9127

Semi-Automatic Filling System

Controller

Operator and Programmer Guide

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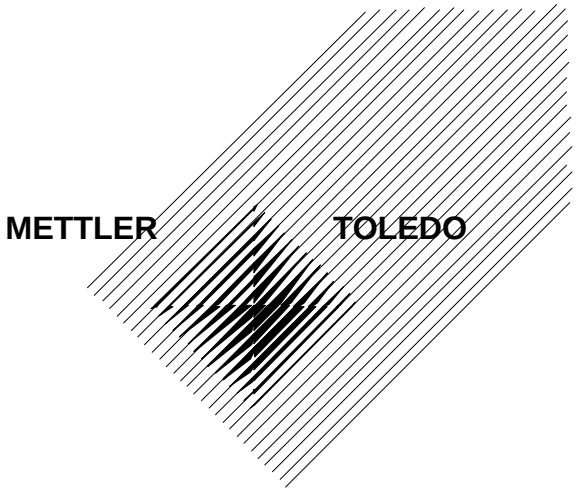

MODEL 9127
SEMI-AUTOMATIC
FILLING SYSTEM

Program H901267

The Container Filler Controller is designed to control either a Mettler Toledo Semi-Automatic (9127) Container Filler Lance or a Mettler Toledo Manual (9102) Drum Filler Lance, for filling drums, totes, or pails to a preset weight setpoint.

The following documentation details the Container Filler Controller operation, including configuration, setup, printing, and filling, from the operator's perspective, and includes Host communications protocol. The documentation is divided into sections with a overview at the beginning of each section.

This document must be read and understood by anyone who installs, operates, or maintains the Container Filler.

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POWER UP SEQUENCE

Statements 10 through 199

About This Section

The following section describes the Container Filler Controller power up sequence. Upon applying power to the controller, operation will begin from Statement number 10. It should be noted that the controller is configured with a bank of DIP switches located on the main control printed circuit board. The setting of these switches determines the type of METTLER TOLEDO lance being controlled as well as other operational characteristics.

! WARNING

INCORRECT SETTING OF THE CONTROLLER CONFIGURATION 'DIP' SWITCHES (SW1) MAY RESULT IN IMPROPER AND UNSAFE OPERATION OF THE DRUMFILLER. THESE SWITCHES MUST BE SET AND VERIFIED BY A QUALIFIED METTLER TOLEDO TECHNICIAN AT THE TIME OF INSTALLATION IN ACCORDANCE WITH DETAILS PROVIDED IN THE HARDWARE TECHNICAL DESCRIPTION MANUAL. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN BODILY INJURY.

PROGRAM STATEMENT	APPLICATION
10	**[H901267 YYYYYY]**

The Display shows the program number, and the operating system language. This message will be displayed briefly while memory is checked. A test is performed on the program checksum and RAM memory.

If the checksum calculation is incorrect the program will advance to the next Statement.

If the RAM memory failed testing the program will advance to statement #25.

If the Controller Configuration DIP switch (SW1-8) is ON (Forced Cold Start), the program will advance to statement #30. Otherwise, the program will advance to statement #40.

PROGRAM STATEMENT	APPLICATION
20	**[CPU Failure Prog XX]** The display shows the expected value of the program checksum 'XX'. Operation will halt at this statement and the controller cannot be operated. Display of this message indicates a system hardware failure. Contact METTLER TOLEDO Service.
25	**[CPU Failure Data]** The display shows that the RAM failed testing. Display of this message indicates a system hardware failure. Operation will halt at this statement and the controller cannot be operated. Contact METTLER TOLEDO Service.
30	**[Force Cold Start? N]** The display asks if a forced cold start is to be performed. Cold start will clear all setups, variables and system passwords. Press <Y> (yes) to force a cold start and advance to the next statement. Press <N> (no) or <ENTER> to advance to the next statement.
40	**[Reading Scale]** There will be a 8 second delay at this time to allow the indicator's power up routine to be performed. The scale is read to determine the scale setup (decimal point location, etc.). If a scale fault occurs the program will advance to the next statement. If the scale is read properly but the scale setup has changed, the program will advance to Statement #60. Next, the Controller Configuration DIP setup switches (SW1-1 thru SW1-3) are checked. The memory is then checked for data retention. If the data stored is not valid, or a cold start is being forced, the program will advance to statement #100. Otherwise, the program will advance to Statement #110.

PROGRAM STATEMENT	APPLICATION
50	**[Scale Fault]** No data, invalid data, or checksum error was received from the indicator. Press <ENTER> to return the program to statement #40 and retry. If after several attempts the scale cannot be read check the indicator setup as detailed in the indicator technical manual or contact METTLER TOLEDO Service.
60	**[Scale Setup Change]** The scale setup cannot be changed without doing a cold start on the system (all variables are cleared). This is because it cannot be assumed that the programmed data for one scale setup will be valid for a different setup. Press <ENTER> to advance the program to Statement #80.
80	**[Cold Start? N]** Press <Y> (yes) to have all the program variables cleared and the new configuration used. The program will advance to the next statement. Press <N> (no) or <ENTER> to have the scale read again. The program will return to Statement #40.
90	**[Are You Sure? N]** Press <Y> (yes) to have all the program variables cleared and the new configuration used. The program will advance to the next statement. It should be noted that taking this action will require the re-entry of all programmed setup data. Press <N> (no) or <ENTER> to have the scale read again. The program will return to Statement #40.
100	**[All Data Cleared!]** All variables are cleared. The program will advance to the next statement.
110	**[Subsurface] or [Surface]** The display indicates that the system is configured for surface or for subsurface operation, as set by SW1-1. The program will advance to the next statement. or If cold start, press <ENTER> to advance to the next statement. SW1-1 must be ON (Surface mode) when used with the Mettler Toledo Model 9102 Lance

CAUTION!!

Do not advance until this configuration has been verified as correct. Sub-surface and Surface type lances operate differently. A sub-surface lance will raise the lance as material is delivered into the drum requiring additional limit switches for safe operation.

PROGRAM STATEMENT	APPLICATION
120	**[Single Drum] or [Multiple Drum]** The display indicates that the system is configured for single or multiple drums, as set by SW1-2. The program will advance to the next statement. or If cold start, press <ENTER> to advance to the next statement.

CAUTION!

Do not advance until this configuration has been verified as correct. Single Drum and Multiple Drum lances operates differently. A single drum lance does a maximum drum empty weight check for each new drum filled (refer to statement number 1100). A multiple drum lance allows more than one drum to be placed on the scale at one time and the lance can be "swiveled" from drum to drum. A maximum drum empty test cannot be done on a multiple drum filler

130	**[9127 Lance] or [9102 Lance]** If SW1-3 has been set for 9102 Lance operation, and SW1-1 is off (Sub-Surface mode) the program will not display this prompt, but will advance to Statement #145. The display indicates that the system is configured for 9127 Lance or 9102 Lance, as set by SW1-3. The program will advance to the next statement. or If cold start, press <ENTER> to advance to the next statement.

PROGRAM STATEMENT **APPLICATION**

135 **[Host Drop Address XX]**

The display indicates the Controller Configuration for DIP switches SW1-4 through SW1-6. These switches set the multi-drop address for Host operation. The setting of these switches is important to successful Host Communications.

If the Force Cold Start switch is ON the program will advance to statement #140.

If "warm start" the program will advance to statement #200.

or

If cold start, press <ENTER> to advance to the next statement.

MULTI DROP ADDRESSING			
SW 1-4	SW 1-5	SW 1-6	DROP ADDRESS
OFF	OFF	OFF	00
ON	OFF	OFF	01
OFF	ON	OFF	02
ON	ON	OFF	03
OFF	OFF	ON	04
ON	OFF	ON	05
OFF	ON	ON	06
ON	ON	ON	07

140 **[Cold Start Forced]**

The display indicates the Controller Configuration Forced Cold Start DIP switch (SW1-8) is ON. The program will not advance from this step. It is necessary to remove power from the controller, turn SW1-8 OFF then reapply power to restart.

145 **[Invalid Setting]**

The display indicates that SW1-3 in on, but SW1-1 is off, which is an invalid setting for operation of a 9102 Lance. After a small delay the program will advance to Statement #150.

PROGRAM STATEMENT	APPLICATION
150	**[SW1-1 NOT = ON]** The display indicates that SW1-3 in on, but SW1-1 is off, which is an invalid setting for operation of a 9102 Lance. At this point the power should be removed from the Controller and the configuration switches should be checked for proper setting for the Lance being used. Pressing the <ENTER> key will return the program to Statement #145.

NORMAL OPERATING SEQUENCE

Statements 200 through 299

About This Section

The following section describes the Container Filler Controller Normal Operating Sequence. The controller will display the selected product ID, as shown in statement number 200, whenever conditions are normal and the filling sequence is between drums. At this prompt the operator may start another filling sequence for the displayed product ID by pressing the START push-button or he may use one of the function keys.

PROGRAM STATEMENT **APPLICATION**

200 **[Run ID: XXXXXXXXXX]**

The display shows the product ID which is to be used for this run. If CONTROL POWER is off, the program will advance to the next statement. If the AUTO / MANUAL switch is in the MANUAL position, the program will advance to statement #260. If the lance is not up the program will advance to statement #270.

Press START to begin filling the product ID indicated on the display. If the ID is valid the program will advance to Statement #2000, otherwise, the program will advance to Statement #290.

The function buttons are functional to allow ID Selection, ID and System Setup, Report Printing, and System Testing. Press the proper F key for the desired function as described next :

Press the "Print" button on the indicator keypad to initiate a "duplicate" printout of the last filling transaction.

FUNCTION		MODE
F1	*	ID SETUP - allows setup of parameters, such as the drum fill setpoint, for each stored drum ID record. Program will advance to Statement #1000.
F2	*	SYSTEM SETUP - allows setup of system general parameters, features, host, and printing. Program will advance to Statement #300.
F3		ID SELECT - allows operator selection of Run ID, Order Filling, and recall of the Run ID to be filled. Program will advance to Statement #1400.
F4	*	TEST MODE - permits self test and exercise of the controller and lance to verify correct operation. Program will advance to Statement #1200.
F5		ID SETUP REPORT - allows print out of the ID Setup Report. If the printer is enabled in Statement #710 the program will advance to Statement #3000.

F6 SUMMARY REPORT - allows print out of the filling Summary Report and Drum Logs. If the printer is enabled in Statement #710 the program will advance to Statement #3100.

F7 ID LIST REPORT - allow print out of the ID List Report. If the printer is enabled in Statement #710 the program will advance to Statement #3200. If the printer is disabled the program will advance to Statement #3210.

F8 CONSECUTIVE NUMBER - allows display or editing of the Product ID Consecutive Number. Program will advance to Statement #1500.

F9 VARIABLE ID - allows display or editing of the variable ID field. Program will advance to Statement #1600.

F10 * ACCUMULATED WEIGHT - allows display or zeroing of the Accumulated Weight register. Program will advance to Statement #1700.

* Indicates that these functions may be password protected. Refer to Statement number 320 for password setup.

210 **[**EMERGENCY STOP**]**

The display indicates that there is no control power present, due to the pressing of the EMERGENCY STOP button or the loss of the Remote EMERGENCY STOP input.

If not presently in the middle of a fill cycle, the program will return to Statement #200, upon the restoring of the of the EMERGENCY STOP inputs. The function buttons, as described in statement #200, will be active.

If a fill cycle is in process, the program will advance to the next statement, upon the restoring of the EMERGENCY STOP input. The function buttons will not be active.

CAUTION!

Do not restore power to the controller or restart the filling cycle until the system is in a known safe condition. Failure to observe this precaution may result in bodily injury.

PROGRAM STATEMENT	APPLICATION
220	**[Cont Fill Cycle? Y]** A fill cycle has been interrupted. The display is asking the operator if he wishes to restart the fill sequence or abort the fill sequence. Press START button to advance to the appropriate statement within the run sequence and restart. Press <Y> (yes) or <ENTER> to advance to the next statement. Press <N> (no) to advance to statement #240 to abort the sequence.
230	**[Stopped- Push Start]** The display indicates that a fill cycle has been interrupted. The operator may restart the fill sequence or return to the previous statement to abort the sequence. Press START button to restart the fill cycle and advance to the appropriate statement within the run sequence. Press <RESET> or <UP ARROW> to return to statement #220.
240	**[Abort Fill Cycle? N]** The display asks if the fill cycle is to be aborted. Press <Y> (yes) to advance to the next statement. Press <N> (no), <ENTER>, <RESET>, or <UP ARROW> to return to statement #220.
250	**[Are You Sure? N]** The display asks if you are sure that the fill cycle is to be aborted. Press <Y> (yes) to abort the fill sequence and return to statement #200. Press <N> (no), <ENTER>, <RESET>, or <UP ARROW> to return to statement #220.

PROGRAM STATEMENT	APPLICATION
260	**[Manual Mode]**
	The display indicates that the AUTO / MANUAL switch is in the MANUAL position, and that the system is now under manual control. The controller will turn off all outputs.
	The ALARM output will be turned on. The ALARM output may be turned off by pressing the SILENCE ALARM key <F11> on the keyboard.
	If a container was in process:
	The container's fill data will be added to the reject totals and a transaction printout will occur (if printer is enabled). When the AUTO / MANUAL switch is restored to the AUTO position, the program will return to statement #200.
	If a container is not in process:
	Press the "PRINT" button on the indicator keypad to initiate a printout.
	When the AUTO / MANUAL switch is restored to the AUTO position, the program will return to statement #200.
270	**[Lance Not Up]**
	The display indicates that the lance is not up. The ALARM output will be turned on. The ALARM output may be turned off by pressing the SILENCE ALARM key <F11> on the keyboard. Press START to cause the lance to be raised. The program will advance to the next statement.
280	**[Raising Lance]**
	The lance is raised to the fully up position. If the lance cannot be raised to the fully up position within the Lance Raise Time (see statement #370) the program will advance to the next statement.
	Once the lance has been raised the program will return to Statement #200.
285	**[Lance Fault]**
	The ALARM output is turned on. This error indicates that the lance did not raise to the full up position with in the seconds entered for 'Raise Time', Statement #370. Press the SILENCE ALARM key <F11> to silence the alarm. Press START to return the program to Statement #280 to have the system try raising the lance again.
	<RESET> returns the program to Statement #220.

PROGRAM STATEMENT	APPLICATION
290	**[ID Not Found]**
	Indicates that an invalid Id was displayed when the operator pressed the START button.
	<UP ARROW> returns the program to Statement #200.
	<RESET> returns the program to Statement #200.
	Press <ENTER> to return the program to Statement #200.
295	**[**Order Complete**]**
	The display indicates that Order Filling is enabled, the present Run ID order has been filled and the START button has been pressed to start filling another drum.
	The ALARM output is on at this time. Press the SILENCE ALARM key <F11> to silence the alarm.
	<RESET> returns the program to Statement #240.

SYSTEM SETUP SEQUENCE

Statements 300 through 499 - General Setup

Statements 600 through 699 - Host Setup

Statements 700 through 899 - Printer Setup

Statements 900 through 999 - Setup Printing

About This Section

The following sections describes the Container Filler Controller System Setup Sequence. It is normally only necessary to enter these modes when initially installing and configuring the system.

GENERAL SETUP SEQUENCE

Statements 300 through 499

About This Section

The following section describes the Container Filler Controller General Setup Sequence. It allows setup of general system parameters such as the supervisor password and system time delays. The operation may be set to the Statement #310 prompt from within the setup sequence by pressing the F2 System Setup function key.

PROGRAM STATEMENT	APPLICATION
300	**[Password?]** Enter the system password and press <ENTER>. A password character must be entered with-in 5 (five) seconds or the program will return to Statement #200. The 5 second timer must be satisfied between each additional character to be entered. If the password entered is correct, the program will advance to Statement #310. If the password is incorrect the program will advance to the next statement. Default - no password setup - this step skipped
305	**[Invalid Password]** This statement will be displayed for 2 seconds. The program will return to Statement #200.
310	**[General Setup? Y]** The display asks if the general setup parameters such as the supervisor password or system time delays are to be set. Press <Y> (yes) or <ENTER> to advance to the next statement. Press <N> (no) to advance to statement #600. Press <UP ARROW> to return to statement #200. Press <RESET> to advance to statement #900.
320	**[New Password? N]** <UP ARROW> returns the program to Statement #310. <RESET> returns the program to Statement #310. Press <Y> (yes) to enter a new system password. The program will advance to the next statement. Press <N> (no) or <ENTER> to leave the system password as is. The program will advance to Statement #330. Default - no password.

PROGRAM STATEMENT	APPLICATION
325	**[Password? XXXXXX]** <UP ARROW> returns the program to Statement #320. <RESET> returns the program to Statement #310. <CLEAR> removes current password, press <ENTER> to advance to the next statement, or enter new password. Enter the new system password and press <ENTER>. The program will advance to the next statement. The Password must be 6 alpha / numeric characters, entering less than 6 characters will lock out the General Setup Sequence. To recover from this lock out, the system must be Cold Started, there-by removing all stored data and other setups. Default - 865336
330	**[Filler No? XX]** <UP ARROW> returns the program to Statement #320. <RESET> returns the program to Statement #310. Enter the Filler Number for this system and press <ENTER> to advance the program to the next statement. The Filler Number may be printed out on drum tickets. The Filler Number is not to be confused with the Host Drop Address number, which is a hardware setup only. Default - 01

PROGRAM STATEMENT	APPLICATION
340	**[Drum Hit Wt? XX]** <UP ARROW> returns the program to Statement #330. <RESET> returns the program to Statement #310. Enter the Drum Hit Detection Weight and press <ENTER> to advance the program to the next statement. When the lance is being lowered into the drum, the controller will use this target weight in determining if the lance has hit the drum. If the weight (not including the empty drum weight) exceeds this value as the lance is being lowered, the lance will reverse and raise to the fully up position and a Drum Hit Fault is displayed. A starting value equivalent to 5 lbs is recommended. If this proves to be too sensitive, increase this value gradually until the lance does not reverse under normal operation. Test the drum hit fault operation by applying a weight greater than the Drum Hit Weight to the scale as the lance is lowering to verify that it reverses direction and raises. A value greater than 25 can not be entered. A value of 0 is not recommended. Default - 5

PROGRAM STATEMENT	APPLICATION
345	**[Flow Delay? XX]** <UP ARROW> returns the program to Statement #340. <RESET> returns the program to Statement #310. Enter the Material Flow Delay Time in seconds and press <ENTER> to advance the program to the next statement. The controller will delay for the amount of time entered prior to performing a test on the material flow rate. This time delay is needed to allow the material flow rate to stabilize to it's normal rate on start of filling. Following this delay the controller will calculate the material flow rate and compare it to the Minimum Flow Rate for the selected Product ID. A MINIMUM FLOW alarm is generated if the fill rate does not exceed this value which may be indicative of a system failure.

CAUTION!

Set this value as low as possible. The flow rate calculation and minimum flow rate verification are an important indication of proper and safe equipment operation.

Default - 1 second.

350	**[Tol. Delay? XX]** <UP ARROW> returns the program to Statement #345. <RESET> returns the program to Statement #310. Enter the Tolerance Check Delay Time in seconds and press <ENTER> to advance the program to the next statement. The controller will delay for the amount of time entered prior to performing a full container tolerance check. This time delay is needed to allow the scale to settle after filling of the container and prior to doing the tolerance check. The default value is 01 second. A value of 0 is not recommended.

PROGRAM STATEMENT	APPLICATION
370	**[Raise Time? XX]** <UP ARROW> returns the program to Statement #350. <RESET> returns the program to Statement #310. Enter the Lance Raise Time in seconds and press <ENTER> to advance the program to the next statement. A Lance Fault alarm will be generated if the lance does not raise within the amount of time entered. At the end of fill cycles the lance must reach full up within this time limit. Also with Sub-Surface systems, when the cutoff weight has been reached, the lance must raise to the In-Drum sensor within this limit. The default value is 20 seconds. A value of 5 or less than 5 is not recommended. Lance Faults will occur, and delays in the filling operation, if set for a value of 5 or less.
372	**[Slow Time 1? X.XX]** <UP ARROW> returns the program to Statement #370. <RESET> returns the program to Statement #310. Enter the Time Value, in seconds, required to allow the two speed valve to go from full closed to it's slow fill position and press <ENTER> to advance to the next statement. A starting value of 0.50 is suggested. A smaller time value will cause the valve to be more closed for slow fill and a larger value more open. The setting of this value will be dependent upon input air pressure, the ball valve seat pressure, and product pressure. Fine tuning of this value allows for control of the material slow fill rate for the first slow fill in a Slow-Fast-Slow fill mode. This value is used for dribble fill re-start, when the filling operation has been halted during the second slow fill of the Slow-Fast-Slow cycle. Default - 0.35 seconds.

PROGRAM STATEMENT	APPLICATION
374	**[Slow Time 2? X.XX]** <UP ARROW> returns the program to Statement #372. <RESET> returns the program to Statement #310. Enter the Time Value, in seconds, required to allow the two speed valve to go from full open (fast fill) to it's slow fill position and press <ENTER> to advance to the next statement. A starting value of 1.00 is suggested. A smaller time value will cause the valve to be more open for slow fill and a larger value more closed. The setting of this value will be dependent upon input air pressure and the ball valve seat pressure. Fine tuning of this value allows for control of the material slow fill rate at dribble (last slow fill). Default - 0.35 seconds.
400	**[Enable ID Entry? N]** The display asks if the variable ID entry feature is to be used. The answer is set to the last response. The Variable ID can be entered by the operator and is stored with each Product ID setup. Press <Y> (yes) to enable Variable ID entry and advance to the next statement. Press <N> (no) to disable Variable ID entry and advance to statement #430. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to the previous statement. Press <RESET> to advance to statement #900. Default - disabled (N)

PROGRAM STATEMENT	APPLICATION
410	**[ID Prompt XXXXXXXX]** Enter the prompt (8 characters A/N maximum) to be used to request the Variable ID when selected from the <F9> Function Key in the normal operation mode. Press <CLEAR> to clear the entry field. Press <ENTER> to complete field entry and advance to the next statement. Press <UP ARROW> to return to the previous statement. Press <RESET> to advance to statement #310.
420	**[ID Length XX]** Enter the number of characters to be entered for the variable ID. Maximum allowable number is 10. Press <CLEAR> to clear the entry field. Press <ENTER> to complete field entry and advance to the next statement. Press <UP ARROW> to return to the previous statement. Press <RESET> to advance to statement #310.
430	**[Enable Consec #? X]** The display asks if the Global Consecutive Number and Product Consecutive Number features are to be used. The answer is set to the last response. Press <Y> (yes) to enable the Global Consecutive Number and Product Consecutive Number features, then advance to the next statement. Press <N> (no) to disable the Global Consecutive Number and Product Consecutive Number features, then advance to Statement #440. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to previous statement. Press <RESET> to advance to statement #310. Default - disabled The 6 digit Product Consecutive Number is accessible by the operator, with the <F8> key, and may be printed with each container, of the selected ID filled. The Product Consecutive Number may be accessed by the Host device.

PROGRAM STATEMENT	APPLICATION
435	**[Globl Cnsec? XXXXXX]** The display shows the next Global Consecutive Number to be assigned to the next container filled. The 6 digit Global Consecutive Number is not accessible by the operator, but may be printed with each container filled. The Global Consecutive Number may be accessed by the Host device. The Global Consecutive Number is incremented, by one, for each container filled, except if the filling process is aborted or if an out of tolerance container is rejected. Press <CLEAR> to change the displayed number to all zeros. Press <UP ARROW> to return to previous statement. Press <RESET> to advance to statement #310. Enter the starting number desired and press <ENTER> to complete the field and advance to the next statement.
440	**[Enable Sum? X]** The display asks if the Accumulated Sum register is to be used. The answer is set to the last response. The 10 digit Accumulated Sum can be accessed, by the key <F10>, and cleared by the operator. The Accumulated Sum may be password protected, see Program Statement #445. The Accumulated Sum is increased, by the container net weight, with each container filled except; if the filling process is aborted or if an out of tolerance container is rejected. The Accumulated Sum is a system variable and is not specific to a particular Product ID. The Accumulated Sum may be used to accumulate production totals for a time period such as a shift, day or week. Press <Y> (yes) to enable the Accumulated Sum and advance to the next statement. Press <N> (no) to disable the Accumulated Sum and advance to the statement #450. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to the previous statement. Press <RESET> to advance to statement #310. Default - disabled

PROGRAM STATEMENT	APPLICATION
445	**[Password Protect? X]** The display asks if clearing of the Accumulated Sum register is to be password protected. The answer is set to the last response. Press <Y> (yes) to enable password protection of clearing of the Accumulated Sum and advance to the next statement. Press <N> (no) to disable password protection and advance to the next statement. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to the previous statement. Press <RESET> to advance to statement #310. Default - No Password Protection
447	**[Enbl Prod Orders? X]** The display asks if Order Filling is to be used. The answer is set to the last response. Press <Y> (yes) to enable Order Filling and advance to the next statement. Press <N> (no) to disable Order Filling and advance to the program to Statement #449. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to the previous statement. Press <RESET> to advance to statement #310. When Order Filling is enabled, the Select Product ID sequence will include Order number entry and number of containers on the order entry. The Container Filler Controller will then keep track of the number of containers filled against the order and will prompt the operator when the order is complete. Default - disabled.

PROGRAM STATEMENT	APPLICATION
448	**[Print Order Tots? X]** The display asks if Order Totals are to be printed after order is completed. The answer is set to the last response. Press <Y> (yes) to enable Order Totals printing and advance to the next statement. Press <N> (no) to disable Order Totals printing and advance to the next statement. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to the previous statement. Press <RESET> to advance to statement #310. If no printer is selected in during printer setup, there will be no output to the printer port. Default - enabled.
449	**[Enable Id Select? X]** The display asks if the keyboard will be used to select the Run ID. The answer is set to the last response. This feature is intended to be used with a Host device. Disable ID Select to prevent operators from selecting or changing the Run ID with the keyboard. Press <Y> (yes) to enable Run ID selection with the keyboard. Press <N> (no) to disable Run ID selection with the keyboard. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to the previous statement. Press <RESET> to advance to statement #310. Default - enabled.

PROGRAM STATEMENT	APPLICATION
450	**[Enable Drum Logs? X]**

The display asks if a Drum Log is to be stored. The answer is set to the last response.

This feature, when enabled, will store up to 490 container transactions. Each transaction stores:

Product ID
Consecutive Number of Product ID
Gross Weight
Tare Weight
Net weight
Drum Status, okay, off tolerance, or rejected
Time
Date
Global Consecutive Number

When the Drum Log is full, additional transactions will be lost. The Drum Log must be cleared, periodically to prevent loss of data.

The Drum Log may be printed and cleared by the operator in the Summary Report mode, key <F6>.

The Drum Log may be up loaded to the Host device, and cleared by the Host device.

Press <Y> (yes) to enable the Drum Log storage and advance the program to the next statement.

Press <N> (no) to disable the Drum Log storage and advance the program to the next statement.

Press <ENTER> to accept the displayed answer and advance the program to the next statement.

Press <UP ARROW> to return to the previous statement.

Press <RESET> to advance to statement #310.

Default - enabled.

PROGRAM STATEMENT	APPLICATION
454	**[Enable Correction?N]** The display asks if Manual Tolerance Correction of containers will be allowed. The answer is set to the last response. Press <Y> (yes) to enable Manual Tolerance Correction and advance the program to the next statement. Press <N> (no) to disable Manual Tolerance Correction and advance the program to the next statement. Press <ENTER> to accept the displayed answer and advance the program to the next statement. Press <UP ARROW> to return to the previous statement. Press <RESET> to return to statement #310. Default is enabled.
458	**[Date? MM/DD/YY]** Enter the date. The date field is numerical, use <SPACE> to separate the month (MM), day (DD), and year (YY). Press <CLEAR> to clear the entry field. Press <ENTER> to complete field entry and advance to the next statement. Press <UP ARROW> to return to the previous statement. Press <RESET> to return to statement #310.
460	**[Time? HH:MM:SS]** Enter the time in 24 hour format. The time field is numerical, use <SPACE> to separate the hours (HH), minutes (MM), and seconds (SS). Press <CLEAR> to clear the entry field. Press <ENTER> to complete field entry and advance the program to Statement #600. Press <UP ARROW> to return to the previous statement. Press <RESET> to return to statement #310.

HOST SETUP SEQUENCE

Statements 600 through 699

About This Section

The following section describes the Container Filler Controller Host Setup Sequence. This allows setup of the Host port.

PROGRAM STATEMENT	APPLICATION
600	**[Host Post Setup? Y]** The display asks if the Host port setup parameters are to be set. Press <Y> (yes) or <ENTER> to advance to the next statement. Press <N> (no) to advance to statement #700. Press <UP ARROW> to return to statement #310. Press <RESET> to advance to statement #900.
610	**[Select Host? X]** The display asks whether a Host device will be used or not. Answer displayed is last response. Press <Y> (yes) to advance to the next statement. Press <N> (no) to advance to statement #700. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to the previous statement. Press <RESET> to return to the previous statement. Default - no host device being used.
625	**[Host Baud Rate XXXX]** Enter the baud rate for the Host port. Allowable settings are 300, 1200, 2400, 4800, or 9600. Press <CLEAR> to clear the entry field. Press <ENTER> to complete field entry and advance to the next statement. Press <UP ARROW> to return the program to Statement #610. Press <RESET> to return the program to statement #600. Default - 4800

PROGRAM STATEMENT	APPLICATION
630	**[Host Data Bits X]** Enter the number of data bits for the Host port. Allowable settings are 7 or 8. Press <CLEAR> to clear the entry field. Press <ENTER> to complete field entry and advance to the next statement. Press <UP ARROW> to return to the previous statement. Press <RESET> to return the program to statement #600. Default - 7 data bits
640	**[Host Parity (EON) X]** Enter the parity setting for the Host port. Answer displayed is the last response. Allowable values are <E> for even parity, <O> for odd parity, or <N> for no parity. Press <E> to set to even parity and advance the program to Statement #700. Press <O> to set to odd parity and advance the program to Statement #700. Press <N> to set to no parity and advance the program to Statement #700. Press <ENTER> to accept the displayed setting and advance the program to Statement #700. Press <UP ARROW> to return to the previous statement. Press <RESET> to return the program to statement #600. Default - even parity enabled.

PRINTER SETUP SEQUENCE

Statements 700 through 899

About This Section

The following section describes the Container Filler Controller Printer Setup Sequence. This allows setup of the printer port as well as setup of the printer output formatting. The defaults are meant to work with a 40 column strip printer, with input baud rate of 300 baud.

PROGRAM STATEMENT	APPLICATION
700	**[Printer Setup? Y]** The display asks if the printer setup parameters are to be set. Press <Y> (yes) or <ENTER> to advance to the next statement. If a printer has been selected to be used (see statement #710), pressing <N> (no) will advance the program to statement #900. If a printer has not been selected to be used (see statement #710), pressing <N> (no) will return the program to Statement #200. Press <UP ARROW> to return to statement #600. Press <RESET> to advance to statement #900.
710	**[Select Printer? X]** The display asks whether a printer is to be used or not. Displayed answer is the last response. Press <Y> (yes) to enable printer and advance to the next statement. Press <N> (no) to disable printer and advance to statement #900. Press <ENTER> to branch according to the displayed answer. Press <UP ARROW> to return to the previous statement. Press <RESET> to return to previous statement. Default - printer disabled

PROGRAM STATEMENT	APPLICATION
722	**[Pntr Baud Rate XXXX]** Enter the baud rate for the printer port. Allowable settings are 300, 1200, 2400, 4800, or 9600. Press <CLEAR> to clear the entry field. Press <ENTER> to complete field entry and advance to the next statement. Press <UP ARROW> to return to the previous statement. Press <RESET> to return program to Statement #700. The Mettler Toledo printer Model 8856 may be run at 1200 baud without loss of data. Default - 300 baud.
730	**[Pntr Data Bits X]** Enter the number of data bits for the printer port. Allowable settings are 7 or 8. Press <CLEAR> to clear the entry field. Press <ENTER> to complete field entry and advance to the next statement. Press <UP ARROW> to return to the previous statement. Press <RESET> to return program to Statement #700. Default - 7 data bits
740	**[Pntr Parity (EON) X]** Enter the parity setting for the printer port. Answer is set to last response. Allowable values are <E> for even parity, <O> for odd parity, or <N> for no parity. Press <E> for even parity, program advances to the next statement. Press <O> for odd parity, program advances to the next statement. Press <N> for no parity, program advances to the next statement. Press <ENTER> to accept displayed answer and advance to the next statement. Press <UP ARROW> to return to the previous statement. Press <RESET> to return the program to Statement #700. Default - even parity enabled

PROGRAM STATEMENT	APPLICATION
770	**[Pntr Net Wt Pos 018]**

A 250 character string buffer is provided for the printer output string transmission. This allows for full customization of the printer output string.

Parameters within this string may be freely formatted. Each parameter to be included in the string is assigned a starting string position number. The starting position may be from 1 to 250, however, to avoid truncation, the starting position plus the parameter string length must not exceed 250.

A starting position of 0 will cause the parameter not to be printed.

The following prompts allow entry of starting positions for each parameter.

The prompts will be skipped for the features not enabled in the general setup.

Starting positions greater than the listed maximum starting position will not be allowed.

The transmission string will be initialized to spaces prior to loading so un-occupied columns will be printed as spaces. The transmission string length will be determined by the greatest ending string position set.

Parameter field overlaps will not be checked.

A block check character may be sent by setting a block check character position other than 0. The block check is a single character that is computed as the XOR of all characters beginning at a specified starting character position and up to but not including the block check character itself. The block check begin prompt will not appear if the block check character position is 0.

PROMPT	FIELD	MAX POS	DESCRIPTION
[Pntr Net Wt Pos 018]*	6	245	Net Weight w/decimal pt.
[Pntr Unit Pos 025]*	2	249	Weight Units (LB/kg)
[Pntr OT Flg Pos 017]*	1	250	Off tolerance Flag (+, -, or R)**
[Pntr Grs Wt Pos 000]	6	245	Gross Weight w/decimal pt.
[Pntr Tar Wt Pos 000]	6	245	Tare Weight w/decimal ppt.
[Pntr Setpnt Pos 000]	6	245	Setpoint Weight
[Pntr Id Pos 006]*	10	241	Product ID
[Pntr ID Pmt Pos 000]	8	243	Variable ID Prompt
[Pntr Var ID Pos 000]	1-10	241-250	Variable ID
[Pntr CnBylID Pos 000]	6	245	Product ID Consecutive number
[Pntr Sum Pos 000]	10	241	Sum of weights w/dp.
[Pnter Order # Pos 000]	1-10	214-250	Production order number
[Pntr Filler Pos 000]	2	249	Filler Number
[Pntr Duplet Pos 056]*	9	242	*** The word “DUPLICATE”
[Pntr Date Pos 042]*	8	243	Date (MM/DD/YY)
[Pntr Time Pos 035]*	5	246	Time (HH/MM)
[Pntr GlblCn Pos 000]	6	245	Global Consecutive Number
[Pntr BC Chr Pos 000]	1	250	Block check character
[Pntr BC Bgn Pos 000}]	1	250	Begin block check

* The settings shown in the prompt column are the cold start default settings. The default settings generate the printout shown in Report Printout Examples Figure 1, Figure 2 shows the setup printout for this default print setup.

** This single character field will be printed in the designated position of the string as a "+" for accepted over tolerance containers, "-" for accepted under tolerance containers, and "R" for rejected off tolerance containers.

*** This 9 character field will print "DUPLICATE" in the designated position of the string if the printout is a duplicate.

Press <CLEAR> to clear the entry field.

Press <ENTER> to complete field entry and advance to the next statement.

Press <RESET> to return program to Statement #700.

PROGRAM STATEMENT	APPLICATION
780	**[New Pntr Literal? N]**

The display asks if the printer literal constants are to be edited.

A literal constant is a character that will be loaded into the print string at a specific location each time the string is printed. In this manner it is possible to load strings of characters, by loading contiguous character positions, or control characters may be loaded for printer control, or to emulate the format required by an existing printer or data device.

Press <Y> (yes) to advance to the next statement.

Press <N> (no) or <ENTER> to advance to statement #900.

Press <UP ARROW> to return to the last prompt of the previous statement.

Press <RESET> to advance to statement #700.

790 **[Clr Prnt Litrls? N]**

The display asks if the printer literal constants are to be cleared. Default literals will not be displayed. The literals must be cleared to change the defaults.

Press <Y> (yes) to advance to the next statement.

Press <N> (no) or <ENTER> to advance to statement #810.

Press <UP ARROW> to return to the previous statement.

Press <RESET> to return program to Statement #700.

Default Literals -

The character `I'	(49H) in position 1.
The character `.'	(2EH) in position 2.
The character `D'	(44H) in position 3.
The character `.'	(2EH) in position 4.
The character `N'	(4EH) in position 29.
The character `E'	(45H) in position 30.
The character `T'	(54H) in position 31.
A carriage return	(0DH) in position 33.
A line feed	(0AH) in position 34.
A carriage return	(0DH) in position 66.
A line feed	(0AH) in position 67.
A line feed	(0AH) in position 68.

800 **[Pntr Literals Clrd]**

The display indicates that all previously entered printer literals have been cleared. After 1.5 seconds the program will advance to the next statement.

PROGRAM STATEMENT	APPLICATION
810	**[Pntr Litrl Pos XXX]** Enter the string position for the desired literal. A position entry greater than 250 will not be accepted. Press <CLEAR> to clear the entry field. Press <ENTER> to complete the field entry and advance to the next statement. Press <UP ARROW> to return to statement #790. Press <ENTER> with a position entry of zero to proceed to Statement #900. Press <RESET> to proceed to Statement #900.
820	**[Pntr Literal Char X]** Enter the desired literal to be inserted into the printer transmission string. See Appendix A for control and special character entry. Press <CLEAR> to clear the entry field. Press <ENTER> to complete the field entry. The literal string position will automatically be incremented and the program will then return to Statement #810. Press <UP ARROW> to return to the previous statement. Press <RESET> to return to Statement #900. There is only one (1) limit on the number of Literals that may be entered; the Printer character string buffer is limited to 250 characters. Re-read program statement #770 to determine the maximum number of Literals that may be entered for your application.

SETUP PARAMETER PRINTOUT SEQUENCE

Statements 900 through 999

About This Section

The following section describes the operator interface which allows printout of the setup parameters. The printer setups must enable a printer to get to this section.

PROGRAM STATEMENT	APPLICATION
900	**[Print Settings? Y]** The display asks if it is desired to cause a print out of the setup parameters. If no printer has been selected in statement #710 the program will skip this section and return to statement #200. Press <Y> (yes) or <ENTER> to advance to the next statement. Press <N> (no) to return to statement #200. Press <UP ARROW> to return to statement #700. Press <RESET> to return to statement #200.
910	**[Printing]** The display indicates that the printer is in the process of printing out the setup parameters. The system parameter setup printout is formatted for a 40 column printer. An example printout is shown in Report Printouts Examples, Figure 2. Upon completion the program will return to statement #200.

SETUP PRODUCT ID'S SEQUENCE

Statements 1000 through 1199

About This Section

The following section describes the operator interface which allows setup of the parameters associated with each of the 100 possible Product ID's. These parameters are ID specific such as fill setpoint, fill tolerance, and minimum material flow rate. The 9127 software will perform certain checks when ever the user exits critical entries of the Product Id setup. If an invalid entry is made to a critical entry and the user tries to exit the routine with the <RESET> key, the program will display [ID Setup Error!] for 2 seconds and return to Statement #1010.

PROGRAM STATEMENT	APPLICATION
1000	**[Password?]** If no system password has been entered in General Setup, the program will advance to Statement #1010, without displaying this prompt. Enter the system password and press <ENTER>. If the password entered is correct, the program will advance to Statement #1010. If the password is incorrect the program will advance to the next statement. A password character must be entered with-in 5 (five) seconds or the program will return to Statement #200. The 5 second timer must be satisfied between each additional character to be entered.
1005	**[Invalid Password]** This statement will be displayed for 2 seconds. The program will return to Statement #200.

PROGRAM STATEMENT	APPLICATION
1010	[**Prod. ID?XXXXXXXXXX]** <UP ARROW> returns the program to Statement #200. <RESET> returns the program to Statement #200. Press <CLEAR> to clear the entry field. Enter the product ID to be added or modified and press <ENTER>. If the ID already exists the program will advance to Statement #1030. If the ID entered is a new ID and 100 ID's already exist in memory the program will advance to Statement #1020. Otherwise the program will advance to Statement #1060.
1020	**[ID Table Full]** <RESET> returns the program to Statement #200. Press <ENTER> to return the program to Statement #1010. The program will only store 100 Product Id's.
1030	**[(C)opy (D)el (E)dit]** <UP ARROW> returns the program to Statement #1010. <RESET> returns the program to Statement #200. Press <C> to copy the information from the selected ID to a new Product ID. The program will then proceed to Statement #1031. Press <D> to delete the selected ID. If Order Filling is enabled, this is the Run ID, and the order has not been filled the program will advance to Statement #1032. If Order Filling is disabled and this ID has accumulated production totals, the program will advance to Statement #1040. The program will advance to Statement #1050 if there are no accumulated totals for this ID. Press <E> to edit the selected ID. If Order Filling is enabled and this is the Run ID, the program will advance to Statement #1059. If Order Filling is disabled the program will advance to Statement #1060.

PROGRAM STATEMENT	APPLICATION
1031	**[New ID? XXXXXXXXXX]** <UP ARROW> returns the program to Statement #200. <RESET> returns the program to Statement #200. Enter the new Product ID and press <ENTER>. If the ID entered already exists the program will display "ID ALREADY EXISTS!" for 2 seconds and then return to Statement #1031. If the ID entered is a new ID the program will then proceed to Statement #1060.
1032	**[Order Not Complete!]** The display indicates that the current Run ID, with order filling, has not been completed. <UP ARROW> returns the program to Statement #1030. <RESET> returns the program to Statement #200. <ENTER> returns the program to Statement #200. To delete this ID, the operator must return to the ID Select mode. Then change the order quantity to the number of containers filled, this way the order will be complete.
1040	**[Totals Exist]** <UP ARROW> returns the program to Statement #1030. <RESET> returns the program to Statement #200. Press <ENTER> to advance to the next Statement.
1050	**[Are You Sure? N]** <UP ARROW> returns the program to Statement #1030. <RESET> returns the program to Statement #200. Press <Y> (yes) to have this ID deleted from memory. The program will advance to the next statement. Press <N> (no) or <ENTER> to leave this ID in memory. The program will advance to Statement #1059.
1055	**[ID Deleted]** This prompt is displayed for 2 seconds and the program will then return to Statement #1010.

NOTE: If this ID is deleted, the product totals will also be deleted.

PROGRAM STATEMENT	APPLICATION
1059	**[Setpoint XXXXXX]** The display shows the setpoint value for the current Run ID, Order Filling is enabled, and the ID has been used to start an order. The Setpoint value can not be changed, only the other values associated with this ID can be changed. If the scale is calibrated with a decimal point position (Example: XXXX.X), one of the six displayed characters will be the decimal point. <RESET> returns the program to Statement #1010. <UP ARROW> returns the program to Statement #1010. Press <ENTER> to advance the program to Statement #1070.
1060	**[Calc Setpoint? N]** The display asks if the Setpoint is to be calculated using density times the volume to be filled. Press <ENTER> to advance the program to statement #1068. Press <Y> (yes) to advance the program to the next statement. Press <N> (no) to advance the program to statement #1068. <UP ARROW> returns the program to Statement #1010. <RESET> returns the program to Statement #1010.
1061	**[Density X.XXXX]** Enter the material density, units are grams per milliliter. The specific gravity of the material may also be used. <UP ARROW> returns the program to the previous Statement. <RESET> returns the program to Statement #1010. Press <CLEAR> to clear the field entry. If the scale has been calibrated in the pounds mode, pressing <ENTER> will advance the program to the next statement. If the scale has been calibrated in the kilograms mode, pressing <ENTER> will advance the program to Statement #1063.

PROGRAM STATEMENT	APPLICATION
1062	**[Gallons XXX.X]** Enter the number of gallons (U.S.) to be filled into the container. <UP ARROW> returns the program to the previous Statement. <RESET> returns the program to Statement #1010. Press <CLEAR> to clear the field entry. Press <ENTER> to complete the entry and advance the program to Statement #1068. The Setpoint will be calculated by the following formula: (Density X Gallons) X 8.328 = Setpoint The figure, 8.328, is equal to the weight of one gallon of pure water at 60 degrees F..
1063	**[Liters XXX.X]** Enter the number of liters to be filled into the container. <UP ARROW> returns the program to the previous Statement. <RESET> returns the program to Statement #1010. Press <CLEAR> to clear the field entry. Press <ENTER> to complete the entry and advance the program to Statement #1068. The Setpoint will be calculated by the following formula: Density X Liters = Setpoint

PROGRAM STATEMENT	APPLICATION
1068	**[Setpoint? XXXXXX]**

If Calc Setpoint was used, the display will show the calculated value. The user may change the displayed value or pressing <ENTER> will advance the program to the next statement.

If Calc Setpoint was not used, enter the Setpoint weight (target weight) for this product ID. Pressing <ENTER> will advance the program to the next statement.

<UP ARROW> returns the program to Statement #1060.

<RESET> returns the program to Statement #1010.

Press <CLEAR> to clear the field entry.

! WARNING

THE SETPOINT WEIGHT IS DETERMINED BY THE DESIRED NET WEIGHT OF PRODUCT IN THE CONTAINER, HOWEVER, CARE MUST BE TAKEN THAT THE ENTERED VALUE DOES NOT EXCEED THE CAPACITY OF THE CONTAINER. FAILURE TO OBSERVE THIS PRECAUTION COULD RESULT IN OVER FILLING THE CONTAINER AND SPILLAGE OF THE MATERIAL. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN BODILY INJURY.

I
f the scale is calibrated with a decimal point position (Example: XXXX.X), one of the six displayed characters will be the decimal point.

PROGRAM STATEMENT	APPLICATION
1070	**[Dribble? XXXXX]**

<UP ARROW> returns the program to the statement that preceded.

<RESET> returns the program to Statement #1010.

Press <CLEAR> to clear the field entry.

Enter the Dribble value and press <ENTER> to advance the program to the next statement.

The Dribble value is used to switch from fast fill to slow fill.

The fast fill output stays on until the scale reaches a value of SETPOINT minus PREACT minus DRIBBLE, at which time the fast fill is turned off.

The dribble value should be optimized to give repeatable cutoff and minimum total fill cycle time. A value of 25 or greater is recommended, to allow material velocity to slow down before cutoff. Slowing down the material flow velocity will reduce the chances of pump seals being damaged.

If the scale is calibrated with a decimal point position (Example: XXX.X), one of the five displayed characters will be the decimal point.

PROGRAM STATEMENT	APPLICATION
1080	**[Preact? XXXXX]**

NOTE: The accuracy of weighment is further refined by automatic adjustment of the preact value based on previous weighments if the Auto Preact Adjust feature has been selected IN (refer to statement number 1085). The dribble point is relative to the preact point to allow repeatable cutoff.

<UP ARROW> returns the program to Statement #1070.

<RESET> returns the program to Statement #1010.

Press <CLEAR> to clear the field entry.

Enter the Preact value and press <ENTER> to advance the program to the next statement.

The preact is the allocation for material flow after fill valves have been closed.

Fill valves close at SETPOINT minus PREACT.

The PREACT value plus the DRIBBLE value must be less than the SETPOINT value.

Example of SETPOINT, DRIBBLE, and PREACT relationship.

If Setpoint = 100.0, Dribble = 20.0, and Preact = 2.0 the control would switch from fast to slow fill at 78.0 and final cutoff would be at 98.0.

If the scale is calibrated with a decimal point position (Example: XXX.X), one of the five displayed characters will be the decimal point.

1085 **[Auto Preact Fac? XX]**

NOTE: The Auto Preact Adjust Factor may calculate a negative Preact value to compensate for an error condition. If the Preact value is ever a negative value, the Drumfilling System should be modified to correct for this error condition. This condition would occur if the container weight reached the Cutoff point but the final weight after the tolerance check is a great amount less than the Setpoint. The amount of negative Preact is limited to 1% of the Setpoint value.

Enter Auto Preact Adjust factor in percent of error correction. Error equals Setpoint, plus or minus Actual weight delivered. The result, times the entered adjustment factor, will be added to or subtracted from the current Preact value.
<UP ARROW> returns the program to Statement #1080.
<RESET> returns the program to Statement #1010.
Press <CLEAR> to clear the field entry.
Enter the Auto Preact Adjust Factor value and press <ENTER> to advance the program to the next statement.
An entry of 00 will disable the Auto Preact Adjust.
Example of Auto Preact Adjust Factor:
If Setpoint = 100.0 , Preact = 2.00 and Auto Preact Factor = 30.
If actual weight delivered = 98.0 , therefore Error = 2.0.
Auto Preact Adjust will change the Preact value by subtracting 30% of 2.0 from the current Preact value. In this example the correction factor result will be 0.6 and the Preact value will be changed from 2.0 to 1.4 .
Default is 40.

PROGRAM STATEMENT	APPLICATION
1090	**[Min Empty Wt? XXXXX]**

<UP ARROW> returns the program to Statement #1085.

<RESET> returns the program to Statement #1010.

Press <CLEAR> to clear the field entry.

Enter the Minimum Weight of an empty container and press <ENTER>. A value of 1 or less will not be accepted.

If the Controller is configured for single container filling the program will advance to the next statement (refer to statement number 120).

If the Controller is configured for multiple container filling the program will advance to Statement #1110 (refer to statement number 120).

CAUTION!

This value is used as a check prior to starting to fill a container. It is important to enter a value that is just under the actual empty container weight to inhibit filling without a container on the scale. An alarm is generated if the scale weight is less than this value at zero tolerance check. Refer to statement #2020.

If the scale is calibrated with a decimal point position (Example: XXX.X), one of the five displayed characters will be the decimal point.

PROGRAM STATEMENT **APPLICATION**

1100 **[Max Empty Wt? XXXX] (Single drums only)**

<UP ARROW> returns the program to Statement #1090.

<RESET> returns the program to Statement #1010.

Press <CLEAR> to clear the field entry.

Enter the Maximum Weight of an empty container and press <ENTER> to advance the program to the next statement. A value less than the Minimum Drum Weight will not be accepted.

CAUTION!

This value is used as a check prior to starting to fill container. It is important to enter a value that is just above the actual empty container weight to inhibit filling a container that is partially filled. An alarm is generated if the scale weight is greater than this value at zero tolerance check. Refer to statement #2020.

If the scales is calibrated with a decimal point position (Exmple: XX.X), one of the four displayed characters will be the decimal point.

1110 **[Full Tolerance? XXXX]**

<UP ARROW> returns the program to Statement # 1090 or #1100 dependent upon the controller configuration as single or multiple container.

<RESET> returns the program to Statement #1010.

Press <CLEAR> to clear the field entry.

Enter the Full Tolerance value, in weight units, and press <ENTER> to advance the program to the next statement. A value of 0 will disable Tolerance checking.

The Full Tolerance value is the amount of weight less than or greater than SETPOINT that is allowable on a filled container before an OFF TOLERANCE alarm is generated.

If the scale is calibrated with a decimal point position (Example: XX.X), one of the four displayed characters will be the decimal point.

PROGRAM STATEMENT	APPLICATION

1120 **[Cycle Time? XXX]**

NOTE: A value of Zero will disable this feature.

<UP ARROW> returns the program to Statement #1110.

<RESET> returns the program to Statement #1010.

Press <CLEAR> to clear the field entry.

Enter the Cycle Time in seconds and press <ENTER>.

If the Controller is configured for Sub-Surface filling the program will advance to Statement #1130.

If the Controller is configured Surface filling the program will advance to Statement #1140.

CAUTION!

This value is used to determine that the total container filling cycle time is shorter than a maximum expected cycle time. It is important to enter a value that is just longer than the theoretical maximum time calculated from the container volume and the material flow rate. A CYCLE SLOW alarm is generated if the fill cycle exceeds this value which may be indicative of a system failure.

Default is 90.

1130 **[Slow/Fast/Slow? Y]**

<UP ARROW> returns the program to Statement #1120.

<RESET> returns the program to Statement #1010.

Press <Y> (yes) or <ENTER> if the fill cycle should be SLOW-FAST-SLOW. The program will advance to Statement #1150.

Press <N> (no) if the fill cycle should be FAST-SLOW. The program will advance to the next statement.

A SLOW-FAST-SLOW cycle is often used with sub-surface container fillers to delay fast fill to minimize foaming until the material covers the lance. May also be used to fill small containers, slow fill only.

1140 **[Fast/Slow? Y]**

<UP ARROW> returns the program to Statement #1120.

<RESET> returns the program to Statement #1010.

Press <Y> (yes) or <ENTER> if the fill cycle should be FAST-SLOW. The program will advance statement #1160.

Press <N> (no) if the fill cycle should be SLOW-FAST-SLOW. The program will return to Statement #1130.

PROGRAM STATEMENT	APPLICATION
1150	**[Slw Fill Wt? XXXXXX]** <UP ARROW> returns the program to Statement #1130. <RESET> returns the program to Statement #1010. Press <CLEAR> to clear the field entry. Enter the Slow Fill Weight and press <ENTER> to advance the program to the next statement. The Container Filler Controller will switch from Slow Fill to Fast Fill when the scale reaches the Slow Fill Weight. A value greater than setpoint is not allowed. If the scale is calibrated with a decimal point position (Example: XXXX.X), one of the six displayed characters will be the decimal point. If a value is entered equal to Setpoint, the container will be slow filled to a scale weight reading of Setpoint minus Preact. This is useful when filling small containers with a multiple size lance

PROGRAM STATEMENT **APPLICATION**

1160 **[Min Flw Rate? XXXXX]**

The "Minimum Flow Rate" is entered in scale units per minute. The software in the 9127 Controller divides this value by 60 and the Flow Rate is then checked every second.

<UP ARROW> returns the program to Statement #1150 if fill is slow - fast - slow, if fill is fast - slow program will return to Statement #1140.

<RESET> returns the program to Statement #1010.

Press <CLEAR> to clear the field entry.

Enter the Minimum Flow Rate in scale units per minute and press <ENTER>.

If the Controller configuration is set for surface fill, and single container the program will return to Statement #1010 (refer to statement #110).

If the Controller configuration is set for surface fill, and multiple container the program will advance to Statement #1170 (refer to statements #110 and #120).

If the Controller configuration is set for sub-surface fill the program will advance to the next statement (refer to statement #110).

CAUTION!

This value is used to check that the rate of change of weight is greater than the anticipated minimum flow rate of the material. It is important to enter a value that is approximately 10% less than the normal minimum material slow fill flow rate. The controller will check the weight at 1 second intervals. A MINIMUM FLOW alarm is generated if the fill rate does not exceed this value which may be indicative of a system failure.

Default is 1 scale unit.

CAUTION!

If the “Minimum Flow Rate” feature is totally disabled, the 9127 controller will not be able to detect container leakage.

Example of calculation of Minimum Flow Rate value:

The product being filled is water and the normal slow fill flow rate of the water is demonstrated to be 20 gallons per minute. Multiply 20 GPM x 8.34 lbs (weight per gallon of water) to calculate the flow rate to be 166.8 lbs per minute. 166.8 x .9 = 150.12 pounds per minute should be used for the minimum flow rate. Any rate less than that will cause feed valves to close and an alarm to appear.

If the scale is calibrated with a decimal point position (Example: XXXX.X), one of the six displayed characters will be the decimal point.

PROGRAM STATEMENT	APPLICATION
1165	**[Raise Duty Cycl? XX] (Sub-Surface only)** During fast fill, the lance will rise, this variable will help control how fast the lance will rise. The entered value is the percentage of ON time during one (1) second. A value entered of 60 means, the raise output will be on for .6 seconds and off for .4 seconds. The longer the raise lance output is on, the faster the rise rate. The larger the entered value the faster the lance will rise. <UP ARROW> returns the program to Statement #1160. <RESET> returns the program to Statement #1010. Press <CLEAR> to clear the field entry. Enter the ON time duty cycle percentage for the raise output and press <ENTER>. A value of 0 will disable raising the lance during a slow-fast-slow fill cycle. If the Controller configuration is set for multiple containers the program will advance to the next statement (refer to statement #120). If the Controller configuration is set for single container the program will return to Statement #1010 (refer to statement #120). Default value is 20.
1170	**[Max No. of Drums?XX]** Enter the Maximum number of containers per pallet and press <ENTER> to return the program to Statement #1010. A number greater than this value will not be allowed to be entered during Select Product ID. <UP ARROW> returns the program to Statement #1165. <RESET> returns the program to Statement #1010. A number greater than 25 will not be accepted. The default value is 1.

PROGRAM STATEMENT	APPLICATION
1180	**[ID Setup Error!]** Display indicates an error was found with an entry and the <RESET> key was used to exit the Product Id setup routine. This display will last for 2 seconds, then the program will return to Statement #1010. Errors are: Dribble greater than Setpoint. Minimum Empty Drum Weight is equal or less than 1. Maximum Empty Drum Weight is less than Minimum Empty Drum Weight. Slow Fill Weight is greater than Setpoint. Maximum Drums is equal or less than 0.

TEST MODE SEQUENCE

Statements 1200 through 1399

About This Section

The following section describes the operator interface which allows initiation of system self test and for exercising the equipment in test mode. All outputs are turned off when the Test Mode is entered.

PROGRAM STATEMENT	APPLICATION
1200	**[Test Mode]** <UP ARROW> returns the program to Statement #200. <RESET> returns the program to Statement #200. Press <ENTER> to advance the program. If a system password is enabled the program will advance to the next statement. If there is no system password the program will advance to Statement #1230.
1210	**[Password?]** <UP ARROW> returns the program to Statement #1200. <Reset> returns the program to Statement #200. A password character must be entered with-in 5 (five) seconds or the program will return to Statement #200. The 5 second timer must be satisfied between each additional character to be entered. Enter the system password and press <ENTER>. If the password entered is correct, the program will advance to Statement #1230. If the password is incorrect the program will advance to the next statement.
1220	**[Invalid Password]** This statement will be displayed for 2 seconds. The program will return to Statement #1210.

PROGRAM STATEMENT	APPLICATION
1230	**[ROM Test? Y]** <UP ARROW> returns the program to Statement #1200. <Reset> returns the program to Statement #200. Press <Y> (yes) or <ENTER> to have the controller perform the ROM checksum test. The program will advance to the next statement. Press <NO> to skip this test. The program will advance to Statement #1250.
1235	**[Testing]** A ROM checksum is calculated and compared to a known value. If the calculation is correct the program will advance to Statement #1245. If the calculation is not correct the program will advance to the next Statement.
1240	**[Test Failed XX]** The display shows the expected value of the checksum 'XX'. Display of this message indicates a system hardware failure. Operation will halt at this statement and the controller cannot be operated. Contact METTLER TOLEDO Service.
1245	**[Test Passed]** <UP ARROW> returns the program to Statement #1230. <Reset> returns the program to Statement #200. Press <ENTER> to advance the program to the next statement.
1250	**[RAM Test? Y]** <UP ARROW> returns the program to Statement #1230. <Reset> returns the program to Statement #200. Press <Y> (yes) or <ENTER> to have the controller perform the RAM test. The program will advance to the next statement. Press <N> (no) to skip this test. The program will advance to Statement #1270.

PROGRAM STATEMENT	APPLICATION
1255	**[Testing]** A RAM test is performed, where every byte of RAM is checked. If the RAM is good the program will advance to Statement #1265. If a bad RAM location is found the program will advance to the next statement.
1260	**[Test Failed]** Display of this message indicates a system hardware failure. Operation will halt at this statement and the controller cannot be operated. Contact METTLER TOLEDO Service.
1265	**[Test Passed]** <UP ARROW> returns the program to Statement #1250. <Reset> returns the program to Statement #200. Press <ENTER> to advance the program to the next statement.
1270	**[Scale Test? Y]** <UP ARROW> returns the program to Statement #1250. <Reset> returns the program to Statement #200. Press <Y> (yes) or <ENTER> to have the scale test performed. If a scale fault occurs the program will advance to the next statement. If the scale is read properly the program will advance to statement #1280. Press <N> (no) or <ENTER> to skip this test. The program will advance to Statement #1290.
1275	**[Scale Fault]** No data, invalid data, or checksum error was received from the indicator. If after several attempts the scale cannot be read, contact METTLER TOLEDO Service. <UP ARROW> returns the program to Statement #1270. <Reset> returns the program to Statement #200. Press <ENTER> to advance the program to Statement #1286.

PROGRAM STATEMENT	APPLICATION
1280	**[Scale Wt. XXXXXX]** <UP ARROW> returns the program to Statement #1270. <Reset> returns the program to Statement #200. The display will show the scale weight. It is updated if the weight changes. Press <ENTER> to advance the program to the Statement #1286. If the scale goes over capacity, the program will advance to the next statement.
1285	**[Scale Over Cap]** <UP ARROW> returns the program to Statement #1270. <Reset> returns the program to Statement #200. Press <ENTER> to advance the program to the next statement.
1286	**[Printer Test? Y]** <UP ARROW> returns the program to Statement #1270. <Reset> returns the program to Statement #200. Press <Y> (yes) or <ENTER> to have the controller perform the printer test. The program will advance to the next statement. Press <N> (no) to skip this test. The program will advance to Statement #1290.
1287	**[Printing]** This message will be displayed for a short period of time while the controller outputs the print string programmed in setup statements #770 through #830. The system will then advance to the next statement.
1290	**[Test Inputs? Y]** <UP ARROW> returns the program to Statement #1286 if the printer is enabled or to #1270. <Reset> returns the program to Statement #200. Press <Y> (yes) or <ENTER> to test the inputs. The program will advance to the next statement. Press <N> (no) to skip this test. The program will advance to Statement #1310.

PROGRAM STATEMENT	APPLICATION

1295 **[Input Number? XX]**

<UP ARROW> returns the program to Statement #1290.

<Reset> returns the program to Statement #200.

Enter the corresponding input number, as listed below, for the input to be tested and press <ENTER>. The program will advance to the next statement.

To exit this test press <CLEAR> then <ENTER>. The program will advance to Statement #1310.

Input test number assignments.

NOTE: The control power must be turned on for the controller to read these inputs.

NUMBER	INPUT
01	CONTROL POWER ON
02	AUTO/MANUAL
03	START
04	STOP
05	LANCE UP
06	LANCE DOWN
07	LANCE IN DRUM (Subsurface Only)
08	LANCE OUT OF DRUM (Subsurface Only)

1300 **[Input XX ON]**

or

[Input XX OFF]

<UP ARROW> returns the program to Statement #1290.

<Reset> returns the program to Statement #200.

The display will show which state the input entered 'XX' is in (ON or OFF).

Press <ENTER> to return the program to Statement #1295.

1310 **[Test Outputs? Y]**

<UP ARROW> returns the program to Statement #1290.

<Reset> returns the program to Statement #200.

Press <Y> (yes) or <ENTER> to test the outputs. ALL OUTPUTS WILL BE TURNED OFF and the program will advance to the next statement.

Press <N> (no) to skip this test. The program will return to Statement #1200.

! DANGER

EXECUTION OF THE OUTPUT TEST WILL CAUSE THE STATE OF THE OUTPUTS TO CHANGE, WHICH IN TURN WILL CAUSE MACHINE OPERATION. IT IS EXTREMELY IMPORTANT TO FULLY UNDERSTAND THE CONSEQUENCE OF TURNING 'ON' OR 'OFF' A PARTICULAR OUTPUT. YOU MUST TAKE PROPER SAFETY PRECAUTIONS TO MAKE SURE THAT THIS ACTION WILL NOT RESULT IN AN UNSAFE CONDITION SUCH AS AN OPEN OPEN MATERIAL VALVE OR LOWERING THE LANCE. IN SOME SYSTEMS THE DRUMFILLER CONTROLLER OUTPUTS MAY BE WIRED TO OTHER CONTROLLERS FOR THE PURPOSE OF CONTROLLING MACHINERY OTHER THAN THE DRUMFILLER LANCE. FAILURE TO OBSERVE THIS PRECAUTION MAY RESULT IN BODILY INJURY.

PROGRAM STATEMENT **APPLICATION**

1315 **[Output Number? XX]**

<UP ARROW> returns the program to Statement #1310.

<Reset> returns the program to Statement #200.

Enter the corresponding output number (given on the next page) for the output to be tested and press <ENTER>. The program will advance to the next statement.

To exit this test press <CLEAR> then <ENTER>. The program will return to Statement #1200.

NUMBER	OUTPUT	WARNING - WILL CAUSE THIS ACTION
01	ALARM	TURNS ON THE ALARM LIGHT/HORN
02	FOOT VALVE	OPENS LANCE FOOT VALVE
03	FILL FAST	OPENS MATERIAL DELIVERY VALVE
04	FILL SLOW	ACTIVATES SLOW FILL SOLENOID
05	LOWER LANCE	CAUSES LANCE MOVEMENT - DOWN
06	RAISE LANCE SLOW	CAUSES LANCE MOVEMENT - UP
07	RAISE LANCE FAST	CAUSES LANCE MOVEMENT - UP
08	DRUM COMPLETE	TURNS ON DRUM COMPLETE OUTPUT

PROGRAM STATEMENT	APPLICATION
1320	**[Output XX ON]**

NOTE: The control power must be turned on and applied to the outputs and the "AUTO/MANUAL" switch must be in the "AUTO" position to turn on outputs.

<Reset> returns the program to Statement #200.

Press and hold the START push-button to have this output turned ON and release the START push-button to turn this output OFF.

<Enter> returns the program to Statement #1315.

SELECT PRODUCT ID SEQUENCE

Statements 1400 through 1499

About This Section

The following section describes the operator interface which allows the operator to select and recall the setup record for a particular Product ID record, selection of the number of containers on a pallet for multiple container lances, and also allows for Order Number and quantity, if Order Filling is enabled.

If the ID Select has been disabled in General Setup, this section will not be accessible to the operator.

PROGRAM STATEMENT	APPLICATION
1400	**[ID? XXXXXXXXXX]**

The Display shows the current Run ID, if there is one. Pressing the 'Up Arrow' key will display the next Product ID in the ID Table. If there is no current Run ID, the first Product ID in the ID Table will be displayed. Press the 'Enter' key to accept the displayed Product ID as the next Run ID.

<UP ARROW> Displays the next ID in the ID Table.

<ENTER> Accepts the currently displayed Product ID and the program advances.

<Reset> returns the program to Statement #200.

Press <CLEAR> to clear the field entry.

- If the Run ID is changed from an ID that had not finished filling an Order the program will advance to Statement #1480.

- If the ID entered is not stored in memory the program will advance to Statement #1420.

- If setup for single containers and Order Filling is enabled, the program will advance to Statement #1440.

- If setup for single containers and Order Filling is disabled, the program will return to Statement #200.

-If setup for multiple containers the program will advance to Statement #1430.

PROGRAM STATEMENT	APPLICATION
1420	**[ID Not Found]**
	<UP ARROW> returns the program to Statement #1400.
	<Reset> returns the program to Statement #200.
	Press <ENTER> to return the program to Statement #1400.
1430	**[Number of Drums? XX]**
	This prompt will appear if the system is setup for multiple containers.
	Press <CLEAR> to clear the field entry.
	Enter the number of containers on the pallet, and press <ENTER> or just press <ENTER> to leave the number as is. The number will default to the MAX NUMBER OF DRUMS entered in the I.D. setup.
	If Order Filling is enabled the program will advance to the next statement.
	If Order Filling is disabled the program will return to Statement #200.
	<UP ARROW> returns the program to Statement #1400.
	<Reset> returns the program to Statement #200.
1440	**[Order No. XXXXXXXXX]**
	This prompt will appear if Production Order Filling was enabled in General Setup.
	Press <CLEAR> to clear the field entry.
	Enter the order number to be used with the Run ID, and press <ENTER> or just press <ENTER> to leave the order number as is.
	If this is a new Order Number or an incomplete Order Number the program will advance to the next statement.
	If the Order Number entered is complete the program will advance to Statement #1475.
	<UP ARROW> returns the program to Statement #1430, for multiple container setup or no effect for single container setup.
	<Reset> returns the program to Statement #200.

PROGRAM STATEMENT	APPLICATION
1450	**[# Drums Ordered XXX]** Enter the number of containers to be filled on this Order, used with the Run ID, and press <ENTER> or just press <ENTER> to leave the number of containers as is. Press <CLEAR> to clear the field entry. The entry of zero (0) containers to fill will disable order filling for the current Run ID, and the program will return to Statement #200. If this is a new Order Number or the same Order Number that has not been started, the program will advance to the next statement. If the same Order Number that has been started, and the number of containers ordered was increased, the program will advance to the next statement. If this is the same Order Number that has been started, and the number of containers ordered has been changed to equal to the number of containers filled the program will advance to Statement #1480. <UP ARROW> returns the program to Statement #1440. <Reset> returns the program to Statement #200. The program will not allow the number of containers to equal less than the number of containers filled on an order that has been started.
1460	**[#Drums Complete XXX]** The display shows the number of containers completed, for the entered Order Number. <UP ARROW> returns the program to Statement #1450. <Reset> returns the program to Statement #200. Press <ENTER> to advance program to the next statement.
1470	**[Order Tot XXXXXX]** The display shows the total net weight filled, for the entered Order Number. <UP ARROW> returns the program to Statement #1460. <Reset> returns the program to Statement #200. Press <ENTER> to return the program to Statement #200.

PROGRAM STATEMENT	APPLICATION
1475	**[Add to Order?]**
	The display asks if the Order Number is to have the number of containers increased or not.
	Press <Y> (yes) or <ENTER> to increase the number of containers to be filled. The program will return to Statement #1450.
	Press <N> to have the container quantity, container count and filled net weight cleared for this order. The program will advance to Statement #1450.
	<UP ARROW> returns the program to Statement #1440.
	<Reset> returns the program to Statement #200.
	Default answer is yes.
1480	**[End Ord? XXXXXXXXXX]**
	The display asks if the current order is to be ended.
	<UP ARROW> returns the program to Statement #1410.
	<Reset> returns the program to Statement #200.
	Press <N> (no) or <ENTER> to not end the current Order, the program will return to Statement #1400.
	Press <Y> (yes) to end the current Order. The program will advance to the next statement.
1485	**[Are You Sure? N]**
	Press <N> (no) or <ENTER> to not end the current Order, the program will return to Statement #1400.
	Press <Y> (yes) to end the current Order. Order Totals will print if enabled. The program will advance to the next statement.
	<UP ARROW> returns the program to Statement #1415.
	<Reset> returns the program to Statement #200.

CONSECUTIVE NUMBER SELECT SEQUENCE

Statements 1500 through 1599

About This Section

The following section describes the operator interface which allows the operator to recall and edit the consecutive number for the selected Product ID. Consecutive numbering must be enabled in system setup (refer to statement #430). The consecutive number may be printed and is typically used as a container serial number in a lot of material.

This section uses the current Run ID, if no ID is selected the display will show **[ID Not Found]**, then the program will return to Statement #200.

PROGRAM STATEMENT	APPLICATION
1500	**[Consec No? XXXXXX]**
	If the consecutive number has not been enabled, the prompt will not be displayed and the program will return to Statement #200.
	<UP ARROW> returns the program to Statement #200.
	<Reset> returns the program to Statement #200.
	Press <CLEAR> to clear the entry field.
	Enter a new consecutive number for this product ID and press <ENTER> or just press <ENTER> to leave the consecutive number as is. The program will return to Statement #200.
	This field will always default to 1 (one) if an entry of 0 (zero) is ever entered.

VARIABLE ID SELECT SEQUENCE

Statements 1600 through 1699

About This Section

The following section describes the operator interface which allows the operator to recall and edit the Variable ID for the selected Product ID. Variable ID must be enabled in system setup (refer to statement #400). The Variable ID may be printed and is typically used as a lot number.

This section uses the current Run ID, if no ID is selected the display will show **[ID Not Found]**, then the program will return to Statement #200.

PROGRAM STATEMENT	APPLICATION
1600	**[PPPPPPPP XXXXXXXXXX]**

If the variable ID has not been enabled, the prompt will not be displayed and the program will return to Statement #200.

The display prompts the operator to enter the variable ID. The prompt and the length of the ID is set in Setup mode.

Press <CLEAR> to clear the entry field.

Enter a new variable ID and press <ENTER> or just press <ENTER> to leave the variable ID as is. The program will return to Statement #200.

<UP ARROW> returns the program to Statement #200.

<Reset> returns the program to Statement #200.

PPPPPPPP = prompt entered in General Setup.

ACCUMULATED WEIGHT SELECT SEQUENCE

Statements 1700 through 1799

About This Section

The following section describes the operator interface which allows the operator to recall and edit the Accumulated Sum for the selected Product ID. Sum operation must be enabled in system setup (refer to statement #440). The Sum may be printed and is typically used as an accumulator for a lot, shift, day, week, or a pallet of containers. The accumulator may be cleared to zero and this action can be protected by the password if additional security is required.

PROGRAM STATEMENT	APPLICATION
1700	**[Sum XXXXXXXXXX]** The display indicates the sum of the product weights processed since the value was last cleared. If the sum feature has not been enabled, the prompt will not be displayed and the program will return to Statement #200. <UP ARROW> returns the program to Statement #200. <Reset> returns the program to Statement #200. <Clear> will clear the accumulator to zero or advance to the next statement if password protection of the clear was enabled in statement #445.
1710	**[Password?]** <UP ARROW> returns the program to Statement #1700. <Reset> returns the program to Statement #200. Enter the system password and press <ENTER>. If the password entered is correct, the program will clear the accumulator and return to statement #1700. If the password is incorrect the program will advance to the next statement.
1720	**[Invalid Password]** This statement will be displayed for 2 seconds. The program will return to Statement #1700.

AUTOMATIC CONTAINER FILLING SEQUENCE

Statements 2000 through 2999

About This Section

The following section describes the operator interface which allows the operator to control the automatic container filling sequence.

Operation Common Throughout the Auto Cycle:

If at the first press of the START button, the program does not find the selected ID or that no ID has been selected, the program will return to Statement #290. If the program finds the selected ID the program will advance to Statement #2000.

Pressing the STOP AUTO FILL Push-button will halt the filling operation. The program will return to Statement #230, [Stopped- Push Start]. To resume operation press START. To exit automatic run operation press <Reset>.

If the EMERGENCY STOP input is seen at any time during the filling operation the program will return to Statement #210.

If the AUTO ON input shuts off (AUTO - MANUAL switch placed in MANUAL position) during the filling operation the program will return to Statement #260.

If a scale fault occurs the program will advance to Statement #2300.

If the scale goes over capacity, the program will advance to Statement #2310.

If the fill cycle time exceeds the cycle time entered in Statement #1120, the program will advance to Statement #2320. The cycle timer starts when the operator pushes the START push-button to lower the lance and runs until after the tolerance check (if enabled) at the end of the fill cycle.

If the material flow rate drops below the Minimum Flow Rate for the selected Product ID the fill outputs will turn OFF and the program will advance to Statement #2350. The minimum flow rate calculation starts when the lance valves are opened and following the Flow Delay programmed in statement #345.

If the tare weight changes at any time during the filling operation, the program will advance to Statement #2330.

(9127 Lances only) If for surface type lances the LANCE DOWN input is removed or for sub-surface lances the LANCE OUT OF DRUM input is not seen at any time during the filling operation, the program will advance to Statement #2360.

At the beginning of a automatic fill sequence the system verifies that the lance UP and DOWN sensors are not detected ‘ON’ at the same time. If a sub-surface filler, the system verifies that the lance OUT sensor is toggled as the lance goes from the full UP to the full DOWN position at the beginning of the automatic fill sequence . If the tests fail, the program advances to step #2365.

PROGRAM STATEMENT	APPLICATION
2000	**[XXXXXXXXXX]** - for Single Drum Lances or **[XXXXXXXXXX NN of TT]** - for Multiple Drum Lances and Order Filling <UP ARROW> returns the program to Statement #200. <Reset> returns the program to Statement #200. The display shows the Product ID (XXXXXXXXXX) that is used for this run, the number of the next container to be filled (NN) on this pallet, and the total number of containers (TT) selected for this pallet. Press the "Print" button on the indicator keypad to initiate a "duplicate" printout of the last filling transaction. Press START to advance to the next statement.
2020	**[Container Check]** The scale is read and a container tolerance check is performed once there is no motion on the scale. If the scale weight is less than the minimum container weight the program will advance to the next statement. If the controller is configured as a single container controller, and the scale weight is greater than the maximum container weight the program will advance to Statement #2040. If the container weight is OK, the scale will then be tared. If configured for 9127 Lances, the LOWER LANCE output is turned on, and the program will advance to Statement #2050. If configured for 9102 Lances the program will advance to Statement #2050A. The DRUM COMPLETE output is also turned off.
2030	**[Under Minimum Wt]** The ALARM output is turned on. Press the SILENCE ALARM key <F11>, to silence the alarm. The operator must now take the necessary steps to place an empty container on the scale that exceeds the Minimum Weight value setup in statement #1090. Press START to return the program to Statement #2020. <Reset> returns the program to Statement #240.

PROGRAM STATEMENT	APPLICATION
2040	**[Over Maximum Wt]** Not used in multiple container applications. The ALARM output is turned on. Press the SILENCE ALARM key <F11>, to silence the alarm. The operator must now take the necessary steps to place an empty container on the scale that is less than the Maximum Weight value setup in statement #1100. Press START to return the program to Statement #2020. <Reset> returns the program to Statement #240.
2050	**[Lowering Lance]** The 9127 lance is lowered into the container. If the scale weight increase is greater than the Drum Hit Detection Weight the lance is raised to the fully up position. The program will advance to the next statement. If the LANCE DOWN input is not seen within 30 seconds the program will advance to Statement #2070. When the LANCE DOWN input is seen the program will advance to Statement #2075.
2050A	**[Lower Lance]** If the 9102 Lance is already down the program will advance to Statement #2075. The operator is being prompted to lowered the Lance into the container. When the LANCE DOWN input is seen the program will advance to Statement #2075.
2060	**[Drum Hit Fault]** The ALARM output is turned on. Press the SILENCE ALARM key <F11>, to silence the alarm. The container should be repositioned. After re-positioning the container bung hole to align it with the lance, press START to return the program to Statement #2050 to have the lance lowered again. <Reset> returns the program to Statement #200.

PROGRAM STATEMENT	APPLICATION
2070	**[Lance Fault]** The ALARM output is turned on. Press the SILENCE ALARM key <F11>, to silence the alarm. Press START to return the program to Statement #2050 to have the lance lowered again. <Reset> returns the program to Statement #240. See Program Statement #370, Raise Time, for other details.
2075	**[Settling]** The program is waiting for no scale motion before sending a Tare Command to the indicator. At No Motion, the program will attempt to Tare the indicator, then will double check that the indicator is in the Net Mode. If after three un-successful attempts to Tare the scale, the program will advance to Statement #2330. After successfully Taring the scale, the program will advance to Statement #2090 if FAST-SLOW fill has been selected or to Statement #2080 if SLOW-FAST-SLOW fill has been selected (refer to statements #1130 and #1140). This step of the container filling cycle may occur so fast that the user may only see the display blink. The user need only be concerned if the program advances to Statement #2330.

PROGRAM STATEMENT	APPLICATION
2080	**[Slow Fill XXXXXX]** The display indicates Slow Filling and shows the Setpoint value. The proper valve sequencing is done to achieve slow fill until the scale weight reaches the SLOW FILL WEIGHT. The program will advance to the next statement for 9127 Lances. The program will advance to Statement #2090 for 9102 Lances. For 9127 SubSurface filling operation, the Out of Drum input is checked after the Lance Down input is seen. If the Out of Drum input is not ON the program will advance to Statement #2360. For 9127 Surface filling operation, the Lance Down input is checked. If the Lance Down input is no ON the program will advance to Statement #2360. If the SLOW FILL WEIGHT was set to the value equal to the Setpoint, the program will remain in at this step until scale weight equals Setpoint minus Preact. The program will then advance to Statement #2140.
2085	**[Slow Fill/Prime Lnc]** The Raise and Raise Fast outputs to the lance has been turned on, the fill sequence is still slow fill. When the LANCE DOWN input goes off, the program advances to the next statement.
2090	**[Fast Fill XXXXXX]** The display indicates Fast Filling and shows the Setpoint value. The proper valve sequencing is done to achieve fast fill until the scale weight reaches SETPOINT minus PREACT minus DRIBBLE. The program will advance to the next statement. If the system is setup for 9127 subsurface fill the Raise Lance output will remain turned on, the Raise Fast output will be turned off. The Raise Lance output will be turned off when the LANCE IN DRUM input (on) is seen. The display indicates Slow Filling and shows the Setpoint value. The proper valve sequencing is done to achieve slow fill until the scale weight reaches SETPOINT minus PREACT. The program will advance to the next statement.

PROGRAM STATEMENT	APPLICATION
2140	**[Tolerance Delay]** The container filler controller will delay for the Tolerance Check Delay Time. The program will then advance to the next Statement.
2150	**[Tolerance Check]** A fill tolerance check is performed. If the container weight is within tolerance the program will advance to Statement #2240. Conditions if Manual Correction is enabled: If the container weight is out of tolerance high the program will advance to Statement #2202. If the container weight is out of tolerance low the program will advance to Statement #2212. Conditions if Manual Correction is disabled: If the container weight is out of tolerance high the program will advance to Statement #2200. If the container weight is out of tolerance low the program will advance to Statement #2210. If the scale is in motion for 5 seconds the program will advance to the next statement.
2160	**[Scale Motion]** The ALARM output is turned on. Press SILENCE ALARM key <F11>, to silence the alarm. Press START or <Enter> to return the program to the previous statement. <Reset> returns the program to Statement #240.

PROGRAM STATEMENT	APPLICATION
2200	**[Off High XXXXXX]** The ALARM output is turned on. The display shows how much over setpoint the fill weight is. Press SILENCE ALARM key <F11>, to silence the alarm. Press START or <Enter> to advance the program to Statement #2220. Press ACCEPT OFF TOLERANCE (key <F12>) to accept the off tolerance and advance to statement #2240. Pressing <Reset> will abort the container and advance the program to Statement #2240.
2202	**[m Off High XXXXXX]** The ALARM output is turned on. The display shows how much over setpoint the fill weight is. The display also indicates that Manual Correction is enabled. (see Statement #454 in General Setup) Press SILENCE ALARM key <F11>, to silence the alarm. Pressing <Reset> will abort the container and advance the program to Statement #2240. Press ACCEPT OFF TOLERANCE (key <F12>) to accept the off tolerance and advance to statement #2240. The user may place the AUTO / MANUAL switch in the MANUAL position. While in the Manual position, the user can remove product from the container. The user should observe the indicator display and get the reading to the desired weight. After removing product, the user then places the AUTO / MANUAL switch back to the AUTO position. The user should next press the START push button, the program will return to Statement #2150, tolerance will be checked again. Manual Tolerance Correction CAUTION: Pressing the <RESET> key or the START push button while the AUTO / MANUAL switch is in the MANUAL position will abort the container, data on the container will be added to the reject totals and a transaction printout will occur (if the printer is enabled). After pressing the <RESET> key or the START push button, returning the AUTO / MANUAL switch to the AUTO position will return the program to Statement #200.

PROGRAM STATEMENT	APPLICATION
2210	**[Off Low XXXXXX]** The ALARM output is turned on. The display shows how much under setpoint the fill weight is. Press SILENCE ALARM key <F11>, to silence the alarm. Press START or <Enter> to advance the program to Statement #2220. Press ACCEPT OFF TOLERANCE (key <F12>) to accept the off tolerance and advance to statement #2240. Pressing <Reset> will abort the container and advance the program to Statement #2240.
2212	**[m Off Low XXXXXX]** The ALARM output is turned on. The display shows how much under setpoint the fill weight is. The display also indicates that Manual Correction is enabled. (see Statement #454 in General Setup) Press SILENCE ALARM key <F11>, to silence the alarm. Pressing <Reset> will abort the container and advance the program to Statement #2240. Press ACCEPT OFF TOLERANCE (key <F12>) to accept the off tolerance and advance to statement #2240. The user may place the AUTO / MANUAL switch in the MANUAL position. While in the Manual position, the user can add product using the MANUAL FILL push button. The user should observe the indicator display and get the reading to the desired weight. After adding product, the user then returns the AUTO / MANUAL switch back to the AUTO position. The user should next press the START push button, the program will return to Statement #2150, tolerance will be checked again. Manual Tolerance Correction CAUTION: Pressing the <RESET> key or the START push button while the AUTO / MANUAL switch is in the MANUAL position will abort the container, data on the container will be added to the reject totals and a transaction printout will occur (if the printer is enabled). After pressing the <RESET> key or the START push button, returning the AUTO / MANUAL switch to the AUTO position will return the program to Statement #200.

PROGRAM STATEMENT	APPLICATION
2220	**[Accept? Y]** <Reset> returns the program to Statement #200. Press <Y> (yes) or <ENTER> to accept the container. An asterisk is printed next to the net weight on the batch log and the container data will be recorded as a good container. The program will advance to Statement #2240. Press <N> (no) to advance the program to the next statement. Press ACCEPT OFF TOLERANCE (key <F12>) to accept the off tolerance and advance to statement #2240.
2230	**[Reject? Y]** <Reset> returns the program to Statement #200. Press <Y> (yes) or <ENTER> to reject the container. The letter <R> is printed next to the net weight on the batch log and the container data will be recorded as a rejected container. The program will advance to Statement #2240. Press <N> (no) to return the program to Statement #2220.
2240	**[Storing Data]** The production, order totals, and Drum Log Tables are updated. If the printer has been selected in (statement #710 yes in setup), a batch log is printed. If Drum Logging is not enabled (statement #450 yes in setup), the program will advance to Statement #2243 for 9127 Lances or Statement #2243A for 9102 Lances. If the Drum Log Table is not full, and the printer has been selected in, the program will advance to Statement #2242. If the Drum Log Table is not full, and the printer has been selected out, the program will advance to Statement #2243 for 9127 Lances or Statement #2243A for 9102 Lances. If the Drum Log Table is full the program will advance to the next Statement.

PROGRAM STATEMENT	APPLICATION
2241	**[Drum Log Table Full]** The display indicates to the operator that the Drum Log table is full. There will be about a 2 second delay before the program advances. If the printer has been selected in, the program will advance to the next Statement. If the printer has been selected out, the program will advance to Statement #2243 for 9127 Lances or Statement #2243A for 9102 Lances. The Drum Log is user enabled and is normally used in conjunction with Host operations. The table will hold 490 container transactions, once the table is full no more containers will be stored and all new container data will be lost.
2242	**[Waiting for Printer]** The display indicates that data is being sent to the printer. After all data has been transmitted out the printer port the program will advance to the next Statement.
2243	**[Raising Lance]** The RAISE FAST output is turned on. If the LANCE UP input is not seen within the RAISE LANCE TIME the program will advance to the next statement. When the LANCE UP input is seen the program will advance to Statement #2250.
2243A	**[Raise Lance]** This is prompt for the operator to raise the Lance. When the LANCE DOWN input is off the program will advance to Statement #2250.

PROGRAM STATEMENT	APPLICATION
2250	**[Drum Ready]** This statement is displayed for 2 seconds. The DRUM COMPLETE output is turned on. If multiple container filling is on, and the pallet is not complete the program will advance to Statement #2260. If single container filling the program will return to Statement #200. If order filling is enabled, and order is not complete the program will advance to Statement #2270. If order filling is enabled, and order is complete the program will advance to Statement #2280.
2260	**[Complete XX of YY]** This statement is displayed for 2 seconds. XX equals the container number just completed, YY equals the number of containers per pallet entered when the Run ID was selected. If this is not the last container, on the pallet, to be filled the program will then return to statement #2000. If the last container has been filled the program will return to Statement #200.
2270	**[# XxXxXxXxXxNNN/TTT]** This statement is displayed for 1 second. XxXxXxXxXx = Order Number NNN = number of containers filled on order TTT = total number of containers to be filled to satisfy the order. The program will return to statement #2000.
2280	**[**Order Complete**]** This statement is displayed for 1 second. The display indicates that the Order has been filled. The program will return to statement #200.
2300	**[Scale Fault]** No data, invalid data, or checksum error was received from the indicator. The ALARM output is turned on. Press SILENCE ALARM key <F11>, to silence the alarm. Press START to have the system retry reading the scale. <Reset> returns the program to Statement #240.

PROGRAM STATEMENT	APPLICATION
2310	**[Scale Over Cap]** The ALARM output is turned on. Press SILENCE ALARM key <F11>, to silence the alarm. Press START to have the system retry reading the scale. <Reset> returns the program to Statement #240.
2320	**[Cycle Slow]** The ALARM output is turned on. Press SILENCE ALARM key <F11>, to silence the alarm. Press START to resume the run operation. <Reset> returns the program to Statement #240.
2330	**[Scale Tare Fault]** This is a fatal fault condition. The ALARM output is turned on. If fill was started, data on container is stored as a rejected container. Press SILENCE ALARM key <F11>, to silence the alarm. Press START to resume operation. The program will return to Statement #200.
2340	**[Lance Not Down]** The ALARM output is turned on. Press SILENCE ALARM key <F11>, to silence the alarm. Press START to resume, the program will advance to Statement #2360. <Reset> returns the program to Statement #240.
2350	**[Min Flow Fault]** The ALARM output is turned on. Press SILENCE ALARM key <F11>, to silence the alarm. Press START to resume the run operation. <Reset> returns the program to Statement #240.

PROGRAM STATEMENT	APPLICATION
2360	**[Position Fault]** This is a non-fatal fault condition. If this message is displayed there may be a hardware problem within the Container Filler system. Position Faults may be caused by the Drum in Position input being removed. With Sub-Surface Lances the cause may be the Lance Out-of-Container limit is defective. If the lance raises too fast while filling, the lance may over shoot the In-Drum limit (where it should stop) and reached the Out-of-Container limit, causing this error. With Surface Lances the cause may be the Lance Down limit is defective. The ALARM output is turned on. Press SILENCE ALARM key <F11>, to silence the alarm. Press START to resume the run operation. If this error message persists in being displayed the user must abort the fill cycle by pressing the <RESET> key and following the prompts to abort. Contact METTLER TOLEDO Service for assistance. Switching to the Manual Mode will cause the container to be automatically aborted.
2365	**[SENSOR ERROR]** This is a non-fatal fault condition. If this message is displayed there may be a hardware problem within the Container Filler system. This display indicates that one of the following error conditions exists. The fill controller has detected a lance UP and DOWN condition at the beginning of a fill sequence, or, if a sub-surface fill, the system did not detect a transition of the lance past the lance OUT of drum sensor as the lance traveled from the full up to the full down positon at the beginning of the fill sequence. The ALARM output is turned on. Press SILENCE ALARM key <F11>, to silence the alarm. Press START to resume the run operation. If this error message persists in being displayed the user must abort the fill cycle by pressing the <RESET> key and following the prompts to abort. Contact METTLER TOLEDO Service for assistance.

2370 **[Too Many Drums Slct]**

This display indicates there is an error between the number of containers, per pallet, setup in the Product ID and the number of containers entered in the Selected ID.

This error can only occur by setting up the ID with a maximum number of containers per pallet. Selecting the Run ID with a number of containers per pallet, then going back to the ID setup and changing the maximum number of containers to less than entered for the Run ID selected.

Press <RESET>, then change the Run ID to reflect the change made to the ID setup.

ID SETUP REPORT SEQUENCE

Statements 3000 through 3099

About This Section

The following section describes the operator interface which allows the operator to initiate a printout of the setup report for any stored Product ID. This section will not be accessible unless the printer has been enabled in statement #710.

PROGRAM STATEMENT	APPLICATION
3000	**[ID Setup Report]** If no printer has been selected in statement #710 the program will skip this section and return to statement #200. <UP ARROW> returns the program to Statement #200. <Reset> returns the program to Statement #200. Press <ENTER> to advance the program to the next statement.
3010	**[ID? XXXXXXXXXX]** <UP ARROW> returns the program to Statement #3000. <Reset> returns the program to Statement #200. Enter the product ID of which a setup report is desired and press <ENTER>. If the ID is found in memory the program will advance to Statement #3030. If the ID is not found the program will advance to the next statement.
3020	**[ID Not Found]** <UP ARROW> returns the program to Statement #3010. <Reset> returns the program to Statement #200. Press <ENTER> to return the program to Statement #3010.

PROGRAM STATEMENT	APPLICATION
3030	**[Printing XXXXXXXXXX]** The product ID setup report is printed for the ID entered (figure 3). Upon completion of printing the program will return to Statement #3010. <Reset> will stop the printout and return the program to Statement #200.

PRODUCTION SUMMARY REPORT SEQUENCE

Statements 3100 through 3199

About This Section

The following section describes the operator interface which allows the operator to initiate a printout of the Production Summary report, for any stored Product ID or for all Product IDs with non-zero totals. Also allows the operator to initiate a printout of the Drum Log, if enabled. This section will not be accessible unless the printer has been enabled in statement #710.

PROGRAM STATEMENT	APPLICATION
3100	**[Prod Summary Rep? Y]** If no printer has been selected in statement #710 the program will skip this section and return to statement #200. <UP ARROW> returns the program to Statement #200. <Reset> returns the program to Statement #200. Press <Y> (yes) or <ENTER> to advance the program to the next statement. Press <N> (no) to advance the program to Statement #3160.
3110	**[ID? XXXXXXXXXX]** <UP ARROW> returns the program to Statement #3100. <Reset> will advance the program to Statement #3160. Press <CLEAR> to clear the entry field. Enter the product ID of which a production summary report is desired and press <ENTER>. If the ID is found in memory the program will advance to Statement #3130. If the ID is not found the program will advance to the next statement. If an ID is not entered the report will include all IDs and the program will advance to Statement #3130.
3120	**[ID Not Found]** <UP ARROW> returns the program to Statement #3110. <Reset> will advance the program to Statement #3160. Press <ENTER> to return the program to Statement #3110.

PROGRAM STATEMENT	APPLICATION
3130	**[Printing XXXXXXXXXX]** The product ID summary report is printed for the ID entered or for all of the IDs (figure 4). Upon completion of printing the program will advance to the next statement. <Reset> will advance the program to Statement #3160.
3140	**[Clr Summary Rpt? N]** <Reset> will advance the program to Statement #3160. Press <Y> (yes) to have the production summary report for the selected ID(s) cleared. The program will advance to the next statement. If all product IDs were selected pressing <N> (no) or <ENTER> will advance the program to Statement #3160. If a single product ID was selected pressing <N> (no) or <ENTER> will return the program to Statement #3100.
3150	**[Are You Sure? N]** <Reset> will advance the program to Statement #3160. Press <Y> (yes) to have the production summary report for the selected IDs cleared. The program will return to Statement #3100 after clearing the production report for a single ID or to Statement #3160 after all ID's production reports are cleared. If all product IDs were selected, pressing <N> (no) or <ENTER> will advance the program to Statement #3160 without clearing the production summary reports. If a single product ID was selected, pressing <N> (no) or <ENTER> will return the program to Statement #3100 without clearing the production summary report.
3160	**[Drum Log Report? Y]** <UP ARROW> will return the program to Statement #3100. <RESET> will return the program to Statement #200. Press <NO> to return the program to Statement #200. Press <Y> (yes) or <ENTER> to have the Drum Log Report printed. The program will advance to the next statement.

PROGRAM STATEMENT	APPLICATION
3170	**[Printing XXX of YYY]** The display shows the total number of containers in the log (YYY) and the current container number being down loaded to the printer (XXX). <RESET> will stop the Drum Log report and advance the program to the next statement.
3180	**[Clear Drum Logs? N]** <UP ARROW> will return the program to Statement #3160. <RESET> will return the program to Statement #200. <N> (no) or <ENTER> will return the program Statement #200. Press <Y> (yes) to have the Drum Log cleared. The program will advance to the next statement.
3190	**[Are You Sure? N]** <UP ARROW> will return the program to the previous statement. <RESET> will return the program to Statement #200. <N> (no) or <ENTER> will return the program Statement #200. Press <Y> (yes) to clear the Drum Log. The program will return to Statement #200.

PRODUCT ID LIST REPORT SEQUENCE

Statements 3200 through 3299

About This Section

The following section describes the operator interface which allows the operator to initiate a printout of the Product ID List report.

If the printer has been enabled (Statement #710), the program will advance to Statement #3200.

If the printer is disabled (Statement #710), the program will advance to Statement #3210.

PROGRAM STATEMENT	APPLICATION
3200	**[Printing ID List]** The names of all product ID's stored in memory is printed (figure 5). Upon completion of printout the program will return to Statement #200. Press <RESET> to stop printout and return program to Statement #200.
3210	**[ID's Entered XXX]** The number of product ID's stored in memory is displayed. Press <RESET> to return program to Statement #200. Press <UP ARROW> to return program to Statement #200. Press <ENTER> to advance the program to the next statement.
3220	**[I.D. XXXXXXXXXX]** The display is showing the name of the first product ID stored in memory. Repeat pressing of the <ENTER> key will cycle through all ID's stored in memory. Pressing the <ENTER> when the last ID is displayed will return the program to Statement #200. Press <RESET> to return program to Statement #200. Press <UP ARROW> to return program to Statement #200.

REPORT PRINTOUT EXAMPLES

FIGURE 1 - BATCH LOG REPORT EXAMPLE (USER PROGRAMMABLE)

I.D. XXXXXXXXXX XXXX.X LB Net: for in tolerance drums
XX:XX XX/XX/XX

I.D. XXXXXXXXXX * XXXX.X LB Net: for out of tolerance drums
XX:XX XX/XX/XX

I.D. XXXXXXXXXX XXXX.X LB Net: for "duplicate" prints
XX:XX XX/XX/XX Duplicate
XXXX.X LB NET: for "manual" prints
XX.XX XX/XX/XX Manual

FIGURE 2 - SYSTEM SETUP REPORT

Time	XX:XX
Date	XX/XX/XX

General Parameter Setup

Host Drop Address	XX
Filler Number	XX
Drum Hit Weight	XX
Flow Check Delay	XX
Tolerance Check Delay	XX
Raise Lance Time	XX
Slow Time 1	X.XX
Slow Time 2	X.XX
Lance Type	Swivel Subsurface
Variable ID Entry	Enabled
ID Prompt	Batch No
ID Length	10
Consecutive Numbering	Enabled
Global Consecutive Number	000001
Summation	Enabled
Summation Password Protect	Disabled
Supervisor Password Used	NO
Production Orders	Enabled
ID Select	Enabled
Drum Logs	Enabled
Correction	Enabled
Scale Units	LB

Host Parameter Setup

Host	Enabled
Baud Rate	4800
Character Data Bits	7
Character Parity	Even

Printer Parameter Setup

Baud Rate	300
Character Data Bits	7
Character Parity	Even
Net Weight Position	018
Weight Unit Position	025
Out Of Tolerance Flag Position	017
Gross Weight Position	000
Tare Weight Position	000
Setpoint Position	000
ID Position	006
Variable ID Prompt Position	000
Variable ID Position	000
Consecutive Number Position	000
Order Number Position	000
Filler Number Position	000
Sum Position	000
Duplicate Print Label Position	056

Date Position	042
Time Position	035
Block Check Character Position	000
Block Check Character Start Position	000

Literal Character I	Position	001
Literal Character	Position	002
Literal Character D	Position	003
Literal Character	Position	004
Literal Character N	Position	029
Literal Character E	Position	030
Literal Character T	Position	031
Literal Character 0DH	Position	033
Literal Character 0AH	Position	034
Literal Character 0DH	Position	066
Literal Character 0AH	Position	067
Literal Character 0AH	Position	068
Total String Length		068

FIGURE 3 - PRODUCT ID SETUP REPORT

Product ID Setup

Time	XX:XX
Date	XX/XX/XX
I.D.	XXXXXXXXXX
Grams/ML	X.XXXX
Gallons	XXX.X (Liters for Kg)
Setpoint	XXXXXX
Dribble	XXXXX
Preact	XXXXX
Auto Preact Factor	XX
Max. Empty Wt.	XXXX
Min. Empty Wt.	XXXX
Full Tolerance	XXXX
Cycle Time	XXX
Fill Sequence	Slow/Fast/Slow
Slow Fill Weight	XXXXXX
Min. Flow Rate	XXXXXX
Raise Lance Duty Cycle	XX
Max. Number Of Drums	XX

FIGURE 4 - PRODUCTION SUMMARY REPORT

Production Summary Report

Filler: XX
From: XX:XX XX/XX/XX
To: XX:XX XX/XX/XX

I.D.	No.Of Good Drums	Total Accept Net Wt	No.Of Rej. Drums	Total Rej. Net Wt
XXXXXXXXXX	XXXXX	XXXXXXX	XXXXX	XXXXXX
XXXXXXXXXX	XXXXX	XXXXXXX	XXXXX	XXXXXX
XXXXXXXXXX	XXXXX	XXXXXXX	XXXXX	XXXXXX
XXXXXXXXXX	XXXXX	XXXXXXX	XXXXX	XXXXXX
XXXXXXXXXX	XXXXX	XXXXXXX	XXXXX	XXXXXX
Total	XXXXX	XXXXXXX	XXXXX	XXXXXX

FIGURE 5 - PRODUCT ID LIST REPORT

Product ID List

XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

Time XX:XX
Date XX/XX/XX

FIGURE 6 - DRUM LOG REPORT

The printed Drum Log report is intended to be printed out on an 40 column printer. A block of data as shown below is printed for each container stored in the log.

Order	xxxxxxxxxx
G.Cnsec#	NNNNNN
Product	xxxxxxxxxx
Cnsec#	NNNNNN
HH:MM:SS	MM/DD/YY
Gross	WWWW.W
Tare	WWWW.W
Net	WWWW.W T

(T = weight in tolerance, blank = out of tolerance)

FIGURE 7 - PRODUCTION ORDER TOTAL REPORT

Totals For Order XXXXXXXXXX
NNN Out Of NNN Drums Completed
XXXXX.X LB

Time HH:MM
Date MM/DD/YY

APPENDICES

APPENDIX A - CONTROL AND SPECIAL CHARACTER ENTRY

When setting up string literals it is sometimes necessary to use control characters and other characters not available on the Controller keyboard. The following is a chart on how to enter control characters.

Note: The Controller's local display, will display ASCII Control Characters using the CTRL with a bar over the character entered. All other characters will be displayed as shown in the ASCII Control Character column.

APPENDICES

ASCII CONTROL	HEX EQUIV.	ENTRY	CHARACTER
SOH	O1H	Press CTRL then	A
STX	02H	Press CTRL then	B
ETX	O3H	Press CTRL then	C
EOT	O4H	Press CTRL then	D
ENQ	05H	Press CTRL then	E
ACK	06H	Press CTRL then	F
BEL	07H	Press CTRL then	G
BS	08H	Press CTRL then	H
HT	09H	Press CTRL then	I
LF	0AH	Press CTRL then	J
VT	0BH	Press CTRL then	K
FF	0CH	Press CTRL then	L
CR	0DH	Press CTRL then	M
SO	0EH	Press CTRL then	N
SI	0FH	Press CTRL then	O
DLE	10H	Press CTRL then	P
DC1	11H	Press CTRL then	Q
DC2	12H	Press CTRL then	R
DC3	13H	Press CTRL then	S
DC4	14H	Press CTRL then	T
NAK	15H	Press CTRL then	U
SYN	16H	Press CTRL then	V
ETB	17H	Press CTRL then	W
CAN	18H	Press CTRL then	X
EM	19H	Press CTRL then	Y
SUB	1AH	Press CTRL then	Z

ESC	1BH	Press CTRL then	[
FS	1CH	Press CTRL then	\
GS	1DH	Press CTRL then	]
RS	1EH	Press CTRL then	~
US	1FH	Press CTRL then	?
DEL	7FH	Press CTRL then	_

Special characters are entered on the Controller keyboard by pressing SHIFT, ALT, or CTRL followed by a function key. The following is a chart of these special characters.

CHARACTER	HEX EQUIV.	ENTRY
* (asterisk)	2AH	Press SHIFT then F1
/ (slash)	2FH	Press SHIFT then F2
= (equal sign)	3DH	Press SHIFT then F3
<> (not equal)	n/a	Press SHIFT then F4
<= (less than or equal to)	n/a	Press SHIFT then F5
>= (greater than or equal to)	n/a	Press SHIFT then F6
! (exclamation mark)	21H	Press SHIFT then F7
“ (double quotation mark)	22H	Press SHIFT then F8
# (number sign)	23H	Press SHIFT then F9
$ (dollar sign)	24H	Press SHIFT then F10
% (percent sign)	25H	Press SHIFT then F11
& (ampersand)	26H	Press SHIFT then F12
‘ (single quotation mark)	60H	Press ALT then F1
‘ (apostrophe)	27H	Press ALT then F2
^	5EH	Press ALT then F3
@ (at sign)	40H	Press ALT then F4
((opening parenthesis)	28H	Press ALT then F5
) (closing parenthesis)	29H	Press ALT then F6
[(opening bracket)	5BH	Press ALT then F7
\ (backslash)	5CH	Press ALT then F8
] (closing bracket)	5DH	Press ALT then F9
~	7EH	Press ALT then F10
? (question mark)	3FH	Press ALT then F11
_ (underscore)	5FH	Press ALT then F12
{	7BH	Press CTRL then F5
}	7DH	Press CTRL then F6

|	7CH	Press CTRL then ;

APPENDIX B - ASCII CONTROL CODE CHART

ASCII CHARACTER	DEC. EQUIV.	OCTAL EQUIV.	HEX EQUIV.
NUL	0	000	00
SOH	1	001	01
STX	2	002	02
ETX	3	003	03
EOT	4	004	04
ENQ	5	005	05
ACK	6	006	06
BEL	7	007	07
BS	8	010	08
HT	9	011	09
LF	10	012	0A
VT	11	013	0B
FF	12	014	0C
CR	13	015	0D
SO	14	016	0E
SI	15	017	0F
DLE	16	020	10
DC1	17	021	11
DC2	18	022	12
DC3	19	023	13
DC4	20	024	14
NAK	21	025	15
SYN	22	026	16
ETB	23	027	17
CAN	24	030	18
EM	25	031	19
SUB	26	032	1A
ESC	27	033	1B
FS	28	034	1C
GS	29	035	1D
RS	30	036	1E
US	31	037	1F

SP	32	040	20
!	33	041	21
“	34	042	22
#	35	043	23
$	36	044	24
%	37	045	25
&	38	046	26
‘	39	047	27
(	40	050	28
)	41	051	29
*	42	052	2A
+	43	053	2B
,	44	054	2C
-	45	055	2D
.	46	056	2E
/	47	057	2F
0	48	060	30
1	49	061	31
2	50	062	32
3	51	063	33
4	52	064	34
5	53	065	35
6	54	066	36
7	55	067	37
8	56	070	38
9	57	071	39
:	58	072	3A
;	59	073	3B
<	60	074	3C
=	61	075	3D
>	62	076	3E
?	63	077	3F
@	64	100	40
A	65	101	41
B	66	102	42
C	67	103	43

D	68	104	44
E	69	105	45
F	70	106	46
G	71	107	47
H	72	110	48
I	73	111	49
J	74	112	4A
K	75	113	4B
L	76	114	4C
M	77	115	4D
N	78	116	4E
0	79	117	4F
P	80	120	50
Q	81	121	51
R	82	122	52
S	83	123	53
T	84	124	54
U	85	125	55
V	86	126	56
W	87	127	57
X	88	130	58
Y	89	131	59
Z	90	132	5A
[	91	133	5B
\	92	134	5C
]	93	135	5D
^	94	136	5E
_	95	137	5F
‘	96	140	60
a	97	141	61
b	98	142	62
c	99	143	63
d	100	144	64
e	101	145	65
f	102	146	66
g	103	147	67

h	104	150	68
i	105	151	69
j	106	152	6A
k	107	153	6B
l	108	154	6C
m	109	155	6D
n	110	156	6E
o	111	157	6F
p	112	160	70
q	113	161	71
r	114	162	72
s	115	163	73
t	116	164	74
u	117	165	75
v	118	166	76
w	119	167	77
x	120	170	78
y	121	171	79
z	122	127	7A
{	123	173	7B
|	124	174	7C
}	125	175	7D
~	126	176	7E
DEL	127	177	7F

APPENDIX C - HOST COMMUNICATIONS

About this Section

The following describes the Bi-Directional Host Communications Protocol of the 9127 Container Filler Controller. The Host Glossary defines some terms used. The Hardware Considerations section discusses the interfaces available. The Host Communications Protocol section describes the communication commands briefly. The Individual Host Request Code Protocol section shows the exact protocol required for each Host command and the data transferred. The Host Request Code Validity Table tells which commands are valid when the 9127 is in it's different modes of operation.

There is no Host test routine built into the 9127 program. METTLER TOLEDO can offer, to users and service personnel, a Host ToolBox program that is IBM personal computer compatible. The Host ToolBox performs all operations described in this section of the documentation, and offers many features that take advantage of the host computer.

Host Glossary

<STX>	Start of Text character (02H).
<ETX>	End of Text character (03H).
<BCC>	Block Check Character, the Exclusive OR of all characters in the message block, starting with the character after the <STX>, up to and including the <ETX>.
<EOT>	End Of Transmission Character (04H), breaks off communication link between any/all 9127's and the host computer.
<ENQ>	ENQuiry character (05H), when it is preceded by a 9127 <Drop Address> it establishes a communication link between the host computer and the associated 9127.
<ACK>	ACKnowledge character (06H), character sent by the receiving device to inform the transmitting device that the message was received without error.
<NAK>	Negative AcKnowledgement character (15H), character sent by the receiving device to inform the transmitting device that an error was detected in the message received.
<Drop Address>	Specific Address of a 9127 (set by dip switches on TSM300 PCB) in a multidrop link that an individual unit will respond to.
Alpha/Numeric	Field type definition indicating the characters can be numbers or any character A-Z.
Date Format	Field type definition indicating a format for date "mm/dd/yy"; where mm is the month, dd is the day, and yy is the year.
Numeric	Field type definition indicating all of the character must be numbers.

Time Format	Field type definition indicating a format for time "hh:mm:ss"; where hh is the hour(24 hour format), mm is minutes, and ss is seconds.
Wt Format	Field type definition indicating it is numeric with a decimal point at the calibrated location for the scale.

Hardware Considerations

The 9127 uses a multidrop protocol which supports up to 7 9127's serviced by a single host computer. Two hardware standards are available to the designer, RS232 and RS422. See system drawings provided for connection details.

RS232 is a point-to-point connection between a host computer and one 9127 no greater that 50 feet away. RS232 has a medium amount of noise immunity, and successful communications is highly dependent on the electrical environment. Most often it is used in simple installations with one 9127 or to service individual 9127's taken off-line from a multidrop configuration.

RS422 supports a multidrop connection between a host computer and 9127 Container Filler. Distances as great as 4000 ft can be supported with a medium amount of noise immunity. Performance of the RS422 communication link can be improved by not bundling the cables with other wiring and routing the cable away from devices which produce electrical noise.

Host Communications Protocol

The following briefly discusses establishing communication with a 9127 and the available commands and 9127 responses. See the section on Individual Code Protocol for more detail of each code.

The GENERAL SETUP SEQUENCE section in the main portion of the manual explains how to configure the Host Port of the Container Filler Controller before communication can be initiated.

Establishing a Host to 9127 link

The 9127 acts as a slave station in the multidrop/point-to-point bi-directional communications link. It only responds when it receives a proper enquiry (<EOT><Drop Address><ENQ>) from the host computer and a link is established.

NOTE: Only the 9127 with the same drop address as the one transmitted will respond to the host computer.

Typical protocol

Host :	<EOT>	Break all links
Host :	<EOT><drop address><ENQ>	Request link to 9127
9127 :	<ACK>	Link established
	Or	
9127 :	<NAK><Z>	9127 busy

Transferring Data between a host computer and the 9127

Once the link between a 9127 and the host computer has been established, all communication occurs only between these two devices with data flow controlled by the host computer. The host computer will then be able to request an upload of information stored in the 9127's memory or download information to the 9127's memory without interference with any other 9127's in the multidrop link. The transfer of information to and from the 9127 requires the host computer to send special "Host Request Codes" to the 9127 to select the action required. Following are the typical protocols required.

Host Computer Download

<STX><HOST REQUEST CODE><DATA><ETX><BCC>

OR

Host Computer Upload

<STX><HOST REQUEST CODE><ETX><BCC>

HOST REQUEST CODES

These are the single character codes. See the Individual Host Request Code Protocol section for more detail of each code.

CODE	HEX VALUE	MEANING
<B>	42	The 9127 is to upload Drum Log information to the Host Device.
<C>	43	The 9127 is to clear Drum Loag information
<D>	44	The 9127 is to receive a download of Product ID and Product ID setups. This request must be followed by the Printer Report setup data. See the Setup Product ID's Sequence section for more information on Product ID's and Product ID setup.
<F>	46	The 9127 is to receive a download of Printer Report Setup data. This request must be followed by the Printer Report Setup data this data does not include Literal data for the Printer Report Setup. See <L> for Printer Literall Setup. See Program Statement 770, in the Printer Setup section for more information on setting up a Printer Report.
<G>	47	The 9127 is to upload, to the Host, the Printer Report Setup data stored in the 9127.
<K>	4B	The 9127 us ti receive a Product ID and clear it's setup data stored in the 9127. The Product ID must follow this request.
<L>	4C	The 9127 is to receive a download of Printer Report Literal Setup data. This request must be followed by the Printer Report Literal Setup data, this data does not include datat for the Printer Report Setup. This command replaces all Printer Report Literals currently in the 9127. See Program Statements 810 and 820, in the Printer Setup Sequence section for more information on setting up Printer Report Literals. Understanding Program Statement 770 in the Printer Setup Sequence will be an aid with Printer Report Literals.
<M>	4D	The 9127 is to upload, to the Host, the Printer Report Literal Setup data stored in the 9127.
<P>	50	The 9127 is to upload, to the Host, the Setup data for all stored Product ID's in the 9127.
<Q>	51	The 9127 is to upload, to the Host, the selected Product ID, also called the Run Product ID. See Selected Product ID Sequence section for more information.
<R>	52	The 9127 is to receive a download of (Run) Product ID and Run Product ID setups. This request must be followed by the Product ID and Run Product ID setup data. See the Select Product ID Sequence section for more information on Run Product ID setup.
<S>	53	The 9127 is to upload, to the Host, the status of the Drumfiller Controller.

<T>	54	The 9127 is to upload, to the Host, the current time and date being used by the Container Filler Controller.
<U>	55	The 9127 is to receive a Product ID and upload, to the Host, that Product's ID Setup data stored in the 9127. The Product ID must follow this request.
<V>	6+	The 9127 is to upload, to the Host, the General (System) Setup data. This data will not include the current time and date being used by the Container FillerController. See <T> for time and date upload. See the General Setup Sequence section for more information on General Setup.
<W>	57	The 9127 is to receive a download of General (System) Setup data. This request must be followed by the General Setup data,this data does not include data for time and date Setup. See the General Setup Sequence section for more information on setting up the General Setup's. See <X> for setting time and date.
<X>	58	The 9127 is to receive a download of Time and Date Setup data. This request must be followed by the Time and Date Setup data. See the General Setup Sequence section, Program Statements 450 and 460, for more information on setting the time and date withing the Container Filler Controller.
<Z>	5a	The 9127 is to clear all Product ID Setups and accumulated data, associated with each ID, stored in the 9127.

9127 COMMUNICATIONS ACKNOWLEDGMENTS

The following <ACK/NAK> responses are sent by the 9127 to the Host after a Host Request code message has been sent.

9127	<Nak><D>	Didn't Understand Request
	<Nak><E>	First Character of Request was NOT in the list of Request Codes.
	<Nak><H>	Partial Data Received
	<Nak><I>	Too Many Characters Received
	<Nak><J>	Invalid Block Check Character
	<Nak><W>	Something Wrong with Request
	<Nak><X>	Something Wrong with Request
	<Nak><Z>	System busy
	<Ack>	Received Request, (No Transmission Errors).
	or	
	<Ack>	Received Request, (No Transmission Errors).

Followed by...

	<Nak><*>	First Character of Request was in the list of Request Codes, But the Data within the Request was of the wrong Length.

9127 RESPONSE CODES

These are single character codes. The Container Filler Controller transmits back the Host Request Code before the Response Code. See the Individual Host Request Code Protocol section for more detail.

CODE	HEX VALUE	MEANING
<A>	41	The 9127 is in an Alarm Condtion.
<B>	42	The 9127 is unable to comply with the Host request. This will be the usual response, from the host 9127, when the Container Filler is in the Run Mode or Filling Mode, and means the request, from the Host, will effect the accurate and safe filling of drums at the time of the request.
<D>	44	Host Request Code <X>. This code means the Data field received had an invalid value.
<E>	45	Host Request Code <S>. Indicated the 9127 is at Emergency Stop.
<F>	45	This code means the Product ID table is full or if Host Request Code <S> the system is filling a drum.
<I>	49	This code means the 9127 received invalid data or if Host Request Cond <S> the system is Idel.
<K>	4B	Host Request code <S>. Indicated the 9127 is in Keyboard Setup mode.
<L>	4C	This code means this is the last record in the table.
<M>	4D	This code means there are more records to be sent following this one or if Host Request Code <S> the system is in Manual mode.
<N>	4E	This code means there are no records stored in the table or if Host Request Code <U> the product was not found.
<P>	50	The 9127 is in its power up sequence.
<R>	52	This code means data in a field was out of range or if Host Request Code <S> the system is in Run mode.
<S>	53	Host Request Code <S>. Indicates the 9127 is in Stop mode.
<T>	54	For Host Request Code <T> this code means data in a Time field was invalid or if Host Request Code <S> the system is in Test mode.

INDIVIDUAL HOST REQUEST CODE PROTOCOL

The following pages shows each Host Request Code and the possible resulting interactions between the host and 9127.

REQUEST DRUM LOG

Host <Stx><B><Etx><Bcc> To UpLoad Drum Log

Successful 9127 Request

9127 <Ack> to Acknowledge Request

Followed By...

<Stx><B><M><B_Data><Etx><Bcc> Drum log record (More to Follow)

Host <Ack> An Ack is expected from the host

9127 <Stx><B><L><B_Data><Etx><Bcc> Drum Log Record (Last Record)

Host <Ack> An Ack is Expected from the Host

9127 <Ack> An Ack is Sent Back by 9127 to Signal the End of the Request.

Unsuccessful 9127 Request

9127 <Ack> To Acknowledge Request

<Stx><B><N><Etx><Bcc> No Drum Log Records Stored

Host <Ack> An Ack is Expected from the Host

9127 <Ack> An Ack is Sent Back by the 9127 to Signal the End of the Request.

NOTE:

After each record is received and the host transmits an <Ack> the next record will be sent.

After the last record has been sent and the <Ack> is received from the host, the drum log table will be cleared.

Record/Field Definitions

Field	Length	Type	Description
<B_Data>			Drum Log Information Record
<PId>	10	Alpha/Numeric	Product Id
<CnById>	6	Numeric	Consecutive Drum number (By Product)
<OrderNumber>	10	Alpha/Numeric	If Order Filling
<GrossWt>	6	Wt Format	
<TareWt>	5	Wt Format	
<NetWt>	6	Wt Format	
<WtFlag>	1	Wt Flag	(R-Rejected, *-Off Tolerance, Space>-Okay)
<WtTime>	8	Time Format	Time of Filling
<WtDate>	8	Date Format	Date of Filling

<CnGlbl>	6		Numeric	Consecutive Drum number (By Machine)
EndRecord	___			
Total	66	Bytes		

CLEAR DRUM LOG TABLE

Host - <Stx><C><Etx><Bcc> - to Clear Drum Log

Successful 9127 Request

9127 - <Ack> - To Acknowledge Request

9127 - <Ack> - To Acknowledge Product has been Deleted

Unsuccessful 9127 Request

9127 - <Ack> - to Acknowledge Request

<Stx><C><B><Etx><Bcc> - System is Busy

Then

Host - <Ack> - An Ack is Expected from the Host

9127 - <Ack> - An Ack is Sent Back by the 9127 to Signal the End of the Request.

PRODUCT SETUP RECORD DOWNLOAD

Host - <Stx><D><PId><D_Data><Etx><Bcc>- To download Product Setup information

Successful 9127 data transfer

9127 - <Ack> - To Acknowledge Request

9127 - <Ack> - Setup Data was Accepted

Unsuccessful 9127 data transfer

9127 - <Ack> - To Acknowledge Request

<Stx><D><F><Etx><Bcc> - Product Id Table is Full

Or

9127 - <Ack> - To Acknowledge request

<Stx><D><I><Etx><Bcc> - Non-Numeric Data in a numeric Field

Or

9127 - <Ack> - to Acknowledge request

<Stx><D><R><Etx><Bcc> - Data in a Field Out of Range.

Then

Host - <Ack>
9127 - <Ack>
- An Ack is Expected from the Host and an Ack is Sent Back by the 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<PId>	10	Alpha/Numeric	Product Id
<D_Data>			Product Setup Information Record
<SetPoint>	6	Wt Format	
<Dribble>	5	Wt Format	
<Preact>	5	Wt Format	
<A_Preact_Adj>	2	Numeric	Auto Preact Factor
<Max_Empt_Wt>	5	Wt Format	Maximum empty weight
<Min_Empt_Wt>	5	Wt Format	Minimum empty weight
<Full_Tol>	4	Wt Format	Full Tolerance
<Cycle_Time>	3	Numeric	Seconds
<Slow_Start>	1	Yes/No <Y>=Slow_Fast_Slow, <N>=Fast_Slow	
<Slow_Fill_Wt>	6	Wt Format	
<Min_Flow_Rate>	5	Wt Format	Scale Units Per Minute

<RDtyCycle>	2	Numeric	Raise Lance Duty Cycle
<Max_Drums>	2	Numeric	No Drums Per Pallet
<Variable_Id>	10	Alpha/Numeric	
<CnById>	6	Numeric	Consecutive No By Product Id
<Density>	6	Numeric	Format must be X.XXXX
<Volume>	5	Numeric	Format must be XXX.X
EndRecord	___		
Total	78	Bytes	

PRINTER REPORT FORMAT SELECTION DOWNLOAD

Host - <Stx><F><F_Data><Etx><Bcc> - to DownLoad Report Format

...and the Response will be...

9127 - <Ack> - to Acknowledge Request

Followed By...

<Ack> - Report Format Accepted

or<Stx><F><B><Etx><Bcc> - Bad Time to Change Report Format

or<Stx><F><I><Etx><Bcc> - Non-Numeric Data in a Numeric Field

or<Stx><F><R><Etx><Bcc> - Data in a Field Out of Range.

After an Error Code.....

Host - <Ack> - An Ack is Expected from the Host

9127 - <Ack> - ... and an Ack is Sent Back by the 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<F_Data>			DownLoad Report Format Information Record
<PWtPos>	3	Numeric Max 245	Net Weight
<PUtPos>	3	Numeric Max 249	Wt Units (LB/kg)
<POTPos>	3	Numeric Max 250	Off Tolerance Flag
<PGWPos>	3	Numeric Max 245	Gross Weight
<PTWPos>	3	Numeric Max 245	Tare Weight
<PSPPos>	3	Numeric Max 245	SetPoint Weight
<PIDPos>	3	Numeric Max 241	Product Id
<PVPPos>	3	Numeric Max 243	Variable ID Prompt
<PVIPos>	3	Numeric Max 241-250	Variable Id Pos
<PCNPos>	3	Numeric Max 245	Consecutive number (By Product)
<PSmPos>	3	Numeric Max 241	Sum of Weights
<PONPos>	3	Numeric Max 249	Order Number
<PFlPos>	3	Numeric Max 249	Filler Number
<PDuPos>	3	Numeric Max 242	"DUPLICATE"
<PDtPos>	3	Numeric Max 243	Date Position
<PTmPos>	3	Numeric Max 246	Time Position

<PGCPos>	3	Numeric Max 246	Consecutive number (By Machine)
<PBcPos>	3	Numeric Max 250	Block Check Char
<PBsPos>	3	Numeric Max 250	Block Check Start
EndRecord	___		
Total	57 Bytes		

PRINTER REPORT FORMAT SELECTION UPLOAD

Host -	<Stx><G><Etx><Bcc>	- to UpLoad Report Format
	...and the Response will be...	
9127 -	<Ack>	- to Acknowledge Request
	Followed By...	
9127 -	<Stx><G><F_Data><Etx><Bcc>	- Report Format Data
Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- and an Ack is Sent Back by the 9127 to Signal the End of the Request.

See Code <F> for <F_Data> record structure.

CLEAR PRODUCT SETUP RECORD

Host -	<Stx><K><PId><Etx><Bcc>	- to Clear Product Setup Information

Successful 9127 Request

9127 -	<Ack>	- to Acknowledge Request

Followed By...

9127 -	<Ack>	- to Acknowledge Product has Been Deleted

Unsuccessful 9127 Request

9127 -	<Ack>	- to Acknowledge Request
	<Stx><K><N><Etx><Bcc>	- Error, Product Not Found

Or

9127 -	<Ack>	- to Acknowledge Request
	<Stx><K><B><Etx><Bcc>	- Product In Use, Bad Time to Delete

After an Error Code.....

Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- An Ack is Sent Back by the 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<PId>	10	Alpha/Numeric	Product Id

PRINTER LITERAL FORMAT DOWNLOAD

Host -	<Stx><L><L_Data><Etx><Bcc>	- to DownLoad Printer Literal

...and the Response will be...

9127 -	<Ack>	- to Acknowledge Request
	Followed By...	
	<Ack>	- Literal Accepted
or	<Stx><L><B><Etx><Bcc>	- Bad Time to Change Printer Literal

After an Error Code.....

Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- and an Ack is Sent Back by the 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<L_Data>			DownLoad Printer Literal Record
<PLitSt>	250	Alpha/Numeric Printer Literal	EndRecord

PRINTER LITERAL SELECTION UPLOAD

Host -	<Stx><M><Etx><Bcc>	- to UpLoad Printer Literal
	...and the Response will be...	
9127 -	<Ack>	- to Acknowledge Request
	Followed By...	
9127 -	<Stx><M><L_Data><Etx><Bcc>	- Printer Literal
Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- ... and an Ack is Sent Back by the 9127 to Signal the End of the Request.

See Code <L> for <L_Data) record structure.

GLOBAL PRODUCT SETUP RECORDS UPLOAD

Host -	<Stx><P><Etx><Bcc>	- to UpLoad All Product Setup Information

Successful 9127 data request

9127 -	<Ack>	- to Acknowledge Request
	<Stx><P><M><PId><U_Data><Etx><Bcc>	- Product Setup (More to Follow)
Host -	<Ack>	- An ACK is expected from the host after each record
9127-	<Stx><P><L><PId><U_Data><Etx><Bcc>	- Product Setup (Last Record)

Unsuccessful 9127 data request

<Ack>	- to Acknowledge request
<Stx><P><N><Etx><Bcc>	- No Product setup records

Then

Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- An Ack is Sent Back by the 9127 to Signal the end of transmission

See Code <U> for <U_Data> Record structure.

REQUEST RUN PRODUCT ID

Host - <Stx><Q><Etx><Bcc> - to UpLoad Run Product Information

Successful 9127 Request

9127 - <Ack> - to Acknowledge Request Followed By

<Stx><Q><PId><Q_Data><Etx><Bcc>- Run Product Information

Then

Host - <Ack> - An Ack is Expected from the Host

9127 - <Ack> - An Ack is Sent Back by the 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<PId>	10	Alpha/Numeric	Product Id
<Q_Data>		Run Product Information Record	
<No_of_Drums>	2	Numeric	Number of Drums per Pallet(Swivel Lance)
<OrderNumber>	10	Alpha/Numeric	If Order Filling
<No_DrumsOrdered>	3	Numeric	Non-Zero if Order Filling
<DrumCount>	3	Numeric	Number of Drums Completed if Order Filling
<TotOrdNtWt>	10	Wt Format	Total Order Net Weight of Completed Drums
EndRecord	___		
Total	38 Bytes		

SELECT RUN PRODUCT ID

Host -	<Stx><R><PId><R_Data><Etx><Bcc>	- to DownLoad Run Product Selection

Successful 9127 Request

9127 -	<Ack>	- to Acknowledge Request

Followed By...

9127 -	<Ack>	- to Acknowledge Product has Been Selected

Unsuccessful 9127 Request

9127 -	<Ack>	- to Acknowledge Request
	<Stx><R><B><Etx><Bcc>	- Cannot Change Run Product Selection

Or

9127 -	<Ack>	- to Acknowledge Request
	<Stx><R><I><Etx><Bcc>	- InValid Data Number of Drums Field

After an Error Code.....

Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- An Ack is Sent Back by the 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<PId>	10	Alpha/Numeric	Product Id
<R_Data>		DownLoad Run	Product Information Record
<No_of_Drums>	2	Numeric	Number of Drums per Pallet(Swivel Lance)
<OrderNumber>	10	Alpha/Numeric	If Order Filling
<No_DrumsOrdered>	3	Numeric	Non-Zero if Order Filling
EndRecord	___		
Total	15 Bytes		

REQUEST 9127 SYSTEM STATUS

Host -	<Stx><S><Etx><Bcc>	- to UpLoad System Status

9127 Response

9127 -	<Ack>	- to Acknowledge Request
	<Stx><S><X><S_Data><Etx><Bcc>	- 9127 Reply

Then

Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- An Ack is Sent Back by the 9127 to Signal the End of the Request.

<X>	Definition
P	Power Up Mode
I	Idle Mode
K	Keyboard Setup
R	Ready to fill drums
F	Filling a drum
T	Test Mode
M	Manual Mode
E	Emergency Stop Mode
A	Alarm Mode
S	Stopped

<S_Data>	Type	# bytes
# of IDs	Numeric	3 bytes
# Drum log	Numeric	3 bytes
Scale mode	Gr/Net	1 byte
Display Wt	Numeric	6 bytes
Tare Wt	Numeric	6 bytes
Units	LB/KG	2 bytes

REQUEST 9127 TIME & DATE

Host -	<Stx><T><Etx><Bcc>	- to UpLoad System Time & Date
9127 -	<Ack>	- to Acknowledge Request
	<Stx><T><T_Data><Etx><Bcc>	- System Time & Date
	Then	
Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- An Ack is Sent Back by the 9127 to Signal the End of the Request.

<T_Data>	# Bytes	Definition
<SystemTime>	8	Time Format HH:MM:SS (Military Time)
<SystemDate>	8	Date Format MM/DD/YY

PRODUCT SETUP RECORD UPLOAD

Host - <Stx><U><PId><Etx><Bcc> - to UpLoad Product Setup Information

Successful 9127 data request

9127 - <Ack> - to Acknowledge Request

<Stx><U><L><PId><U_Data><Etx><Bcc> - Product Setup Information

Unsuccessful 9127 data request

<Ack> - to Acknowledge request

<Stx><U><N><Etx><Bcc> - Product Not Found in Table

Then

Host - <Ack> - An Ack is Expected from the Host

9127 - <Ack> - An Ack is Sent Back by the 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<PId>	10	Alpha/Numeric	Product Id
<U_Data>			Product Setup UpLoad Information Record
<SetPoint>	6	Wt Format	
<Dribble>	5	Wt Format	
<Preact>	5	Wt Format	
<A_Preact_Adj>	2	Numeric	Auto Preact Adjustment
<Max_Empt_Wt>	5	Wt Format	Maximum Empty Weight
<Min_Empt_Wt>	5	Wt Format	Minimum Empty Weight
<Full_Tol>	4	Wt Format	Full Tolerance
<Cycle_Time>	3	Numeric	Seconds
<Slow_Start>	1	Yes/No <Y>=Slow_Fast_Slow <N>=Fast_Slow	
<Slow_Fill_Wt>	6	Wt Format	
<Min_Flow_Rate>	5	Wt Format	Scale Units Per Minute
<RDtyCycle>	2	Numeric	Raise Lance Duty Cycle

<Max_Drums>	2	Numeric	No Drums Per Pallet
<Variable_Id>	10	Alpha/Numeric	
<CnById>	6	Numeric	Consecutive No By Product Id
<Density>	6	Numeric	Format will be X.XXXX
<Volume>	5	Numeric	Format will be XXX.X
<GoodDrums>	5	Numeric	Number of Good Drums
<GoodWt>	11	Wt Format	Total Wt of Good Drums
<BadDrums>	5	Numeric	Number of Bad Drums
<BadWt>	10	Wt Format	Total Wt of Bad Drums
EndRecord	___		
Total	109 Bytes		

9127 SYSTEM SETUP INFORMATION UPLOAD

Host -	<Stx><V><Etx><Bcc>	- to UpLoad System Setup

9127 Response

9127 -	<Ack>	- to Acknowledge Request
	<Stx><V><V_Data><Etx><Bcc>	- System Setup

Then

Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- An Ack is Sent Back by the 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<V_Data>			System Setup Information Record
<SuprPw>	6	Alpha/Numeric	Supervisor Password
<FillerNo>	2	Numeric	Filler No
<DHWt>	2	Wt Format	Drum Hit Wt
<Flw_Delay>	2	Numeric Sec.	Flow Delay
<Tol_Delay>	2	Numeric Sec.	Tolerance Delay
<LRaise_Time>	2	Numeric Sec.	Lance Raise Time
<STim1>	4	Numeric X.XX Sec.	Slow Time 1
<STim2>	4	Numeric X.XX Sec.	Slow Time 2
<IDEnb>	1	Yes/No	Enable Id Entry
<IDPrmpt>	8	Alpha/Numeric	Variable ID Prompt
<IDLngth>	2	Numeric	Variable ID Length
<CnEnb>	1	Yes/No	Enable Consecutive Numbering
<CnGlbl>	6	Numeric	Consecutive Drum number (By Machine)
<SumEnb>	1	Yes/No	Enable Summing
<SumPrtct>	1	Yes/No	Protect Summing
<PrdEnb>	1	Yes/No	Enable Production Orders
<POTEnb>	1	Yes/No	Print Order Totals

<SlctEnb>	1		Yes/No	Select ID Key Enable
<DLogEnb>	1		Yes/No	Enable Drum Log Table
<M_Corr>	1		Yes/No	Enable Manual Tolerance Correction
<DpSw1>	1		Surface <S> / SubSurface <B> Filling Lance	
<DpSw2>	1		Single <S> / Multiple <M> Drum (Swivel Lance)	
<DpSw3>	1		<0> = Normal Mode, <1> = Illegal	
<DpSw4>	1		Bit 1 of Host Drop Address	
<DpSw5>	1		Bit 2 of Host Drop Address	
<DpSw6>	1		Bit 4 of Host Drop Address	
<DpSw7>	1		Unused Switch <1> = On, <0> = Off	
<DpSw8>	1		Force Cold Start	
<ScaleGraduations>		4	Numeric	(.00X, .0X0, .X00, X.00, or X0.0; where X=1, 2, or 5)
<ScaleUnits>	2		Alpha (LB or KG)	
EndRecord	___			
Total	63	Bytes		

Field Type Yes/No: <Y> = yes, <N> = no

9127 SYSTEM SETUP INFORMATION DOWNLOAD

Host -	<Stx><W><W_Data><Etx><Bcc>	- DownLoad setup
9127 -	<Ack>	- to Acknowledge Request
	<Ack>	- to Signal Setup Information was valid

Unsuccessful 9127 Request

9127 -	<Ack>	- to Acknowledge request
	<Stx><W><B><Etx><Bcc>	- System Busy
9127 -	<Ack>	- to Acknowledge request
	<Stx><W><I><Etx><Bcc>	- Non-Numeric Data in a Numeric Field
9127 -	<Ack>	- to Acknowledge request
	<Stx><W><R><Etx><Bcc>	- Data in a Field Out of Range

After an Error Code.....

Host -	<Ack>	- An Ack is Expected from the Host 9127 to Signal the End of the Request.

Record/Field Definitions

Field	Length	Type	Description
<W_Data>			System Setup Information Record
<SuprPw>	6	Alpha/Numeric	Supervisor Password
<FillerNo>	2	Numeric	Filler No
<DHWt>	2	Wt Formal	Drum Hit Wt
<Flw_Delay>	2	Numeric Sec .	Flow Delay
<Tol_Delay>	2	Numeric Sec.	Tolerance Delay
<LRaise_Time>	2	Numeric Sec.	Lance Raise Time
<STim1>	4	Numeric X.XX Sec.	Slow Time 1
<STim2>	4	Numeric X.XX Sec.	Slow Time 2
<IDEnb>	1	Yes/No	Enable Id Entry
<IDPrmpt>	8	Alpha/Numeric	Variable ID Prompt
<IDLngth>	2	Numeric	Variable ID Length
<CnEnb>	1	Yes/No	Enable Consecutive Numbering

<CnGlbl>	6	Numeric	Consecutive Drum number (By Machine)
<SumEnb>	1	Yes/No	Enable Summing
<SumPrtct>	1	Yes/No	Protect Summing
<PrdEnb>	1	Yes/No	Enable Production Orders
<POTEnb>	1	Yes/No	Print Order Totals
<SlctEnb>	1	Yes/No	Select ID Key Enable
<DLogEnb>	1	Yes/No	Enable Drum Log Table
<M_Corr>	1	Yes/No	Enable Manual Tolerance Correction
EndRecord	___		
Total	49	Bytes	

SET 9127 TIME & DATE

Host -	<Stx><X><T_Data><Etx><Bcc>	- to DownLoad System Time & Date
9127 -	<Ack>	- to Acknowledge Request
	<Ack>	- to say that the command was Accepted

Unsuccessful 9127 data transfer

9127 -	<Ack>	- to Acknowledge Request
	<Stx><X><B><Etx><Bcc>	- Bad Time to Change Time & Date

Or

9127 -	<Ack>	- to Acknowledge request
	<Stx><X><D><Etx><Bcc>	- Date Field has an InValid Value

Or

9127 -	<Ack>	- to Acknowledge request
	<Stx><X><T><Etx><Bcc>	- Time Field has an InValid Value

After an Error Code.....

Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- An Ack is Sent Back by the 9127 to Signal the End of the Request.

See Code <T> for <T_Code> record structure.

CLEAR ALL PRODUCT ID RECORDS

Host -	<Stx><Z><Etx><Bcc>	- to Clear All Product Setup Information
	Successful 9127 Request	
9127 -	<Ack>	- to Acknowledge Request
		Followed By
9127 -	<Ack>	- to Acknowledge All Product Ids Have Been Deleted
	Unsuccessful 9127 Request	
9127 -	<Ack>	- to Acknowledge Request
	<Stx><Z><B><Etx><Bcc>	- 9127 In Use, Bad Time to Delete
	After an Error Code.....	
Host -	<Ack>	- An Ack is Expected from the Host
9127 -	<Ack>	- An Ack is Sent Back by the 9127 to Signal the End of the Request.

ESTABLISH COMMUNICATION LINK

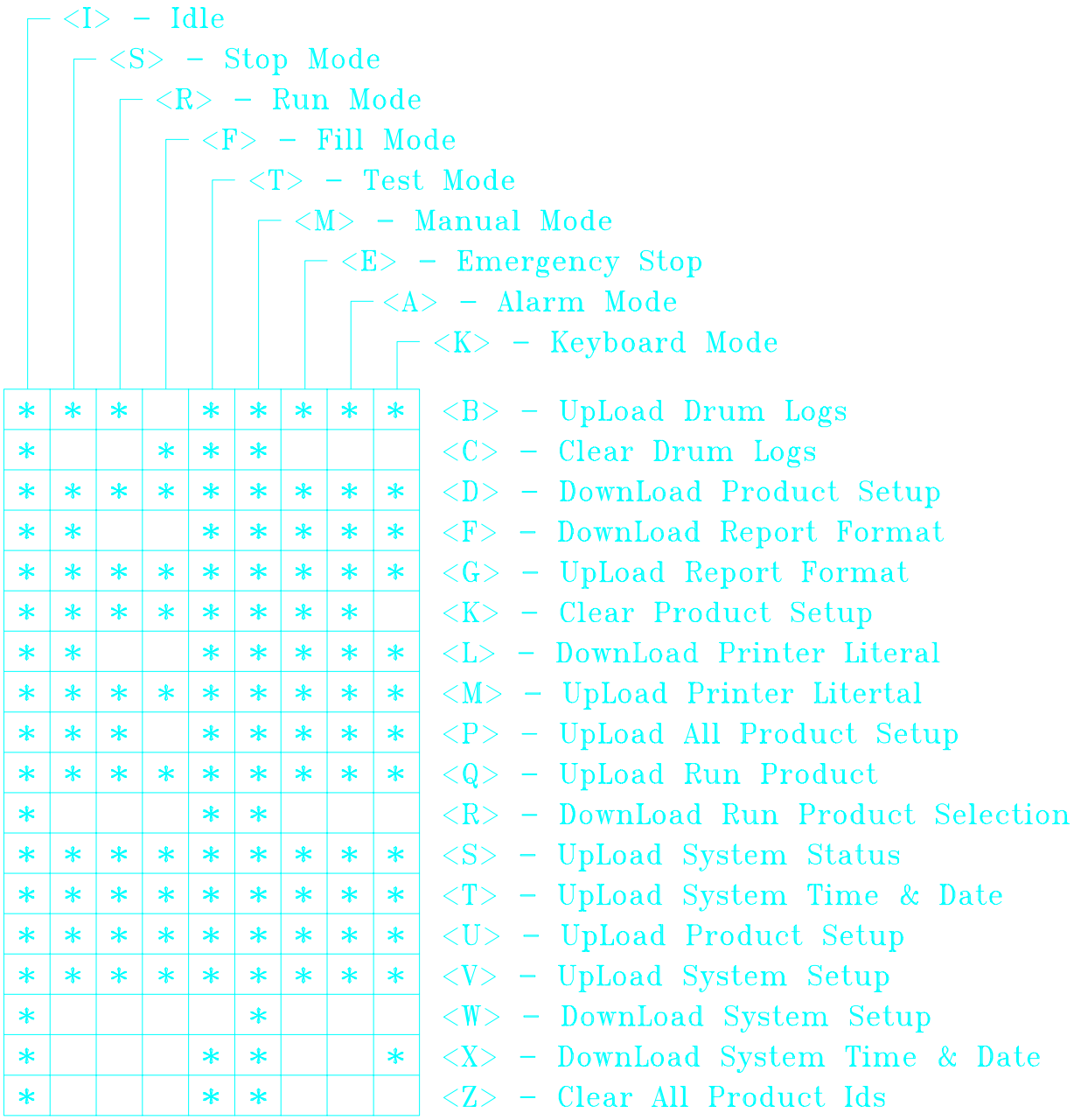
Host -	<EOT><drop address><ENQ>	- request link to 9127
9127 -	<ACK>	- link established
	Or	
9127 -	<NAK><Z>	- 9127 busy

BREAK COMMUNICATION LINK

Host -	<EOT>	- to Break the Link with any 9127's
9127 -	<EOT>	- to Mimic the Host

HOST REQUEST CODE VALIDITY TABLE

The following Table shows which Host Request Codes(rows) are available while the 9127 is in certain modes (columns). Asterisks (*) indicate the Code is valid and blanks ( ) indicate they aren't.



<I>	<S>	<R>	<F>	<T>	<M>	<E>	<A>	<K>	
*	*	*		*	*	*	*	*	<B> - UpLoad Drum Logs
*			*	*	*				<C> - Clear Drum Logs
*	*	*	*	*	*	*	*	*	<D> - DownLoad Product Setup
*	*			*	*	*	*	*	<F> - DownLoad Report Format
*	*	*	*	*	*	*	*	*	<G> - UpLoad Report Format
*	*	*	*	*	*	*	*		<K> - Clear Product Setup
*	*			*	*	*	*	*	<L> - DownLoad Printer Literal
*	*	*	*	*	*	*	*	*	<M> - UpLoad Printer Litertal
*	*	*		*	*	*	*	*	<P> - UpLoad All Product Setup
*	*	*	*	*	*	*	*	*	<Q> - UpLoad Run Product
*				*	*				<R> - DownLoad Run Product Selection
*	*	*	*	*	*	*	*	*	<S> - UpLoad System Status
*	*	*	*	*	*	*	*	*	<T> - UpLoad System Time & Date
*	*	*	*	*	*	*	*	*	<U> - UpLoad Product Setup
*	*	*	*	*	*	*	*	*	<V> - UpLoad System Setup
*					*				<W> - DownLoad System Setup
*				*	*			*	<X> - DownLoad System Time & Date
*				*	*				<Z> - Clear All Product Ids

INDEX of DISPLAY PROMPTS

—N—

—O—

—P—

—R—

—S—

—T—

—U—

—W—

—X—

RECORD OF SOFTWARE CHANGES:

Rev. H 4/96

1. Prohibited the start of a fill if UP and DOWN lance postions detected at the same time.
2. Prohibited the start of a sub-surface fill if the lance does not make a transition thru the OUT postion.
3. Cleared cycle slow control variables at the start of a fill sequence.

Rev. G 5/95

1. Corrected error that wouldn't allow switch from 9102 lance to 9127 lance operation, without forcing cold start.
2. Added disable of interrupts while testing RAM. This prevents false RAM failure errors.
3. Added keeping the Foot Valve open during Tolerance Delay, will close if Scale Weight equals Setpoint, else Foot Valve closes before Tolerance Check. This should help remove pressure build up's in the lance pipe after the ball valve closes.
4. Added a small delay and check for Motion before giving Tare Command to the Indicator. This to help prevent negative weight readings at start of fill.
5. Added turning off all outputs when entering the Test routines.
6. 'Corrected' when the Drum Complete output comes 'on'. It goes 'off' when Automatic Mode starts fill cycle, it comes back 'on' when lance is up at end of fill cycle. Is turned 'off' when switched to Manual Mode, and comes 'on' when switched to Automatic Mode if the lance is up. Is turned 'off' when entering Test Mode, will be turned 'on' when leaving test mode and the lance is up.
7. Changed display message, at the step when the program checks the container weight, for minimum and or maximum weight. The display now reads 'Container Check', was 'Tolerance Check'.

Rev. F 10/93

1. Limited the automatic negative Preact adjust to no more than 1% of the Setpoint value. Moved Preact Adjust to right after Tolerance Delay. Added code for Manual Correction to return to, and not re-calculate the Preact again. Preact is adjusted one time only, after Cutoff is reached.
2. Added a default for Flow Rate of 1.0 scale units.
3. Made Manual Correction 'enabled' the default for System Setup.
4. Added a default for Preact Adjustment Factor, default is 40%.
5. Added new Prompts for "Off High" and "Off Low" when Manual Correction is enabled, new Prompts are "m Off High" and "m Off Low".
6. Added a default value of 90 for Cycle Slow Timer.
7. Changed default for Lance Raise Duty Cycle from 50 to 20. This default slows down the lance, if default is used.
8. Changed Lance Raise time default from 10 to 20.
9. Changed Flow Fault minus counts to 3 consecutive. A positive delta flow will reset negative counter. This allows 3 seconds of consecutive negative flow.
10. Added display of the Setpoint value when filling Slow or Fast.

RECORD OF SOFTWARE CHANGES (Continued):

Rev. E 09/93

1. Added scanning of available Product IDs when Selecting a Run ID. Pressing <UpArrow> shows next Id.
2. Fixed Surface mode trying to raise lance at end of fill if Out of Drum input is ON.
3. Added code to allow configuration switch #3 to Configure for 9127 lance (off) or 9102 lance (on). Sw-1 must be on (surface mode) if Sw-3 is on.
4. Added count up to 6 minus weight changes during fill before Flow Fault. This equals 6 seconds.
5. Removed code that wouldn't allow user to change Configuration switches and keep data. Added code to Id Setup to prevent errors on switching.
6. Added code to prevent user from selecting a 'blank' Run ID and exiting with <Reset> key.
7. Corrected check of drum count to equal two characters, was checking for one character.
8. Added code to allow first Slow Fill to Setpoint minus Preact. This would be used for small containers.
9. Made Position Fault a non-fatal error.
10. Corrected code error that could prevent System Setup from advancing past Flow Delay timer setup.
11. Changed Sub-Surface operation to raise lance slow to In Drum Limit rather than fast raise, this is before the Tolerance Check.
12. Added check for the additional ram chip "U5" on the P.C. Board.

Rev. D 03/93

1. Fixed error in ID Setup check.
2. Increased Host Input Silo from 200 to 260 bytes.
3. Added: if Minimum Flow Rate is set to "-1"; positive and negative Flow Rate checking is disabled.
4. Enhanced Printer Literal Setup Mode.
5. Fixed Printer Buffer problem. It was limited to 150 characters, It now can handle 250 as advertised.
6. Removed check for Maximum Drums in the Host code.
7. Disabled 9127 Host Auto Log-Off feature. It now operates as a true slave device.
8. Fixed "CPU Failure D" problem.
9. Enabled "Negative Preact Adjust".
10. In the "Subsurface" mode the lance will move to the "In-Drum" position before doing a "Tolerance Check".
11. Added "Product I.D. Setup" Report Header.
12. Fixed "Lance Not Down" alarm recovery. It will now return to the previous state.
13. "Cycle Slow Timer" is disabled if set to zero.
14. Removed "RS232/20mA" selection from printer setup. The printer port is always active for both.
15. Changed "ID" prompt to "RUN ID:".
16. Changed "ID?" prompt to "PROD. ID?".
17. Added "(C)OPY (D)EL (E)DIT" function to ID Setup Mode.
18. Changed all prompts from "UPPER" case to "UPPER and lower" case.
19. Changed number of pointers passed to "FindPointer" code from 17 to 19. This fixed a potential problem with the ticket printing routine.

RECORD OF SOFTWARE CHANGES (Continued):

Rev. C 10/92

1. Checking of ID caused ID Setup Error when in Multi-Drum mode, corrected this error.

Rev. B 10/92

1. Added calculation of Setpoint, Added checking of ID when <RESET> key was used to exit and at end of ID Setup.
2. Corrected errors in HOST code and filler status flags for the Host upload.
3. Added Manual Correction, to allow user to adjust Out-of-Tolerance condition to In-Tolerance, then store/print data.

Rev. A 07/91

1. Fixed problems in code that would allow lance to start rising after a E-STOP was reset, and added flushed keyboard buffer at E-Stop condition so that non active keys were not stored in buffer.