

930 QUICK START

GETTING STARTED

TURN ON THE MACHINE – PRESS AND HOLD THE ON BUTTON
LET IT RUN THRU THE CYCLE

TESTING MOISTURE

USE THE ARROW KEYS TO SCROLL UP OR DOWN TO CHOOSE THE
COMMODITY THAT YOU ARE TESTING TO BE ABLE TO SEE SAMPLE SIZE
THEN PRESS THE WEIGH BUTTON WITH NOTHING ON IT
PLACE EMPTY CONTAINER ON THE SCALE AND PRESS THE ZERO BUTTON
WEIGH THE SAMPLE FOR THE GRAIN THAT YOU ARE DOING
THEN PRESS THE TEST BUTTON 1 TIME TO GET OUT OF WEIGH MODE AND
PRESS THE TEST BUTTON 1 MORE TIME
WHEN THE MACHINE SAYS LOAD GRAIN, PUT SAMPLE IN THE TOP CELL
(DUMP CELL) AND DROP IT INTO THE TEST CELL
PRESS THE TEST BUTTON 1 MORE TIME
IT WILL GIVE YOU THE TEMP AND THE MOISTURE

TO DO TEST WEIGHT

TAKE EVERYTHING OFF OF THE SCALE AND PRESS THE WEIGH BUTTON
PUT THE EMPTY TEST WEIGHT PINT CUP ON THE SCALE AND PRESS THE
ZERO BUTTON.
FILL THE CUP OVERFLOWING AND STRIKE OFF THE SAMPLE
PLACE THE FULL TEST WEIGHT CUP ON THE SCALE AGAIN
WHEN THE SCALE IS STABLE PRESS THE TW DENSITY BUTTON AND IT
WILL DISPLAY THE TEST WEIGHT

Shore Model 930 Grain Analyzer Commodity List

Calibrations for Grains, Beans, Seeds, Rice & Peanuts Version SG 08.11

All of the listed commodities are included in this version of the model 930, but all may not be enabled. If any desired commodities do not appear in the 930 grain selection menu, they can be enabled by going to the setup menu. See the manual for instructions for displaying or hiding commodities.

Commodity	Display ID	Moisture range	Sample Size
Corn	Corn 9 to 32%	9 - 32%	250g
High Moisture Corn Above 32%	Corn 32 to 48%	32 - 48%	200g
Soybeans	Soybeans	7 - 24%	250g
Barley, Two-Rowed	Barley 2 Row	8 - 22%	225g
Barley, Six-Rowed	Barley 6 Row	7 - 23%	225g
Grain Sorghums (Milo)	Grain Sorghums	8 - 24%	250g
Oats	Oats	7 - 21%	200g
Popcorn, Yellow	Popcorn - Yellow	3 - 26%	250g
Rye	Rye	7 - 20%	250g
Canola & Rapeseed	Canola	4 - 16%	265g
Crambe Seed	Crambe Seed	8 - 15%	150g
Flaxseed	Flaxseed	4 - 14%	270g
Millet	Millet	5 - 22%	250g
Mustard Seed, Yellow	Yellow Mustard	6 - 14%	250g
Sunflower Seed - Oil	Sunflower Seed	5 - 19%	150g
Sunflower Seed - Oil, Hi Moist.	Sunflower High%	15 - 25%	100g
Sunflower, Confectionery, Low Moist	Sunflwr Conf Lo%	8 - 12%	150g
Sunflower, Confectionery	Sunflower Confec	11 - 31%	100g
Wheat, Durum	Durum Wheat	6 - 23%	250g
Wheat, Hard Red Spring	Wheat HR Spring	6 - 24%	250g
Wheat, Hard Red Winter	Wheat HR Winter	7 - 23%	250g
Wheat, Hard White	Wheat Hard White	6 - 24%	250g
Wheat, Soft Red Winter	Wheat SR Winter	9 - 24%	250g
Wheat, Soft White	Wheat Soft White	8 - 25%	250g
Beans, Black	Black Beans	8 - 20%	250g
Beans, Black Eye	BlackEye Beans	8 - 18%	250g
Beans, Cranberry	Cranberry Beans	8 - 22%	250g
Beans, Dark Red Kidney	Kidney Dark Red	8 - 27%	250g
Beans, Light Red Kidney	Kidney Lite Red	8 - 27%	250g
Beans, Great Northern	Great Northern	8 - 20%	250g
Beans, Navy Pea	Navy Pea Beans	8 - 20%	250g
Beans, Pink	Pink Beans	8 - 19%	250g
Beans, Pinto	Pinto Beans	8 - 20%	250g
Beans, Small Red	Small Red Beans	8 - 20%	250g
Beans, Small White	Small White Bean	8 - 20%	250g
Beans, Yellow Eye	YellowEye Beans	8 - 20%	250g
Lentils	Lentils	8 - 17%	250g
Peas, Smooth Dry	Peas	8 - 23%	250g
Long Grain Rough Rice	LngGr Rough Rice	9 - 28%	200g
Medium Grain Rough Rice	MedGr Rough Rice	9 - 29%	200g
Short Grain Rough Rice	ShtGr Rough Rice	9 - 27%	200g
Spanish Peanuts	Spanish Peanuts	4.4 - 17.7%	250g
Runner Peanuts	Runner peanuts	4 - 16.4%	250g
Virginia Peanuts	Virginia Peanuts	4.8 - 19.3%	250g

MODEL 930 MOISTURE ANALYZER USER MANUAL

THE MODEL 930 MOISTURE ANALYZER: WHAT IS INCLUDED.

The model 930 moisture analyzer package contains the following items.

MODEL 930 CONSOLE: The console contains the integrated electronic weighing scale, battery pack and all the electronics. The console features a large, easy to read LCD display and large well defined function buttons.

GRAIN TEST CELL: The removable grain test cell attaches to the console. The sample to be tested is loaded into the test cell for the test and then the cell is removed to pour the sample back out. The test cell also contains the sample temperature sensor.

DUMP CELL: The dump cell is used to load the sample into the test cell. Use of the dump cell insures that the sample is loaded properly and consistently into the test cell. The dump cell is automatically reset by flipping it over after each test.

INTEGRATED ELECTRONIC WEIGHING SCALE: The integrated scale is used to weigh out the required sample size for moisture tests and can also convert sample weights to Test Weight (Bulk Density) and compute percentage.

TEST WEIGHT/DENSITY: A pint (or ½ Liter) test weight cup is included for determining Test Weight/ Density.

SCALE CALIBRATION WEIGHT: A precision calibration weight is included to be used for checking and re-calibrating the scale if necessary.

AC ADAPTER: An AC adapter is included to allow use AC power when available.


WEIGHING CONTAINER: A handy sample-weighing container is also included.


CUSTOM PADDED CARRY CASE: The complete model 930 Moisture Analyzer package all fits into a rugged custom soft side case for storage and easy transport.

KEYPAD BUTTONS: The model 930 keypad features 10 large, easy to read buttons. The following is a list of the buttons and their functions. (Note: The keypad layout in the photos may differ slightly from your meter, but the functions will be the same.) Also, when using any of the weighing functions, the response time to button presses is slightly longer, so the buttons may need to be pressed & held for a second before releasing.

ON/OFF: To turn on the Model 930, press and hold the ON button until the display shows "Power ON", then release it. Pressing the ON/OFF button again will turn off the 930. (There is also an auto shutoff when operating on batteries)

TEST/ENTER: The function of the TEST/ENTER button depends on the current operation mode. In the Moisture Test Mode, the TEST button initiates a moisture test sequence. If TEST is pressed in the Weighing mode, it will return to the Moisture Test Mode.

UP: The UP arrow button  is used to move up to the next selection in a menu or to increment a value.

DOWN/PRINT: The DOWN arrow button  is used to move down to the next selection in a menu or to decrement a value. This button also functions as a "PRINT" button when results are displayed.

CLEAR/ZERO: The Clear/Zero button either "Clears" or "Zeroes" a displayed value. In the weighing modes, it "zeroes" or "tares" a weight. In Moisture Test mode CLEAR will cancel a test or clear the screen for the next test.

WEIGH: The Weigh button selects the weighing mode and activates the integrated weighing scale.

TEST WEIGHT: The Test Weight button converts the weight of the sample in a pint test weight cup to LB/BU (or KG/HL when using a ½ Liter cup if that selection has been made).

MODEL 930 MOISTURE ANALYZER USER MANUAL

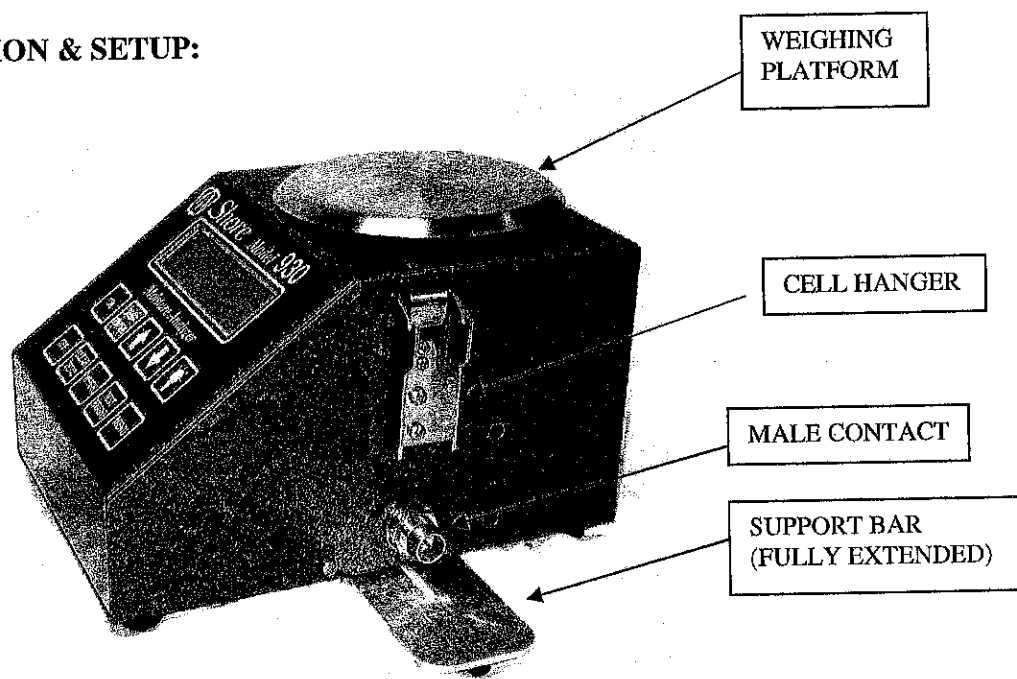
SET %: In the weighting mode, the "SET %" button sets the weight reference & displays the current weight as a percentage of the reference. (See PERCENTAGE WEIGHING for a detailed explanation.)

MENU: The Menu button allows users to access the various setup options such as applying a bias to moisture test results, Test Weight cup selection & Fahrenheit or Celsius temperature display. In the weighing mode, the Menu button accesses the scale calibration procedure.

BACKLIGHT: (The button with the light bulb logo) The Backlight button turns on the display backlight to allow viewing the display in very dim light. When operating from batteries, the light only stays on as long as the button is pressed. When operating from the AC adapter, the backlight will always be on.

QUICK START INSTRUCTIONS:

INSTALLATION & SETUP:

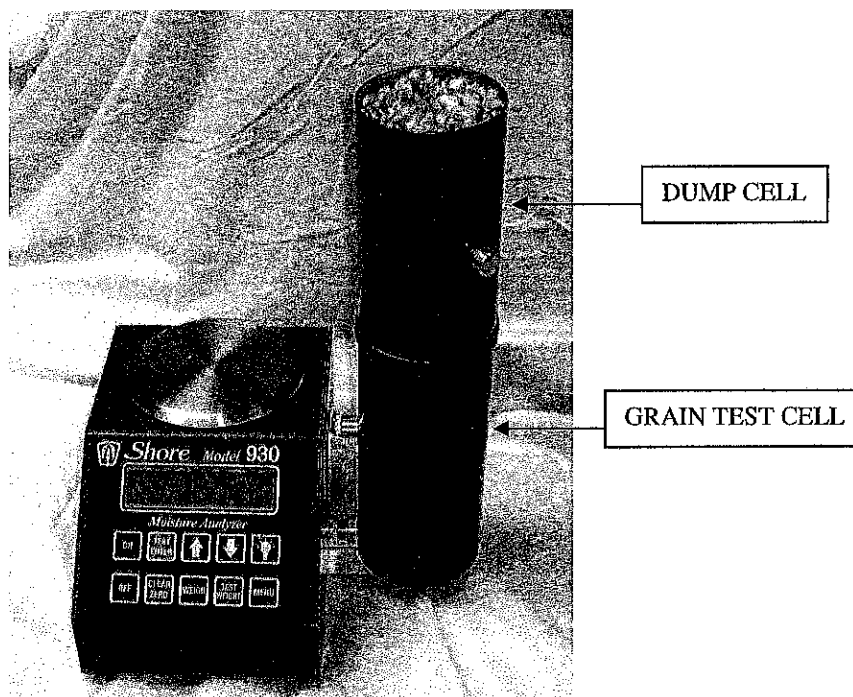


930 CONSOLE - SIDE VIEW

1. Loosen the two thumbscrews holding the console support bar to the bottom of the console. Slide the support all the way out and lock in place by re-tightening the thumbscrews.
2. Place the model 930 on a level surface. (Both the console and support have rubber feet that can be adjusted to prevent wobble if the surface is uneven.)
3. Install the weighing platform by inserting the stem into the load cell bushing in the opening on the top of the console.
4. Install the grain test cell by fully inserting it in the cell hanger bracket. When the cell is correctly installed, the contacts should mate without force.
5. If AC power is available, plug in the AC adapter into the power jack at the rear of the console and then plug it in to the 120 VAC line. (240 VAC adapters are available as an option)
6. If no AC power is available, the model 930 can be operated from batteries. The battery compartment is located at the rear of the console. (Batteries are usually packed separately)
7. Press the ON button and hold it until "Power ON" is displayed, then release it.

The model 930 is now ready for use.

MODEL 930 MOISTURE ANALYZER USER MANUAL



Grain sample in the Dump Cell, ready to load the sample

PERFORMING A MOISTURE TEST:

When first powered up the Model 930 defaults to the Moisture Testing Mode. After performing a self-test, the display will show the last commodity tested. The UP & DOWN buttons will scroll through all available commodities. The display will show the name of the commodity and the required sample size. If the sample has not already been weighed out, press the WEIGH button to activate the scale and weigh the sample. (See weighing instructions) When sample has been weighed, press TEST to return to the commodity selection, then press TEST again begin the moisture test process. (A list of included calibrations is located at the end of this manual)

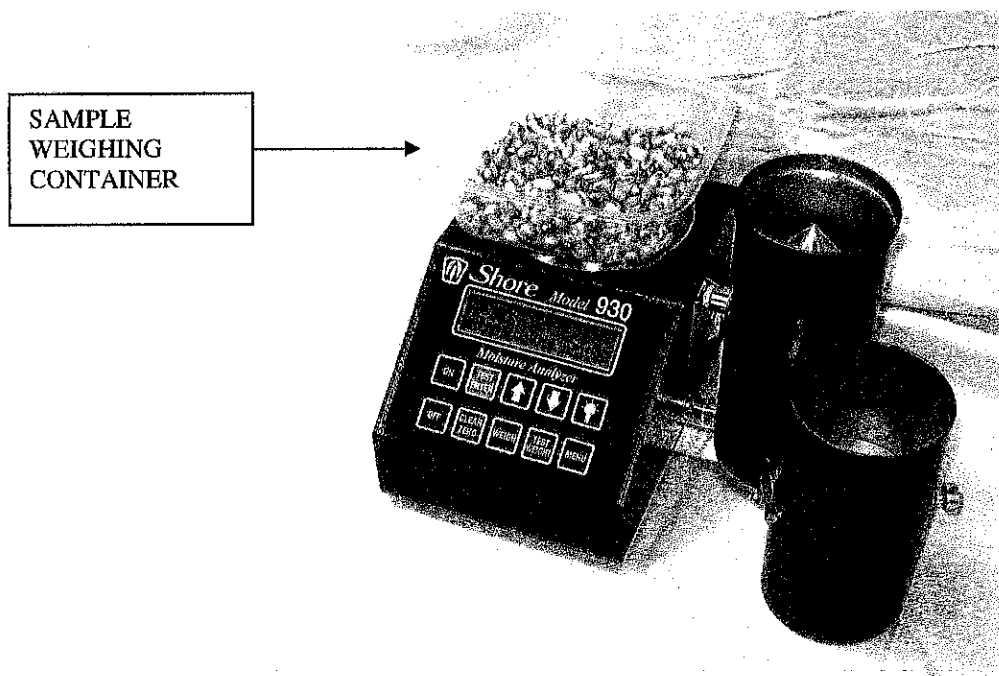
The meter will perform an internal calibration and the display will show "Calibrating, Please Wait", then instruct the user to "Load the sample & press TEST". To load the sample, the sample is transferred from the weighing container to the Dump Cell. The Dump Cell is then placed on the Grain Test Cell and the dump button depressed to release the sample into the test cell. After the sample is dumped, press TEST. The display will show "Testing Grain, Please Wait" There will be a short delay while the temperature of the sample is measured and then the moisture and sample temperature will be displayed. (The amount of time required for temperature sensing varies with the sample temperature. Very cold or extremely hot samples may take up to 35 seconds to insure that the temperature measurement is correct. Samples near ambient temperature will take only a few seconds.)

After the Moisture Test is completed, remove the test cell and pour out the sample. Re-install the empty test cell to prepare for the next test. To test the same type of commodity or the same sample again, press TEST, and the meter will recalibrate for the next test. To test a different commodity, press CLEAR to return to the commodity selection menu.

TESTING HIGH MOISTURE CORN: High moisture corn kernels are large and sticky. Sometimes kernels will "hang up" and not flow into the cell evenly. For best accuracy when testing high moisture grains we suggest that you test the sample 3 times and take an average. If a large number of kernels clump up and stay on top of the cell center post, you should always retest the sample.

MODEL 930 MOISTURE ANALYZER USER MANUAL

WEIGHING OPERATIONS- OVERVIEW



Weighing the grain sample

The Model 930 features a built in digital scale for sample weighing and determining test weight. The scale specifications are as follows:

	Weighing Mode	Test Weight Mode	
		(Pint TW cup)	(1/2 Liter TW cup)
Scale Capacity:	1000g*	141 LB/BU*	200 KG/HL*
Resolution:	0.5g	0.1 LB/BU	0.1 KG/HL

Note: * The scale capacity will be reduced by the weight of any sample container that is zeroed out. For example: If the sample container weighs 100 grams and that weight is zeroed, the remaining scale capacity will be 900 grams. (1000g-100g)

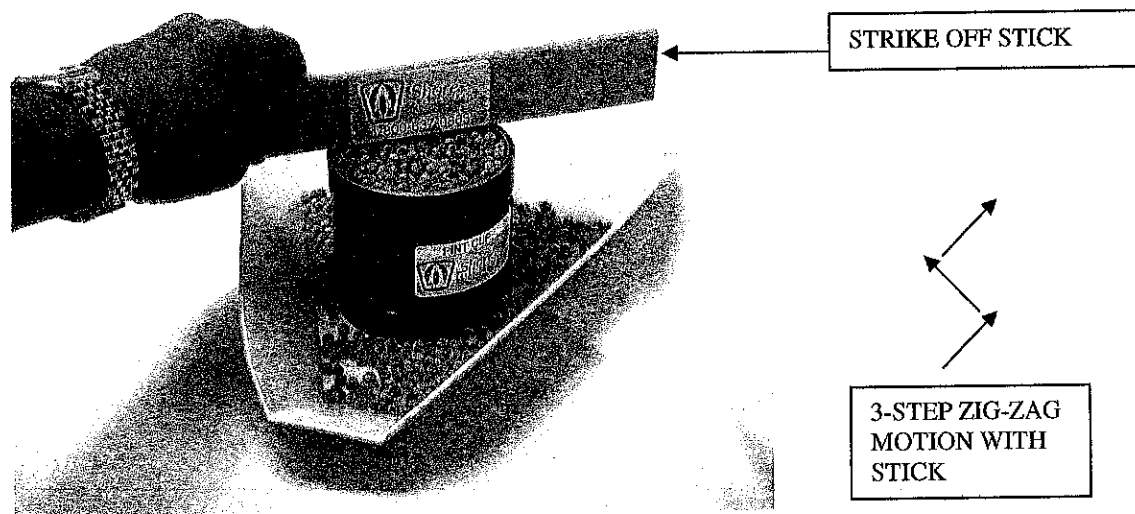
SAMPLE WEIGHING: The model 930 requires that the sample to be tested for moisture be pre-weighed. Each commodity will specify a sample weight. The weight of the samples will usually be between 100 and 300 grams, with 250 grams being the most common sample weight.

Why do we weigh the sample? Moisture is specified as percent moisture by weight. Knowing the exact weight improves the accuracy of the moisture test. Most commercial moisture meters (those used by grain elevators) measure the weight of the sample being tested. Some weigh the sample after it is introduced into the test chamber and some weigh the sample before it is tested. The model 930 weighs the sample before testing.

Also, since the sample weight is a constant, some sample density correction is achieved by the special grain test cell design used by the model 930.

Ideally, the sample should be accurately weighed to within plus or minus 1 gram of the specified sample weight. If the scale is subjected to vibration or air currents, the weight reading may fluctuate, but as long as the sample weight is accurate to within a gram or two the moisture test will be accurate.

TEST WEIGHT PROCEDURE:



Striking off the test weight cup

When an elevator or other grain buyer determines test weight with a test weight cup, they use a "Filling Hopper" or another type of device to obtain the most accurate results. The filling hopper is set at exactly 2 inches above the cup and insures that flow of the grain into the cup is at a constant rate. If a reasonable approximate test weight is all that is required, then we can use a simple hand pour filling method as described below.

FILLING THE TEST WEIGHT CUP: The test weight cup should be filled to overflowing then leveled with a "Strike-Off" stick. This insures that the cup contains a full pint of grain. When filling the cup, set it on a level surface and pour the grain into the center of the cup from a height of 2 to 3 inches. Try to achieve a smooth continuous flow when filling the cup. After the cup is filled to overflowing, strike off the grain level with the top edge of the cup using a 3-step zigzag motion with the strike-off stick.

This filling method will provide a reasonably accurate test weight. If a more accurate test weight is required, an optional test weight cup filling device such as the Cox funnel can be purchased which will give better results.

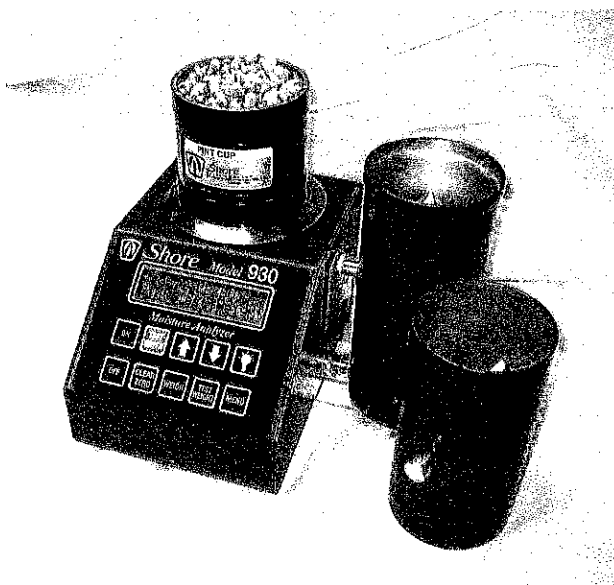
DETERMINING TEST WEIGHT: After the test weight cup has been filled and leveled, the scale can be used to compute test weight.

1. Place an empty weighing container on the scale and press the WEIGH button. The scale will auto zero and display 0.0 grams.
2. Pour the contents of the test weight cup into the weighing container and press the TEST WEIGHT button.
3. The scale will now display test weight in LB/BU. (With the ½ liter TW cup option, the results will be KG/HL)

(For Canadian users – The Canadian Grain Commission publishes test weight conversion tables that convert grams per ½ liter to KG/HL & LB/BU. The results using those tables may vary slightly from the results obtained from the model 930)

An alternate method is to use the test weight cup as the weighing container. Start off in the weighing mode with the TW cup on the scale and zero out it's weight. The cup is then filled and returned to the scale and TEST WEIGHT pressed. Test weight is now displayed. (With this method, you must not re-zero the scale after removing the empty cup!)

MODEL 930 MOISTURE ANALYZER USER MANUAL



Alternate TW weighing method

PERCENTAGE WEIGHING (DOCKAGE) FUNCTION:

The model 930 can also function as a percentage-weighing computer. This function allows the user to determine the percentage of foreign or damaged material is contained in a particular sample.

PROCEDURE: Begin in the weighing mode, with the sample container zeroed. Place a representative reference sample of the commodity to be tested in the weighing container and press the **SET %** button. (Note: The minimum reference sample weight that can be used is 100 grams.) The display will show "Computing Percent" and then show the sample weight and 100%. From now on any sample placed on the scale will be shown as a percentage of the original reference sample. The reference sample can now be removed and processed to separate any damage or foreign material. The damaged or foreign material is then placed back into the weighing container and the model 930 will show the weight in grams and the percentage of the original sample.

Whenever the **PERCENT** button is pressed, the current weight will be saved as the 100% reference, so do not press it again unless you want to clear the old reference and save a new reference weight. To exit the **PERCENTAGE** mode, press any of the other function button to go to the desired function. (**TEST, TW, WEIGH**).

PRINTING OR TRANSMITTING TEST RESULTS:

Model 930s equipped with a serial port can transmit test results to a printer with a serial interface or to a Personal Computer (PC). The information transmitted will consist of an optional header that contains the model and serial number of the 930 and the currently displayed test results. (See sample printouts below.)

Moisture printout (with header)

```
Shore Moisture Analyzer
Model 930 S/N 00201
Soybeans
14.9% Moisture
76.3 F Temperature
```

(without header)

```
Soybeans
14.9% Moisture
76.3 F Temperature
```

Test Wt. Printout (with header)

```
Shore Moisture Analyzer
Model 930 S/N 00201
Test Weight
56.0 LB/BU
```

USER SELECTABLE MENU OPTIONS:

There are several user selectable options that can be set according to the user's preference. Pressing the MENU button accesses the user menu. The Up/Down Arrow buttons will scroll through the available options. When the desired option is on display, press ENTER to access that option. Pressing MENU again will exit and return to the previous menu. Here are the currently available options.

ADJUST GRAIN CALIBRATION BIAS: The commodity calibrations in the model 930 are based the air-oven reference method. They have had years of testing and results are subjected to annual review. Although we feel that these calibrations are very accurate, there may be times when the user might wish to "tweak" them to match a particular elevator or other reference.

The user can adjust each commodity calibration in the model 930. This adjustment is a "bias adjustment" and will move the entire calibration up or down by a fixed amount. The bias can be shifted up or down in 0.1% steps. Whenever a bias has been applied to a particular calibration, the displayed moisture result screen will show an asterisk (*) after the moisture. This serves as a reminder that a bias is being applied to that result.

To bias a calibration, start by pressing MENU, then press the UP or DOWN arrow button to display the desired option. When "Adjust grain Calibration Bias" is displayed, press ENTER. The first commodity and the current bias will be displayed. Press UP or DOWN buttons to display the desired commodity. To change the bias for that commodity, press ENTER and the screen will then show "New Bias = n.n" (where n.n is the current bias). Now use the UP or DOWN buttons to increase or decrease the bias. (If you wish to remove an existing bias, Press CLEAR and bias will be set to zero.) When the bias is correct, press ENTER. The screen will momentarily display "Bias Set To n.n" and then return to the menu. Pressing the MENU button will abort the bias adjustment procedure and return to the menu. To adjust the bias of another commodity, repeat the "Adjust grain Calibration Bias" procedure.

ENABLE OR HIDE COMMODITIES: (Only available with software versions 4.00 & later)

Unless otherwise specified at the time of ordering, the model 930 is usually shipped with all included commodity calibrations enabled. This option allows the user to hide commodities that won't be used. Start by pressing MENU, then the UP or DOWN arrow until "Enable or Hide Commodities" is displayed, then press ENTER. The 1st commodity will be displayed and the second line will show the Commodity to be "On" or "Off". The CLEAR button switches between "On" & "Off" and the UP & DOWN arrows will scroll through the list of commodities. Pressing the MENU button will exit the Enable menu & return to the User Setup Menu.

SET DISPLAY CONTRAST LEVEL: The display contrast was set at the factory, but it can be changed to make the display characters darker or lighter if desired. In the user Menu, press UP or DOWN buttons until SET DISPLAY CONTRAST LEVEL is displayed, then ENTER. The current level will be displayed. Pressing UP or DOWN buttons will change the contrast. Press ENTER when the display looks the way you want it.

MODEL 930 MOISTURE ANALYZER USER MANUAL

TEST WEIGHT CUP SELECTION:

The model 930 Test Weight function can be programmed to do test weight (bulk density) with either a pint or half-liter test weight cup. With the pint cup, results are in LB/BU (pounds per bushel) which is the standard for the U.S. The half-liter cup "Bulk Density" results are in KG/HL (kilograms per hectoliter), which is used in other parts of the world.

To change the TW cup selection, press MENU, then UP or DOWN to display "Select TW Cup, Pint – HalfLiter" then press ENTER. The display will show "Press ENTER for XXXX TW Cup" (where XXXX is Pint or HalfLiter). Press UP or DOWN to display the desired selection, then press ENTER to accept. The display will momentarily show "Test Weight Set for XXXX Cup" then return to the menu. Press MENU to exit the menu selection procedure.

TEMPERATURE DISPLAY: The model 930 automatically corrects for temperature when performing a moisture test and the sample temperature is displayed for information purposes only. The temperature can be displayed in either Fahrenheit or Celsius.

To change the temperature display, press MENU and then UP or DOWN until the display shows "Select Celsius or Fahrenheit". Press ENTER. The display will show "Press ENTER for XXXXX" (where "XXXXX" is either Celsius or Fahrenheit). Use the UP or DOWN buttons to display the desired selection, then press ENTER to accept. The display will momentarily show "Temperature Set For XXXXXX" where "XXXXXX" is Fahrenheit or Celsius then return to the menu. Pressing MENU will abort the procedure.

SCALE CALIBRATION: The scale accuracy should be checked periodically. This is more important if the scale has been transported. A 500-gram calibration weight is included with the model 930. Place the 500-gram weight on the scale and if it is off by more than 1 gram, the scale should be re-calibrated.

Pressing the MENU button while in the Weighing Mode will access the scale calibration procedure. The display will show "TEST to CalScale, MENU to AbortCal". (Pressing MENU at any of the following screens will cancel the calibration process)

Press TEST and the display will show "Weight = 0 Grams, Then Press Enter".
With only the empty weighing platform on the scale, press ENTER.

The display will show "Calibrating Zero Do Not Touch" then show "Place 500g and Press Enter". Now place the 500-gram weight in the center of the empty weighing platform and press ENTER. The display will show "Calibrating 500 Do not Touch". After the calibration process is complete, the scale will return to the weighing screen.

Model 930 Serial Port:

MODEL 930 SERIAL PORT CONFIGURATION: The Model 930 transmits data in the following format. 8-Data Bits, No Parity, 1 Stop Bit.

The Model 930 configuration menu allows the following options to be selected.

Baud Rate: 2400, 4800, 9600, or 19200 Baud (Select the highest baud rate compatible with the receiving device)

Hand Shaking: ON or OFF

Print Header: ON or OFF (When Print Header is ON, the Model 930 will begin each printout with the model & serial number)

Line Feeds: Up to 10 extra line feeds can be added to the end of the printout to advance the printer paper for tear off if required.

The factory default settings are: 19200 Baud, Handshaking: OFF, Print Header: OFF, Line Feeds: 0

MODEL 930 MOISTURE ANALYZER USER MANUAL

SERIAL PORT CONFIGURATION: From the moisture mode, press MENU, then UP or DOWN until Serial Port Configuration is displayed.

Press ENTER and the display will show the current baud rate. Use UP/DOWN until the desired baud rate is displayed, then press ENTER. A message will be displayed confirming the selection.

Next the display will show the current Print Header selection, (YES or NO). Use UP/DOWN to change the selection, then ENTER to accept. A confirming message will be displayed.

The current Handshaking selection (ON or OFF) will be displayed next. Use UP/DOWN to change the selection, then ENTER to accept. A confirming message will be displayed.

Line Feeds will be the next selection. Use UP/DOWN to change the number, then ENTER to accept. A confirming message will be displayed and then you will return to the main Serial Port Configuration screen. Press MENU to exit or UP/DOWN to select another menu.

CONNECTING TO PCs THAT DO NOT HAVE SERIAL PORTS:

Some newer PCs do not have serial ports as standard equipment. If you have a PC without a serial port and wish to connect it to your Model 930, there are two options. An add-on serial port card can be installed in some desktop PCs or an external USB to serial port adapter can be used. USB to serial converters can be purchased from Shore Sales and are also usually available at computer accessory stores. (Note: USB to serial adapters can not be used with USB printers! Only printers with an actual serial interface can be used with the Model 930)

Model 930 Serial Port Connector

The Model 930 serial port uses a standard 9-pin D-Sub connector. The Model 930 serial port is configured as a "DCE" device. When connecting to a PC, use a standard straight-through 9-pin cable. Printer cable configuration depends on the type of printer used. Contact Shore Sales for more information on compatible printers and cables.

Pin #	SIGNAL	DIRECTION	FUNCTION
1	No Connection		
2	Transmitted Data (TXD)	From 930	Data Out: To the printer or PC
3	Received Data (RXD)	To 930	Data In: From the PC or printer
4	Data Terminal Ready (DTR)	To 930	"Busy" signal (DTR) from the PC or printer
5	Signal Ground (GND)	Common	Common signal ground
6	Data Set Ready (DSR)	From 930	930 "Busy" signal out to printer or PC
7	Request to Send (RTS)	(CTS & RTS are not used by the model 930, but these	
8	Clear to Send (CTS)	signals can be connected together with an internal jumper	
9	No Connection	if required by the connected PC or Printer)	

The "Busy" signals, DTR & DSR are handshaking signals. They are used to signal whether or not the receiving device is ready to accept more data. The model 930 can be configured either to recognize or ignore the DTR "Busy" signal from the receiving device. (HandShaking, ON or OFF) Some printers may require extra time to print the received data and will use DTR to signal the 930 to suspend sending more data until they are ready to receive again. Most PCs accept data as fast as it can be sent, so handshaking can be on or off.

When handshaking is enabled, the input to pin-4 (DTR) must be in the active high state (positive 3 to 15 volts) for the Model 930 to transmit. If Handshaking is enabled and the DTR line stays in the active low ("Busy") state for 5 seconds, a timeout error will occur and the printout will terminate. If this occurs, either the receiving device has a problem or the cable wiring may be incorrect.

MODEL 930 MOISTURE ANALYZER USER MANUAL

Power Requirements:

The model 930 operates either from batteries (6 ea. AA Alkaline batteries) or an AC adapter that supplies 9 Volts DC at 0.2A.

Batteries and an AC adapter are supplied with the model 930. AC adapters are available to meet worldwide power specifications.

ERROR MESSAGES: If the model 930 encounters a problem in an operation, an error message will be displayed alerting the user of the problem and possible causes. These error messages are for the most part self-explanatory. If a problem is encountered that can not be easily rectified, please contact Shore Sales and we will assist you.

If you have any question please contact us:

Shore Measuring Systems	800) 837-0863 (U.S. only)
103 N. Perry St.	217) 892-2544
Attica, IN. 47918	217) 892-4281