MODEL 1000

Operator's Manual

MODEL 1000

CAPACITY 15000 X 5lb

WEIGH-TRONIX®
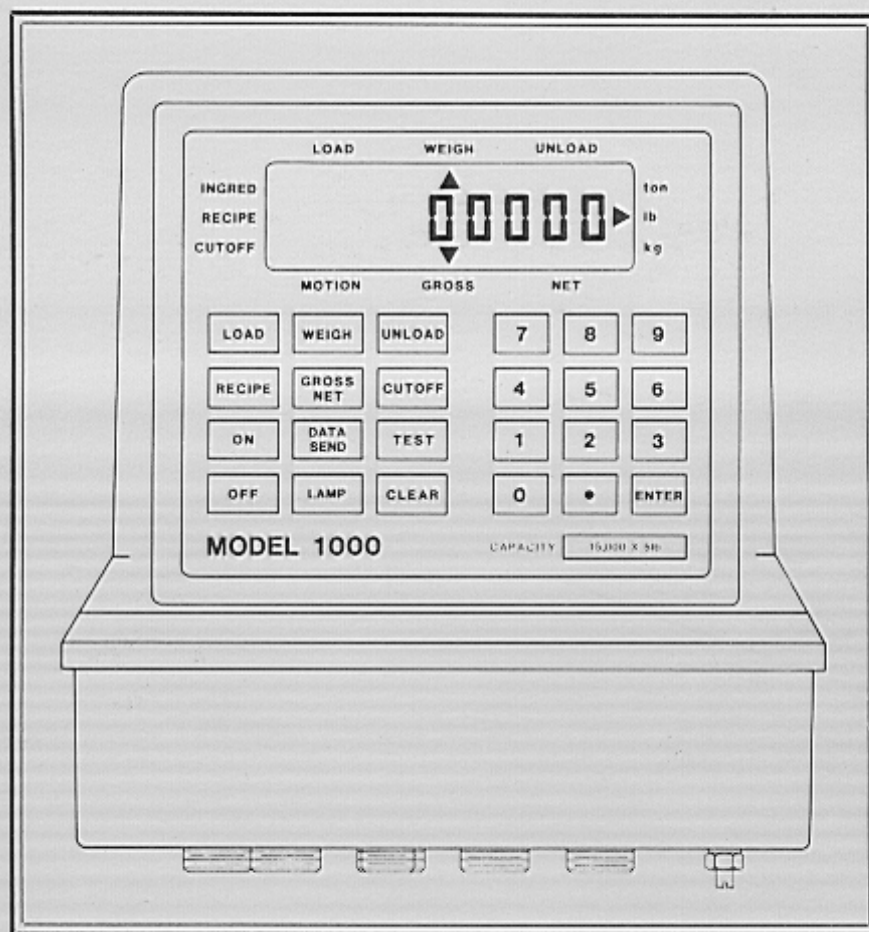
The Weigh Bar® People

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SECTION	**PAGE**

ABBREVIATED KEYING PROCEDURES

TO ZERO THE SCALE
1. Press ON. Allow a few minutes for control unit to warm up.
2. Press and hold WEIGH key until triangle is displayed under word *WEIGH*.
3. Press CLEAR. If display fails to zero, adjust COARSE ZERO control according to Page 4 of Operator's Manual.

TO WEIGH ONLY
1. Press ON and zero the scale with CLEAR.
2. Grind. Weight will increase as material is loaded. Weight will decrease as material is unloaded.

TO ENTER A RECIPE
1. Mathematically convert units of measure for recipe so total of all ingredients equals 2,000 lbs., as directed in subsequent procedure.
2. Press ON.   3. Press RECIPE.
4. Press appropriate NUMERIC KEY(S) from 1 through 10 for recipe number.
5. Press ENTER.
6. Key in value of Ingredients #1 through #8, pressing ENTER after each keying. For any ingredient number not used, key in zero value and press ENTER. If your recipe conversion and keying of ingredients are correct, display will show appropriate recipe number and value of *2000*.
7. Press WEIGH.

TO DEVELOP A NEW RECIPE
1. List and number up to 8 ingredients in order to be used for grinding.
2. Develop a 2,000 lb. (1 ton) recipe using your ingredient list. Total of all ingredients must equal exactly 2,000 lbs. or control unit will not accept recipe.

TO CONVERT RATION TO ONE-TON RECIPE
1. List weight value of each ingredient in ration to be converted.
2. Divide value of each ingredient by total value of ration to obtain percentage factors for each, rounding to nearest percentage point so total percentage factors of ingredients equal 100%.
3. Multiply percentage factor of each ingredient by 2,000 to obtain value of that ingredient for one-ton recipe. Prove by adding all multiplied ingredient values: they should equal 2,000 lbs.

TO GRIND USING A PROGRAMMED RECIPE
1. Press ON and zero the scale with CLEAR.
2. Press LOAD.
3. Press appropriate NUMERIC KEY(S) from 1 through 10 for recipe number.
4. Press ENTER.
5. Key in total weight value needed of ration: for example, 3,400 lbs.
6. Press ENTER: Programmed number of 1st ingredient and amount of 1st ingredient required for ration weight value you selected in Step 5 will be displayed.
If your control unit is in Auto Advance Mode, black triangle under word LOAD will flash continuously and unit will automatically display next ingredient number used and its required value, as soon as weight of 1st ingredient equals its required value.
If your control unit is in Manual Advance Mode, you must press ENTER after loading required amount of each ingredient.
To toggle between Auto Advance Mode and Manual Advance Mode, press LOAD.

TO PROGRAM UNLOADING CUTOFFS OR ALARMS
1. Press ON.   2. Press CUTOFF.
3. Press appropriate NUMERIC KEY(S) from 1 through 20 for cutoff or alarm number.
4. Key in value of amount to be unloaded for first cutoff: for example, 570.
5. Press ENTER.   6. Repeat Steps 2, 3, 4 for appropriate cutoff numbers through 20, as needed.
7. Press WEIGH.

TO UNLOAD USING PROGRAMMED CUTOFFS OR ALARMS
1. Press ON and zero the scale with CLEAR.
2. Press CLEAR.   3. Press UNLOAD.
4. Press appropriate NUMERIC KEY(S) from 1 through 20 for cutoff or alarm number.
5. Press ENTER.   6. Unload feed.
If control unit is in Auto Advance Mode, black triangle under word UNLOAD will flash continuously and unit will automatically advance to next cutoff when motion ceases and scale weight equals programmed cutoff or alarm value.
If your control unit is in Manual Advance Mode, you must press ENTER after unloading required amount of each ingredient.
To toggle between Auto Advance Mode and Manual Advance Mode, press UNLOAD.

SPECIFICATIONS

INDICATOR DISPLAY

8-digit, 7-segment liquid crystal display, 0.6 inches (15.2 mm) high
16 annunciators

PHYSICAL

Dimensions: 10.062 in W x 10.25 in H x 5.5 in D
(25.56 cm W x 26.04 cm H x 13.97 cm D)
Weight: 5.05 lb (2.29 kg)

SYSTEM ACCURACY

Stationary installation: ±0.25%
Portable installation ±0.50%

CAPACITY

Programmable in either lb or kg from 10 to 80,000

CIRCUIT PROTECTION

2 five-ampere circuit breakers

POWER REQUIREMENTS

12 to 48 V dc, positive or negative ground, 7.2 watts nominal (0.6A at 12 V dc)

ENVIRONMENTAL

Operating temperature: −40 to +140°F (−40 to +60°C)
Relative humidity: 0 to 95%, without condensation
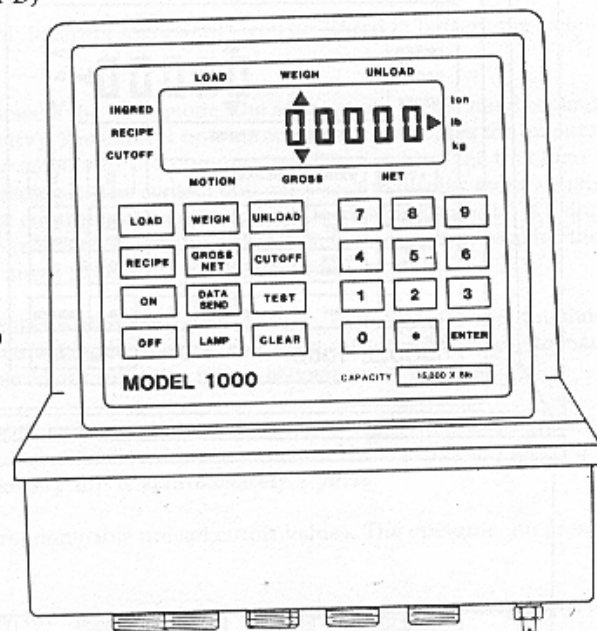
SCOPE OF MANUAL

This manual describes the features and operation of the WEIGH-TRONIX® Model 1000 Farm Scale Indicator. Because the Model 1000 is highly versatile, each major mode of operation is discussed separately. Before attempting to operate the indicator, the user should carefully read this manual in order to become familiar with the capabilites of the unit.
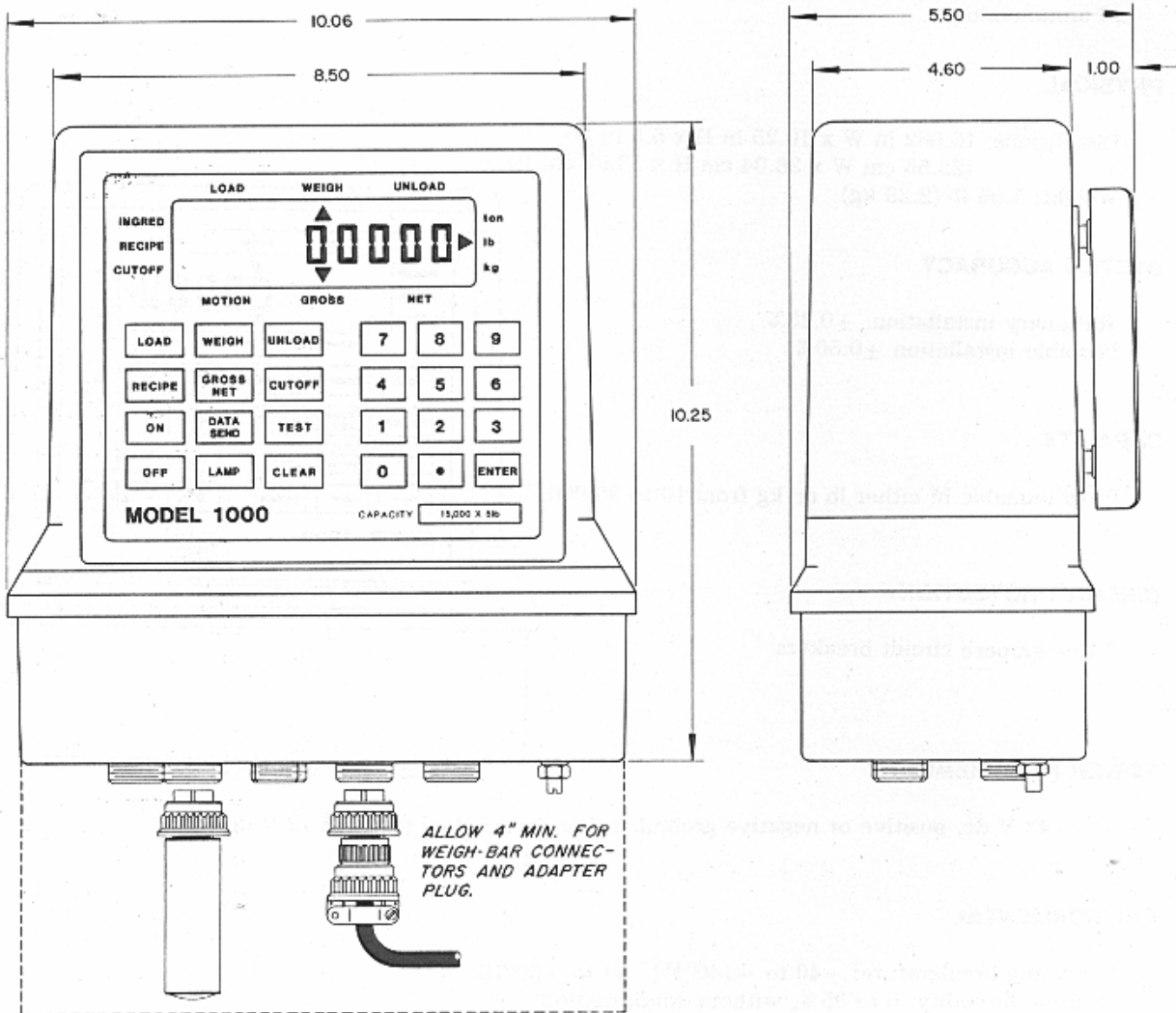
MODEL 1000 OUTLINE DRAWING
Figure 1

DESCRIPTION

STANDARD CONTROL UNIT

The WEIGH-TRONIX Model 1000 Farm Scale Indicator is a batching scale control-unit designed for use on portable feed mixing equipment. It can operate on a positive or negative ground power source from 12 volts up to 48 V dc. A watertight enclosure protects the control unit from the elements.

The control data unit is programmable for either avoirdupois (pounds and tons) or metric (kilograms and metric tons) weight units. Weight and ration data are displayed on an 8-digit liquid crystal display.

Touch-type scaled-membrane keys permit fast, easy operation. The scale can be zeroed by the press of a key. Ration data is keyed in digitally for fast, easy selection and programming.

A remote-alarm jack is provided for connecting an external alarm. This alarm signals the operator when the amount of an ingredient loaded is approaching the pre-set cutoff amount, and at the batching value; or when the amount being unloaded is nearing and at the desired unload value.

Up to ten different feed recipes, each comprised of up to eight different ingredients, can be stored in battery-protected memory. Recipes are easy to review or modify.

To batch a ration of a particular recipe, the operator simply selects the **LOAD** mode, the appropriate recipe number, and enters the amount of ration desired (any amount to full capacity). The control unit automatically calculates the amount of each ingredient needed based on the selected recipe and the amount of ration requested. The weight of the first ingredient to be batched will be displayed and the operator starts loading it. The control unit can be set to display gross weight on the scale or the amount of ingredient yet to be loaded. The control unit measures the rate at which material is being loaded and anticipates when the preselected amount will be reached. When the unit predicts ten seconds remain, the remote alarm cycles on and off for seven seconds and then turns off during the last seconds.

When the weight reaches or exceeds the desired value, the remote alarm turns on steadily. In the auto mode, the unit automatically switches to select the next ingredient. In the manual mode, the operator must push the **ENTER** key to load the next ingredient. This sequence is repeated with each ingredient until the ration is completely batched.

The control unit automatically maintains "ingredient required" and "actual loaded" data for the last batch, tabulates the amount of each recipe batched, and the amount of each ingredient used in each recipe. These totals and all recipe and unload data are stored in battery-protected memory. Battery life is approximately 2 years.

Accurate and efficient unloading is facilitated by operator-programmable unload cutoff values. The operator can preset up to twenty unload cutoff weights.

In the UNLOAD mode, the control unit can be set to display the weight of the feed on the scale or the weight yet to be unloaded for each unload-cutff value.

When the unit predicts the amount unloaded will reach the pre-set value in ten seconds, the remote alarm will pulse on and off for seven seconds then turn off unitl the pre-set amount is reached. When the unload value is reached the alarm will turn on steadily for five seconds and turn off after the weight on the scale is stable. In auto mode, the unit automatically switches to the next cutoff value. In manual mode, the operator must press the **ENTER** key and the control unit will then process the next cutoff value. This sequence repeats for each non-zero value in the memory.

LCD DISPLAY AND ANNUNCIATORS

The annunciators (arrows) are arranged in four separate groups located on the top, left-hand side, right-hand side, and bottom of the display.

The top group consists of the LOAD, WEIGH, and UNLOAD annunciators. The LOAD annunciator is on when the unit is in the LOAD mode or when reviewing the amounts of the previous batching operation. A flashing INGRED annunciator

means that the auto LOAD mode is selected. A non-flashing INGRED annunciator means that it is in manual LOAD or review mode. If your are in review mode, then either the GROSS or the NET annunciator will be flashing. The WEIGH annunciator is only on in the WEIGH mode and the display shows the weight on the scale. The UNLOAD annunciator is on only in the UNLOAD mode. A flashing CUTOFF annunciator means that the auto UNLOAD feature is selected. A non-flashing CUTOFF annunciator means that it is in manual UNLOAD.

The left-side group consists of the INGRED, RECIPE, and CUTOFF annunciators. When INGRED is on, it indicates that the number(s) on the display are referring to an ingredient amount for a recipe, ration, or total amount batched. The RECIPE annunciator is on when the number(s) on the display are referring to a recipe ingredient total or the total amount of a recipe batched. The CUTOFF annunciator shows that the numbers on the display are referring to a specific unload-cutoff amount.

The right-side group shows the unit of measure of the displayed number. The "ton" annunciator is on only when the displayed amount is a tons accumulated amount. On an avoirdupois scale, 1 ton is equal to 2,000 pounds. On a metric scale, 1 ton is equal to 1,000 kilograms. The "lb" annunciator is on to indicate that the amount on the display is in pounds. The "kg" annunciator is on to indicate that the amount on the display is in kilograms.
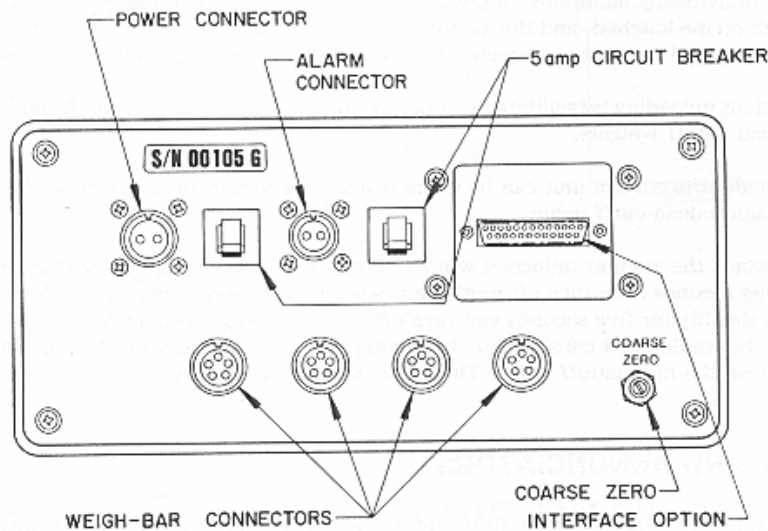
The bottom group consists of the MOTION, GROSS, and NET annunciators. The MOTION annunciator will turn on when there is motion on the scale as defined by the internal switch-selected motion-window size. When the GROSS annunciator is on, the weight displayed is the total weight on the scale (gross weight). When the NET annunciator is on, the weight displayed is the amount left to be added to or subtracted from the weight on the scale in loading or unloading.

ZEROING THE SCALE

The control unit must be in the WEIGH mode when zeroing the scale. The feed mixer should be empty. A display reading of up to plus or minus ten percent of scale capacity can be zeroed out be pressing the **CLEAR** key. If the absolute weight is outside of this range, the unit will display "do O AdJ".

In the out-of-range case, the user should: press the **CLEAR** key for three seconds, which locks the scale in the calibrate mode, the raw weight is displayed. Use the COARSE ZERO control to set the display near zero. Turn the COARSE ZERO control clockwise to increase the display reading (more positive) or counterclockwise to decrease it (more negative). Then press the **CLEAR** key to zero the scale and return to the WEIGH mode.

This control is located on the bottom panel (refer to Figure 2). It allows the user to shift the zero point of the scale and get within the ten percent of capacity range which may be zeroed out by using the front-panel **CLEAR** key.

BOTTOM VIEW OF INDICATOR
Figure 2

CONTROL KEY OPERATING INSTRUCTIONS

ON When pressed, the DC power available to the unit is examined electronically and if found sufficient, power is applied to the control unit and the Weigh Bar® weight transducers.

OFF Pressed to remove power from the control unit and Weigh Bar weight transducers.

CLEAR Pressed to set the weight display to zero, or to clear numbers from an entry field.

WEIGH Pressed to switch the control unit to the WEIGH mode, to terminate other modes or entries. The WEIGH annunciator, GROSS annunciator and either the ''lb'' or ''kg'' annunciator will turn on and the weight on the scale will be displayed.

GROSS/NET Pressed in the LOAD and UNLOAD modes to switch the display between GROSS and NET weight display. GROSS is the total weight on the scale, NET is the amount yet to be loaded or unloaded. NET is the default state in LOAD and UNLOAD modes. Used in the recipe mode to switch the display between recipe ingredient amount and accumulated ingredient display.

LOAD Pressed to switch the control unit from the WEIGH to the LOAD mode for ration batching. When it is pressed, the LOAD and RECIPE annunciators turn on and two underscore prompts for the recipe number are displayed. Once loading begins, the **LOAD** key can be pressed to switch the unit between manual and auto mode. The INGRED annunciator flashes during auto selection of the next ingredient. In manual mode, the INGRED annunciator does not flash.

UNLOAD Pressed to switch the control unit from the WEIGH to the UNLOAD mode for cutoff-aided unloading. When pressed, the UNLOAD, NET, and CUTOFF annunciators will turn on and the display will prompt for the desired unload-cutoff value. When in the UNLOAD mode, the **UNLOAD** key can be pressed to switch between manual and auto next-cutoff selection. The CUTOFF annunciator will flash during auto selection. In the manual mode, the CUTOFF annunciator does not flash.

RECIPE Pressed to switch the control unit from the WEIGH to the RECIPE mode for reviewing, entering or changing recipe data and accumulators. When pressed, the RECIPE annunciator will turn on and the display will show two underscore prompts for the recipe number.

CUTOFF Pressed to switch the control unit from the WEIGH to the CUTOFF mode for review, entry or modification of the unload cutoff amounts.

ENTER Pressed to enter the displayed value into memory. If the display shows only underscore prompts, the value entered is zero. ENTER is also used to advance to the next item when in LOAD or UNLOAD mode.

TEST Pressed to switch the unit from the WEIGH mode to the TEST mode.

LAMP Pressing this switch will toggle the display between being lit and unlit.

DATA SEND When the indicator has the optional circuitry to provide data to a peripheral device, pressing **DATA SEND** will transmit weight information. If this circuitry is not installed, the DATA SEND switch does not function.

OPERATING MODES

The Model 1000 Farm Scale Indicator has six main operating modes: WEIGH, RECIPE, CUTOFF, LOAD, UNLOAD, and TEST.

In the WEIGH mode, (refer to Figure 3) the WEIGH and GROSS annunciators are on, the display shows the gross weight on the scale, and the "lb" or "kg" annunciator identifies the unit of measurement (pounds or kilograms). If the weight on the scale is changing, the MOTION annunciator will be on. The unit must be in the WEIGH mode to zero the scale and to switch to any of the other modes.

WEIGH MODE DISPLAY
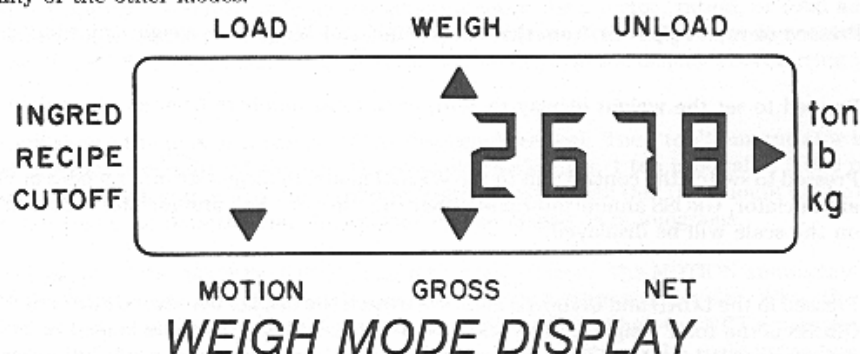
Figure 3

The RECIPE mode is selected to review, enter, or change recipe ingredient amounts and accumulated ingredient-tonnage data. In the RECIPE mode, (refer to Figure 4) either the RECIPE annunciator will be on to identify the number at the left end of the display as a recipe number or the INGRED (ingredient) annunciator will be on to identify it as an ingredient number. Either the "lb " or "kg" annunciator will be on to identify the unit of measurement for ingredient values.

RECIPE MODE DISPLAY
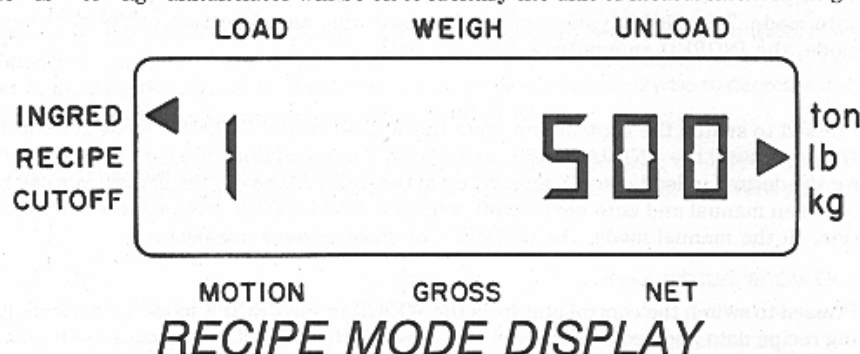
Figure 4

The "ton" annunciator turns on to identify the number at the right of the display as the total amount of a particular recipe that has been batched or the total amount of a particular ingredient that has been used in batching (the RECIPE

TONNAGE COUNT DISPLAY

Figure 5

6

and INGREDIENT annunciators distinguish these two functions). If Recipe 0 is displayed and the "ton" annunciator is on, the value at the right of the display is the total amount of feed batched for all recipes (refer to Figure 5).

The CUTOFF mode is selected to review, enter, or change unload-cutoff values. In the CUTOFF mode, the CUTOFF annunciator will be on to identify the number at the left end of the display as an unload-cutoff number. The "lb" or "kg" annunciator will turn on to identify the unit of measurment of the cutoff value (refer to Figure 6).
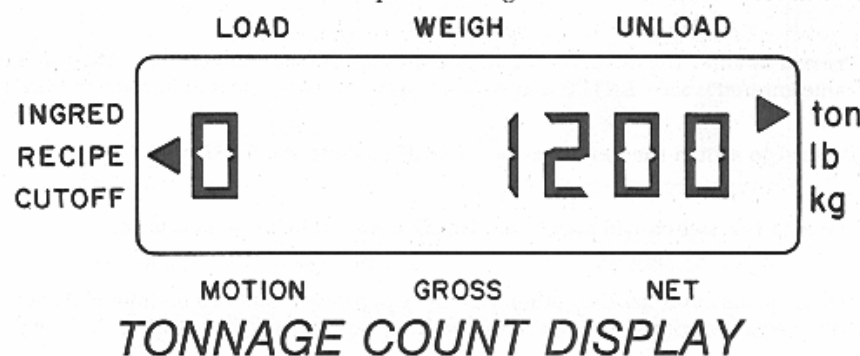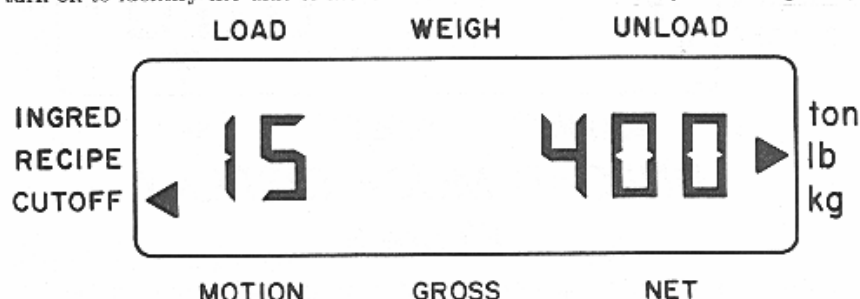

CUTOFF MODE DISPLAY
Figure 6

In the LOAD mode, the control unit calculates the amount of each ingredient required for a particular feed ration, then sequences through the required ingredient amounts during the batching operation. The remote alarm actuates to signal when the proper amount of each ingredient has been loaded. In the LOAD mode, the LOAD annunciator is on to identify that the control unit is prepared for a batching operation. The "lb" or "kg" annunciator identifies the unit of measurement for weight values. The RECIPE annunciator turns on to identify the number or prompt on the left end of the display as a recipe number. The INGRED (ingredient) annunciator turns on to identify the number or prompt at the left end of the display as an ingredient number. Either the GROSS or NET annunciator will turn on to identify the weight value at the right side of the display as a total weight on the scale (GROSS) or amount of ingredient yet to be loaded (NET) (refer to Figure 7).
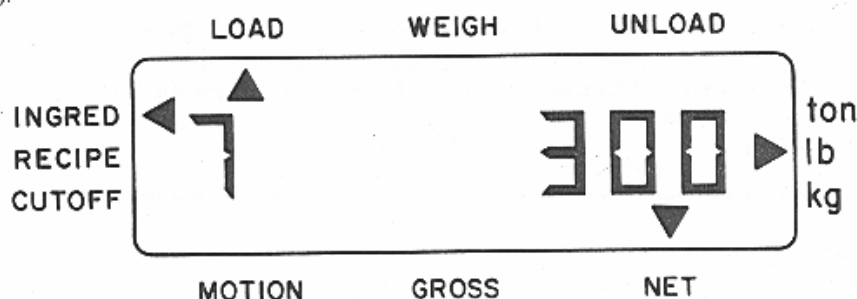
LOAD MODE DISPLAY
Figure 7

To review the previous LOAD batched, press **LOAD**, then press **ENTER** with no recipe number. The display shows the actual amount of the ration last batched, and the NET annunciator flashes. Pressing the **GROSS/NET** key changes the display to show the required amount for the last batch, and the GROSS annunciator flashes. Pressing the **ENTER** key advances to the ingredient amounts loaded, or again to the total batched when the RECIPE annunciator is on. Press **WEIGH** to return to the WEIGH mode.

In the UNLOAD mode, the control unit sequences through the unload-cutoff values as feed is unloaded. The remote alarm turns on to signal when the proper amount of feed has been unloaded for each individual cutoff value. In the UNLOAD mode, the UNLOAD and CUTOFF annunciators will be on to show that the control unit is prepared for unloading operations, and that the display is showing a cutoff number on the left. Either the GROSS or NET annunciator will be on showing whether total weight on the scale (GROSS) or the amount of feed yet to be unloaded (NET) is being displayed. Either the "lb" or "kg" annunciator turns on to show the unit of measurement for the cutoff or weight value (refer to Figure 8).
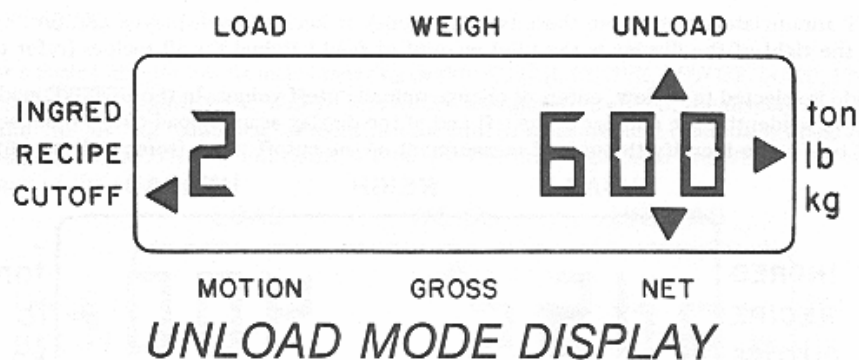
UNLOAD MODE DISPLAY
Figure 8

The TEST mode is used to check the display, control unit operation, weight transducer operation, and to lock-in the recipes and accumulator data (refer to Figure 9). TEST 0 checks the indicator and weight transducer operation, then cycles through a sequence of test displays for a visual check. If there is a problem with the system, the display will identify which section of the system has failed. Test 99 allows the user to lock the recipe programming in so that it can't be accidentally modified.
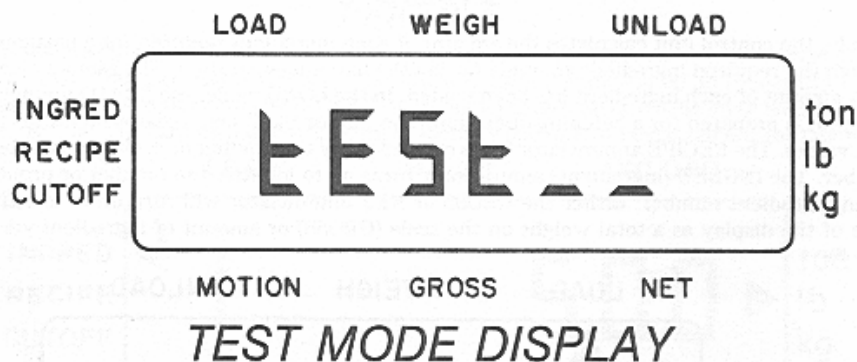
TEST MODE DISPLAY
Figure 9

DISPLAY MESSAGES

The 8-digit display is occasionally used to form letters to provide a message to the operator. Upper- and lower-case letters may be used in any combination to form words or abbreviations. A brief explanation of possible messages follows:

"HELLO"   Unit is being cold-start re-initialized. Message is displayed only for a very short time.

"YES data"   Re-initialization is complete and previously stored data has not been erased from the memory. If the **RECIPE** key is pressed now, stored data will be erased and the message "no data " will be displayed. Pressing the **CLEAR** key will now set the zero reference of the scale and select the GROSS mode.

"no data"   Re-initialization is complete and previously stored data has been erased from memory. Pressing the **CLEAR** key now will set the zero reference of the scale and select the GROSS mode.

"tESt ##"   When a test is running, indicates it is progressing correctly.

"Error ##"   Test ## has detected an error and test has stopped. Pressing the **ENTER** key will continue the test. Pressing **TEST**, **ENTER** will rerun the failed test.

"no tESt"   Invalid test number was keyed in; enter a valid test number.

"ind – Good"   All parts of Test 0 were successfully completed.

"O – CAP"   Weight on the scale is 2.5 percent or more over capacity.

"do O AdJ"   Readjust coarse zero on the indicator.

"LOC – UP"   Unit is not functioning properly, weights not being calculated.

"UnLOC'd"   This indicates that the unit is "unlocked" and recipes and accumulators may be modifed.

"LOC'd"   Indicates that recipe values are secure and may not be modified.

"id ————"   This is a prompt for the users security number. It must be entered before the unit can be "Unlocked".

More often, there will be one or two numbers displayed on the eight available digits. The encircling indicators inform the operator which mode the unit is in, so the meaning of the digits is clear to the user. Underscore prompts inform the operator that the unit is expecting data to be keyed into those positions.

FORCED RE-INITIALIZATION AND POWER-UP

Normally, when the control unit is turned on, it continues operation from where it was stopped. It may become necessary to force an initial power-on condition, due to erratic operation of the unit. Re-initialization of the unit will usually save the recipe and cutoff data as well as the accumulator values. If the saved data has been corrupted all data will be cleared. This means that the operator will have to re-enter all recipes, cutoffs, and accumulator values that were lost. This can be a convenient way of clearing all stored data in the unit, but be sure to write down all the values you wish to save before clearing them out.

OPERATION	RESULTS
1. Press the **OFF** key.	The display blanks, all outputs stop.
2. Depress and hold the **CLEAR** key.	No indication of any change.
3. Turn the control unit on by momentarily pressing the **ON** key, then release the **CLEAR** key.	Unit displays "HELLO" with all annunciators on, then switches to either a "YES data" or "no data" display. If "YES data" is displayed, then the re-initialization was successful. "no data" indicates the stored data has been cleared.
4. Press the **CLEAR** key to return to the WEIGH mode.	If the display says "do 0 AdJ", then unit must be zeroed again, before returning to the WEIGH mode.

CLEARING ALL STORED DATA

Follow the foregoing instructions, but before returning to WEIGH mode, press the **RECIPE** key. This changes the display to "no data" and all stored data is lost. This is the **ONLY WAY** to unlock the ID-number security without entering the ID-number.

ENTERING OR REVIEWING A RECIPE

The RECIPE mode may be entered only from the WEIGH mode. Proceed as follows:

OPERATION	RESULTS
1. Press the **RECIPE** key.	The WEIGH annunciator will turn off, the RECIPE annunciator will turn on and two underscore prompts will be displayed on the left side of the display.
2. Key in the desired recipe number (1-10) by pressing the appropriate keys.	The display will show the recipe number as it is keyed in. If the wrong number is selected, simply push **CLEAR** and then the correct keys.
3. When the desired recipe number is displayed, press the **ENTER** key.	The ingredient number is displayed, followed by the amount of the ingredient desired for the ration. The IN-GRED and either the "lb" or "kg" annunciators will be on.
4. If the ingredient amount is to be changed, key in the new weight (the amount for a ration) or press the **CLEAR** key to set the amount to zero.	The new amount will be displayed as it is keyed in or underscore prompts will appear if the **CLEAR** key was pressed.
5. When the desired amount is displayed, press the **ENTER** key.	The displayed ingredient weight, which may not exceed 1 ton, will be entered in memory, the control unit will sequence to the next ingredient number, a:' it: .ght will be displayed.
6. Repeat steps 4 and 5 for each of the eight ingredients.	When the **ENTER** key is pressed with ingredient 8 displayed, the RECIPE number and ingredient amount total for the ration is displayed, allowing the operator to verify the correct ration total.
7. Press the **WEIGH** key to return to the WEIGH mode, or press **ENTER** to repeat step 3.	If the 1-ton recipe programming is in effect, the total of all ingredients must be 2000 lbs (1000 kg) or zero before the control unit will return to the WEIGH mode.

LOADING OR BATCHING A RATION

The LOAD mode may be entered only from the WEIGH mode. In the LOAD mode, the control unit calculates the amount of each ingredient to be loaded to formulate the desired ration. The display indicates which ingredient is to be added and the required amount. The remote alarm will pulse when the amount being loaded approaches the desired weight, and turns on steadily when loading is to be stopped. On the display, the operator will see the ingredient number and the net amount of ingredient to be added. This net amount decreases to zero as the ingredient is loaded.

OPERATION	RESULTS
1. Start the mixer machinery for loading, then press the **LOAD** key.	The control unit will switch to the LOAD mode, the WEIGH annunciator will go off, the LOAD and RECIPE annunciators will turn on, and two underscore prompts will appear on the left side of the display.
2. Key in the desired recipe number.	The recipe number is displayed as it is keyed in.
3. Press **ENTER** when the desired recipe number is displayed.	Loading may be done only for those recipes which have ingredient amount entries. The selected recipe number will remain at the left end of the display. Underscore prompts for the ration size will be displayed at the right end of the display. The "lb" or "kg" annunciator will turn on.
4. Key in the amount of feed to be batched.	The ration size will be displayed as it is keyed in.
5. When the proper amount is displayed, press the **ENTER** key.	The control unit will calculate the amounts of each ingredient required to formulate the requested amount of this recipe. The number of the first ingredient, with a ration entry amount other than zero, will be displayed along with its required amount. The RECIPE annunciator will turn off, and the INGRED, NET and "lb" or "kg" annunciators will turn on. A weight reference point will be set in the control unit, from which this ingredient will be measured.
NOTE	
If the auto-advance feature is enabled, the INGRED annunciator will flash. To turn the auto-advance cutoff on or off, press the **LOAD** key. In the manual mode, the INGRED annunciator is on steadily. The **GROSS/NET** key may be pressed to view the gross weight on the scale or the net weight remaining to be loaded.	
6. Before starting to add the ingredient, the **CLEAR** key may be pressed to re-establish the weight reference point.	This may be required if the system has been moved or the weight on the scale has changed for any reason after the current ingredient was selected.
NOTE	
If the operator wishes to terminate the LOAD cycle before all ingredients are loaded, the **WEIGH** key can be depressed for 3 seconds. If terminated early, the accumulated sums for the current recipe and ingredient will not be updated. Once terminated in this way, the LOAD cycle can only be re-entered by starting over.	

LOADING OR BATCHING A RATION (cont.)

OPERATION	RESULTS
7. The ingredient should be loaded into the feed mixer.	Upon determining that 10 seconds of loading time remain, the alarm will begin pulsing on and off for approximately 7 seconds. This allows 3 seconds before the alarm will turn on, indicating loading should stop. The operator must anticipate early control of loading if excessive material is loaded.

NOTE

If the operator wished to check the gross weight on the scale, the **GROSS/NET** key may be pressed at any time. Pressing the **GROSS/NET** key again will return the unit to the NET mode. The unit automatically returns to the NET mode before starting to batch the next ingredient.

OPERATION	RESULTS
8. When satisfied with the amount loaded press the **ENTER** key.	Highest accuracy is achieved if the MOTION annunciator is off before selecting the next ingredient to load. Refer to the auto next-ingredient selection information if this feature is being used.

NOTE

For the highest accuracy, make sure that the motion annunciator is off before either the **CLEAR** or **ENTER** key is pressed.

OPERATION	RESULTS
9. Repeat steps 6 thru 8 for the remaining ingredients.	The change in weight since the last reference was established is added to the total amount for that ingredient. A new weight reference is established and the ingredient number for the next ingredient with a non-zero value is displayed along with its required amount.
	The loading cycle will continue until the last non-zero ingredient has been loaded. After the loading of the last ingredient is completed, the control unit will automatically switch back to the WEIGH mode.

NOTE

Pressing the **ENTER** key, at any time, will end loading of the present ingredient and advance the unit to the start of loading the next. For highest accuracy, make sure the MOTION annunciator is off before pressing the **ENTER** key. Any change in weight on the scale will be reflected in the accumulated sum of the previous ingredient.

REVIEWING, CHANGING OR ENTERING UNLOAD CUTOFF DATA

The control unit must be in the WEIGH mode before it can be switched to the CUTOFF mode. Proceed as follows:

OPERATION	RESULTS
1. Press the **CUTOFF** key.	The WEIGH annunciator will turn off, the CUTOFF annunciator will turn on, and two underscore prompts will be displayed.
2. Press the **ENTER** key to select cutoff 1, or key in the desired cutoff number (1-20), then press **ENTER**.	The selected cutoff number will be displayed at the left end of the display, and its programmed value will be displayed at the right end. The "lb" or "kg" annunciators will turn on.
3. If the cutoff value is to be changed, press the **CLEAR** key to set it to zero or just key in the desired value.	Underscore prompts will be displayed if the value is cleared, or the new value will be displayed as it is keyed in.
4. When the desired value is displayed, press the **ENTER** key.	The value will be entered in memory and the control unit will go to the next unload cutoff value.
5. Repeat steps 3 and 4 as appropriate for each cutoff.	When the **ENTER** key is pressed with cutoff 20 displayed, the control unit will automatically switch back to the WEIGH mode.
6. When all of the desired unload cutoff values have been reviewed or changed, press **WEIGH** to switch the control unit back to the WEIGH mode.	The CUTOFF annunciator will turn off and the WEIGH annunciator will turn on. Weight on the scale will be displayed.

NOTE

The unit may be switched back to the WEIGH mode at any time by pressing the **WEIGH** key but; if the **ENTER** key is not pressed first, the last number being modified will not be changed.

UNLOADING FEED

In the UNLOAD mode, the scale measures the amount of feed being unloaded. The external alarm notifies the operator when the pre-set cutoff amount has been unloaded. The control unit must be in the WEIGH mode in order to select the UNLOAD mode.

OPERATION	RESULTS
1. Press the **UNLOAD** key.	The WEIGH annunciator turns off, the UNLOAD and CUTOFF annunciators turn on, and two underscores prompt the operator to enter the desired cutoff number.
2. Key in the desired unload cutoff number, then press **ENTER**.	The display will show the number keys pressed, but will ignore any invalid number or any cutoff which has a zero value. When a valid number is entered, the net weight of that cutoff is displayed.

NOTE

If the auto-advance feature is enabled, the CUTOFF annunciator will flash. To turn the auto-advance cutoff on or off, press the **UNLOAD** key. In the manual mode, the CUTOFF annunciator is on steadily. The **GROSS/NET** key may be pressed to view the gross weight on the scale or the net weight remaining to be unloaded.

3. The operator sees the alarm signal and stops unloading feed.	When aproximately 10 seconds remain, the external alarm will pulse on and off for 7 seconds. During the last few seconds the alarm will turn off, then turns on steadily when the desired weight is reached. If the unload operation takes less than ten seconds, the unit will only turn on the alarm steadily upon reaching the desired weight.
4. The operator sees the alarm signal and stops loading feed.	The weight on the scale settles. If the unit is in the auto-unload mode and the unloaded amount is within the auto-increment window, the unit will switch to the next ingredient. If the unit is in the manual-unload mode or the weight is outside of the auto window, the **ENTER** key must be pressed to advance to the next unload amount.
5. Repeat steps 3 and 4 for each unload cutoff value desired.	After the unit has cycled through all the programmed unload cutoff values, it will switch back to the WEIGH mode.

NOTE

The operator may switch to the next unload value before completing the in-process operation by pressing the **ENTER** key. The unit will switch to the next cutoff value immediately. The opeator may return to the WEIGH mode at any time by pressing the **WEIGH** key continuously for three seconds, terminating the in-process UNLOAD operation.

CHECKING TOTAL INGREDIENT USAGE AND TOTAL TONNAGE BATCHED

The control unit must be in the WEIGH mode before the tonnage counters can be accessed. Proceed as follows:

OPERATION	RESULTS
1. Press the **RECIPE** key.	The WEIGH annunciator will turn off, the RECIPE annunciator will turn on and two underscore prompts will be displayed on the left side of the display.
2. Press the **ENTER** key.	The RECIPE annunciator will be off, the INGRED and "ton" annunciators will be on. Ingredient 1 and the total tonnage of ingredient 1 that has been used for batching (in the LOAD mode) for all rations will be displayed.
3. Press the **ENTER** key.	This will step to the next ingredient.
4. Repeat step 3 to sequence through all ingredient tonnages.	When **ENTER** is pressed with ingredient 8 tonnage displayed, the control unit will display ration 0 and the total of all rations batched. Both the total ingredient and ration batched displays are calculated values and cannot be changed.
5. Press **WEIGH** to return to the WEIGH mode, or **ENTER** to return to step 2.	The return to the WEIGH mode may be done at any time.

CHANGING OR REVIEWING RECIPE AND INGREDIENT ACCUMULATIONS

The RECIPE mode may be entered only from the WEIGH mode. Proceed as follows:

OPERATION	RESULTS
1. Press the **RECIPE** key.	The WEIGH annunciator will turn off, the RECIPE annunciator will turn on and two underscore prompts will be displayed on the left side of the display.
2. Key in the desired recipe number (1-10) by pressing the appropriate keys.	The display will show the recipe number as it is keyed in. If the wrong number is selected, simply push **CLEAR** and then the correct keys.
3. When the desired recipe number is displayed, press the **ENTER** key.	The ingredient number is displayed, followed by the amount of the ingredient desired for the ration. The IN-GRED and either the "lb" or "kg" annunciators will be on.
4. If the ingredient amount is to be changed, key in the new weight (the amount for a ration) or press the **CLEAR** key to set the amount to zero.	The new amount will be displayed as it is keyed in or underscore prompts will appear if the **CLEAR** key was pressed.

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OPERATION	RESULTS
5. When the desired amount is displayed, press the **GROSS/NET** key.	The displayed ingredient amount, (which may not exceed 1 ton) will be stored in memory, the control unit will sequence to the ingredient accumulator for the selected ration, and its amount will be displayed. The ingredient number will not be displayed. The "ton" annunciator will be on.
6. If the ingredient tonnage amount is to be changed, key in the new weight (accumulated tonnage of the ingredient for the current ration) or press the **CLEAR** key to set the amount to zero.	This tonnage value represents the amount of the ingredient loaded during previous LOAD operations for the selected ration. Adjusting this value does not affect the ration batched accumulator or other ration ingredient accumulators.
7. When the desired tonnage value is displayed press either the **ENTER** or **GROSS/NET** key.	Pressing the **ENTER** key will update the ingredient accumulator, and select and display the next ingredient's tonnage value. The GROSS/NET key will also update the accumulator, but will switch back to the ration ingredient amount.
8. Repeat steps 4 thru 7 for each of the eight ingredients.	When the **ENTER** key is pressed with ingredient 8 displayed, the RECIPE number and ingredient amount total for the ration is displayed. Pressing the **ENTER** key with the ingredient 8 accummulated tons displayed will update the ingredient accumulator and display the ration batched tonnage.
9. If the ration-batched accumulator is to be changed, key in the new weight or press the **CLEAR** key to set the amount to zero. The ration ingredient total is a calculated value and cannot be changed.	The ration batched accumulator is updated during the LOAD operation and changing or clearing does not affect the ration ingredient accumulators.
10. Press **ENTER** to return to the corresponding ingredient 1 display of ingredient amount or ingredient tonnage, or press **GROSS/NET** to change the display to the ingredeint sum or ration batched tonnage.	The **GROSS/NET** key will continuously change between the ingredient amount and tonnage displays. As the displayed tonnage does not provide the ingredient while observing the amount display, then press **GROSS/NET** to see the tonnage display.
11. The control unit can be switched back to the WEIGH mode at any time by pressing the **WEIGH** key.	If the control-unit programming requires ration-ingredient entry on a ton basis, and the sum of ingredient entries does not equal 1 ton, returning to the WEIGH mode is not possible. Use the **GROSS/NET** key and **ENTER** to select the ingredient display and adjust the ingredient amount in error.

to clear total ingredients
1) press Recipe #icipe # will give
2) press Gross/Net (will give total of that ingred.
3) press clear then enter for each of eight ingredients
repeat for each ingred.

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REVIEWING PREVIOUS BATCH LOADED

This operation allows the operator to observe the required and actual amounts of all ingredients used for the previous LOAD sequence. The control unit must be in the WEIGH mode to begin this operation.

OPERATION	RESULTS
1. Press the **LOAD** key.	The control unit will switch to the LOAD mode, the WEIGH annunciator will go off, the LOAD and RECIPE annunciators will turn on, and two underscore prompts will appear on the left side of the display.
2. Press **ENTER**, **CLEAR ENTER**, or **00 ENTER**.	As the control unit does not recognize recipe 0 default, the operator will not be prompted for a load batch amount. Instead, the last batched ration number will be displayed, followed by the actual ingredient total loaded at that time. The LOAD, RECIPE, and "lb" or "kg" annunciators will be on, and the NET annunciator warns that the control unit is not actively loading.
3. Press the **GROSS/NET** key to switch to the required batch amount.	This display will alternate between actual batched and the required amount. The GROSS annunciator signifies require, while the NET annunciator represents actual load amounts.
4. Press **ENTER** to display the first ingredient amount that was previously loaded.	Only those ingredients loaded will be displayed. The LOAD, INGRED, and "lb" or "kg" annunciators will be on along with the flashing GROSS or NET representing either the required or actual amount.
5. Continue use of the **GROSS/NET** and **ENTER** keys to display all desired required and actual batched and ingredient amounts.	After the last ingredient batched is displayed, **ENTER** will cause the display to revert back to the ration batched display.
6. The control unit can be switched back to the WEIGH mode at any time by pressing the **WEIGH** key.	The loaded weight values in this mode of operation remain stored and available until the operator has pressed **ENTER** after keying in the batch amount for the next LOAD operation.

PERFORMING TESTS

The control unit must be in the WEIGH mode in order to select the TEST mode. The TEST mode checks the integrity of the unit and provides a lamp test for a visual check of all display segments and indicators.

OPERATION	RESULTS
1. Press the **TEST** key and then the **ENTER** key.	The unit will test internal span, zero-reference and memory, then will display a lamp test.
2. The operator may verify that all display segments, decimal points, and annunciators turn on and off properly.	The lamp test turns on each annunciator sequentially as all eight digits count 0, 1, 2, 3, 4, 5, 6, 7, 8, A, b, C, d, E, F. Then a pattern 0.-0.-0.-0.- is shown, followed by a blank display. The unit then switches from the TEST mode back to the WEIGH mode.
3. If an error number is displayed, write it down and report it to your service representative along with a description of other abnormalities.	If the control unit fails any of the system tests, an error code will be displayed indicating which system element has failed. The operator may force the unit back to the WEIGH mode by pressing the **WEIGH** key.

PERFORMING THE SYSTEM TEST

This is a general description of how to run a test. Please refer to the specific test information to interpret specific results.

OPERATION	RESULTS
1. Press the **TEST** key.	The unit will display ''tESt'' and the digits enterd by the operator.
2. Enter the desired test number. The **CLEAR** key may be used to clear the test number.	The unit displays ''tESt'' and the digits entered by the operator.
3. Press the **ENTER** key.	The unit runs the desired test. Most tests will display something else, some tests will only change the display if they fail. If an error is detected, an error message will be displayed. Refer to the specific test information.
4. Press the **WEIGH** key to return to the WEIGH mode.	The unit should return to the WEIGH mode regardless of whether the test errored. It may take a few seconds before the unit will switch back to the WEIGH mode.

FUNCTIONAL TESTS

The Model 1000 TEST mode allows the operator or service technician to verify the proper operation of the system. These tests are also helpful as troubleshooting diagnostics. The available tests are first briefly described below as to their function and usage.

The **TEST** key allows selecting other tests without returning to the WEIGH mode first (not in Test 99). If a non-functional test number is entered, "no test" will be momentarily displayed and the operator is again prompted for a valid test number.

The external alarm will turn on upon detection of any error in Tests 0, 1, 10, 11, or 33.

To exit the TEST mode press **WEIGH**.

TEST	FUNCTION
0	Performs self-test one time.
1	Repeats Test 0 continuously.
10	Performs Tests 11 ands 12.
11	RAM test.
12	EPROM checksum verification.
20	Reads all the switch settings.
21	Displays programmed capacity and increment.
22	Displays DIP-switch settings as hexadecimal values.
23	Motion limit and automatic advance tolerance switch programming.
25	Display programming of switch 6.
27	Display programming of switch 5.
33	Span test. Will display the span resistor setting which should be 20,000 ±100 or 50,000 ± 100. Not a function of programmed capacity.
34	Displays internal raw counts (40,000 or 50,000 − capacity). Will not zero.
35	Displays weight as a portion of the 40,000 or 50,000 graduations. The **CLEAR** key may be used to zero the display.
36	Common-mode adjustment display. Displays 00000 ±200.
41	Lamp test.
52	Allows control of the outputs (alarm, loads and unload) from the keypad. Displays the hexadecimal value of all outputs.
99	Change ration ingredient-entry and accumulator-data security status and ID-number.

Note: The Tests are grouped together with like functions having the same tens digit.

TEST 0 -- Self-Test

This is the default test number which may be used by the operator to provide a brief functional check of the indicator. Test 0 will execute Test 11, 12, and 33 to verify the RAM, EPROM, and span accuracy. The display will then show Test 41, Lamp Test. If a test detects an error, the test number and "Error" will be displayed. After successful completion of Test 0, "ind-Good" will be momentarily displayed and the indicator will return to the WEIGH mode.

TEST 1 -- Cycling Self-Test

This test continuously repeats Test 0, allowing long-term determination of normal indicator operation. As with Test 0, any test detecting an error will cause Test 1 to stop. After each cycle, the external alarm will turn on for one-half second.

TEST 10 -- Internal Memory

This test continuously cycles through Tests 11 and 12.

TEST 11 -- RAM Memory

The RAM memory used to store ration ingredient amounts, ingredient and batch accumulations, and other system data is continuously verified by this test until stopped by the operator. A failure of this test will display "Error 11", advising repair is required. A memory failure may be intermittent, allowing the test to be successful some of the time. All of the system RAM is not checked by this test as indicator failure or erratic operation would most likely result from a failure of the memory used by the program. A failure of the stored ration data memory area will not affect the program operation, but will cause the weight values displayed for the operator to be incorrect.

TEST 12 -- EPROM Memory

The program for the Model 1000 indicator is stored in an Eraseable Programmable Read-Only Memory device called an EPROM. Test 12 calculates and displays a checksum of the EPROM data which may be used to determine which version of program software is installed. The displayed number is unique for the particular EPROM installed. If this value changes since Test 12 has last been executed or the value does not correspond to the installed program version, replacement of the EPROM is required. The current checksum is compared to the last calculated value to determine if it has changed. If so, the new value is stored in RAM memory and the test stops, indicating an error.

TEST 20 -- DIP-Switch Programming

The Model 1000 indicator allows selection of various capabilities and options to best meet the needs of a specific application. These selections are made using 8-section switches mounted on the CPU PC-card. The states of these switches are read by the software only during cold-start initialization or during execution of the 20-series tests. Changing these switches at any other time will not affect the program operation. The 20-series tests also allow verification of the switch positions without opening the enclosure. Test 20 does not display the switch setting, but continuously reads the settings of these switches, allowing a technician to verify their electrical operation.

TEST 21 -- Capacity and Increment Size

Test 21 will display the DIP-switch selections for capacity, increment, and lb/kg. The displayed value will be the system capacity plus one increment. For example: 15000 lbs with 5 lb increments: 15005 and the "lb" annunciator will be on. The display is constantly updated with the present switch selection, allowing the user to verify changes immediately. Service documentation provides tables of possible programming.

TEST 22 -- All DIP-Switch Settings

This test allows verification of the position of all of the available installed DIP switches. By comparing the Test 22 displayed value with the Programming Tables, all of the current options selected may therefore be determined. Test 22 displays the switch positions as an 8-digit hexadecimal value. The technician may convert these digits to binary representation to determine an individual switch status. The display is constantly updated with the current switch selection.

TEST 23 -- Motion and Auto-Advance Programming

Test 23 will display the DIP switch selected window for motion and tolerance of accuracy needed to advance to the next desired ingredient while creating or unloading a ration.

TEST 25 -- Switch Settings

Test 25 is to check the switch settings of switch 6, which is only installed when the indicator has the optional data transmission capability. When activated, this test would display the programmed baud rate, number of data bits, parity and stop bits.

TEST 27 -- Switch Settings

This is used to check the programming for type of printer compatible, end of line programming and programming for end of text.

SWITCH POSITION	S6 optional	S5 optional	S4 1234 5678	S3 1234 5678
Example setting		0010 1110	1001 0000	
Example display		2 E	9 0	

HEX	BINARY	HEX	BINARY
0	0000	8	1000
1	0001	9	1001
2	0010	A	1010
3	0011	b	1011
4	0100	C	1100
5	0101	d	1101
6	0110	E	1110
7	0111	F	1111

The above example represents:
10,000 x 2 lbs,
Ingredient entry on a per ton basis,
2 increments of motion window,
5% window for auto load/unload.

TEST 33 -- Internal Span

The Model 1000 indicator has a software-selectable span circuit which provides a calibrated weight-signal voltage to the A/D converter in place of the system weight transducer inputs. This allows verification of the indicator span calibration independently and may determine the problem area causing improper weight displays. This test allows calibration adjustment of the span-circuit output to display 20,000 ±100 graduations or 50,000 ±100 graduations. This value then represents one-half of the scale capacity and is verified to be within ±100 by Test 0 and Test 1.

TEST 34 -- Internal Raw Count

The output of the A/D converter provides an internal resolution of 40,000 or 50,000 graduations to the CPU program regardless of the programmed capacity or increment size displayed for the operator. This value may be used to verify correct A/D output and also represents the absolute adjustment of the COARSE ZERO control, located adjacent to the Weigh Bar transducer connectors. The displayed value may only be changed by adjusting the COARSE ZERO control or the internal span adjustments, although Test 35 is more convenient for calibration. If the displayed weight in the WEIGH mode is incorrect or very erratic, this test may insure the A/D circuitry is functioning properly.

TEST 35 -- Calibration By Internal Graduations

This test displays a number representing weight applied on the scale as 40,000 or 50,000 parts of scale capacity which may allow the most accuracy for calibration purposes. While executing Test 35, the **CLEAR** key may be pressed to zero the weight display. This may be necessary during cornering adjustments of the scale platform.

TEST 36 -- Common-Mode Displayed (Units With AC Excitation Lines Only)

The excitation output or drive voltage to the system weight transducers constantly reverses polarity to allow cancellation of common-mode noise or interference signals present with the weight-transducer signal. The common-mode offset must be cancelled by the adjustment of R88 on the A/D-power supply card. The Test 36 display must be 0000 ±200 counts. Correct adjustment will insure that A/D overrange will not occur below scale capacity.

TEST 41 -- Lamp Test Display

Visual verification of the LCD display segments and annunciators can be done with this test. All of the displayable segments are cycled along with the decimal points and annunciators. The values increment from 00000000 to 99999999, and AAAAAAAA to FFFFFFFF to insure hexadecimal characters are also displayable. The **ENTER** key pauses the display and another **ENTER** allows the test to continue until the operator terminates Test 41. This test is included as part of Test 0 and Test 1.

TEST 52 -- Output Control

The Model 1000 indicator provides an output to turn on an external alarm light or horn. Optionally, an output control for each ingredient number during load operations, and an unload output is available. A spare (9th) ingredient output is also present. This test allows front-panel control of these outputs for testing and verification. The following table equates each output to its corresponding keypad control key. Pressing a key will toggle its output. The display provides a hexadecimal representation of the binary outputs, where on = "1", off = "0".

KEY	OUTPUT	HEX	BINARY
ENTER	All on	7FF	111 1111 1111
CLEAR	All off	000	000 0000 0000
(dec-pt)	External alarm	400	100 0000 0000
0	Unload	001	000 0000 0001
1	Ingredient 1	002	000 0000 0010
2	Ingredient 2	004	000 0000 0100
3	Ingredient 3	008	000 0000 1000
4	Ingredient 4	010	000 0001 0000
5	Ingredient 5	020	000 0010 0000
6	Ingredient 6	040	000 0100 0000
7	Ingredient 7	080	000 1000 0000
8	Ingredient 8	100	001 0000 0000
9	Spare 9	200	010 0000 0000

The table above represents the displayed value (hex) with only one output being on at a time. The display actually represents all of the outputs at the same time.

EXAMPLE: 43C - represents the external alarm and ingredient outputs 2-5 are on.

TEST 99 -- Ration-entry Security

This is not a test!! The operator may desire to use the security feature to protect against inadvertent entry of ration ingredient amounts, ingredient accumulators, and ration batch accumulators. Entry of Test 99 will display "UnLOC'd" or "LOC'd" and the **GROSS/NET** key will change this status. The **ENTER** key will allow display and modification of a 1- to 5-digit ID-number which is prompted for if the security feature is enabled ("LOC'd"). This allows a degree of protection against unauthorized modification of ration and ingredient amounts and accumulators. The operator is only required to enter the ID-number if the current ID-number is not "0" (zero) and the system is "LOC'd". Care must be taken if a non-zero ID-number is used, as loss of the ID-number will require the user to manually record ration entries, ingredient totals, and ration batch accumulators. This must be done because a forced re-initialization is required, and the "no data" display must be selected with the RECIPE key, which clears all ration data from memory and sets the security mode to unlocked status and ID-number = 0. The operator may now re-enter all rations and accumulated data if desired.

The security status must be displayed in Test 99 before the **WEIGH** key will allow exit to the WEIGH mode.

TROUBLESHOOTING

WEIGH-TRONIX scale systems are designed and built to be rugged and dependable. This rugged dependability can only be insured if the system is properly installed and maintained to protect the system components and cables from damage.

Many difficulties may be caused by improper operator-adjustment of the indicator. If a problem appears, recheck the operating controls to make sure they are properly set for the desired operation.

If a Weigh Bar® is suspected to be at fault, perform the following checks for the symptom noted.

Inaccurate Weight Readings

To check the accuracy of each sensor have someone stand over each transducer, one at a time, then compare the weight readings. With a weight directly over each transducer, the displayed reading may not be exact, but should be very close to each other. A transducer that yields a reading quite different from the others is probably defective.
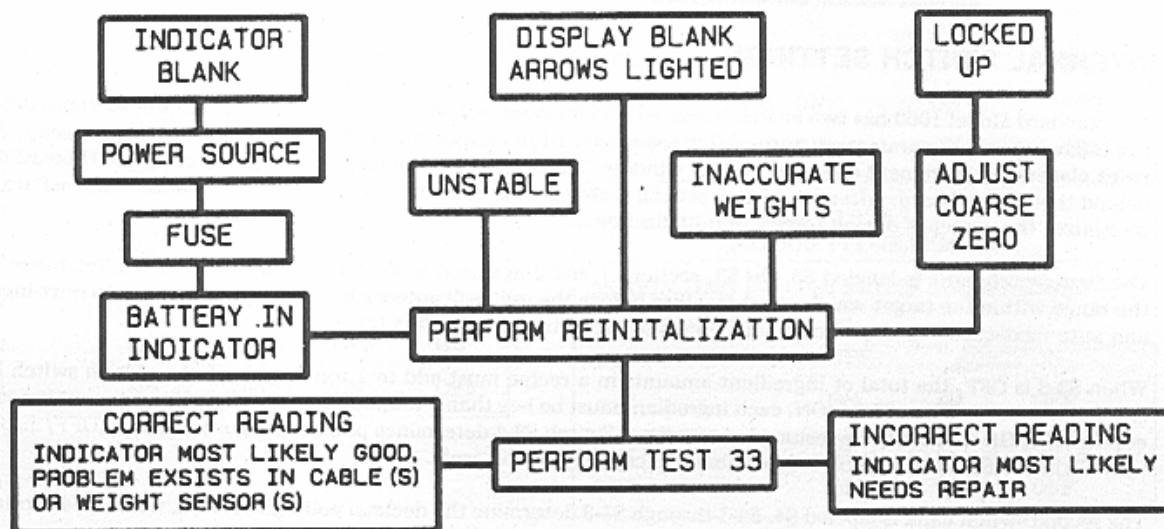
Locked Up or Unstable

If the indicator is locked up or unstable, the defective transducer may be detected through a process of elimination.

NOTE

An indicator which has transducers with a four pin connector will require an extra adapter for substitution.

Disconnect one transducer from the indicator, (connect extra adapter if transducer has a four pin connector). Try to zero the indicator or check for stabilization. Continue with this procedure with each transducer one at a time until the indicator functions properly. When the indicator works, that identifies the disconnected transducer as the problem source.

```
  INDICATOR              DISPLAY BLANK          LOCKED
   BLANK                 ARROWS LIGHTED           UP
      |                         |                  |
  POWER SOURCE                  |              ADJUST
      |               UNSTABLE  |  INACCURATE  COARSE
   FUSE                    |    |   WEIGHTS     ZERO
      |                    |    |      |          |
  BATTERY .IN ───── PERFORM REINITALIZATION ──────
  INDICATOR
      |
  CORRECT READING                          INCORRECT READING
  INDICATOR MOST LIKELY GOOD.   PERFORM     INDICATOR MOST LIKELY
  PROBLEM EXSISTS IN CABLE(S)   TEST 33     NEEDS REPAIR
  OR WEIGHT SENSOR(S)
```

The indicator and or transducer(s) can be repaired by your dealer or sent back to the factory for repair. If returning to the factory, send it prepaid to:

WEIGH-TRONIX, INC.
Service Department
1000 North Armstrong Drive
Fairmont, MN   56]31   U.S.A.

Enclose with the indicator, the following information:

        Your name and address
        Dealer's name and address
        Date purchased
        Symptoms of the problem

INDICATOR DISASSEMBLY

If it becomes necessary to open the control unit to gain access to switch programming or adjustments, follow the procedure described below:

1. Unplug power from the unit. Set the unit on its top.

2. Unscrew the four screws located in the corners of the bottom of the enclosure.

3. Carefully slide the top and bottom parts apart about 2 inches (50 mm).

4. Unplug all wire assemblies between the top and bottom parts of the unit. These include a 3-wire, a 6-wire, and a 7-wire cable. Then disconnect the ground wire located under the power supply board.

5. Lay the unit on its back with the base facing you.

6. Slide the circuit boards out of the enclosure and stand them up vertically in front of the case. Unplug the front-panel ribbon cable from the display board.

7. Perform adjustments or set switches.

INTERNAL SWITCH SETTINGS

The standard Model 1000 has two switch banks with eight positions on each. The positions of these switches determine the following system parameters: auto-switch tolerance, 1-ton recipes check, Metric or English units, capacity, decimal point placement, increment size, and motion window. These switches are located at the top of the CPU board directly behind the display board. After any switch setting is changed, the control unit must be re-initialized. The software only recognizes the switches during forced re-initialization.

The first switch bank is labeled S3. On S3, sections 1 and 2 are used to determine the Auto Switch Tolerance. This is the range within the target weight must stabilize before the unit will automatically advance in the auto next-ingredient and auto next-cutoff modes. Range selection is outlined in the following table.

When S3-3 is OFF, the total of ingredient amounts in a recipe must add to 1 ton in order to be able to switch back to the WEIGH mode. When S3-3 is ON, each ingredient must be less than 1 ton, but the total ingredient amount is not checked, thus WEIGH mode may be resumed at any time. Switch S3-4 determines pounds (ON) or kilograms (OFF) display format. Switches S3-5 through S3-8 determine the capacity of the scale.

The second switch bank is labeled S4. S4-1 through S4-3 determine the decimal point placement, while S4-4 through S4-6 select the increment size. Switches S4-7 and S4-8 determine the Motion Window size to be used.

TABLE 1 AUTO SWITCH TOLERANCE		
PERCENT OF TARGET	S3 SWITCH PROGRAMMING 1	2
Manual	OFF	OFF
1%	OFF	ON
5%	ON	OFF
10%	ON	ON

TABLE 2 RATION TOTAL	
ENTRY LIMIT	S3 SWITCH PROGRAMMING 3
Sum equals 1 ton	OFF
Ingredient Maximum 1 ton	ON

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TABLE 3 DISPLAYED MEASUREMENT	
UNIT OF MEASURE	S3 SWITCH PROGRAMMING 4
Pounds	ON
Kilograms	OFF

TABLE 5 DECIMAL PLACEMENT PROGRAMMING			
DECIMAL PLACEMENT	S4 SWITCH PROGRAMMING		
	1	2	3
00000.	OFF	OFF	ON
0000.0	OFF	ON	OFF
000.00	OFF	ON	ON
00.000	ON	OFF	OFF

TABLE 4 NUMERICAL CAPACITY PROGRAMMING				
CAPACITY	S3 SWITCH PROGRAMMING			
	5	6	7	8
10000	OFF	OFF	OFF	OFF
12000	OFF	OFF	OFF	ON
15000	OFF	OFF	ON	OFF
20000	OFF	OFF	ON	ON
25000	OFF	ON	OFF	OFF
30000	OFF	ON	OFF	ON
40000	OFF	ON	ON	OFF
50000	OFF	ON	ON	ON
60000	ON	OFF	OFF	OFF
75000	ON	OFF	OFF	ON
80000	ON	OFF	ON	OFF

TABLE 6 INCREMENT SIZE			
INCREMENT	S4 SWITCH PROGRAMMING		
	4	5	6
00001	OFF	ON	OFF
00002	OFF	ON	ON
00005	ON	OFF	OFF
00010	ON	OFF	ON
00020	ON	ON	OFF
00050	ON	ON	ON

TABLE 7 MOTION PROGRAMMING		
MOTION LIMIT (INCREMENTS)	S4 SWITCH PROGRAMMING	
	7	8
± 1	OFF	ON
± 2	ON	OFF
±10	ON	ON
OFF	OFF	OFF

Serial Output Programming

With the optional installation of components for data transmission to a peripheral device (printer, computer or other device), there are choices of programming.

The switch 5 position 1 selects the number of columns per line and the second position is not used.

Positions 3 and 4 on switch 5 tell the peripheral device what to execute at the end of text.

Positions 5 and 6 on switch 5 provide information to the peripheral device at the end of a line.

Switch 5 positions 7 and 8 are not used.

Switch 6 positions 1 through 3 establish the baud rate. Positions 4 through 8 each program a different function, bits per character, parity transmission, parity type, number of stop bits and enable or disable output.

On switch 2, position 2 is the only one used. It programs for remote data request by a single activation (ON) or a request using a double action (OFF).

Switch 11 programs the format the data will be transmitted.

Switch 12, operating in conjunction with Switch 11, selects the output of CURRENT LOOP (1-4 ON, 5-8 OFF) or for RS-422 (1-4 OFF, 5-8 ON).

TABLE 8 COLUMNS PER LINE		
COLUMNS PER LINE	S5 SWITCH PROGRAMMING 1	
24	ON	
32	OFF	

TABLE 9 END OF TEXT		
MESSAGE	S5 SWITCH PROGRAMMING 3	4
None	OFF	OFF
Line Feed	OFF	ON
Form Feed	ON	OFF
Carriage Return	ON	ON

TABLE 10 END OF LINE		
MESSAGE	S5 SWITCH PROGRAMMING 5	6
Carriage Return	OFF	OFF
Carriage Return & Line Feed	OFF	ON
Carriage Return & Form Feed	ON	OFF
Two Carriage Returns	ON	ON

TABLE 11 BAUD RATE			
BAUD RATE	S6 SWITCH PROGRAMMING 1	2	3
110	OFF	OFF	OFF
150	OFF	OFF	ON
300	OFF	ON	OFF
600	OFF	ON	ON
1200	ON	OFF	OFF
2400	ON	OFF	ON
4800	ON	ON	OFF
9600	ON	ON	ON

TABLE 12 BITS PER CHARACTER		
NUMBER	S6 SWITCH PROGRAMMING 4	
7	OFF	
8	ON	

TABLE 13 PARITY TRANSMISSION		
SELECT	S6 SWITCH PROGRAMMING 5	
Enable	ON	
Disable	OFF	

TABLE 14 PARITY		
TYPE	S6 SWITCH PROGRAMMING 6	
Even	OFF	
Odd	ON	

TABLE 15 STOP BITS		
NUMBER	S6 SWITCH PROGRAMMING 7	
1	OFF	
2	ON	

TABLE 16 INTERFACE OUTPUT		
SELECT	S6 SWITCH PROGRAMMING 8	
Enable	ON	
Disable	OFF	

TABLE 17 INTERFACE FORMAT	
S11 Switch	Function
1	RS-232
2	RS-232 or 20 mA Current Loop
3	No Ready/Busy Provided
4	3 Wire Current Loop
5	RS-232 or 20 mA Current Loop
6	RS-422
Turn the switches on only to select the required format.	