

HM-2100 Single Plot High Capacity GrainGage Manual Addendum

The HM-2100 Single Plot High Capacity GrainGage (HCGG) uses the same menu structure as the Twin HCGG User's Manual, with a few minor exceptions. This addendum is designed to help user's find and use the different menu items that have been added to the Single Plot menu structure. This information is being added to the HCGG User's Manual, which is supplied with Single Plot HCGG. Refer to the Plot Harvest Data Quick Start Guide for PocketDOS menu's and instructions.

▲ Main Menu | Setup | Weight/Bucket

The *Weight/Bucket* menu has the following options that are specific to the Single Plot HCGG:

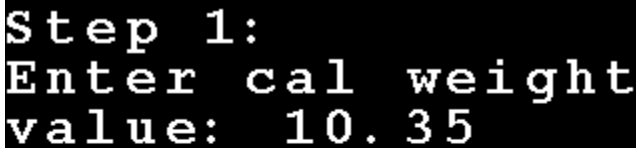
- Calibration
- Control
- Test Wt/LCel
- S & M Sensor

The *Weight/Bucket* menu screen is accessed by starting at the *Main Menu* screen and selecting *Setup | Weight/Bucket*.

Calibration

To calibrate the weight of the Single Plot HCGG, select the *Calibration* option from the *L-3 Weight/Bkt* screen and follow the screen prompts as directed. A known weight of 10 lbs (4.54 kg) or more is recommended for using a value close to the typical harvest weight.

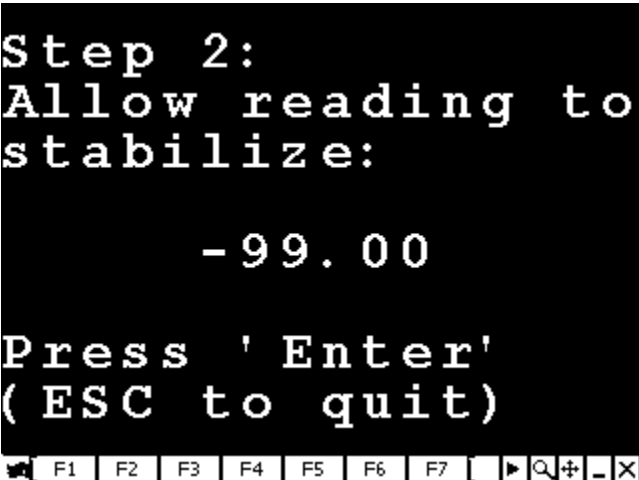
Step 1



```
Step 1:  
Enter cal weight  
value: 10.35
```

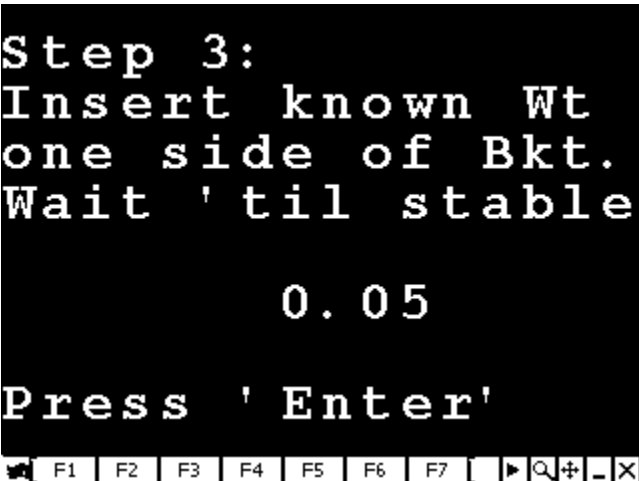
Step 2

```
Step 2:  
Allow reading to  
stabilize:  
  
-99.00  
  
Press 'Enter'  
(ESC to quit)
```

A terminal window with a black background and white text. The text reads: "Step 2:", "Allow reading to stabilize:", "-99.00", and "Press 'Enter' (ESC to quit)". At the bottom, there is a status bar with function keys F1 through F7, a cursor, and search and zoom icons.

Step 3

```
Step 3:  
Insert known Wt  
one side of Bkt.  
Wait 'til stable  
  
0.05  
  
Press 'Enter'
```

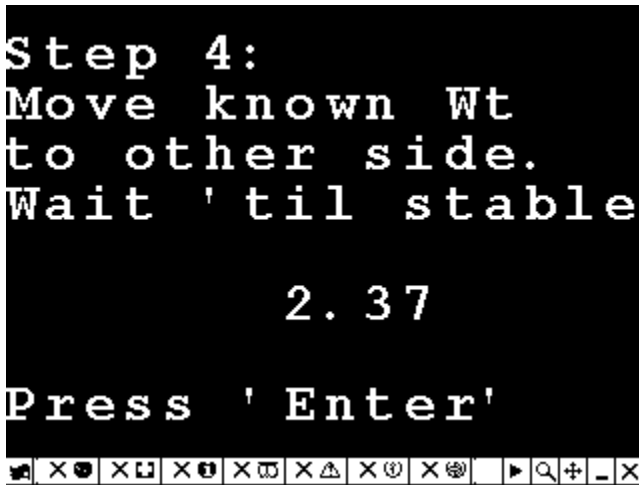
A terminal window with a black background and white text. The text reads: "Step 3:", "Insert known Wt one side of Bkt.", "Wait 'til stable", "0.05", and "Press 'Enter'". At the bottom, there is a status bar with function keys F1 through F7, a cursor, and search and zoom icons.

Step 4

```
Step 4:
Move known Wt
to other side.
Wait 'til stable

      2.37

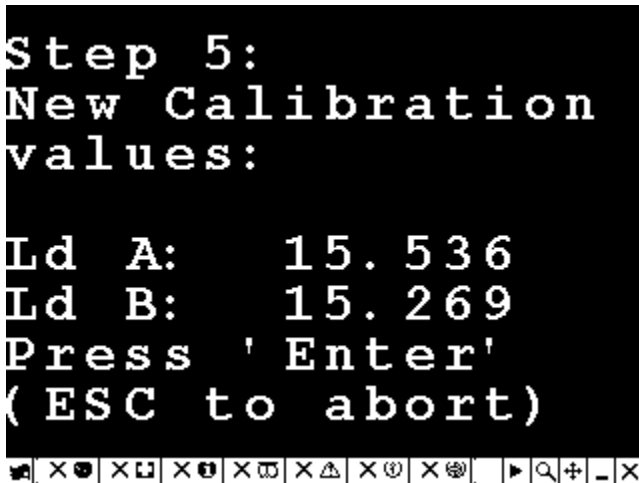
Press 'Enter'
```




Step 5

```
Step 5:
New Calibration
values:

Ld A:   15.536
Ld B:   15.269
Press 'Enter'
(ESC to abort)
```



 Note: Load A and Load B calibration values should be close to the same number (with in + or - one).

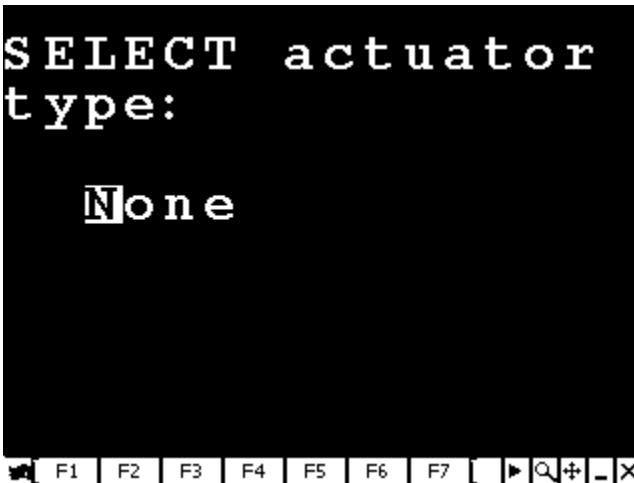
Control

In most cases the test or hopper door is not used with the Single Plot HCGG. In the event that these bucket functions need to be turned off, complete the following steps:

- 1) Select the *Control* option from the *L-3 Weight/Bkt* screen.



- 2) Select *HC GrainGage* for the actuator type in the Single Plot HCGG control options. Select *None* when the bucket is not being used.

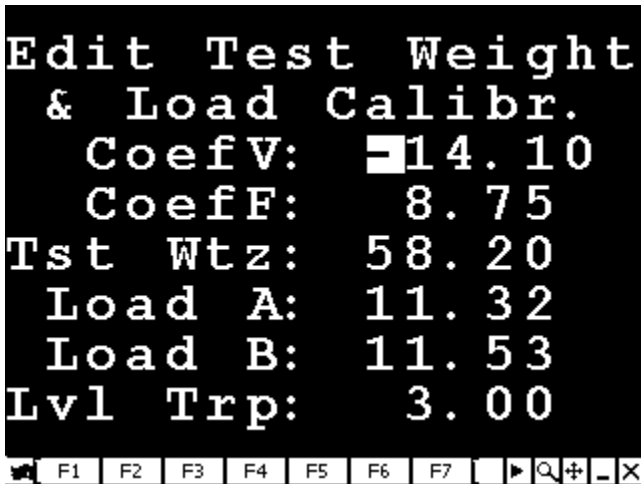


- 3) Enable or disable limit switches by following the options in each screen. Use the arrows key to scroll through selectable options and press *ENTER* to save your selection and advance to the next screen.

Note: Limit switches are not used on the open stroke if the actuator and should have a default of 1 second transition time.

Test Wt/LCcl (Test Weight / Load Cell)

Select the *Test Wt/LCcl* option from the L-3 Weight/Bkt screen to access the *Edit Test Weight & Load Calibr.* (Calibration) screen. This screen allows you to adjust test weight calibration, load cell weight multipliers, and the level detect used in strip test harvesting. The following are the default values for each variable.



Note: CoefV (coefficient V), CoefF (coefficient F), and Tst Wtz (test weights) are used to adjust the test weight measured by the Single Plot System. Tst Wtz is the only variable that needs to be adjusted by the user.

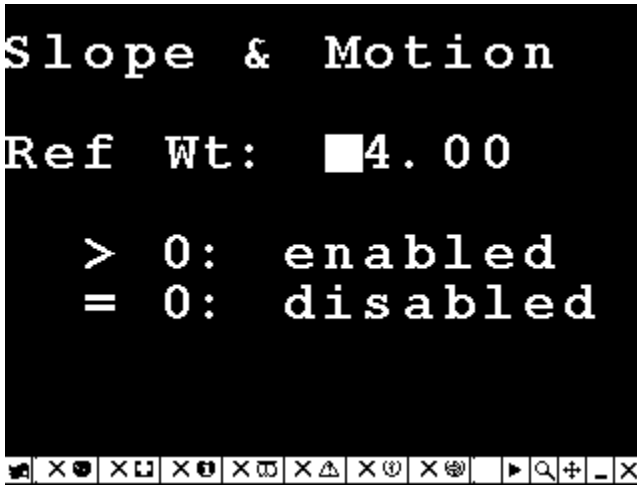
The *Tst Wtz* is a linear offset adjustment that is used to adjust measured test weight readings. If the Single Plot measures a test weight of 52.2 lbs/bu (pounds per bushel), but a bench top standard measures the test weight at 54.2 lbs/bu, then increase the *Tst Wtz* value by the difference between these two values (e.g. $54.2 - 52.2 = 2$). The *Tst wtz* value changes from 58.2 to 60.2.

The *Load A* and *Load B* numbers are coefficients, which are used to convert raw voltage readings from two weigh bucket load cells into weight. These values can be adjusted and are created by following the steps given in the *Weigh Bucket Calibrate* screens.

The *Lvl (Level) Trip* number is used in strip test mode. If needed, a level detect can be mounted inside of the weigh bucket for a strip test harvest. The *Lvl Trip* refers to the amount of grain that fills the bucket before it is cycled. The higher the *Lvl Trip* value, the more grain required to cause the bucket to cycle.

S & M (Slope and Motion) Sensor

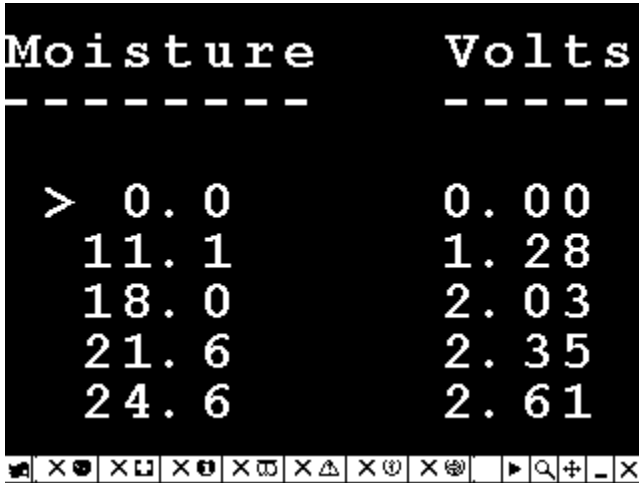
Select the *S & M Sensor* option from the *L-3 Weight/Bkt* screen to access the *Slope & Motion* screen. The Slope and Motion sensor refers to patented technology used to eliminate errors created by combine vibrations and movement. The Slope and Motion sensor allow for weight readings to be collected while the combine is in motion.



- The value of 4.00 lbs (1.81 kg) is used to enable the sensor.
- The value of 0.00 is used to disable the sensor.
- Note: The sensor cannot be enabled unless it is connected to the SCCU and Single Plot system. The combine should be level and stable when enabling.*

▲ Main Menu | Setup | Moisture

The Single Plot system uses the EM Grain Moisture sensor and has a pre-calibrated curve loaded in the software titled corn curve. The moisture curve can be adjusted as needed by adjusting individual points in the curve or adjusting the value of the Calibration Temperature.



Moisture	Volts
> 0.0	0.00
11.1	1.28
18.0	2.03
21.6	2.35
24.6	2.61

The *L-3 Moisture Curve* menu screen is accessed by starting at the *Main Menu* screen and selecting *Setup / Moisture*.

▲ Main Menu | Diagnostics

All diagnostics menu items are similar to the HCGG software except some additional items which have been added to the *Moisture and Load Cell* screens. The diagnostics menu has the following options that are specific to the Single Plot HCGG:

- Moist/Tst/Lvl
- Load Cells

The diagnostics menu is accessed by starting at the *Main Menu* and selecting *Diagnostics*.

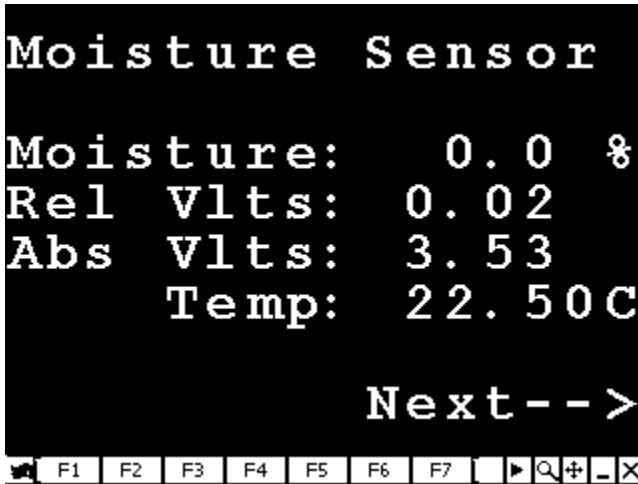
Moist/Tst/Lvl (Moisture Test Level)

The diagnostics menu allows you to view readings associated with the EM Grain Moisture sensor, which is also used to measure test weight. To move from screen to screen, use the left or right function of the arrows key.

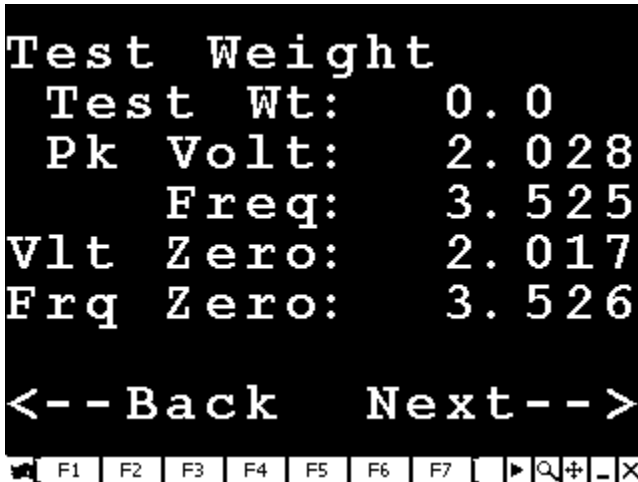
To set up a moisture curve, perform the following functions:

- 1) Verify calibrations by dumping grain samples into the bucket.

- 2) Get moisture and test weight readings by entering the Harvest menu and selecting a moisture curve.
- 3) Exit harvest mode after selecting the moisture curve, and go back into diagnostics. This uses the newly selected moisture curve in all moisture and test weight readings.



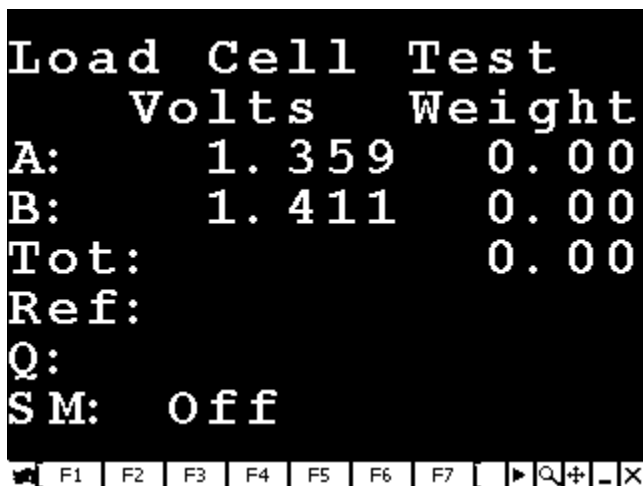
- 4) Press right arrow on the arrows key to move into the Temperature compensation *Test Weight* and *Level Sensor* screens.



Note: Pressing the left arrow on the arrows key takes you back to the previous screen.

Load Cells

The *Load Cells* screen shows you the raw voltage and adjusted weight readings for the plot bucket. The *A* and *B* load cells are added together to get the total weight readings on the weigh bucket. This screen also shows the values associated with the Slope and Motion sensor.



Note: Typically, the user would place a known weight in the bucket to test the weight calibration.

When harvesting plots, you have two options:

- Plot Harvest
- Strip Harvest

▲ Plot Harvest

The Plot Harvest option is designed for standard size (40 lbs or 18.1 kg) plots up to about 20 feet. An Auxiliary actuator may be installed to a door on a cyclone or holding hopper. The Aux actuator is used to create separation between plots. If harvesting in *Plot Harvest Mode*, the following is the sequence for harvest:

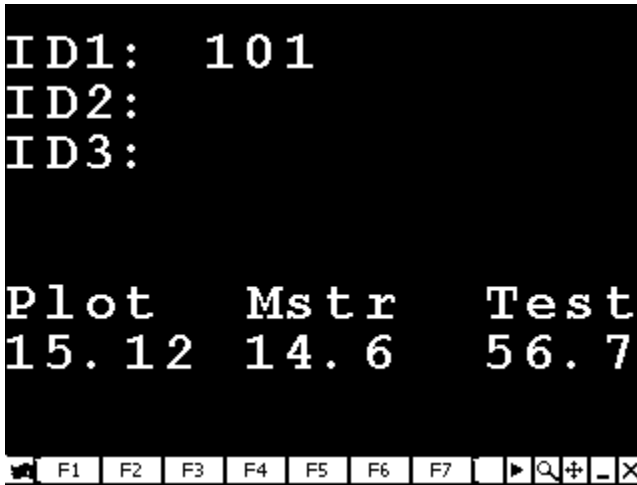
- 1) Harvest through a plot as grain flows into the weigh bucket.
- 2) Press the *ENTER* key as soon as the combine head is clean.
- 3) Wait as the combine cleanout timer begins to count down. As the timer reaches zero, the Aux actuator door closes.

Note: The trigger can be adjusted using the Cycle Delay option located in the program starting from Main Menu | Setup | Weight/Bucket | Timers.

- 4) It is ok to proceed into the next plot.

- 5) The weight, moisture, and test weight are measured after the Aux door closes.
- 6) The measurements are recorded to the Allegro and printed to the HM-402 Field Printer.
- 7) The weigh bucket cycles and dumps the sample out.
- 8) The Aux door opens again and the weigh bucket is ready to receive the grain from the next plot.

Harvest Screen



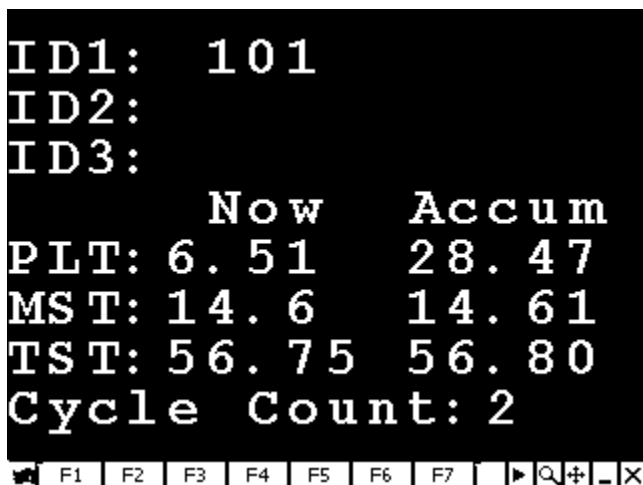
▲ Strip Harvest

The *Strip Test Harvest* mode is designed for plot lengths that are too long for a single weigh bucket to hold (40 lbs or 18.1 kg). *Strip Test Harvest* mode takes multiple weigh bucket samples and averages them for a single strip reading. If harvesting in *Strip Harvest Mode* and a level detect is installed, the following sequence occurs:

- 1) In normal operation the Aux door is open. Grain fills the weigh bucket until it reaches the trip level of the level detect.
- 2) The Aux actuator closes and the system records weight, moisture, and test weight. The number of bucket cycles is also displayed.
- 3) Each time the weigh bucket cycles, the Plot Weight is added to the previous value while the moisture and test weight are averaged together.
- 4) At the end of the harvest strip, wait until the combine is cleaned out. Then, press the *ENTER* key to finish the strip plot.

- 5) During this final cycle, the Plot Weight is added to the existing value. No moisture or test weight is measured due to the uncertainty of the amount of grain in the bucket.
- 6) The total Plot Weight, Moisture average, and Test Weight average are recorded and printed.
- 7) It is ok to proceed into the next strip plot.

Strip Test Screen



- Now: The current plot reading.
- Accum (Accumulative): The total of the cycled plots added together after each cycle.
- Cycle Count: The cycle you are on while harvesting the strip.

▲ For More Information

If you have any questions, please contact your reseller or our technical service department at (435) 753-1881, or by email at techsupport@junipersys.com.



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