in the Product Like filter search will display. Example: Searching for a product like “Wh” searches for all records with “Wh” in the product name. (Figure 56) displays results for Wheat and Durum Wheat.

USER LIKE
Allows entry of part or all of the User name to perform a search for similar records within the User field. All records that fit the criteria entered in the User Like filter search will display.

SAMPLE ID LIKE
Allows entry of part or all of the Sample ID name to perform a search for similar records within Sample ID. All records that fit the criteria entered in the Sample ID Like filter search will display.

UNABLE TO SHOW QUERY RESULTS
When the system has reached near memory storage capacity, a query might not be able to display results per the number of records entered on the Query screen. In this instance, a screen confirmation will require the query be performed at a reduced number than was entered on the Query screen.

- Press OK to run query at reduced number
- Press Abort to cancel and return to Home screen.

Figure 57
Unable to Show Results Screen
VIEW PRODUCTS

The Installed Products screen provides an alphabetical table of active products stored on the unit with respective Issue ID. Products can only be viewed and printed at this screen.

1. At the Results screen, press the View Products button.
2. Press the Print button to print all active products and respective Issue ID’s.

Figure 58
View Products Screen
GRAIN CALIBRATIONS

Grain calibration files will be available for download at the DICKEY-john website (www.dickey-john.com) for transfer to the GAC® 2500-AGRI via a USB memory device.

These files are also available through DICKEY-john Technical Support Group at 1-800-637-3302.
DIAGNOSTICS

The Diagnostics screen is used by trained service technicians for troubleshooting. It is recommended that the functions on this screen are only performed by a DICKEY-john representative.

To view Diagnostics screen:

1. Press the Setup button to display the Setup screen.
2. Press the Diagnostics button to view the Diagnostics screen.

Figure 59
Diagnostics Screen

GAC2500 Diagnostic Form - AGRI-00001

GAC2500

Weight: -00.06
IR Temp: 21.76

Open Hopper Door
Rehome
IR?

Load Grain and Strikeoff

Measure Load Cell
Cal1
Cal2
E

Dump Grain
Advance Striker

HOPPER_LEVELFULL
FILL_STATE_HOME
DUMP_STATE_HALFWAY
DUMP_CLOSED
DRAINER_STATE_CLOSED
REMOTE_MODE_OFF

MAC: 00-30-20-ff-09-80  IP: 127.0.0.1
Weight: -00.06

Z = 47 7605717572315-4.59779725441E5
Zav = 45.0077
P = 2.0101442359

COMM CHECK
FILE I/O
MAINTENANCE

EXTERNAL CLEANING
The GAC® 2500-AGRI surface can be cleaned with any cleaner designed for plastic and stainless steel surfaces.

INTERNAL CLEANING
Performing continuous tests can result in material accumulation around the measuring cell and adversely affect the test weight/moisture measurement.

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

Two types of cleaning are recommended on an as needed basis:
• Quick clean
• Extensive clean

QUICK CLEAN METHOD
A quick 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 Instrument Information button.
2. At the Instrument Information screen, press the Clean button.
   – Pressing the Clean button automatically begins the cleaning sequence and opens the hopper door and the trap door.
3. Remove the grain drawer.

**Figure 61**

*Remove Grain Drawer*
4. Manually remove any loose or stuck grain from the measuring cell.
5. Press the OK button to return instrument to normal operation.

**CAUTION**

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

Figure 62
Cleaning Sequence

6. Insert grain drawer.
EXTENSIVE CLEANING METHOD

1. Power down the instrument.

*Figure 63*  
**Power Down**

2. Unplug power cord.

*Figure 64*  
**Unplug Power Cord**

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

*Figure 65*  
**Remove Accessory Cords**
4. Remove grain drawer.

Figure 66
Remove Grain Drawer

5. Place the instrument on its back side.

Figure 67
Place Instrument On Backside

6. Manually pull down on trap door.

Figure 68
Pull Down on Trap Door
7. Clean surfaces around measurement cell including hinge, trap door, and edge of cell.

Figure 69
Clean Surface Area Around Cell, Hinge, Trap Door, Edge of Cell

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

Figure 70
Clean Under Trap Door

9. Return instrument to upright position.
10. Insert grain drawer.
11. Connect all cords (power, USB, and printer).
12. Power on unit.
CLEANING THE SENSOR PROBE

The sensor should be cleaned periodically as particles in front of the sensor’s optics can cause errors during analysis.

The sensor probe is located in the round black assembly.

Figure 71
Sensor Probe Location

CLEANING TOOLS

The sensor probe is hermetically sealed so the best cleaning method is compressed air, alcohol, and a Q-tip.

- Spray the compressed air thoroughly around the entire sensor probe located inside the black casing.
- Use Q-tip to apply alcohol to the sensor probe area.

Figure 72
Cleaning Probe
LCD DISPLAY 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.
TROUBLESHOOTING

If the system locks, press and hold the On/Off button on the front of machine until system turns off or unplug instrument power. Wait a few seconds and then power on.

The GAC® 2500-AGRI contains a microprocessor to control grain sample measurements and self-checks that determine the integrity of the internal electronics. If any limit is exceeded or malfunctions occur an error code displays with a recommended resolution.

Figure 73
Error Screen Example

Error: 5
INVALID GRAIN CALIBRATION FILE
c:\gac2500\product\Durum-Bad.cal

An invalid calibration file was selected.

Re-install the selected calibration file.

If error persists contact technical support.