WeighTech

Operator's Manual

WeighTech, Series 2000
Weight Indicator
with system type 01.010000 software

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Introduction

An effort has been made to make the operation of WeighTech's, Series 2000 weight indicator straightforward and easy to understand. When power is applied, the indicator will alternately display "*WEIGHTECH*" and "*1-800-457-3720*". For questions or assistance, please, do not hesitate to contact WeighTech at the number displayed.

To start the program, press **SCALE/ESCAPE**. The following pages will explain the general operations of the Series 2000 weight indicator.

Display

The Series 2000 weight indicator uses a twenty character display for all operator viewed information. During normal operation, the scale readings and current scale information from up to two scales can be viewed simultaneously in the confines of the twenty available characters. However, when keyboard accessed information is being displayed, the indicator will specify the scale(s) that the operation or information applies.

Description of characters (normal display

During normal operation the first character of the display is used to display the status code for scale A. The second character is used to display the motion detection indicator or the center of zero indicator for scale A. Character three is blank. Characters four through nine are used to display the weight readings coming from scale A. Characters number ten and eleven are blank. Character twelve is used to display the status code for scale B. Character thirteen is used to display the motion detection indicator or the center of zero indicator for scale B. Character fourteen is blank and characters fifteen through twenty are used to display the weight reading coming from scale B.

Notes:
1. **Characters used as status codes are: "I", for idle mode, "O", for off mode, "S", indicating the start of a batch, "G", for gross weight, and "N", for net weight.**
2. **The symbol used to indicate motion is "^".**
3. **The symbol used as a center of zero indicator is "*".**
4. **When using single scale software, the right portion of the display (characters ten through twenty) will be used to display the current time.**

Description of characters (keyboard accessed display)

While viewing keyboard accessed information, the location of the display characters will vary depending on the information that is being viewed. When using dual scale software, the identification of all scale specific information will be followed by a hyphen, then the identification of the scale to which it applies.

Notes:
1. **The scale identifying character for scale A is "A", scale B is "B", and both scales is "*".**
2. **If, while viewing information from both scales the information is conflicting, the indicator will represent the conflicting information by displaying "XXX".**

Keyboard

The keyboard for the Series 2000 weight indicator consists of twelve function keys and a numeric keypad with an enter key. Some keys have multiple functions, familiarization of each key function is necessary to obtain the desired results when using the keyboard.

Print key

The print key is used to print the last completed batch and to print the scale totals.

Gate/Time key

The gate/time key is used to access individual gate on/off functions, to set timer values, and to make adjustments to the real time clock.

On/Up key

The on/up key is used to turn the scale on, to turn various functions or gates on, and to move up through any of the various setup pages.

Off/Down key

The off/down key is used to turn the scale off, to turn various functions or gates off, and to move down through any of the various setup pages or scale selections.

Setpoint key

The setpoint key is used to set the units of measure that the weight display will represent and to reset all or part of the program to the factory preset defaults. It is used to set target weights, tolerances, adjust settings, and maximum dump weights. The setpoint key is also used to access the setup parameters, functions, password list, and the system type and serial number.

Cal/Test key

The cal/test key is used for scale calibration functions and to test various parts of the system.

Tare key

The tare key is used to enter a tare weight.

Clear key

The clear key is used in conjunction with other key sequences to clear a value or setting.

Scale/Escape key

The scale/escape key is used to abort and return to the previous display, if a setting change is in progress, or to return to the normal display, if a setting change is not in progress.

Total key

The total key is used to access the scale totals.

Idle key

The idle key is used to idle all or part of the system relays.

Zero key

The zero key is used to manually zero the scale.

Numeric keypad

The numeric keypad is used to key in values or settings.

Enter key

The enter key is used in conjunction with other key sequences to enter a value or setting.

Sealed Operation

Operating the WeighTech, Series 2000, weight indicator as a sealed unit provides a method of insuring compliance with weighing regulations. If an attempt is made to change a setting that is sealed, the indicator will momentarily display "*SEALED*". (The change will not be allowed.) Several features, including calibration will not be allowed when the system is sealed. After the system has been calibrated, tested, and sealed, a physical seal can be inserted through the key holes of the door latch to insure that no unauthorized calibration changes are made.

Note:

The system is sealed if a jumper plug is installed across JP1 on the CPU board. The system is not sealed if this jumper plug is removed.

Software Version

To view the software version that is operating your system press **SETPOINT**, then **ENTER**. The indicator will display the software version that is being used.

System Type

The system type setting determines the system's operating configuration. The original system type is not changeable. The current system type can be changed to any available system type.

Viewing the current and original system type

Press **SETPOINT**, followed by the "system type" password and **ENTER**, to view the system type settings. The original system type setting is represented by display characters one and two. The current system type is represented by display characters three through eight. The original and current system type settings are separated by a decimal point.

Changing the current system type (sealed)

With the current system type in view, press **CLEAR**. The display will prompt by displaying the message, "**SURE ?**". If you are sure that you want to change the current system type, press **CLEAR** again. The current system type will then be cleared. Use the numeric keypad to key in a system type and press **ENTER**.

Notes:
1. **Contact WeighTech before making changes to the system type setting. Operating restrictions may occur if the first two characters of the current system type are different than the original system type.**
2. **When the current system type is changed, the indicator will automatically reset all battery backed up memory. Calibration and setup must be checked any time that the current system type is changed.**
3. **The number of system types available is determined by the software version used.**

Time/Date

The system clock and calendar are factory set before shipping. Changes to the clock are limited to adjustments within a twelve hour range (between 12:00AM and 11:59AM or between 12:00PM and 11:59PM). Calendar changes and changes from AM to PM or from PM to AM are not allowed.

Viewing the time and date

Press **TIME**, followed by the "time/date" password and **ENTER**, to view the time. When the time is in view use the up and down arrow keys to view the time or date.

Adjusting the time

With the time in view, press **CLEAR**. Use the numeric keypad to key in the correct time and press **ENTER**.

Format for setting the time

Hour	Period	Minute	Period	Second
01-12	.	00-59	.	00-59

Passwords

To access most keyboard functions of the Series 2000 weight indicator, a password will be required. When accessing a keyboard function that requires a password, simply press the access key and password for the function desired, then press **ENTER**. If any part of the password is entered incorrectly, the indicator will display "*INVALID*" and then return to the previous display.

Viewing passwords

Press **SETPOINT**, followed by the "passwords" password and **ENTER**, to access passwords. After accessing the system passwords, use the up and down arrow keys to view all passwords.

Changing passwords

With password to be changed into view, press **CLEAR**. Then use the numeric keypad to key in a new password (up to six characters long) and press **ENTER**.

Restore passwords

The restore passwords function resets all passwords to the original factory default settings. Press **SETPOINT**, followed by 10159 and **ENTER**, to restore all original factory default passwords.

Password list with default settings

Password #	Password description	Access key	Default
PW.01	On/Off/Idle (Zero batch)	On, Off, Idle	1
PW.02	On/Off (Resume Batch)	On, Off	2
PW.03	Idle (Reset Idle)	Idle	3
PW.04	Timers	Gate/Time	404
PW.05	Calibrate	Cal/Test	505
PW.06	Test	Cal/Test	606
PW.07	Zero/Tare	Zero, Tare	7
PW.08	Time Clock	Gate/Time	8
PW.09	Scale Totals	Total	9
PW.10	System Type	Setpoint	010
PW.11	Target Weight	Setpoint	1
PW.12	Tolerance Limits	Setpoint	2
PW.13	Functions	Setpoint	313
PW.14	System Parameters	Setpoint	414
PW.15	Scale Parameters	Setpoint	515
PW.16	Passwords	Setpoint	616

Functions

System functions are used to determine the type of operating system that your system will become.

Viewing system functions

To access the system functions press **SETPOINT**, followed by the "functions" password and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the down arrow key to select the desired scale(s) and press **ENTER**.) After accessing the system functions, use the up or down arrow key to view the desired function.

Changing system functions

With the function to be changed in view, press **CLEAR**. Then use the on or off key to turn the function on or off. Press **ENTER**, to save the setting when the desired on/off status is in view. The function change will apply to the scale(s) in view.

Note:
Turn the scale(s) to the "off" or "idle" position before making function changes.

Function list with default settings

Function	Description	Default
FN.01	Accept batch weight	OFF
FN.02	Authorize batch start	OFF
FN.03	Authorize dump	OFF
FN.04	Tolerance	OFF
FN.05	Batch mode	OFF
FN.06	Toggle mode	OFF
FN.07	Bag opener	OFF
FN.08	Box indexing	OFF
FN.09	Complete batch	OFF
FN.10	Count mode	OFF
FN.11	Auto-adjust	OFF
FN.12	Auto zero	OFF
FN.13	Estimated adjustment prompter	OFF

FN.01 – Accept batch weight

When FN.01 is enabled, an input from the scale operator will be required before the final dump of a batch is released. This feature allows the operator to add or take away product from the scale before the weight is recorded.

Input relay positions
1. Relay position eleven is the "accept batch weight" input location for scale A.
2. Relay position twelve is the "accept batch weight" input location for scale B.

FN.02 – Authorize batch start

When FN.02 is enabled, an input from the scale operator will be required before the first dump of a batch will be released. This feature enables the operator to be sure that a box or some other container is in place before the scale releases the first dump of a batch.

Input relay positions
1. Relay position eleven is the "authorize batch start" input location for scale A.
2. Relay position twelve is the "authorize batch start" input location for scale B.

FN.03 – Authorize dump

When FN.03 is enabled, an input from the scale operator will be required before each dump will be released. This allows the operator to control the time of every dump.

Input relay positions
1. Relay position eleven is the "authorize dump" input location for scale A.
2. Relay position twelve is the "authorize dump" input location for scale B.

FN.04 - Tolerance

If FN.04 is enabled the tolerance limits will take effect. The tolerance function requires that the batch weight be within the specified limits of the target weight tolerances before the batch will be completed.

FN.05 – Batch mode

When FN.05 is enabled the batch mode function will allow the scale to make multiple dumps to reach a single target weight. When FN.05 is disabled, the target weight will be limited to a setting that is no greater than the dump limit setting.

Note:

The batch mode and the count mode have conflicting requirements and will not function properly together. To insure proper operation, the count mode will be automatically disabled if the batch mode is enabled.

FN.06 – Toggle mode

When FN.06 is enabled the toggle mode function will cause the number two infeeds for scale A and scale B to alternate so that only one scale at a time can receive product. The number two infeeds alternate every time a batch is completed or every time the scale dumps, depending on the on/off status of FN.09. If FN.06 is disabled the number two infeeds for scale A and scale B will feed product to their respective scales independently.

Notes:
1. **The toggle mode will not function properly unless the toggle mode is enabled for both scales. Because of this, the toggle mode for both scales will be automatically enabled or disabled by enabling or disabling either one.**
2. **The toggle mode and the count mode have conflicting requirements and will not function properly together. To insure proper operation the count mode will be automatically disabled if the toggle mode is enabled.**

Associated relays
1. Relay position one controls the number two infeed for scale A.
2. Relay position four controls the number two infeed for scale B.

FN.07 – Bag opener

When FN.07 is enabled, a bag opening device will be activated at the start of each dump cycle. The bag opening device will be released after each completed batch or each time the scale dumps, depending on the on/off status of FN.09.

Note:

Because the bag opener function requires the use of the same output locations as the box indexing function, the box indexing function will be automatically disabled if the bag opener function is enabled.

Associated relays

1. Relay position seven is the bag opener output for scale A.
2. Relay position eight is the bag opener output for scale B.

FN.08 – Box indexing

If FN.08 is enabled the box indexing function uses an external sensor to detect approaching boxes. When a box is detected, a timer is started. When the timer expires a box stopping device is activated to stop the box in the proper location for filling. The box stopping device is released when the batch is complete or when the scale dumps, depending on the on/off status of FN.09.

Note:

Because the box indexing function requires the use of the same output locations as the bag opener function, the bag opener function will be automatically disabled if the box indexing function is enabled.

Associated relays

1. Relay position seven is the box indexing output for scale A.
2. Relay position eight is the box indexing output for scale B.

FN.09 – Complete batch

When FN.06 and FN.09 are enabled, the number two infeeds will toggle when a batch is complete, instead of after each dump. When FN.07 and FN.09 are enabled, the bag opener will de-activate when a batch is complete, instead of after each dump. When FN.08 and FN.09 are enabled, the box indexing device will open when a batch is complete, instead of after each dump.

Associated relays

1. Relay position one controls the number two infeed for scale A.
2. Relay position four controls the number two infeed for scale B.
3. Relay position seven controls the bag opening device or box indexing device for scale A.
4. Relay position eight controls the bag opening device or box indexing device for scale B.

FN.10 – Count mode

When FN.10 is enabled, the dump cycle to start based on piece count as well as setpoint weight.

Notes:

1. **The count mode and the toggle mode have conflicting requirements and will not function properly together. To insure proper operation the toggle mode will be automatically disabled if the count mode is enabled.**
2. **The count mode and the batch mode have conflicting requirements and will not function properly together. To insure proper operation the batch mode will be automatically disabled if the count mode is enabled.**
3. **If the indicator detects a counting error, the count mode will be automatically turned off allowing the scale to continue operating based on the setpoint weight.**

Associated relays

1. Relay position thirteen is the counter input location for scale A.
2. Relay position fourteen is the counter input location for scale B.
3. Relay position nine is the counter output location for scale A.
4. Relay position ten is the counter output location for scale B.

FN.11 – Auto-adjust

When FN.11 is enabled, the auto-adjust function makes automatic adjustments to the count factor or the adjust factor. If FN.10 is enabled while FN.11 is enabled, the auto-adjust function will make automatic adjustments to the count factor. If FN.10 is disabled while FN.11 is enabled, the auto-adjust function will make automatic adjustments to the adjust factor.

FN.12 – Auto zero

If FN.12 is enabled, the scale will be automatically zeroed during each dump cycle.

FN.13 – Estimated adjustment prompter

If FN.13 is enabled, the indicator will estimate the number of pieces that should be added or subtracted from the last dump of a batch so that the batch weight will be as close as possible to the target weight. This estimated number, along with the prompt to add or subtract, will be momentarily displayed at the completion of each.

Note:
The accuracy of the estimated adjustment prompter depends on accurate SY.07 and SY.08 settings and a correct TM.02 setting.

System Parameters

Setup parameters allow control over various settings that are specific to your system and operating environment. The user should be familiar with the functions that are necessary to meet particular production requirements. A familiarity of the product being weighed, as well as a knowledge of the product flow and expected production rates, must be obtained before changes are made to the system parameters.

Viewing system parameters

To access the system parameters press **SETPOINT**, followed by the "system parameters" password and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the down arrow key to select the desired scale(s) and press **ENTER**.) After accessing the system parameters, use the up or down arrow key to view the desired parameter.

Changing system parameters

With the system parameter to be changed in view, press **CLEAR**. Then use the numeric keypad to key in a new parameter and press **ENTER**. The parameter change will apply to the scale(s) in view.

Note:
Turn the scale(s) to the "off" or "idle" position before making system parameter changes.

System parameter list with default settings

Parameter	Description	Default
SY.01	Dump limit	50.00
SY.02	Adjust setting	0.00
SY.03	Adjust factor	0.00
SY.04	Count setting	0
SY.05	Count factor	0
SY.06	Count rate	0
SY.07	Low average piece weight	0.00
SY.08	High average piece weight	0.00
SY.09	Count sensitivity	0
SY.10	Maximum length	0
SY.11	Communication address	1

SY.01 - Dump limit

The SY.01 setting is the maximum weight that the indicator will allow as a setpoint. The correct SY.01 setting depends on the weight density of the product being weighed, the tare setting used, the product flow rate, and the physical size of the hopper. It is important to consider all of these factors and to insure that the dump limit is set correctly before operating. Failure to set the dump limit correctly can cause the weigh hopper to overflow.

Note:

Unless the batch mode (FN.05) is enabled, the setting entered for SY.01 will become the maximum limit for the target weight setting.

Maximum dump limit formula

(100 + (maximum tare percentage)) / (maximum tare percentage) = X
(maximum product weighed per second) (TM.02 setting) = R
((1 / X) (X - 1) (weight capacity of hopper)) - R = (recommended maximum dump limit)

Dump limit options

The SY.01 setting can be any whole number that does not exceed the SU.02 setting.

SY.02 - Adjust setting

The SY.02 setting is used as a starting base for the adjust factor. At the start of production the adjust setting will be used as the adjust factor.

Adjust setting options

The SY.02 setting can be any number that is divisible by the SU.03 setting, and does not exceed ten percent of the SY.01 setting.

SY.03 - Adjust factor

The SY.03 value is an adjustment designed to compensate for product overrun. Because of the mechanical reaction times involved when a dump cycle is started, the setpoint is usually overshot by a predictable amount. The indicator compensates for this reaction time by deducting the adjust factor from the setpoint, creating an adjusted setpoint. This causes the product infeed to be stopped before the actual setpoint is reached, preventing product overfill. The adjust factor can be dynamic (automatically updating during operation) or constant (no automatic changes).

Dynamic adjust factor

The adjust factor is always equal to the adjust setting when the scale is started. However, after the scale has been started, if the count mode (FN.10) is disabled, and the auto-adjust function (FN.11) is enabled, the auto-adjust function will automatically tune the adjust factor after each dump. The auto-adjust function causes the scale to make a comparison of the pre-dump weight and the adjusted setpoint. If the pre-dump weight is less than the adjusted setpoint, the auto-adjust function will tune the adjust factor down. If the pre-dump weight is greater than the adjusted setpoint, the auto-adjust function will tune the adjust factor up.

Constant adjust factor

If the count mode (FN.10) is enabled, or the auto-adjust function (FN.11) is disabled, the adjust factor will remain constant. As long as the auto-adjust function is disabled, or the count mode is enabled, there will be no automatic tuning of the adjust factor.

Adjust factor options

The SY.03 value can be any number that is divisible by the SU.03 setting and does not exceed ten percent of the SY.01 setting.

SY.04 - Count setting

The SY.04 setting is used as a starting base for the count factor. At the start of production the count setting will be used as the count factor.

Count setting options

The SY.04 value can be any whole number from 1-100.

SY.05 - Count factor

The SY.05 value is used to start the dump cycle based on a piece count. If the count mode (FN.10) is enabled, the individual pieces will be counted as they enter the hopper. If the count monitor reaches the count factor before the target weight is reached, the product infeed will stop and the dump cycle will begin. If the target weight is reached before the count monitor reaches the count factor, the dump cycle will begin as usual. The count adjust factor can be dynamic (automatically updating during operation) or constant (no automatic changes).

Dynamic count factor

The count factor is always equal to the count setting when the scale is started. However, after the scale has been started, if the count mode (FN.10), and the auto-adjust function (FN.11) are enabled, the auto-adjust function will automatically adjust the count factor after each dump. When the average piece weight is known for the individual parts being weighed, the count adjust factor is used to stop the product infeed before the scale has had time to respond to the weight entering the scale. When FN.10 and FN.11 are enabled, the indicator monitors the piece count while the weigh hopper is filling. The auto-adjust function will determine the average weight per piece and the number of pieces required to make the pre-dump weight as close as possible to the target weight. The count factor is adjusted accordingly.

Constant count factor

If the count mode (FN.10) is enabled, and the auto-adjust function (FN.11) is disabled, the count factor will remain constant. As long as the auto-adjust function is disabled, there will be no automatic adjustments made to the count factor.

Count factor options

The SY.05 value can be any whole number from 1-100.

SY.06 - Count rate

The SY.06 setting represents the maximum number of pieces that are expected to be counted in one second. A correct count rate setting allows the auto-adjust function (FN.11) to re-calculate the count factor as close as possible to the completion of the batch. This allows the product infeed to stop more precisely, causing the pre-dump weight to finish closer to the target weight.

Count rate options

The SY.06 setting can be any whole number from 1-10.

SY.07 - Piece weight (low limit)

The SY.07 setting is the low limit of the average piece weigh range.

Piece weight (low limit) options

The SY.07 setting must be evenly divisible by the SU.03 setting without exceeding the SY.01 setting.

SY.08 - Piece weight (high limit)

The SY.08 setting is the high limit of the average piece weigh range.

Piece weight (high limit) options

The SY.08 setting must be evenly divisible by the SU.03 setting without exceeding the SY.01 setting.

SY.09 - Input sensitivity

The SY.09 setting represents the level of sensitivity that the indicator will use when checking the open/closed state of the counter input. A low setting will be more sensitive and will more readily detect small parts and small breaks between parts. A high setting will be less sensitive, causing the counter to ignore small, insignificant, parts and breaks between parts. The input sensitivity setting should be set high enough to let insignificant parts pass without being detected, but low enough that all real parts will be detected.

Input sensitivity options

The SY.09 setting can be any whole number from 0-1000.

SY.10 - Maximum length

The SY.10 setting represents the maximum length that is allowed for one counted part. The counter increments one count when a part is first detected. Then count detection monitor keeps track of the consecutive number of times that a part is detected without a break. If the count detection monitor exceeds the maximum length setting, the counter will assume that two pieces were together and increment another count. The count detection monitor will be cleared any time that a break is detected between parts.

Maximum detection length options

The SY.10 setting can be any whole number from 0-1000.

SY.11 - Communications address

The SY.11 setting represents the scale's communication address.

Communications address options

The SY.11 setting can be any whole number from 1-100.

Timers

System timers are used throughout the program to compensate for varying time requirements. There are a variety of uses for timers including varying product flow, cylinder reaction time, conveyor speed, scale stability time, and operator response time. Most timers will function satisfactorily with the factory default settings, however, all of the timer settings may be changed to fit specific applications.

Viewing timers

To access the system timers press **GATE / TIME**, followed by the "timers" password and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the down arrow key to select the desired scale(s) and press **ENTER**.) After accessing the timers, use the up or down arrow key to view the desired timer.

Changing timers

With the timer to be changed in view, press **CLEAR**. Then use the numeric keypad to key in a new time and press **ENTER**. The timer change will apply to the scale(s) in view.

Note:
Turn the scale(s) to the "off" or "idle" position before making system timer changes.

Timer setting options

The timer setting range is from zero to thirty seconds in intervals of one hundredth of a second.

Timer list with default settings

Timer	Description	Default
TM.01	Clear infeed timer (clear infeeds)	.50
TM.02	Infeed discharge timer (delay reading)	.50
TM.03	Weigh hopper discharge timer	.50
TM.04	Accept weight timer (line stop)	5.00
TM.05	Weigh hopper close time	.50
TM.06	Toggle mode output delay timer	.50
TM.07	Box indexing output delay timer	2.00
TM.08	Counter output delay	.00
TM.09	Counter output duration	.00
TM.10	Dump cycle delay timer	.00
TM.11	Switch/Tolerance error code timer	10.00
TM.12	Load cell error code timer	3.00

TM.01 – Clear infeed timer
The TM.01 setting is the time that is allowed for all product to be cleared from the infeed device(s) when the scale is turned off.

Clear infeed timer associated relays
1. Relay position one controls the number two infeed for scale A.
2. Relay position four controls the number two infeed for scale B.
3. Relay position two controls the number one infeed for scale A.
4. Relay position five controls the number one infeed for scale B.

TM.02 – Infeed discharge timer
The TM.02 setting is the time allowed at the start of a dump cycle for all product to be settled into the weigh hopper. No attempts to record the weight will be made until TM.02 expires.

TM.03 – Weigh hopper discharge timer
The TM.03 setting is the amount of time that the weigh hopper gate will remain open during a dump cycle.

Weigh hopper discharge timer associated relays
1. Relay position three controls the weigh hopper gate for scale A.
2. Relay position six controls the weigh hopper gate for scale B.

TM.04 – Accept weight timer
The TM.04 setting is the time, from the start of a dump cycle, that the number two infeed is allowed to continue feeding product to the number one infeed. If TM.04 expires before the dump cycle is completed, the number two infeed will stop until the dump cycle is complete.

Accept weight timer associated relays
1. Relay position one controls the number two infeed for scale A.
2. Relay position four controls the number two infeed for scale B.
3. Relay position two controls the number one infeed for scale A.
4. Relay position five controls the number one infeed for scale B.

TM.05 - Weigh hopper close time
The weigh hopper close time is used to compensate for the reaction time of the weigh hopper gate. The TM.05 setting is the amount of time that will elapse from the close command of the weigh hopper gate until the weigh hopper gate is completely closed.

Weigh hopper close time associated relays
1. Relay position two controls the number one infeed gate for scale A.
2. Relay position five controls the number one infeed gate for scale B.
3. Relay position three controls the weigh hopper gate for scale A.
4. Relay position six controls the weigh hopper gate for scale B.

TM.06 – Toggle mode output delay timer
When the toggle mode is used the number two infeeds for scale A and scale B will work together to insure that only one scale at a time receives product. This is normally done by using one infeed hopper with two gates located above scale A and scale B. The two gates serve as the number two infeeds for scale A and scale B. When the toggle mode is used these two gates are configured so that only one gate at a time will be open. The toggle mode output delay timer is used to prevent product from being caught between the two gates. When the signal is given for the gates to toggle, TM.06 is started. The closed gate will be opened when the TM.06 starts, the open gate will be closed when the TM.06 expires. The TM.06 setting is the amount of time that elapses between the open signal for one gate and the close signal for the other gate.

Toggle mode output delay timer associated relays
1. Relay position one controls the number two infeed gate for scale A.
2. Relay position four controls the number two infeed gate for scale B.

TM.07 – Box indexing output delay timer

The box stop output delay timer is used to control the amount of time that elapses between the input signal from the box sensing device to the activation of the box stopping device. This to allow time for the box to be in the proper place before activating the box stopping device. The TM.07 setting is the amount of time between sensing the box to actually stopping the box.

Box indexing output delay timer associated relays
1. Relay position eleven is the input location for the scale A box sensing device.
2. Relay position twelve is the input location for the scale B box sensing device.
3. Relay position seven controls the box stopping device for scale A.
4. Relay position eight controls the box stopping device for scale B.

TM.08 – Counter output delay timer

The counter output delay timer is used to create a separation between two groups of counted parts. TM.08 controls the amount of time that elapses between the time that the last piece of a counted group is counted until the count separating device is activated. TM.08 should be set so that activation of the count separating device occurs with just enough time allowed for the last piece of the counted group to clear.

Counter output delay timer associated relays
1. Relay position thirteen is the input location for the scale A counting device.
2. Relay position fourteen is the input location for the scale B counting device.
3. Relay position nine controls the counter separating device for scale A.
4. Relay position ten controls the counter separating device for scale B.

TM.09 – Counter output duration timer

The counter output duration timer is used to maintain separation between two groups of counted parts. TM.09 controls the amount of time that elapses between activation and de-activation of the count separating device. This determines the amount of separation between two groups.

Counter output duration timer associated relays
1. Relay position thirteen is the input location for the scale A counting device.
2. Relay position fourteen is the input location for the scale B counting device.
3. Relay position nine controls the counter separating device for scale A.
4. Relay position ten controls the counter separating device for scale B.

TM.10 – Dump cycle delay timer

The dump cycle delay timer determines the amount of time that must elapse before another dump cycle from any scale can begin.

Dump cycle delay timer associated relays
1. Relay position three controls the weigh hopper gate for scale A.
2. Relay position six controls the weigh hopper gate for scale B.

TM.11 – Switch/Tolerance error code timer

The switch/tolerance error code timer is the amount of time that is allowed for the weight to be accepted after the setpoint is reached. During this time the weight should be brought within tolerance and/or the accept switch should be activated allowing the scale to dump. If TM.11 expires, an error code will be displayed showing that the switch has not been activated or that the weight is not within tolerance. The error code will continue to flash until the accept switch is activated and/or the weight is brought within tolerance.

Switch/Tolerance error code timer associated relays
1. Relay position two controls the number one infeed gate for scale A.
2. Relay position five controls the number one infeed gate for scale B.
3. Relay position eleven is the normal switch input location for scale A.
4. Relay position twelve is the normal switch input location for scale B.

TM.12 – Load cell error code timer

The load cell error code timer is used three times in the dump cycle. It is used as the amount of time allowed for the weight to become stable, as the amount of time allowed for the reading to fall below the zero threshold, and as the amount of time allowed for the zero reading to become stable. If TM.12 expires, an applicable error code will be displayed until the problem is resolved.

Scale Parameters

Scale parameters allow control over various settings that are specific to the weigh unit and weighing environment. Most of these changes directly impact weighing operations. The user should understand each of the scale parameters before making changes.

Viewing scale parameters

To access the scale parameters press **SETPOINT**, followed by the "scale parameters" password and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the down arrow key to select the desired scale(s) and press **ENTER**.) After accessing the scale parameters, use the up or down arrow key to view the desired parameters.

Changing scale parameters

With the parameter to be changed in view, press **CLEAR**. Then use the numeric keypad to key in a new parameter and press **ENTER**. The parameter change will apply to the scale(s) in view.

Note:

Turn the scale(s) to the "off" or "idle" position before making scale parameter changes.

Scale parameter list with default settings

Parameter	Description	Default
SU.01	Weigh Unit	1
SU.02	Scale capacity	50
SU.03	Resolution	9
SU.04	Display update speed	10
SU.05	Digital filter	1
SU.06	Digital filter bypass	1.5
SU.07	Motion detection sensitivity	1.5
SU.08	Motion detection sample	5
SU.09	Shock factor	3
SU.10	Zero threshold	5.00
SU.11	Zero tracking limit	1
SU.12	Initial zero limit	100
SU.13	Normal zero limit	100
SU.14	Calibration factor	2500.00

SU.01 - Weigh unit (sealed)

The SU.01 setting is the unit of measure that is represented by the display. All reference to weight will be based on the unit of measure that is set here.

Weigh unit options

Option #1	Option #2	Option #3	Option #4
Pounds (lb)	Ounces (oz)	Kilograms (kg)	Grams (g)

SU.02 - Scale capacity(sealed)

The SU.02 setting is the maximum weight limit of the scale.

Scale capacity options

The SU.02 setting is limited to six digits (including all digits, both right and/or left of the decimal point) and must be evenly divisible by the SU.03 setting.

SU.03 – Resolution (sealed)

The SU.03 setting is the division size by which the weight display will change. This setting is smallest change visible on the weight display.

Resolution options

Option #	Resolution	Option #	Resolution	Option #	Resolution
#1	.0001	#7	.01	#13	1
#2	.0002	#8	.02	#14	2
#3	.0005	#9	.05	#15	5
#4	.001	#10	.1	#16	10
#5	.002	#11	.2	#17	20
#6	.005	#12	.5	#18	50

Note:
If changing SU.03 will cause SU.02 to need more than six digits, the change will not be allowed.

SU.04 - Display update speed (sealed)

The SU.04 setting is the rate per second that scale readings are updated to the display.

Display update speed options

The SU.04 setting is limited to any whole number from one to ten.

SU.05 – Digital filter (sealed)

The SU.05 setting is the amount of filtering that the incoming digital readings receive.

Digital filter options

The SU.05 setting is limited to any whole number from one to one hundred. The lowest setting will enable the maximum available filtering.

SU.06 – Digital filter bypass (sealed)

The SU.06 setting is the minimum change between consecutive incoming digital readings that will cause a bypass of the digital filter.

Digital filter bypass options

The SU.06 setting can be any number from one tenth to one hundred in one tenth increments. The lowest the setting will enable the digital filter to be bypassed the quickest.

SU.07 – Motion detection sensitivity (sealed)

The SU.07 setting is the level of sensitivity that the scale will use to detect motion.

Motion detection sensitivity options

The SU.07 setting can be any number from one tenth to one hundred in increments of one tenth. The lowest setting is the most sensitive to motion.

SU.08 - Motion detection sample (sealed)

The SU.08 setting is the number of weight readings that are sampled to detect motion.

Motion detection sample options

The SU.08 setting can be any whole number from one to one hundred.

SU.09 - Shock factor (sealed)

The SU.09 setting is the number of consecutive unfiltered digital readings that must be detected above the setpoint before a dump cycle will begin.

Shock factor options

The SU.09 setting can be any whole number from one to one hundred.

SU.10 - Zero threshold (sealed)

The SU.10 setting is the weight reading that must be crossed after having reached a setpoint to signal that the product has been removed from the scale.

Zero threshold options

The SU.10 setting is limited to a maximum of ten percent of the SU.02 setting and must be evenly divisible by the SU.03 setting.

SU.11 – Zero tracking limit (sealed)

The SU.11 setting will determine how much the zero tracking function will compensate for zero drift. The zero tracking function allows for small amounts of weight to be automatically zeroed out when the internal counts are close to the center of zero and the change occurs over an extended period of time. The setting entered here represents the maximum number of scale divisions that can vary from the center of zero during a one second interval before the change will be considered real weight. If, during a one second period, the amount of variation from the center of zero is less than the number of scale divisions entered here the center of zero will automatically shift to match the current filtered reading.

Zero tracking limit options

The SU.11 setting can be any whole number from zero to five.

SU.12 - Initial zero limit (sealed)

The SU.12 setting is the percentage of the SU.02 setting that the indicator will set as the initial zero limit. If the initial zero limit is exceeded, an error code will be displayed. The error code will remain visible until the scale is re-calibrated, with an initial zero that is less than the initial zero limit. The initial zero limit applies to permanent weight that is zeroed during calibration.

Initial zero limit options

The SU.12 setting is limited to any whole number from one to one hundred.

SU.13 - Normal zero limit (sealed)

The SU.13 setting is the percentage of the SU.02 setting that the indicator will set (above the initial zero) as the normal zero limit. If the normal zero limit is exceeded, an error code will be displayed. The error code will remain visible until the scale is re-zeroed without exceeding the normal zero limit. The normal zero limit applies to the combined total of the amount zeroed using the zero tracking function, the auto zero function, and the keyboard entered zero.

Normal zero limit options

The SU.13 setting is limited to any whole number from one to one hundred.

SU.14 - Calibration factor (sealed)

The SU.13 setting is the factor that the indicator uses to convert the filtered digital readings into weight readings for the display. The calibration factor is automatically established during calibration and should not normally be changed from the keypad. The ability to view the calibration factor was provided primarily as a useful calibration reference.

Note:

It is not recommended that the calibration factor be used as a method of calibration.

Calibration factor limits

The SU.14 setting is limited to any whole or decimal number of seven digits or less.

Zero

The Series 2000 weight indicator maintains two zero references, the initial zero reference and the normal zero reference. The initial zero reference refers to the amount of weight that is zeroed during calibration. The normal zero reference refers to all other zeroed weight.

Initial zero

The initial zero is the amount of permanently attached weight that is zeroed during calibration.

Normal zero

The Series 2000 weight indicator uses three different methods to zero the scale during normal operation. The three methods of zero are, push button zero, auto-zero, and zero tracking.

Push button zero

To zero the scale manually, press **ZERO**, followed by the "zero" password and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the down arrow key to select the desired scale(s) and press **ENTER**.) The scale must be stable with no motion detected for the zero to be accepted.

Note:

Use caution when manually zeroing the scale while it is in production. Product weight can be accidentally zeroed, causing the scale to overflow.

Auto-zero

If the auto-zero function (FN.12) is enabled, the scale will automatically re-zero each dump cycle after all product has been discharged and no motion is detected.

Zero tracking

Zero tracking enables the scale to compensate for zero drift by zeroing out insignificant changes close to the center of zero. The zero tracking range is limited to the SU.11 setting.

Tare

The tare feature is used to compensate for known loses such as water and ice. The tare can be entered from the keyboard as an actual weight tare or as a percentage tare. The tare "weight" represents the actual amount of weight that is included in the completed batch as a tare. The tare "percentage" represents the percentage of the completed batch that is included in the completed batch as a tare.

Viewing the tare setting

To access the tare setting press **TARE**, followed by the "tare" password and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the down arrow key to select the desired scale(s) and press **ENTER**.) After accessing the tare setting, use the up or down arrow key to view the tare "weight" or the tare "percentage".

Changing the tare setting

With the desired tare (tare "weight" or tare "percentage") in view, press **CLEAR**. Then use the numeric keypad to key in a new tare value and press **ENTER**. The tare setting change will apply to the scale(s) in view.

Notes:
1. **The scale totals must be clear for a change to the tare setting to be allowed.**
2. **When a tare is used, the status code section of the display will display "N", identifying the weight being displayed as a net weight.**
3. **When a tare is used and multiple dumps are required to reach the target, the indicator will automatically calculate the tare so that an equal portion of the tare is taken with each dump.**
4. **When a tare "weight" is entered, the indicator will automatically calculate the tare "percentage" to correspond to the weight that was entered.**
5. **When a tare "percentage" is entered, the indicator will automatically calculate the tare "weight" to correspond to the percentage that was entered.**
6. **The scale(s) should be in the "off" or "idle" position before changing the tare setting.**

Setpoint

The setpoint is the targeted dump weight of an individual dump. If the target weight does not exceed the dump limit, the setpoint will be equal to the target weight. If the target weight exceeds the dump limit, the indicator will automatically calculate a setpoint weight (auto-setpoint) that will be the targeted dump weight for the next dump cycle. After determining the setpoint, an adjustment is made to compensate for expected product overrun and the tare value. After this adjustment, the setpoint is referred to as the adjusted setpoint.

Auto-Setpoint

The auto setpoint is an internal calculation that enables a target weight to be entered that exceeds the weight capacity of the hopper. The auto-setpoint uses the dump limit setting, the target weight, and the current incomplete batch to determine the most appropriate setpoint weight for each individual dump. The auto-setpoint is a standard feature that functions automatically; it does not need to be turned on or off.

Adjusted Setpoint

The adjusted setpoint is used to compensate for product overrun and for the tare value. The indicator uses the targeted setpoint, the adjust factor, and the tare value to determine the adjusted setpoint. The adjusted setpoint is a standard feature that functions automatically; it does not need to be turned on or off.

Target Weight

The target weight is the amount of weight that is required to complete a batch. The target weight may require multiple dumps to complete, or it may be completed with one dump.

Multiple dump target weight

If the target weight is greater than the dump limit setting, a multiple dump batch is required. The number of dumps required to complete a batch depends on the ratio of the target weight over the dump limit. To enter a target weight that is greater than the dump limit, the batch mode (FN.05) must be enabled. When the target weight is greater than the dump limit, the indicator will automatically calculate the setpoint weight during each dump cycle.

Single dump target weight

If the target weight does not exceed the dump limit, each batch will consist of a single dump, and the setpoint weight will always equal the target weight.

Viewing the target weight

To view the target weight, press **SETPOINT**, followed by the "target" password and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE".* Use the down arrow keys to select the desired scale(s), and press **ENTER**.

Changing the target weight

With the target weight in view, press **CLEAR**. Then use the numeric keypad to key in a new target weight and press **ENTER**. The target weight will apply to the scale(s) in view.

Tolerance

The tolerance function allows for controls to be placed on the amount of overweight or underweight that the scale will accept as a completed batch. The tolerance function (FN.04) must be turned on for the tolerance restrictions to take effect.

Viewing the tolerance limits

To view the tolerance limits, press **SETPOINT,** followed by the "tolerance" password, and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying *"SELECT SCALE".* Use the down arrow key to select the desired scale(s), and press **ENTER**.) After accessing the tolerance limits for the desired scale(s), use the up or down arrow keys to view the upper tolerance and the lower tolerance.

Changing the tolerance limits

With the tolerance that you wish to change in view, press **CLEAR**. Use the numeric keypad to key in a new tolerance, and press **ENTER**. The new tolerance limits will apply to the scale(s) in view.

Note:
The tolerance requirements can be bypassed when turning the scale(s) off by pressing SCALE/ESCAPE one time for each scale that is outside of the tolerance requirement.

Calibration

When calibration is required, the scale must first be put into the "off", or "idle", position. To access the calibration steps, press **CAL**, followed by the "calibrate" password, and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the up and down arrow keys to select the desired scale, and press **ENTER**.) The calibration will apply to the selected scale.

Notes:
1. **All of the scale setup parameters should be verified as correct before calibration.**
2. **To exit calibration at any time, press ESCAPE. The calibration steps will be aborted. If the calibration factor has not already been established, the scale will revert to the previous calibration factor.**

Calibration steps

1. After accessing scale calibration, the indicator will display "*ONE MOMENT*". Wait while the scale establishes a zero reference.
2. Wait until the indicator displays "*ADD WEIGHT*".
3. Place a known weight on the scale. (The amount of weight used for calibration must be evenly divisible by the SU.03 setting and must not exceed the SU.02 setting.)
4. Press **ENTER**; the indicator will display *"VALUE?"*,
5. Press **CLEAR** to clear the display.
6. Use the numeric keypad to key in the weight value of the known weight.
7. Press **ENTER**; the indicator will display "*ONE MOMENT*". Wait while the scale sets the initial zero and establishes the calibration factor.
8. Wait until the indicator displays "*REMOVE WGT*".
9. Remove the weight from the scale.
10. Press **ENTER**; the indicator will display "*CAL TEST?*".
11. Calibration is now complete. Press **ENTER** to continue with the calibration test; press **ESCAPE** to exit calibration and skip the calibration test.

Calibration test steps

1. The indicator will display *"ADD WEIGHT"*.
2. Place a known weight on the scale. (The value of the weight used for the calibration test should be different than the value of the weight used for calibration but must still be evenly divisible by the SU.03 setting and must not exceed the SU.02 setting.)
3. Press **ENTER**; the indicator will display "*VALUE?*".
4. Press **CLEAR** to clear the display.
5. Use the numeric keypad to key in the weight value of the known weight.
6. Press **ENTER**; the indicator will display "*ONE MOMENT*". Wait while the indicator checks calibration.
7. Wait until the indicator displays "*REMOVE WGT*".
8. Remove the weight from the scale.
9. Press **ENTER**; the indicator will display "*ONE MOMENT*". Wait while the indicator checks zero.
10. Wait until the indicator displays "*CAL-END*".
11. Press **ESCAPE** to exit calibration.

Notes:
1. **If any errors are detected during the calibration test, the appropriate error code(s) will be displayed after exiting the calibration test.**
2. **Press ESCAPE to remove the error code(s). Verify that the scale setup parameters are correct, and check calibration before proceeding.**

Starting Operation

There are two methods of starting the operation of your system. The zero batch method uses zero as the current incomplete batch; it is a new start without regard to the previous shift. The resume batch method will use the incomplete batch memory as the current incomplete batch, allowing production to resume where it was stopped during the previous shift.

Zero batch start

To start using the regular start method, press **ON**, followed by the "zero batch" password, and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the up and down arrow keys to select the desired scale(s), and press **ENTER**.) Zero will be used as the current incomplete batch. The status code section of the display will display the letter "G" or the letter "N" (depending on the tare setting) for each scale that is turned on.

Resume batch start

To start using the resume batch method, press **ON**, followed by the "resume batch" password, and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the up and down arrow keys to select the desired scale(s), and press **ENTER**.) The saved incomplete batch will be used the current incomplete batch. The status code section of the display will display the letter "G" or the letter "N" (depending on the tare setting) for each scale that is turned on.

Stopping Operation

There are three methods of stopping the operation of your system. The zero batch method will cause an orderly shutdown without saving the incomplete batch. The resume batch method will cause an orderly shutdown while saving the incomplete batch. The reset idle will cause an immediate reset to the indicator, shutting down the entire system without saving the incomplete batch.

Regular stop

To stop operation using the regular stop method, press **OFF**, followed by the regular "off" password, and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the up and down arrow keys to select the desired scale(s), and press **ENTER**.) The scale(s) will perform an orderly shutdown that will end with the infeed(s) off and the hopper gate(s) closed. The incomplete batch or batches will not be saved. The status code section of the display will display the letter "O" for each scale that is turned off.

Resume batch stop

To stop operation using the resume batch method, press **OFF**, followed by the resume batch "off" password, and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the up and down arrow keys to select the desired scale(s), and press **ENTER**.) The scale(s) will perform an orderly shutdown that will end with the infeed(s) off and the hopper gate(s) closed. The incomplete batch or batches will be saved. The status code section of the display will display the letter "O" for each scale that is turned off.

Reset idle

To stop operation using the reset idle method, press **IDLE**, followed by the reset "idle" password, and **ENTER**. The indicator will perform an immediate system reset causing all system relays to return to their idle (open) position. The incomplete batch or batches will not be saved. The status code(s) will display the letter "I".

Note:
When turning the scale(s) off using the reset idle method, scale selection is not required. If dual scale software is being used, both scales will return to the idle position.

Off Position

The off position means that all of the relays that control the infeeds and hoppers will be in their off (closed) position for the scale(s) turned off. The status code section of the display will display the letter "O" for each scale that is disabled.

Idle Position

The idle position is primarily a safety feature to keep mechanical parts from being activated unexpectedly during cleaning or maintenance procedures. The indicator was designed so that all conveyors will run and all hoppers will be open if the indicator was to lose power. This allows product to be transferred through the conveyors and hoppers, should problems arise in the electronics, simply by disconnecting power to the indicator. When power is restored, the indicator will alternately display "*WEIGHTECH*" and "*1-800-457-3720*". To start the program, press **SCALE/ESCAPE**; both scales will be in the idle position.

Without disconnecting power, the "reset idle" is the only method of entering the idle position while operating the scale(s). To put the scale(s) in the idle position without resetting the indicator, the scale(s) must first be turned off. Press **IDLE**, followed by the regular "idle" password, and **ENTER**. (If dual scale software is being used, the indicator will prompt the operator by displaying "*SELECT SCALE*". Use the up and down arrow keys to select the desired scale(s), and press **ENTER**.) The status code will display the letter "I" for each scale that is in the idle position.

Totals

The series 2000 indicator maintains a record of the total accumulated weight, the average batch weight, and the total number of complete batches. The totals are stored in battery backed up memory to insure that they are not lost in case of power interruption.

Total accumulated weight

The total accumulated weight is the total weight of all product that has been weighed since the last time the totals were cleared. The total accumulated weight is separated into two categories, the total net weight (N/WGT) and the total gross weight (G/WGT). The total accumulated weight is useful when determining the production yield of shift.

Average batch weight

The average batch weight is the average weight of all batches that have been completed since the last time the totals were cleared. The average batch weight is separated into two categories, the average net weight (N/AVG) and the average gross weight (G/AVG). The average batch weight can be used to determine the total amount of over pack that was allowed during a production shift.

Total batch count

The total batch count (COUNT) is the total number of all batches that have been completed since the last time the totals were cleared. This number represents the total number of boxes, bags, tanks, etc. that were added to inventory since the last time the totals were cleared.

Viewing the totals

Press **TOTAL**, followed by the "totals" password, and **ENTER** to access the scale totals. Use the up and down arrow keys to view the total accumulated net weight, the total accumulated gross weight, the average net weight, the average gross weight, or the total batch count.

Clearing the totals

While viewing any of the totals, press **CLEAR**. The display will prompt by displaying "*ARE YOU SURE?*". Press **CLEAR** to clear the total weight, or **SCALE/ESCAPE** to abort and return to the previous displayed total.

Note:

Totals are cleared in groups. If any of the totals from scale A are cleared, then all of the scale A totals will be cleared. Regardless of which total is in view, all of the totals for the scale(s) in view will be cleared.

Error Codes

There are several self-testing checks that are continually monitored when power is applied to the indicator. When a problem is detected, an error code will be displayed to help locate the source of the problem, and to point maintenance personnel toward the correct solution. The error code will be displayed in the weight portion of the display of the scale(s) with the error.

ER.01 - Memory error

Probable cause
Battery backed up memory has failed.

Possible solution
Replace CPU board.

ER.02 - Program error

Probable cause
A program error has been detected.

Possible solution
Press **ESCAPE** to continue operation. Check the system type and serial number of the CPU board, then contact WeighTech.

ER.03 - Initial zero error

Probable cause
The initial zero limit has been exceeded. Permanently attached weight (scale platform, weigh hopper, etc.) is using too much of the scale's capacity.

Possible solution
A. Re-calibrate the scale.
B. Remove permanently attached weight, then re-calibrate the scale.
C. Insure SU.12 setting is correct, then re-calibrate the scale.
D. Replace the load cell, then re-calibrate the scale.

ER.04 - Zero reference error

Probable cause
The normal zero limit has been exceeded.

Possible solution
A. Remove weight, then re-zero the scale.
B. Re-calibrate the scale.
C. Insure SU.13 setting is correct, then re-calibrate the scale.

ER.05 - Under-load error

Probable cause
The load cell readings are below the acceptable level.

Possible solution
A. Relieve mechanical binding or pressure that may be affecting the load cell.
B. Insure load cell wiring is correct.
C. Re-calibrate the scale.
D. Replace the load cell, then re-calibrate the scale.
E. Replace the analog board, then re-calibrate the scale.

ER.06 - Over-load error
Probable cause

The scale capacity has been exceeded.

Possible solution

A.   Remove excessive weight from scale.
B.   Relieve mechanical binding or pressure that may be affecting the load cell.
C.   Insure load cell wiring is correct.
D.   Re-calibrate the scale.
E.   Insure SU.02 setting is correct, then re-calibrate the scale.
F.   Replace the load cell, then re-calibrate the scale.

ER.07 - Calibration weight error
Probable cause

A.   During the calibration test, the amount of weight that was placed on the scale as a test weight was different than the amount entered as its value.
B.   An incorrect zero was detected during the calibration test.

Possible solution

A.   Press **ESCAPE** to remove the error code.
B.   Verify that weights used during calibration and calibration tests are accurate, then re-calibrate the scale. Verify that the weight values entered during calibration and calibration test weight are correct.
C.   Relieve mechanical binding or pressure that may be affecting the load cell, then re-calibrate the scale.
D.   Insure load cell wiring is correct, then re-calibrate the scale.
E.   Insure that SU.03 - SU.08 are set correctly, then re-calibrate the scale.
F.   Replace the load cell, then re-calibrate the scale.
G.   Replace the analog board, then re-calibrate the scale.

ER.08 - Calibration stability error
Probable cause

During the calibration test the scale was unstable.

Possible solution

A.   Press **ESCAPE** to remove the error code.
B.   Remove excessive vibration, then re-calibrate the scale.
C.   Relieve mechanical binding or pressure that may be affecting the load cell, then re-calibrate the scale.
D.   Insure load cell wiring is correct, then re-calibrate the scale.
E.   Insure that SU.03 - SU.08 are set correctly, then re-calibrate the scale.
F.   Replace the load cell, then re-calibrate the scale.
G.   Replace the analog board, then re-calibrate the scale.

ER.09 - Count error
Probable cause

The average piece weight was calculated to be outside of the average piece weight limits.

Possible solution

A.   Press **ESCAPE** to remove the error code.
B.   Insure calibration is correct.
C.   Insure proper operation of photo-electric sensor. Replace if necessary.
D.   Insure that target weight is set correctly.
E.   Insure that SY.06 - SY.10 are set correctly.
F.   Insure that TM.02 is set correctly.
Note:
When a count error occurs, the count mode (FN.10) is automatically disabled. After the cause of the error has been corrected, FN.10 must be re-enabled.

ER.10 - Motion detection error

Probable cause
The scale is detecting motion and cannot find a stable weight reading.

Possible solution
A. Remove excessive vibration.
B. Relieve mechanical binding or pressure that may be affecting the load cell.
C. Insure that load cell bolts are tight.
D. Insure that SU.03 - SU.08 are set correctly, then re-calibrate scale.
E. Replace the load cell, then re-calibrate the scale.
F. Replace the analog board, then re-calibrate the scale.

ER.11 - Zero threshold error

Probable cause
The weight reading is not falling below the zero threshold setting after dumping.

Possible solution
A. Remove all product from weigh hopper.
B. Relieve mechanical binding or pressure that may be affecting the load cell.
C. Insure that SU.10 is set correctly, then re-calibrate the scale.
D. Replace the load cell, then re-calibrate the scale.
E. Replace the analog board, then re-calibrate the scale.

ER.12 - Switch error

Probable cause
The scale is waiting on an operator response.

Possible solution
A. Insure that input switch is functioning properly.
B. Insure that input switch wiring is correct and tight.
C. Insure that TM.11 is set correctly.

ER.13 - Tolerance error

Probable cause
The weight reading is not within tolerance requirements.

Possible solution
A. Insure that TM.11 is set correctly.
B. Insure that the tolerance limits are set correctly.

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