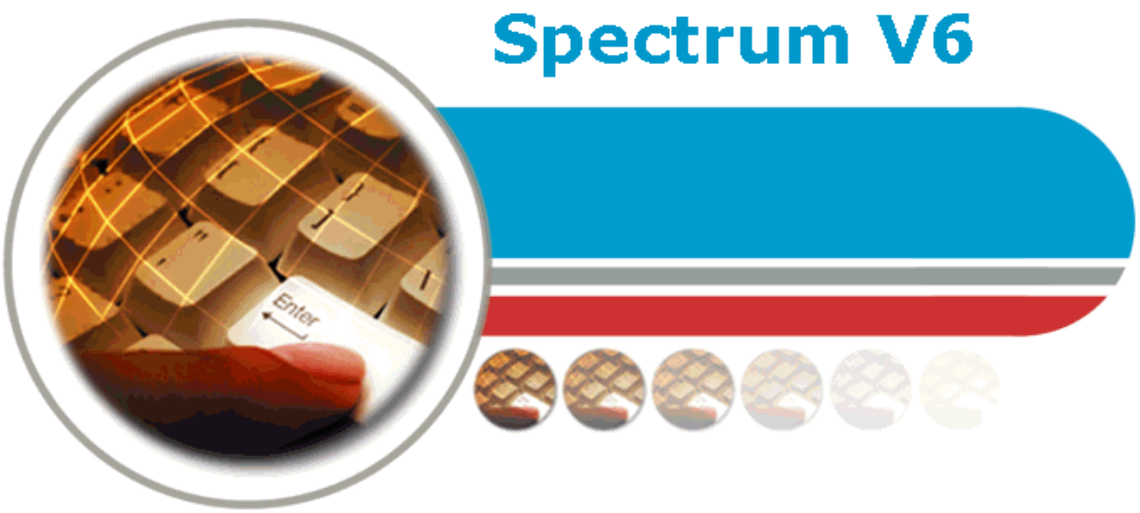

Spectrum
User Guide

Version 6.24
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Command Alkon
Solutions To Build On

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B: MOISTURE PROBE INSTALLATION
C: SPECTRUM SETUP FOR STATE INSPECTIONS
D: MIX DESIGN POLYNOMIALS SETUP GUIDE

INTRODUCTION

Congratulations on your purchase of Command Alkon's Spectrum Batching System for your ready-mix concrete company. Spectrum offers you complete ready-mix operations functionality; including batching, reporting, quality control, scheduling, order tracking, inventory, dispatching, and mix design maintenance management. All aspects of the Spectrum System are linked through a central database. Spectrum can also be linked to existing accounting or general ledger software.

Spectrum also offers you direct control of your concrete mixing and batching activities. With Command Alkon's moisture probe, you can generate an accurate reading of material moistures at any point in the batching process, allowing you to accurately determine the amount of water necessary for the desired mix.

This *Guide* is designed to help you make the most of your new Spectrum System. We're sure you'll find that working with Spectrum will lead to more efficient operation of your ready-mix concrete company. Ensuring the accuracy and speed of your batching processes will allow you to react quickly to changing conditions and improve your ability to respond to customer needs.

AUDIENCE

This *Guide* is intended for the use of managers, dispatchers, and batch persons who operate ready-mix concrete plants. Additional technical material regarding the Spectrum System is available through Command Alkon Technical Support at (614) 792-0677.

REGULATORY COMPLIANCE

MN / DOT CERTIFICATION

Spectrum V6.19B (and later) produces a Certificate of Compliance (concrete batch ticket) that complies with Mn/DOT Specification 2461.4D7a, dated September 7, 2001.

CALIFORNIA TYPE EVALUATION PROGRAM (CTEP) APPROVAL

Certificate Number: 5534-07

This device was evaluated under the California Type Evaluation Program (CTEP) and was found to comply with the applicable technical requirements of California Code of Regulations for "Weighing and Measuring Devices".

REVISIONS

September 22, 2000	• Updated section on Exporting Batch Weights to include the option of exporting load-level weights. • Restructured Ticket Printing information. • Added more details about batch weights (on reports and tickets). • Added section on Mixer Operation.
June 20, 2001	Added information about using math calculations in the Data column of the Ticket Layout Editor (see *"The Ticket Layout Editor Screen"*).
August 21, 2001	Added sub-section about Ulink Admix Modifiers to the *"Admix Designs"* section.
August 28, 2001	Added example of Truck Production Report.
September 7, 2001	• Added section on Slump Tables and slump calculations. • Updated list of new features for V6.18.
September 11, 2001	Added sections on Batching Defaults and System Defaults screens.
September 20, 2001	Added section on Device Property Sets.
October 9, 2001	Updated description of Batch Weight options and moved this information from the Reports section to just before the Advanced Batching Features section.
October 12, 2001	• Updated field descriptions for Ingredients screen. • Replaced old disclaimer page with the new one.
October 15, 2001	Updated field descriptions for Batch Weights reports according to new oven dry moisture calculation changes.
October 16, 2001	Added sections on Material Calculations screen and Slurry Calculations.
February 27, 2002	• Added section on setting up the printer, and updated description of 'Tracepoints' field of Port Parameters screen. • Updated description of 'Record SOZ as Batched?' field of Ingredients screen.
March 1, 2002	• Updated description of 'Tracepoints' field of Ingredients screen. • Updated descriptions of items on Batch Weights reports.
April 4, 2002	Added sections on "Editing Truck Code Before Discharge" and "Editing Truck Code After Discharge" to the "Adjusting Batching Information" section.
August 19, 2003 to September 30, 2003	Updated the user guide for V6.19. Consolidated the U.S. and Metric user guides into one. **Note:** The U.K. switch_date script is now incorporated into the general release. The script file makes the required .profile and

	message file modifications then recompiles the msgfile.bin file. Backup files are created as before.
April 5, 2004	Updated user guide for V6.20A.
May 3, 2004	Final proof for print vendor.
November 16, 2004	Added appendices to the PDF for the print vendor.
March 16, 2005	Updated the manual for V6.21A (see New Features for a list of features added to this guide).
March 17, 2005	Updated descriptions for Fast, Timed, and Jog feed types.
March 21, 2005	Corrected description of Jog Feed and reviewed final proof for print vendor.
May 9, 2006	Added feature enhancements for V6.22A and V6.22B. Moved the section on setting up a serial scale to the External Serial Device Setup Guide.
December 20, 2006	Re-posted manual on Command Alkon website.
January 5, 2007	• Updated the manual with the following feature enhancement for V6.23A: The Batch Weight Options screen now includes a flag called "Print Batched UOM" that must be set to "Y" for state inspections so that printed scale or meter values use the same UOM as their respective measuring devices. • Added a section to the Introduction about regulatory compliance with Mn/DOT and CTEP state inspection requirements.
July 31, 2007	• Revised description of the Allow Link Mix Conversion field of the System Defaults screen to require that this flag be set to 'Y'. • Prepared new V6.23 masters for the print vendor.
August 14, 2007	Added CTEP approval number (5534-07) to page 10.
July 10, 2008	Replaced all instances of Zip disk with USB removable device. Change is effective for V6.23B.08 and later.
September 23, 2008	Added the section: "Making a Local Ticket a Dispatch Ticket".
November 10, 2008	Updated this manual for V6.24A.
April 28, 2009	Added new User Setup screen example showing the Enforce Based On Check field, along with a description of this new field.
July 6, 2009	Updated the list of Calculation Types used on the Material Calculations Screen to include the "I" and "J" types that deal with excluding returned concrete amounts from load size calculations. Also added a text description of each calculation type.
Feb. 9, 2010	Added description of "Auto HH:MM:SS" and "Manual HH:MM:SS" to Common Items on Batch Weight Reports section.

USER'S GUIDE TERMINOLOGY

The following conventions are used throughout this *Guide* to bring attention to fields, screens, menus, keystroke commands, and features.

MENU, SCREEN, AND DATABASE NAMES

When a particular Spectrum menu, screen, or database table is discussed in the text, its name appears in the following style:

CUSTOMERS screen

MENU AND SCREEN LOCATIONS

Screen locations within the Spectrum system are indicated as follows:

MAIN MENU ➡DATA ENTRY ➡CUSTOMERS

For example, to access the **CUSTOMERS** screen indicated above, start at the **MAIN MENU**, select "Data Entry," then select "Customers" from the **DATA ENTRY** menu.

FIELD NAMES

When a field is discussed, its name appears in the following style:

Order field

KEYSTROKE DESIGNATIONS

Keyboard letter keys are displayed in bold font inside square brackets as follows:

[F2] [ENTER] [TAB]

Keystroke combinations (pressing two or more keys at the same time) are shown with a plus sign (+) between the key's names. Example:

[ALT + C]

FEATURES & FUNCTIONS

Where possible, features and system functions appear in the following formats:

Batch on Receipt feature
Update Inventory function

REFERENCES TO OTHER SECTIONS OF THIS GUIDE

Sections of this *Guide* are cross-referenced as follows:

(See *"Batching Operations"* for more information.)

SPECTRUM SYSTEM TERMINOLOGY

The following terminology is used throughout this *Guide* when referring to different parts of the Spectrum System.

DATABASE

A *database* is a group of electronically stored information that can be retrieved and used so that it does not have to be re-typed every time it is needed. The Spectrum System contains a single *database* for your company. Most of the information stored in the Spectrum database is accessible through **DATA ENTRY** screens.

DATABASE TABLE

The Spectrum System database consists of many *tables*. Each *table* contains separate, like information (e.g., information on customers is stored in its own **CUSTOMER** database *table*).

RECORD

A *record* is a collection of information about a specific item in a database *table*. A *table* can have many records. For example, the information stored for one customer is a *record*. *Records* are composed from information stored in fields. *Records* are viewed, created, and modified using **DATA ENTRY** screens.

FIELD

All data is entered into *fields*. Each time you view a Spectrum screen, you are looking at an assortment of *fields*. Think of a screen as a form with *fields* as blanks where you enter data. Each *field* contains a particular type of data (e.g., **Customer Name, Unit Price, Project Number**, etc.).

NODES / TERMINALS

All IBM PC-compatible computers are called *Nodes.* Attached serial terminals are referred to as Terminals.

CHARACTER

The term *character* refers to a single letter, symbol, or digit. For example, "A", "*", and "2" are each a single *character*. In contrast, the number "100" is three *characters* long. Each field consists of a certain number of *characters*.

NEW FEATURES

The following features have been added to the Spectrum software since Version 6.18. The current software version is 6.23.

Note: Information about feature enhancements is provided in the Release Notes for the appropriate Spectrum version.

FEATURE	DESCRIPTION	VER.
Multi-Tier Tolerances	You can now enter tolerances for small loads. Per ASTM guidelines, once set of tolerances is used if the target weight is over 30 percent of the scale capacity, and another set is used if the target weight is under 30 percent of the scale capacity.	6.19B
Batch Size Round By Factor	A field for entering a round-by factor for batch sizes has been added to page 2 of the Batching Defaults screen (New York State requirement).	6.19B
Final MnDOT Changes	You can now print MnDOT standard column headers on the batch weights portion of tickets by selecting this option on the Batch Weights Options screen.	6.19B
Extra Devices Now Displayed on Graphics Screen	Extra devices with temper/external interfaces are now displayed on the Graphics, Readout Display, and Scale Meter I/O screens. New fields were also added to the Extra Devices Screen.	6.19B
Specific Gravity can now be printed with Batch Weights	You can now select this option on the Batch Weight Options screen so that the specific gravity percentage for gray water systems can be printed.	6.19B
User Security not needed to Print Event Log	Users who do not have access to the Plant Setup menu can now print the Event Log from the Readout Display screen, which can be accessed from the Reports menu or by pressing <F3> from the Batch Setup screen.	6.19B
Effectiveness Field now has 2 Decimal Places	This field on the Ingredients screen now allows two decimal places.	6.19B
EN-206 Changes	Two new fields have been added to some Spectrum screens to describe concrete production in terminology required by the EN 206 Standards. The new fields are: Ext. Description and Consistence. Affected forms are Mix Designs, Projects, Orders, Batch Setup, and Ticket Editor.	6.20A

FEATURE	DESCRIPTION	VER.
Average Moisture Report	This report is new. It shows average monthly moisture for materials used for batching. Both SSD and total moisture averages are shown. The "Average Moisture" selection has been added to the menu for Inventory reports under the Reports Menu.	6.20A
End of Day / End of Week Modifications	You can now select the "Average Moisture" and "Truck Production" reports on the End of Day and End of Week Setup screens. These reports will then be printed when the End of Day and End of Week processes are run.	6.20A
Spectrum I/O Mapping Modified for Eagle	Because Eagle counters are not defined by IO position, Spectrum's digital IO mapping and counter mapping have been reworked to not use hard-coded mapping. Also, Eagle scales and counters have been reworked so that a maximum of 32 can be defined.	6.20A
Can Now Use Batch-level Variables as Global	All devices used in a load have internal batch-level variables of a specific pattern. Example: BIN01 has batch level variables BIN01_STAR, BIN01_SCAL, BIN01_ATAR, etc. If a global variable that matches a batch-level variable is entered on the Custom Controls Editor, the system now maps the value of the batch-level variable to the global variable. For example, the user could enter "CEM SCALE_ATAR" on the Custom Controls Editor. Then when the system was rebooted, the system would create the variable as global.	6.20A
Junction Box Test in Training Mode	You can now use the Junction Box Test function when no manual station is attached. To do this, set the Default Simulation field on the Batching Defaults screen to "T". Then you can toggle IO points on the Junction Box Test screen.	6.20A
Main ScoreBoard Starts Device-Based ScoreBoards	The main ScoreBoard program now starts device-based scoreboard programs (if any are defined) before checking for the main scoreboard.	6.20A
IO Values Sent as ASCII from Serial Ports	IO values can now be sent in ASCII format from a serial port. The following two serial converters that take in serial data and output 4-20mA can be used: Advantech Model: ADAM-4020 (www.advantech.com) icpdas Model: I-7021 (www.icpdas.com)	6.20A

FEATURE	DESCRIPTION	VER.
Motion Detection	Motion Detection ensures that a scale's reading is stable before its value is recorded.	6.21A
Auto Bin Switching	Auto Bin Switching causes the system to automatically select an alternate source without operator intervention when a feed timeout occurs.	6.21A
Flow Control Dampening	Flow Control Dampening allows scale flow rates to be dampened to allow more precise feed cutoff calculations and drop determinations.	6.21A
USB Support for Backups and Data Transfers	This feature allows Spectrum data to be backed up and exported to a USB device, as well as restored data from a USB device. The USB device is typically a QNX formatted "thumb drive" and replaces the Zip drive and disk.	6.23B

POWER-UP AND SHUTDOWN PROCEDURES

POWER-UP PROCEDURE

The Spectrum System's power-up procedure involves two steps, which should always be performed in the following order:

1. Turning on the Spectrum computer, and
2. Turning on plant power.

If the Spectrum was not properly shut down before it was turned off, it automatically rebuilds the database. Otherwise, the Spectrum starts immediately. Once the Spectrum is turned on, the **MAIN MENU** shown below is displayed. You can now turn on the plant power.

Main Menu

NOTE: Control power to the Manual Station should always be left on.

RESTARTING A NODE DURING THE DAY

CAUTION ! Nodes other than Node 1 can be restarted **without** causing data corruption problems. **If you must restart Node 1, ask ALL other users to stop their activity first.** If Node 1 is restarted in the middle of the day, all other nodes must also be rebooted.

The preferred method for rebooting a node is to use the keyboard. To reboot a node from the keyboard, press and hold **[CTRL+SHIFT+ALT]**, then press the **[DEL]** key on the numeric keypad. Next, release all the keys. The screen counts down from 10 to 0, then the node reboots.

If after several attempts the keyboard reset method does not reboot the node, press, then release the RESET button on the front panel of the node if the node has such a button.

If neither of the above methods works, switch the node's power off then back on using the node's main power switch. This places stress on the node's circuits, and should be used only as a last resort.

BOOTING INTO DOS

Besides the QNX 4.2 partition, DOS and Windows programs can also reside on Node hard drives or partitions. If the DOS hard disk partition has not been deleted, nodes other than Node 1 may be shut down at any time, restarted with DOS, used with DOS or Windows programs, then restarted with the Spectrum without affecting the operation of the other nodes.

To start the node with DOS:

1. Reboot the node by pressing **[CTRL+SHIFT+ALT]**, then pressing the **[DEL]** key.
2. Release all of the keys.
3. When the node screen displays "Boot Partition X", where "X" is the number of the hard disk partition that is booting up, press the number of the partition on which you have installed DOS.

To return to Spectrum, exit DOS, then press **[CTRL+ALT+DEL]**. Release all of the keys at the same time.

USING WINDOWS FROM THE SPECTRUM

Customers with the ***Microsoft Windows Access from Spectrum*** option may start Windows directly from the Spectrum without rebooting the PC. Do **NOT** start Windows on a node when that node is in the middle of a batch. To start Windows from Spectrum, press **[ALT + W]**. Starting Windows will not affect the operation of other nodes, but the node on which you started Windows will not be able to batch until you exit Windows. When you exit Windows, the Spectrum screen will re-appear.

SHUTDOWN PROCEDURE

Shutdown is automatically performed at the end of the *End of Day* process. If you wish to shut down before the end of the day, the **Quit Spectrum** procedure given below should **always** be followed.

CAUTION! **Never** shut the computer's power off unless you perform either an **End of Day** or a **Quit Spectrum** procedure. Failure to do so can result in data loss.

QUIT SPECTRUM PROCEDURE

1. Select **MAIN MENU➡QUIT SPECTRUM**. A warning screen appears.
2. Press **[F1]** to acknowledge the warning. The system begins the shutdown process (this may take a few minutes). The Spectrum system informs you when shutdown is complete.
3. Turn off the power to the Spectrum computer.

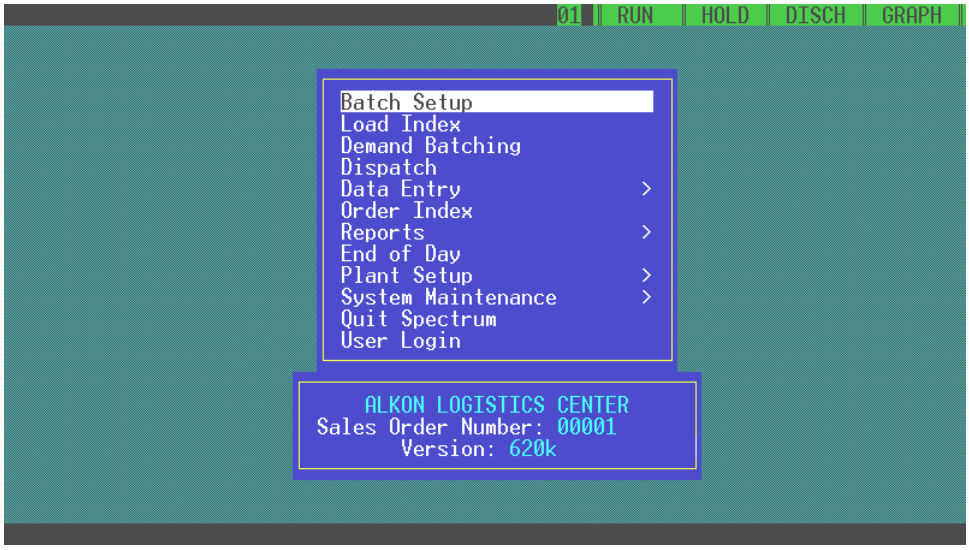
NOTE: If you try to quit the Spectrum while a batch is in progress, a warning message appears. You can continue with the shutdown (by pressing **[F1]**), but inventory and other data may be affected.

NAVIGATING THE SYSTEM

ACCESSING SCREENS

Menus. Spectrum screens are accessible through menus. Available screens are listed as menu items (see the sample screen below). Activating a menu item is as easy as selecting the option on the menu and pressing **[ENTER]**. To select a menu item, press the **[↓]** key to move down to the item, or the **[↑]** key to move up. Each time you press one of the arrow keys, the cursor is moved up or down one line.

Main Menu



Sub-Menus. Some menus have sub-menus. A ">" symbol is shown to the right of each sub-menu as shown on the screen below. A sub-menu is accessed the same way as any menu item (by highlighting it and pressing **[ENTER]**).

Function Keys. Function keys (F1 through F12 at the top of the keyboard) are also used to access certain screens. When function keys are used in this way, labels are provided. Labels for F1 through F8 are provided at the bottom of the screen, labels for F9 through F12 at the top.

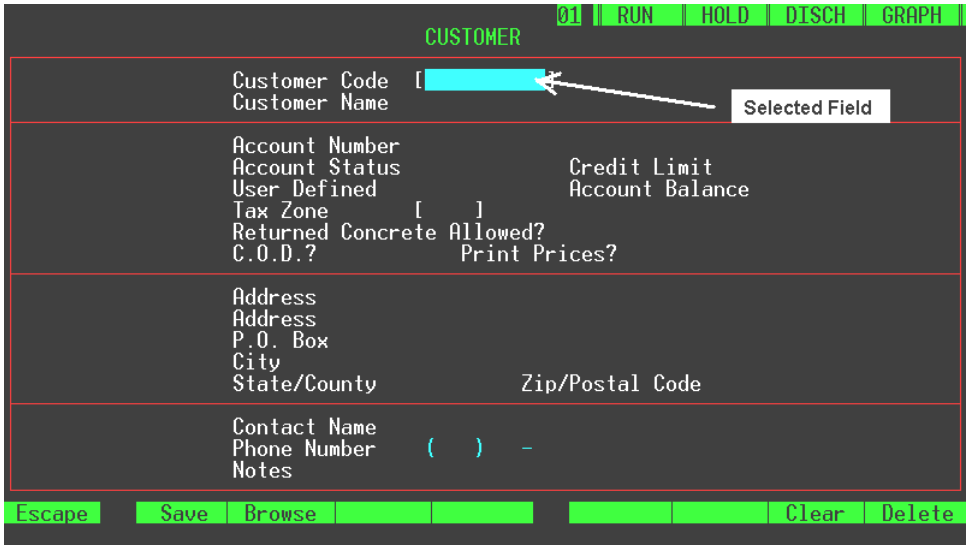
NOTE: F9 through F12 are reserved for batching functions (F9 - RUN, F10 - HOLD, F11 - DISCH, and F12 - GRAPH).

MOVING WITHIN SCREENS

SELECTING A FIELD

To enter data into a specific field, that field must be selected. When a field is selected, it is highlighted in a distinct color – usually light blue (this cannot be shown in the example below). **Customer Code** is the selected field below. When a new screen is accessed, the top-leftmost field is typically selected by default.

Field (selected)



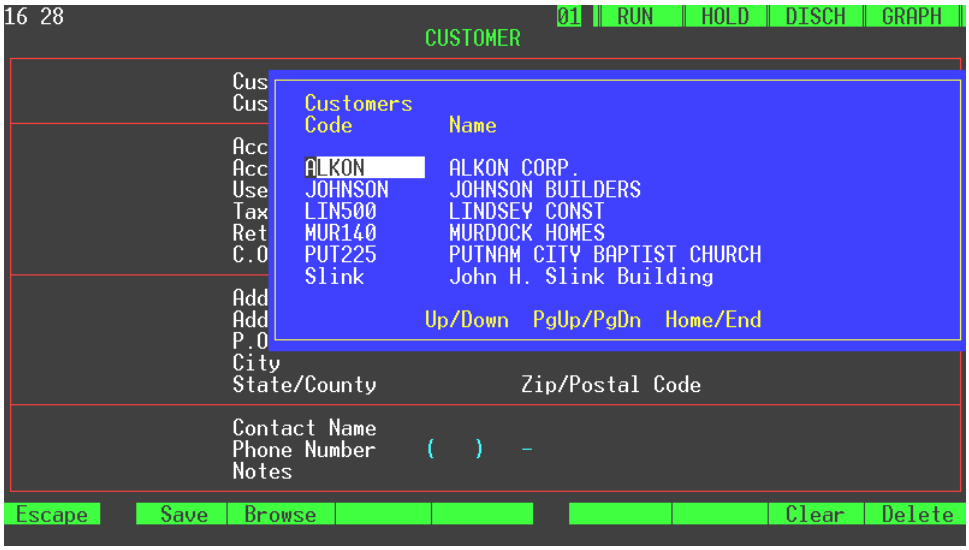
MOVING FROM FIELD TO FIELD

As mentioned above, the cursor is normally on the top, leftmost field when you access a screen. To move forward one field at a time, press one of the following keys: **[TAB]**, **[ENTER]**, or **[↓]**. To move backward one field at a time, press either **[SHIFT+TAB]** or the **[↑]** key.

SELECTING ENTRIES FROM BROWSEABLE FIELDS

Browseable fields have square brackets around the entry area as shown in the previous example. By pressing **[F2]** from the browseable **Customer** field below, you can pull up a list of valid customer entries. You can then use the up and down arrow keys to highlight the desired entry, and press **[ENTER]** to pull the entry into the **Customer** field.

Field Browse List



SHORTCUTS:

- To move to the next page of a browse list, press **[PAGE DOWN]**; to move to the previous page, press **[PAGE UP]**.
- To move to the end of a browse list, press **[END]**; to move to the beginning of a browse list, press **[HOME]**.
- **Incremental Search.** After pressing **[F2]**, you can type the first letter of the entry you want from the list. When the browse list appears, the first entry beginning with that letter is highlighted. To get even closer to the desired entry, you can type the second letter, then the third, and so on.

ACCESSING FIELD HELP

Additional information is available online for many fields. To access online help for a non-browseable field, select the desired field and press **[F2]**. To access online help for a browseable field, select the desired field and press **[F2]** two times. If no online help exists for the selected field, the system displays a message stating that no online help is available.

EXITING MENUS AND SCREENS

To exit a menu or a screen, press **[ESC]**. This method of exiting removes menus and screens sequentially until you get to the **MAIN MENU**.

NOTE: To shut down the Spectrum, always follow the *"Shutdown Procedure"* given in this guide.

MENU LAYOUT

To help you understand how the Spectrum system functions, we have provided a menu layout diagram on the following page. There are many screens listed in the diagram, but don't worry. You don't have to know about them all. Screens dealing with plant and system setup, for instance, are not even listed on your Main Menu. Only those screens pertinent to running batches are listed on your Main Menu.

SUB-MENUS

As you look at the diagram on the next page, notice that everything flows from the **MAIN MENU**. The Main Menu is the gateway to all system functions, including batching. Menu items followed by a ">" are sub-menus. For example, the "Data Entry" item on the Main Menu is a sub-menu of the Main Menu. Similarly, "Update Inventory" is a sub-menu of the Data Entry Menu.

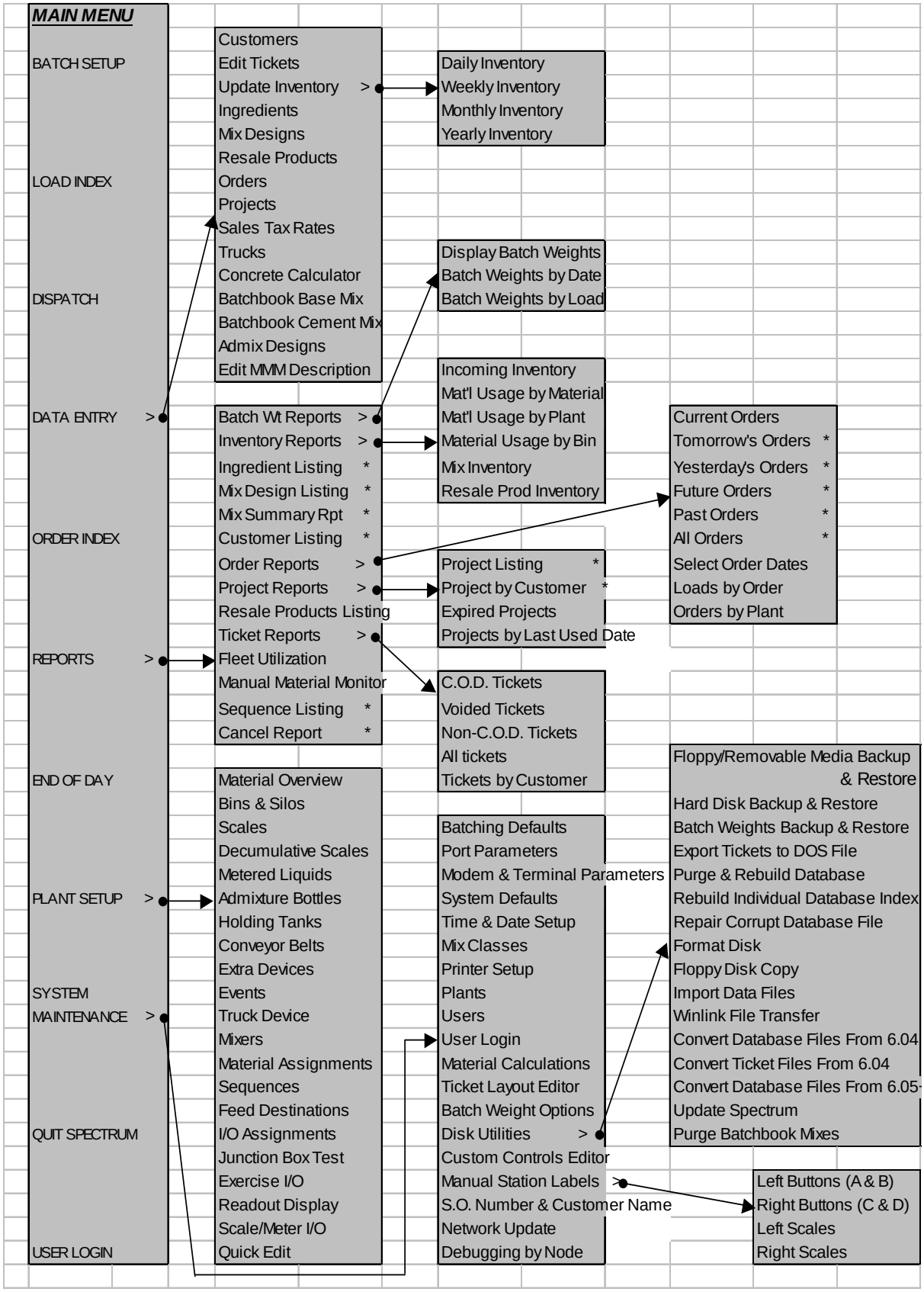
"*" LISTED BESIDE A REPORT ITEM

An asterisk "*" is shown to the right of the some of Reports. This means the report will be generated and sent directly to the printer when you select the item and press **[ENTER]**.

"NOTHING" LISTED BESIDE A REPORT ITEM

Some reports have neither a ">" or a "*" beside them. This means another screen appears so you can enter specific parameters for the report (e.g., a range of dates). Examples of these kinds of reports are Fleet Utilization and Current Orders.

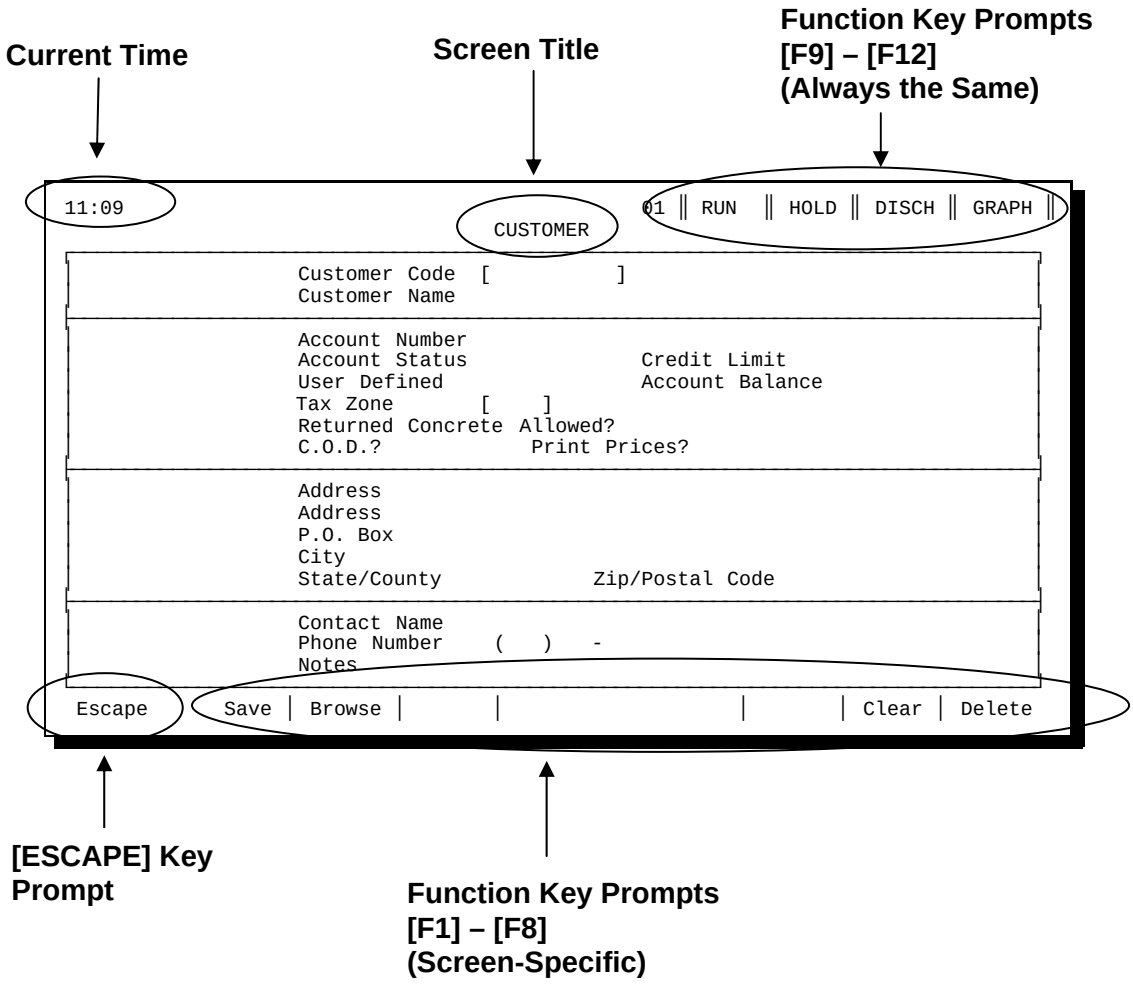
Spectrum Menu Structure



NOTES: > means the item is another menu.
* means the report will be generated and printed.

BASIC SCREEN LAYOUT

Each Spectrum screen has its own function, but the layout of most screens is similar. For example, function key prompts for batching are always displayed at the top-right corner. The example below shows items common to most screens. Each item is explained in more detail on the following page.



CURRENT TIME

The current time as set in the Spectrum system is displayed in the top-left corner.

SCREEN TITLE

A screen title appears at the top-center of every screen, except the **GRAPH** screen.

FUNCTION KEY PROMPTS FOR BATCHING

These prompts appear at the top-right of every screen so you can control the batch in progress while working on other screens. They are always: **[F9]** for Run; **[F10]** for Hold; **[F11]** for Discharge; and **[F12]** to pull up the **GRAPH** screen or to return to the previous screen.

IMPORTANT! It is highly recommended that you run batches from the **BATCH SETUP** screen only. You can start batches from other Spectrum screens if this option is activated (per user), but you cannot see which order is currently active.

ESCAPE KEY PROMPT

This prompt appears at the bottom-left of every screen. It is used to exit the screen. If you keep pressing **[ESCAPE]**, you will end up back at the **MAIN MENU**.

FUNCTION KEY PROMPTS (SCREEN-SPECIFIC)

These prompts (for Function keys **[F1]** - **[F8]**) appear along the bottom of every screen. They are different from screen to screen. For example, on Data Entry screens **[F1]** is used to save data, while on the Load Index screen it is used to access the **BATCH SETUP** screen. **[F2]** is typically used to access field help.

THE SPECTRUM DATABASE

WHAT IS THE DATABASE?

As stated earlier in this guide, a *database* is a group of electronically stored information that can be retrieved and used so that the same information does not have to be re-typed every time it is needed. The Spectrum System contains a single *database* for your company.

HOW IS THE DATABASE ORGANIZED?

Each screen listed on the **DATA ENTRY** menu represents a ***database table*** that contains a particular kind of information. The Customers database table, for example, contains information about customers only. Each database table is further subdivided into ***records***. A *Customer record*, for example, contains information about one particular customer. When you add a customer, you are adding another record to the Customer database table.

WHAT IS THE PURPOSE OF THE DATABASE?

Essential, business-related information such as customer names, mix designs, materials, trucks, and drivers is entered into and maintained in the Spectrum database. This data can then be inserted into other Spectrum screens (e.g., the **ORDERS** or **PROJECTS** screens) so the same information does not have to be re-typed each time it is needed.

The database is also used to maintain inventory records. When materials are added or used, the amounts are either added to or deducted from current amounts stored in the database.

Database information is automatically saved on the hard drive. However, it should also be backed up on (either on floppy disk or USB removable device) through the Spectrum's *Disk Utilities* function. For added security, printed copies should also be made.

Most of the information stored in the Spectrum database is accessible through **DATA ENTRY** screens, which are accessed through the **DATA ENTRY MENU** (shown next). **DATA ENTRY** screens are discussed in this section. However, they are not discussed in the order they appear on the menu. Rather, they are discussed in the order in which they should be set up. For example, Customers are discussed before Orders because customer information is used for order entry.

TO ADD A DATABASE TABLE RECORD

Records are added, edited, and viewed the same way for all database tables; therefore, this information will only be presented once.

1. Access the appropriate table through the **DATA ENTRY** menu.
2. In the **Code** field, type the code you are assigning to the record.
3. Fill in the remaining fields as appropriate.
4. Press **[F1]** to save the new record.

Remember: When you save a data entry screen, you are saving a record.

TO EDIT A DATABASE TABLE RECORD

1. Access the table that contains the record you wish to edit.
2. In the **Code** field, type or select from the browse list the code of the record you wish to edit.
3. Press **[ENTER]** to bring that record to the screen.
4. Tab to the field you want to change. Type over or delete the existing data. Do this for each field whose data you want to change.
5. Press **[F1]** to save the changes.

TIPS:

- To cancel the changes you just made, press **[F7]** before you exit the screen.
- To delete the record altogether, press **[F8]**.

TO VIEW A DATABASE TABLE RECORD

1. Access the table that contains the record you wish to edit.
2. In the **Code** field, type or select the code of the record you wish to edit.
3. Press **[ENTER]** to bring that record to the screen.

TO DELETE A DATABASE TABLE RECORD

1. Access the table that contains the record you wish to delete.
2. In the Code field, type or select the code of the record you wish to delete.
3. Press **[ENTER]** to bring that record to the screen.
4. Press the **[F8] - Delete key**. When prompted, press this key again to confirm.

SCREENS NOT DISCUSSED IN THIS SECTION

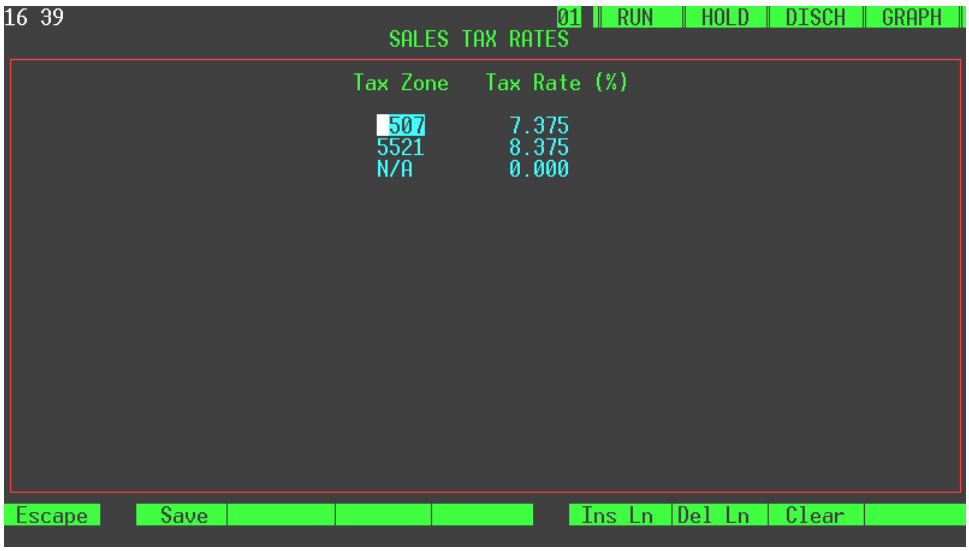
The following screens are not discussed in this section. Rather, they are discussed in other sections of this *Guide* or in one of the appendices.

Data Entry Screen:	Location in this Guide
Update Inventory	*"Inventory"* section.
Orders	*"Batching Operations"* section.
Concrete Calculator	*"Batching Operations"* section.
Batchbook Base Mix	See Appendix D.
Batchbook Cement Mix	See Appendix D.

SALES TAX RATES

Sales tax rates are stored in a database table and can be applied to product sales. To access the **SALES TAX RATES** screen, select **MAIN MENU➡DATA ENTRY➡SALES TAX RATES**. The screen shown next appears.

Sales Tax Rates Screen



FIELDS

FIELD	DESCRIPTION
Tax Zone	Contains the code assigned to the tax zone.
Tax Rate %	Contains the percentage of tax charged in the tax zone.

FUNCTION KEYS

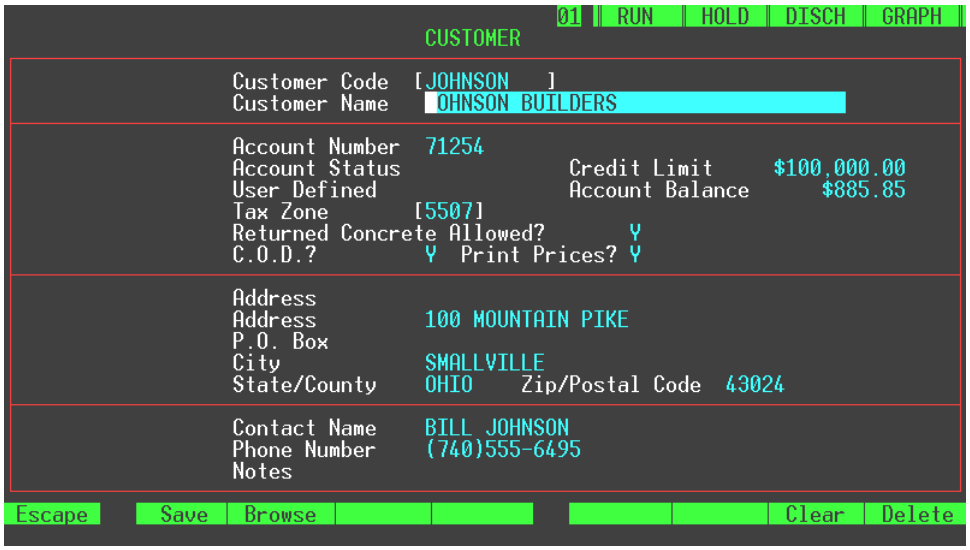
FUNCTION KEY	PURPOSE
[F1] - Save	Saves data you have entered or changed.
[F5] - Ins Ln	Inserts a new line above the line currently selected.
[F6] - Del Line	Deletes the line currently selected.
[F7] - Clear	Clears all data from the screen.

CUSTOMERS

Customer information is stored in the customer database table. This information includes things like tax rate, credit limit, credit status, and whether the customer allows returned concrete. This information can be inserted directly into the Orders or Projects screens.

To access this table, select **MAIN MENU➡DATA ENTRY➡CUSTOMERS**. The screen shown next appears.

Customers Screen



FIELDS

FIELD	DESCRIPTION
Customer Code	Unique code assigned to the customer. You may browse this field to see a list of customers in the database.
Customer Name	Full name given to the customer.
Account Number	Account number assigned to the customer account. Used for tracking purposes only - **Customer Code** is the main identifier of the customer account.
Account Status	Status assigned to the customer account. This is a free form entry field and is used for informational purposes only. If a status is entered in this field, it will be pulled onto the **PROJECTS** screen when a project is created for this customer.

FIELD	DESCRIPTION
Credit Limit	Customer's credit limit. If an order for this customer exceeds this limit, an error message is displayed at the bottom of the screen when the order is transferred to the Batch Setup screen.
User Defined	This is a free-form entry field and is used for informational purposes only.
Account Balance	Current customer account balance. System-generated based on the tickets generated for this customer code.
Tax Zone	Tax zone applicable for this customer. This browseable field must contain an entry from the Sales Tax Rates table.
Returned Concrete Allowed?	Yes or No field that specifies whether returned concrete could be shipped to this customer. Controls all returned concrete activity for this customer.
C.O.D.?	Yes or No field that specifies whether this customer is a cash or credit customer.
Print Prices?	Yes or No field that specifies whether prices will print on tickets generated for this customer.
Address	Address line 1.
Address	Address line 2.
P.O. Box	P.O. Box number, when applicable.
City	City of the customer.
State/County	Either the state or county of the customer.
Zip/Postal Code	Zip or postal code of the customer.
Contact Name	Name of contact person at the customer location.
Phone Number	Telephone number of the contact person.
Notes	Any notes you wish to attach to the customer account.

FUNCTION KEYS

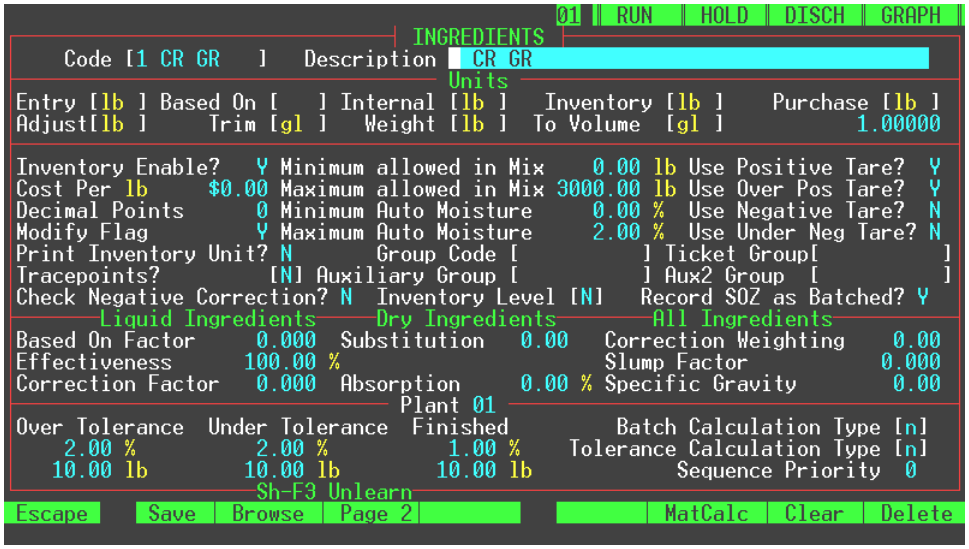
FUNCTION KEY	PURPOSE
[F1] - Save	Saves data you have entered or changed.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F7] - Clear	Clears all data from the screen.
[F8] - Delete	**Deletes the entire record from the database – make sure this is what you want to do!** You are prompted to press this key again to confirm.

INGREDIENTS

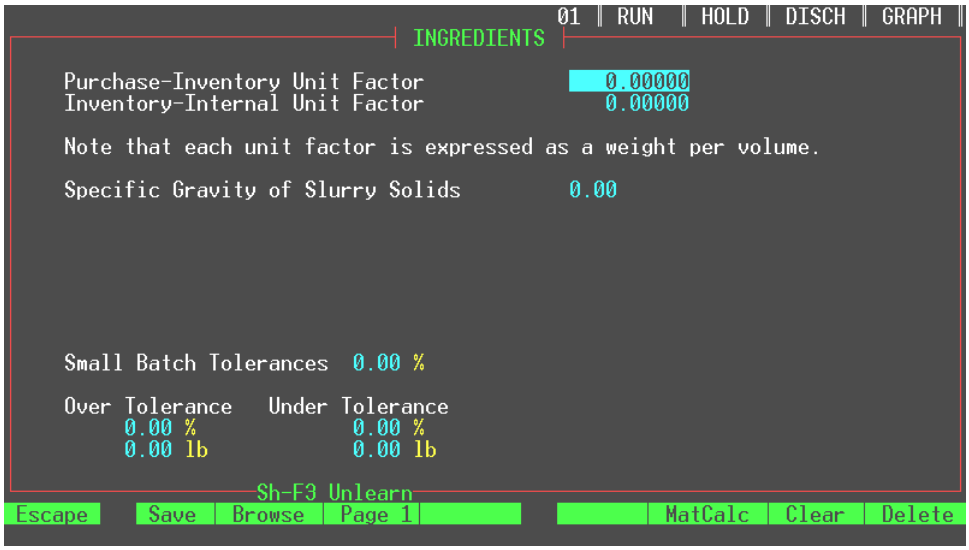
Information about ingredients is stored in the ingredients database table. Ingredients can be added, edited, and viewed on the **INGREDIENTS** screen.

To access this screen, select **MAIN MENU➡DATA ENTRY➡INGREDIENTS** to view, add, and maintain ingredients in your inventory. You may also access the **INGREDIENTS** screen directly from the **MIX DESIGNS** screen by pressing **[F3]** after accessing **MIX DESIGNS**. In either case, the following screen appears.

Ingredients Screen – Page 1



Ingredients Screen – Page 2



FIELDS

FIELD	DESCRIPTION
Code	Code assigned to the ingredient. You may browse this field to see a list of ingredients in the database.
Description	Description of the ingredient (e.g., 3/8" Rock).
Entry	The units used on the **MIX DESIGNS** screen for this ingredient.
Based On	Used only if the amount of this ingredient in a mix is based on the amount of another ingredient. Usually used for admix ingredients. Works with the **Based On Factor** field of this screen. Valid entries are: **/c** – The amount of the ingredient is based on each 100 lb/kg of another ingredient (usually cement). **%** - The amount of the ingredient is a percentage of the amount of another ingredient. **sg** – Used for slurry calculations based on the specific gravity of the slurry and water.
Internal	Units in which all internal calculations are done. This unit should be the least common denominator of all units entered in the *Units* section; so, it is usually lb/kg, or fl oz/ml.
Inventory	Unit of measure in which inventory for this ingredient is displayed.
Purchase	Unit of measure in which the ingredient is purchased.
Adjust	Unit used to perform the adjustment calculation on the ingredient. The amount of the ingredient in each load is changed by the amount entered for the adjustment factor. This is an absolute amount and is not proportional to the load size, as in the trim calculation. Usually used only with water.
Trim	Unit used to perform the trim calculation on the ingredient. The load size is multiplied by the trim factor to obtain the change in the ingredient amount for the load. Usually used only with water.
Weight	Unit of measure in which the material is weighed, such as lb or kg.
To Volume	Unit of measure for the volume of the ingredient, such as gallons (gl) or fluid ounces (oz). Mostly for liquids.

FIELD	DESCRIPTION
Unit Factor	Contains the number by which the weight of the ingredient is multiplied to obtain the volume (i.e., a conversion factor). This factor is usually used for liquids.
Inventory Enable	Yes/No field that enables/disables inventory checking of this ingredient in the **On Hand** column of the Inventory Period screens. Normally, this field is set to **Y**, except for waters. This field also enables/disables inventory checking for mixes and resale products.
Cost Per	Cost of the ingredient per *Inventory unit of measure.*
Decimal Points	Number of decimal points that appear on the **MIX DESIGN** and **BATCH SETUP** screens for the ingredient amount.
Modify Flag	A **Y** (yes) value permits you to modify the amount of the ingredient in the mix design on the **BATCH SETUP** screen. An **N** (no) value prohibits this action.
Print Inventory Unit?	When this field is set to **Y**, the inventory report will print in inventory units instead of internal units.
Tracepoints?	This field determines whether tracepoints are enabled and recorded in the Error file (for debugging). Options are: **Y** – enable Tracepoints. **N** – do not enable Tracepoints. **P** – (for Performance) enable Tracepoints and provide more details in the Error file.
Check Negative Correction?	A **Y** (yes) value tells the system to report an error if the material's target passes below zero after calculating the targets on the **BATCH SETUP** screen.
Minimum Allowed In Mix	Minimum amount of the ingredient allowed in a mix design, based on the **Entry** unit of measure.
Maximum Allowed In Mix	Maximum amount of the ingredient allowed in a mix design, based on the **Entry** unit of measure.
Minimum Auto Moisture %	Minimum moisture percentage reading allowed from the probe. Minimum that can be entered manually. Manual or Automatic.
Maximum Auto Moisture %	Maximum moisture percentage reading allowed from the probe. Maximum that can be entered manually. Manual or Automatic.

FIELD	DESCRIPTION
Use Positive Tare?	Works in conjunction with the **Zero Tolerance Over** field on the **SCALES** screen. If you enter a **Y** in this field, the system accepts any positive tare amount under the established tolerance. If you enter an **N** in this field, the system always uses a zero tare value, even if a positive weight exists. Example: Tolerance is set at 20 pounds. Target weight is 100 pounds. The scale registers a 15-pound positive tare. For a **Y** value, the system dumps 85 pounds of material onto the scale. For an **N** value, the system dumps 100 pounds of material onto the scale.
Use Over Positive Tare?	Works in conjunction with the **Zero Tolerance Over** field on the **SCALES** screen. If you enter a **Y** in this field, the system accepts any positive tare amount over the established tolerance. If you enter an **N** in this field, the system always uses a zero tare value, even if a positive weight exists. Example: Tolerance is set at 20 pounds. Target weight is 100 pounds. The scale registers a 30-pound positive tare. For a **Y** value, the system dumps 70 pounds of material onto the scale. For an **N** value, the system dumps 100 pounds of material onto the scale.
Use Negative Tare?	Works in conjunction with the **Zero Tolerance Under** field on the **SCALES** screen. If you enter a **Y** in this field, the system accepts any negative tare amount under the established tolerance. If you enter an **N** in this field, the system always uses a zero value, even if a negative weight exists. Example: Tolerance is set at -20 pounds. Target weight is 100 pounds. The scale registers a 15-pound negative tare. For a **Y** value, the system dumps 115 pounds of material onto the scale. For an **N** value, the system dumps 100 pounds of material onto the scale.
Use Under Negative Tare?	Works in conjunction with the **Zero Tolerance Under** field on the **SCALES** screen. If you enter a **Y** in this field, the system accepts any negative tare amount under the established tolerance. If you enter an **N** in this field, the system always uses a zero value, even if a negative weight exists. Example: Tolerance is set at -20 pounds. Target weight is 100 pounds. The scale registers a 30-pound negative tare. For a **Y** value, the system dumps 130 pounds of material onto the scale. For an **N** value, the system dumps 100 pounds of material onto the scale.

FIELD	DESCRIPTION
Group Code	Attaches the material to the appropriate material group. **Required for new ingredients!** Controls colors, calculations, and batching orders. Standard groups are: 1 AGG, 2 CEM, 3 WAT, 4 ADX, and 5 WATADX**.**
Auxiliary Group	Secondary material group for the ingredient.
Inventory Level	**N** means to display inventory by Bin/Tank/Silo **Y** means to display inventory by Plant. **S** means to display inventory System Wide.
Ticket Group	Attaches the ingredient to a ticket group. This controls the printing order of the material. For example, ingredients in the AGG group will print before ingredients in the ADX group.
Aux2 Group	Third material group for the ingredient.
Record SOZ as Batched? (SOZ means "Scale Over Zero.")	Normally, this field should be set to **N** (for No). It should only be set to **Y** (for Yes) in cases where bin or silo gates do not close all the way, allowing small amounts of material to leak into the scale between loads. In such cases, setting this field to **Y** allows the "leaked" material to be included in inventory usage for the next load. **Note:** This method of compensating for leaking gates should only be used temporarily. It is preferred that the gates be repaired.
Based on Factor	Used with the **Based On** field. Tells the system what factor to use if the target weight of this material is based on another material. Example: To batch one unit of this material per 100 weight of cement, enter a 1 in this field.
Effectiveness	The system uses this value to determine how much of this ingredient to actually batch. For example, if you are batching air that is 100% effective and the target for air is 50 ounces, the system batches 50 ounces. If you are batching air that is 50% effective and the target for air is 50 ounces, the system batches 100 ounces. This field accepts values with up to two decimal places (ex: 60.75).
Correction Factor	Typically assigned to calcium ingredients and used to determine water targets. Based on ingredient group type. Using **Calcium** as the primary group ingredient and **Water** as the secondary group ingredient, the calculation is as follows: **Water = Water – (Calcium * Calcium Correction Factor) * (Material Calculation Factor)**. Numerically this could be presented as **Water = 32 gl – 153.6 oz * 1.00 * 1.00**. Water then equals 30.8 gl.

FIELD	DESCRIPTION
Substitution	Ratio of this product when it is substituted for another. Acceptable values range from 1 to 1.2. Example: Target weight for cement is 500 lb. You want to substitute fly ash for 10 percent of the cement. However, cement and fly ash are not a one-to-one substitution. It takes 1.05 units of fly ash to equal 1 unit of cement. The substitution value for fly ash is 1.05.
Absorption	Percentage of moisture above Oven Dry needed to achieve SSD (Saturated Surface Dry) weight. SSD moisture can range from 1 to 3% above Oven Dry.
Correction Weighting	Applies to groups of ingredients. Example: Hot and cold water are both used in a mix design. However, correction needs to be made to water amounts due to the moisture in the sand. If both the hot and cold-water ingredients have a correction weighting value of zero, the system adjusts each amount proportionately based on their target weights in the mix design. However, if you assign a value of 1 to cold water and a value of zero to hot water, then the system makes the adjustments against the cold water. This is because the cold water is 100 percent of the total weighting of the two water group ingredients, i.e. 1+0=1 and the value of cold water is 1 which is 100 percent of the total. The numbers themselves don't carry any meaning except the ratio of the total of the entire ingredient group that they represent. If you want the correction to the water to be applied 50/50 percent between hot and cold water, then you could assign a value of 1 to both ingredients. Because they are both 50 percent of the 2, the adjustments would be applied at 50 percent per ingredient. This can work for more than two ingredients. Everything is still based on proportionate ratio. **Note:** If the system is applying an adjustment to an ingredient and that ingredient target goes below zero before the total adjustment is applied, the system applies the adjustment proportionately to the remaining ingredient targets in the mix design.
Slump Factor	Used for determining the water amount per mix unit (cubic yard or meter) per 1 inch or 1 mm for slump calculations. Typically, this value is 1.0 for US systems and .20 for Metric.

FIELD	DESCRIPTION
Specific Gravity	Specific gravity for the material. Used for calculating the mix design's yield on the **MIX DESIGNS** screen. Also used in slurry calculations. Quality control personnel normally provide this number.
Plant Code	Default home plant of the current user. This is not editable.
Over Tolerance %	Allowable percentage of over-tolerance amount based on the entry units for the plant. When calculating over-tolerance situations, the system uses either the material or plant over tolerance setting, whichever is greater. This field instructs the system when to flag the amount.
Under Tolerance %	Allowable percentage of under-tolerance amount based on the entry units for the plant. When calculating under-tolerance situations, the system uses either the material or plant under tolerance setting, whichever is greater. This field instructs the system when to flag the amount.
Finished %	Percentage of under- or over-target the system will allow for batch completion of this ingredient. Typically, this is one-half the under-tolerance value. Used mainly for speed in split batching where you would jog to less than 100% of the target. If the system weighs up in fast feed and has to jog, it jogs to the **Finished %** short of the target.
Batch Calculation Type	Tells the system whether to calculate the ingredient on an individual net basis or group cumulative basis based on the group code of the product. Value is either *C* (cumulative) or *N* (net). The type chosen here must match the type chosen in the **Tolerance Calculation Type** field.
Tolerance Calculation Type	Tells the system whether to issue a tolerance error for the ingredient on a net or cumulative basis based on the group code of the product. Value is either *C* (cumulative) or *N* (net). The type chosen here must match the type chosen in the **Batch Calculation Type** field.
Sequence Priority	Default is 0. When 0 is used, the sequence priority on the mix design is used. To globally increase the priority of an ingredient, assign a number here. The higher the number, the higher the priority.
PAGE 2 – INGREDIENTS SCREEN	
Purchase-Inventory Unit Factor	Weight-to-volume factor used for converting purchase units to inventory units.
Inventory-Internal Unit Factor	Weight-to-volume factor used for converting inventory units to internal calculation units.

FIELD	DESCRIPTION
Specific Gravity of Slurry Solids	Specific gravity of the solids in the slurry water. Used for slurry calculations. Quality control personnel normally provide this number.
Small Batch Tolerances	Percentage of the scale/meter capacity below which small batch tolerances are used. If this value is zero, large (normal) batch tolerances are used.
Over Tolerance	Allowable percentage or amount of over-tolerance based on the entry units for the plant. When calculating over-tolerance situations, the system uses the smaller of the percentage or the amount. **Note:** For large (normal) tolerance checking, the system uses the larger of the percentage or amount entries.
Under Tolerance	Allowable percentage or amount of under-tolerance based on the entry units for the plant. When calculating under-tolerance situations, the system uses the smaller of the percentage or the amount. **Note:** For large (normal) tolerance checking, the system uses the larger of the percentage or amount entries.

FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F1] - Save	To save data you have entered or changed.
[F2] - Browse	To pull up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - Page 2	To go to the second page of this screen.
[F6] - MatCalc	To pull up a screen showing setups for all ingredients in the database. You cannot make any changes on this screen.
[F7] - Clear	To cancel changes before you have saved them.
[F8] - Delete	To delete the Ingredient record currently displayed. When prompted, press this key again to confirm.

INGREDIENT GROUPS

When an ingredient is entered into the Spectrum database, you must assign it to a "group" in the **Group Code** field of the **INGREDIENTS** screen. The system can then perform calculations based on all ingredients within a group, as opposed to a different calculation for each ingredient in the database. The **Group Code** is a **required field** when entering a new ingredient. The standard group codes are:

1 AGG
2 CEM
3 WAT
4 ADX
5 WATADX

IMPORTANT! Always assign ingredients to the proper groups to ensure proper system calculations and grouping on tickets.

ABSOLUTE VALUE INGREDIENTS

"Absolute value" ingredients do not have their mix design target amounts based on the amount of another ingredient in the mix. Aggregate ingredients usually fall into this category. To make an ingredient an absolute value ingredient, leave the **Based On** and **Based On Factor** fields blank.

PERCENTAGE INGREDIENTS

"Percentage" ingredients do have their mix design target amounts based on the amount of another ingredient in the mix. This applies mostly to admixes. To make an ingredient a percentage ingredient, enter **%** in the **Based On** field, and a numeric value in the **Based on Factor** field.

Example:

Let's say we entered **%** in the **Based On** field, and **28** in the **Based On Factor** field for Calcium. The % in the **Based On** field tells the system to assume a 1% ratio of Calcium for each 100 pounds of cement. (We already know that it takes 28 ounces of Calcium to achieve this ratio.) If, however the mix design calls for 2%, the system targets 56 ounces of Calcium for each 100 pounds of cement.

NOTE: Calcium is part of the **4 ADX** ingredient group. "Based on" information for ingredients in this group is based on the **2 CEM** group for target calculations.

HUNDRED WEIGHT INGREDIENTS

"Hundred Weight" ingredients have their mix design target amounts based on each 100 pounds of cement. To make an ingredient a hundred weight ingredient, enter **/c** in the **Based On** field, and **1** in the **Based On Factor** field. This means an admix measured in ounces would have 1 ounce of the admix added for each 100 pounds of cement.

INGREDIENT EFFECTIVENESS

In the **Effectiveness** field of the **INGREDIENTS** screen, you can enter an effectiveness value to compensate for varying strengths.

Example: Mix calls for 10 oz. of Air.

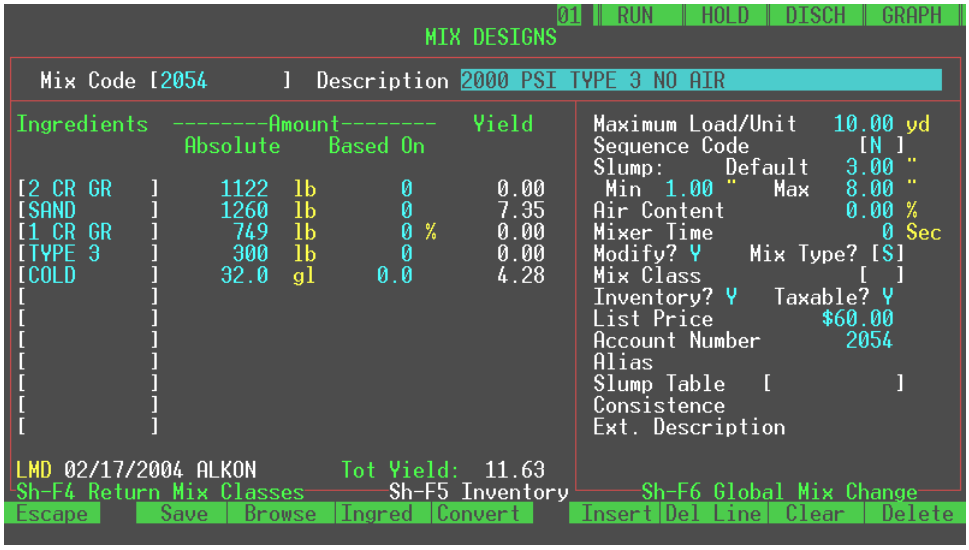
- At 100% effectiveness, 10 oz. is used per yard.
- At 90% effectiveness, 11.11 oz. is used per yard. (10 oz. / .90 = 11.11 oz.)

MIX DESIGNS

Information about mix designs (recipes for concrete mixes) is stored in the Mix Designs database table. Mix Designs can be added, edited, and viewed on the **MIX DESIGNS** screen.

To access this screen, select **MAIN MENU➡DATA ENTRY➡MIX DESIGNS** to view, add, and edit mix designs in your database. The following screen appears.

Mix Designs Screen



FIELDS

FIELD	DESCRIPTION
Mix Code	Code assigned to this mix design. You may browse this field to see a list of mix designs in the database.
Description	The complete name assigned to the mix design.
Ingredients	Allows you to select an ingredient from a browseable list of ingredients. Each ingredient is selected on a separate line.

FIELD	DESCRIPTION
Absolute	**Absolute value** of this ingredient required to make one unit (cubic yard or cubic meter) of the mix design. Note: An entry is required in, either, this field or the Based On field.
Based On	Amount of this ingredient required to make one unit, based on the amount of another ingredient. The ingredient must have "based on" information entered on the **INGREDIENTS** screen. Actual targets are figured at batch time based on the setups in the **MATERIAL CALCULATIONS** screen. Note: An entry is required in, either, this field or the Absolute field.
Yield	This ingredient's portion of the mix design. This value is derived from the **Specific Gravity** numbers set up for the material in the **INGREDIENTS** screen. This number can usually be obtained from your local supplier. **NOTE:** the total of the yields of all ingredients should equal **27** cubic feet. Anything other than this signifies an incorrect mix design.
LMD	Read-only field. Last Modified Date. Shows date and user. This field appears when an existing mix design is selected. It is not present on the blank Mix Design screen.
Tot Yield:	Read-only field. Total yield for all ingredients. Should not exceed 27 cubic feet (see **Yield** field above.)
Maximum Load/Unit	Maximum load size and unit of measure for the mix design. Should equal the largest truck size entered on the **BATCHING DEFAULTS** screen. **NOTE**: Any **Load Size** on the **BATCH SETUP** screen greater than this value causes the system to split-batch the load.
Sequence Code	Browseable field that allows you to select the sequence of events for this mix design. Because a default sequence code is established in the **BATCHING DEFAULTS** screen, you only need to enter a sequence code for the mix design when it differs from the default. Because of this, the **Sequence Code** field is often left blank. Sequence codes are most often entered for grout mixes and when you have a plant that is switching between wet and dry batching.
Slump: Default	The consistency to which the mix was designed. This value is pulled onto the **BATCH SETUP** screen when this mix design is batched. If Slump Tables are enabled, this value is ignored (see "Slump Tables" for more information).

FIELD	DESCRIPTION
Slump: Min	The minimum threshold before the water/cement ratio for the mix is compromised. When batching this mix, if you enter a slump less than this value, an error occurs and you will be forced to enter a new slump value.
Slump: Max	The maximum threshold before the water/cement ratio for this mix is compromised. When batching this mix, if you enter a slump more than this amount, an error occurs and you will be forced to enter a new slump value.
Air Content	Amount of free air trapped in the concrete due to the gradation of aggregates. This value is typically supplied by the QC department and is only used for yield calculations.
Mixer Time	Minimum amount of time needed for a properly blended mix. This time determines at what point the load is ready to dump from the mixer. (For mixer systems only.)
Modify?	Allows you to indicate whether the operator is allowed to modify the mix design on the **BATCH SETUP** screen at batch time. If set to **N**, values cannot be changed before batching.
Mix Type?	Either **S** for SSD weights, **D** for standard Oven Dry weights, or **O** for Minnesota DOT Oven Dry weights. At batch time, the system converts Oven Dry weights back to SSD weights.
Mix Class	Browseable list of mix classes. Mix classes are entered on the **MIX CLASSES** screen found in the **SYSTEM MAINTENANCE** menu and are used when returned concrete is involved. Here's how it works. Compatible mix designs are assigned to a particular mix class. By compatible, we mean a small amount of one mix design could be left in the truck and combined with another mix design of the same class with no adverse affects. The QC department usually defines Mix classes. Only a couple of U.S. states allow returned concrete to be resold.
Inventory	Allows you to indicate whether this mix should be tracked in the daily inventory logging. If set to **N**, mix design inventory will not be kept for this mix, and it will not affect the daily totals for batches run. A ticket will not be printed for "no" value loads. (Usually used for washout mix designs.)
Taxable	Indicates whether this mix design is taxable.
List Price	Per unit price for the mix design.
Account Number	Used for tracking purposes.

FIELD	DESCRIPTION
Alias	Used only when Spectrum is interfaced to a HydroControl IV moisture control system. In this case, you would enter the 3-character alias for the mix in this field.
Slump Table	Browseable list of slump tables that can be attached to the mix design. If a slump table is selected here, then standard linear slump calculations will not be used. (See "Slump Tables" for more information.)
Consistence	This field contains the EN 206 Consistence Class (S1, S2, etc.) or Slump in millimeters.
Ext. Description	This field is a concatenation of information about Strength Class, Exposure Class, Flow Class, Maximum Aggregate Size, and Cement Type. For non-EN 206 users, this field can be blank or used for entering additional information.

FUNCTION KEYS

FUNCTION KEY	PURPOSE
Sh-F4 Return Mix Classes	Pulls up a list of Mix Classes so authorized personnel can select which ones can be accepted as returned concrete against the mix design currently on the screen. (Mix classes are entered on the **MIX CLASSES** screen under **SYSTEM MAINTENANCE**.)
Sh-F5 Inventory	Pulls up inventory data for the mix design. The number of units batched, loaded, and resold are displayed for each inventory period (1=daily, 2=weekly, 3=monthly, 4=yearly).
Sh-F6 Global Mix Change	Pulls up a change box so you can substitute one ingredient for another in all mixes. (See "*To Change an Ingredient in All Mixes*" later in this section.)
[F1] - Save	Saves data you have entered or changed.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - Ingred	Shortcut to the **INGREDIENTS** screen.
[F4] - Convert	Displays the ingredient units of measure in the alternate units of measure (US or Metric). This function is useful if you want to create the same mix design in the alternate unit of measure. **Note:** The system still batches the mix in the original units.
[F5] - Insert	Inserts a line (in the Ingredients section). The new line is inserted *above* the line currently selected.

[F6] - Del Line	Deletes a line (in the Ingredients section). The line currently selected is deleted.
[F7] - Clear	Cancels changes before you have saved them.
[F8] - Delete	Deletes the mix design currently displayed. When prompted, press this key again to confirm.

To Create a Mix Design

1. Access the **Mix Designs** screen.
2. In the **Mix Code** field, type the code for the mix design you are creating.
3. Press **[ENTER]** to move to the **Description** field and type the full name of the mix design.
4. Press **[ENTER]** to move to the **Ingredients** section.

NOTE: Before adding ingredients, you must determine the order in which ingredients are to be batched for this mix. The system batches ingredients in the order they are listed on the **Mix Designs** screen (from top to bottom). Ingredients should be listed in the following order in a mix design: (1) Aggregates; (2) Cement; (3) Water; (4) Admixes.

5. Type the code for the first ingredient on the top line of the **Ingredients** section. You can browse a list of ingredients by pressing **[F2]**. Then highlight the desired ingredient and press **[ENTER]** to insert the ingredient into this field.
6. Press **[ENTER]** to move to the **Absolute** field. If the ingredient is an "Absolute Value" ingredient (e.g., an aggregate), type the absolute value per cubic yard (or meter) in this field and press **[ENTER]** to enter the next ingredient.

   If the ingredient is a "Based On" ingredient, leave the **Absolute** field blank and press **[ENTER]** to move to the **Based On** field.
7. In the **Based On** field, type the numeric value you wish to associate with this "Based On" ingredient. Press **[ENTER]**. The cursor moves to the next ingredient line.

NOTES: For "Based On" ingredients, either **%** or **/c** is displayed in this field (**%** for percentage-based, **/c** for hundred weight-based).
This field is not accessible for "Absolute Value" ingredients. The cursor moves to the next ingredient line instead.

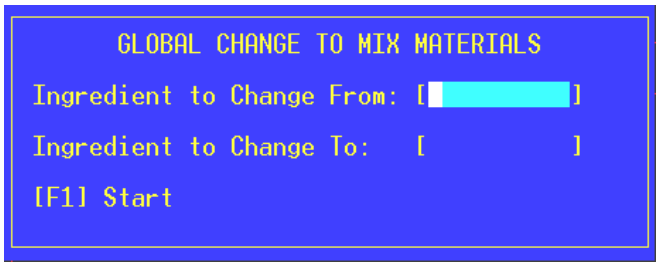
8. Continue adding ingredients in the order you want them batched.

   The **Yield** field displays a number for each ingredient added. This number is derived from the **Specific Gravity** field of the **Ingredients** screen multiplied by the amount of the ingredient in the mix design. When you have added all ingredients to the mix design, the **Total Yield** field value should be approximately 27. See your QC person for more information about yields.
9. Complete the fields on the right side of the screen (see the previous table for definitions of these fields). Press **]F1]** to save the new mix design record.

↳ TO CHANGE AN INGREDIENT IN ALL MIXES

1. Make sure the ingredient has been added to the database (see " Ingredients" in this manual).
2. From the **MIX DESIGNS** screen, press **[SHIFT + F6]** to pull up the following change box. The cursor is in the "From" field.

Global Material Change Box



3. Press **[F2]** to browse for the ingredient to be changed. Highlight the ingredient and press **[ENTER]** to enter it in this field. The cursor moves to the "To" field.
4. Press **[F2]** to browse for the ingredient to change to. Highlight the ingredient and press **[ENTER]** to enter it in this field.
5. Press **[F1]** to initiate the global change process. All occurrences of the "From" ingredient are replaced with the "To" ingredient.

↳ TO VIEW USAGE FOR A "SINGLE" MIX DESIGN

NOTE: The **Inventory?** field on the Mix Designs screen must be set to **Y** if you want to track inventory for the mix.

1. Access the **MIX DESIGNS** screen.
2. In the **Mix Code** field, type the code for the mix design whose usage data you wish to view.
3. Press **[SHIFT + F5]** to pull up inventory data for this particular mix design. An example is shown next.

	Batched	Loads	Resold
1	35.00	7	0.00
2	175.00	35	0.00
3	700.00	140	0.00
4	700.00	140	0.00

- The numbers 1, 2, 3, and 4 represent inventory periods for the current day, the current week, the current month, and the current year, respectively.
- For each inventory period, the number of units and loads batched are shown. Also the number of units resold is displayed.

↳ TO VIEW USAGE FOR "ALL" MIX DESIGNS

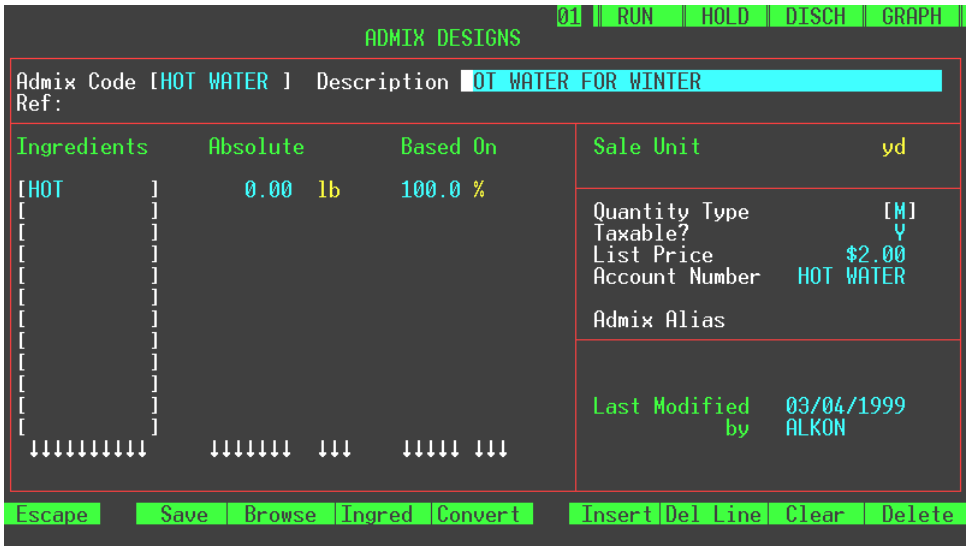
Select **MAIN MENU➡REPORTS➡MIX DESIGN LISTING** and press **[ENTER]**. The Mix Design Listing is generated and sent to the printer (or to a file if this was specified on the **PLANTS** screen).

ADMIX DESIGNS

Information about admix designs is stored in the Admix Designs database table. Admix Designs are a convenient way to add seasonal ingredients such as calcium on an "as needed" basis to an order. Admix Designs can be added, edited, and viewed on the **ADMIX DESIGNS** screen.

To access this screen, select **MAIN MENU➡DATA ENTRY➡ADMIX DESIGNS** to view, add, and edit admix designs in your database. The following screen appears.

Admix Designs Screen



FIELDS

FIELD	DESCRIPTION
Admix Code	Code assigned to the admix design. You may browse this field to see a list of admix designs in the database.
Description	The complete name assigned to the admix design.
Ingredients	Allows you to select an ingredient from a browseable list of ingredients. Each ingredient is selected on a separate line.
Absolute	**Absolute value** of the ingredient required to make one unit (cubic yard or cubic meter) of the admix design.
Based On	Amount of this ingredient required to make one unit, based on the amount of another ingredient. The ingredient must have "based on" information entered on the **INGREDIENTS** screen. Actual targets are figured at batch time based on the setups in the **MATERIAL CALCULATIONS** screen.

FIELD	DESCRIPTION
Sale Unit	This field is not editable. It contains the default batching unit of measure for your system. You can press **[F4]** to toggle between U.S. Standard and Metric measurements.
Quantity Type	Default quantity to be targeted when a load with this admix design is batched. The options are: **B** (balance) – causes the product quantity to be set to zero when quantity ordered = quantity delivered. **F** (flat rate) - causes the product quantity to be automatically set to "1" on the Batch Setup screen. **M** (mix based) – causes the quantity of the admix to match the quantity of the main mix design on the Batch Setup screen.
Taxable	Indicates whether this admix design is taxable.
List Price	Per unit price for the admix design.
Account Number	Used for tracking purposes.
Last Modified by	Read-only fields that show the last date the record was modified and by which user.

FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F1] - Save	Saves data you have entered or changed.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - Ingred	Shortcut to the **INGREDIENTS** screen.
[F4] - Convert	Converts the ingredients units of measure from U.S. Standard to Metric and vice versa.
[F5] - Insert	Inserts a line (in the Ingredients section). The new line is inserted *above* the line currently selected.
[F6] - Del Line	Deletes a line (in the Ingredients section). The line currently selected is deleted.
[F7] - Clear	Cancels changes before you have saved them.
[F8] - Delete	Deletes the mix design currently displayed. When prompted, press this key again to confirm.

TO CREATE AN ADMIX DESIGN

1. Access the **ADMIX DESIGNS** screen.
2. In the **Admix Code** field, type the code for the mix design you are creating.
3. Press **[ENTER]** to move to the **Description** field and type the full name of the admix design.
4. Press **[ENTER]** to move to the **Ingredients** section.

NOTE: Typically, only one admix is entered. If, however, more than one ingredient is entered, the order in which the ingredients are listed is important. The system batches ingredients in the order they are listed on the **ADMIX DESIGNS** screen (from top to bottom).

5. Type the code for the first ingredient on the top line of the **Ingredients** section. Or, browse the ingredients list, highlight the desired ingredient and press **[ENTER]** to insert the ingredient into this field.
6. Press **[ENTER]** to move to the **Absolute** field. If the ingredient is an "Absolute Value" ingredient, type the absolute value per cubic yard in this field and press **[ENTER]** to enter the next ingredient.

   If the ingredient is a "Based On" ingredient, leave this field blank and press **[ENTER]** to move to the **Based On** field.
7. In the **Based On** field, type the numeric value you wish to associate with this "Based On" ingredient. Press **[ENTER]**. The cursor moves to the next ingredient line.

NOTES: For "Based On" ingredients, either **%** or **/c** is displayed in this field (**%** for percentage-based, **/c** for hundred weight-based).
This field is not accessible for "Absolute Value" ingredients. The cursor moves to the next ingredient line instead.

8. Continue adding ingredients in the order you want them batched.
9. Complete the fields on the right side of the screen (see the previous table for definitions of these fields). Press **[F1]** to save the new admix design record.

ULINK-STYLE ADMIX MODIFIERS

If you receive mix designs from a dispatch computer via the Universal Link (Ulink), you can enter Ulink-style admix modifiers as admix designs. This kind of admix design is given a specific name so that it corresponds to a particular Ulink field (i.e. admix code ULINK_092 would correspond to Ulink field 092).

The following list shows the names that **must** be entered as the admix code, along with their corresponding Ulink fields and descriptions. (See the section titled *"To Create an Admix Design"* for more information.)

Spectrum Admix Name	Ulink Field	Description	Type/Max	Format	Replace or Modify
ULINK_092	092	% Calcium	Num/4	N.NN	Replace
ULINK_093	093	% Air Entrainment	Num/3	NNN	Apply as percent to modify
ULINK_094	094	% Super Plasticizer	Num/3	NNN	Apply as percent to modify
ULINK_095	095	% Hot Water	Num/3	NNN	Apply as percent to modify
ULINK_096	096	Pounds of Ice	Num/4	NNNN	Replace

Note: In Spectrum, you **do not** have to put a calcium ingredient in ULINK_092, nor an air entrainment ingredient in ULINK_093, etc.

A Ulink-style admix design contains all of the materials that can be modified. When a value is sent in the corresponding Ulink field, the amounts associated with the material names in the admix design that match materials in the main mix are either modified (multiplied as a percentage) or replaced by the value in the Ulink field.

Example:

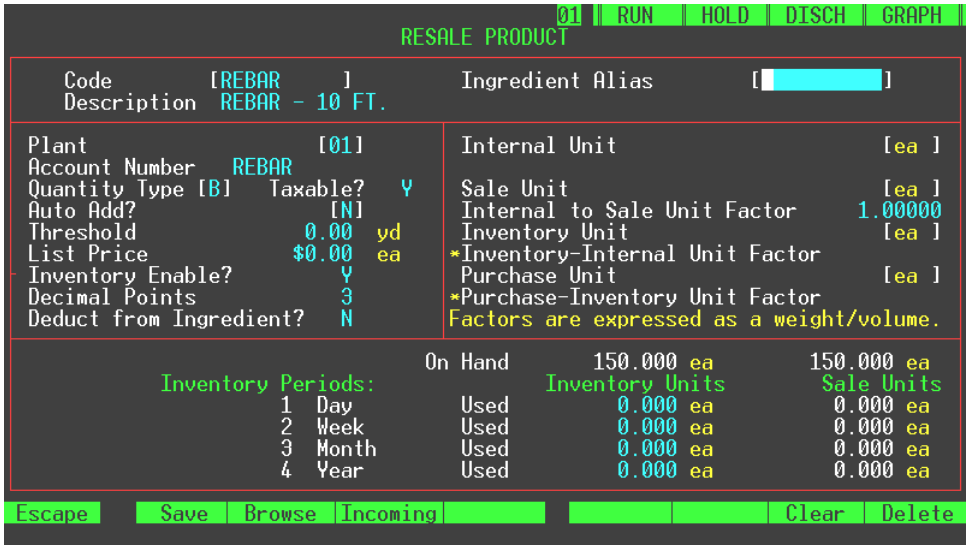
The dispatching computer sends a ticket with a value in Ulink field 092. Ulink looks for a Spectrum admix design named ULINK_092. If the admix design is found and it contains one or more of the materials used in the main mix, the value sent in Ulink field 092 replaces the amounts of these materials in the main mix.

RESALE PRODUCTS

Resale products include items such as rebar, fiber mesh, sand, and gloves. These items are sold along with concrete, meaning they are included on the order. Resale products can be added to an order any time before the order is batched, but the best time to enter them is when the order is first entered.

Information about resale products is stored in the Resale Products database table. Resale products are added and edited on the **RESALE PRODUCTS** screen . To access this screen, select **MAIN MENU➡DATA ENTRY➡RESALE PRODUCTS.**

Resale Products Screen



FIELDS

FIELD	DESCRIPTION
Code	Code assigned to the resale product. You may browse this field to see a list of resale products in the database.
Ingredient Alias	(Used only when an ingredient is used as a resale product.) Browseable list of ingredients. (See "*Ingredients Used as Resale Products*" for more information.)
Description	Full name given to the resale product.
Plant	Plant code. You may browse this field to choose another plant.
Account Number	Account number assigned to the product. Defaults to the resale product code.

FIELD	DESCRIPTION
Quantity Type	Default quantity when the product is sold. The options are: **B** (balance)– causes the product quantity to be set to zero when quantity ordered = quantity delivered. **F** (flat rate) - causes the product quantity to be automatically set to "1" in the order. **M** (mix based)– causes the quantity of the resale product to match the quantity of the main mix design on the **BATCH SETUP** screen.
Taxable	Indicates whether the product is taxable.
Auto Add?	Controls the automatic addition of this product to orders: • **N –** Product is not automatically added to an order. • **A** – Product is automatically added to all orders. • **W** – Product is automatically added to all orders during the winter season.* • **S** – Product is automatically added to all orders during the summer season.* * Date ranges are set on the **SYSTEM DEFAULTS** screen of the **SYSTEM MAINTENANCE MENU**. • **O** – Product is added if ordered amount is less than the indicated threshold. • **L** – Product is added if the load size amount is less than the indicated threshold.
Threshold	Works in conjunction with the **Auto Add?** field when that field contains an "O" or "L" value. Determines minimum order and minimum load size charges.
List Price	Per unit sale price for the product.
Inventory Enable?	To display inventory data on the bottom portion of the screen, you must set this field to **Y** (yes). (Must also be set to **Y** if you use ingredients as resale products.)
Decimal Points	Number of decimal places to show in the inventory amounts at the bottom of the screen.
Deduct from Ingredient?	(Used only when an ingredient is used as a resale product.) Must be set to **Y** in this case.
Internal Unit	Default unit of measure for the product.
Sale Unit	Unit of measure in which the product is sold.
Sale/Internal Unit Factor	Conversion factor for converting the **Sale Unit** to the **Internal Unit**.
Inventory Unit	Unit of measure in which inventory for the product is to be displayed.

FIELD	DESCRIPTION
Inventory-Internal Unit Factor	Conversion factor for converting the **Inventory Unit** to the **Internal Unit**. Expressed as a weight/volume.
Purchase Unit	Unit of measure in which the product is to be received.
Purchase-Inventory Unit Factor	Conversion factor for converting the **Purchase Unit** to the **Inventory Unit**. Expressed as a weight/volume.
On Hand	Current on hand balance of the product. Both the inventory and sale unit information is displayed.
Inventory Periods	There are four inventory periods displayed: (1) Day, (2) Week, (3) Month, and (4) Year. Total inventory and sale units are displayed for each inventory period.

NOTE: To view a list of all resale products, select **MAIN MENU➡REPORTS ➡RESALE PRODUCT LISTING** and press **[ENTER]**. The list is generated and sent to the printer (or to a file if this was specified on the **PLANTS** screen). A sample of this report is shown in the *"Reports"* section of this guide.

FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F1] - Save	Saves data you have entered or changed.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - Incoming	When a resale product is displayed, press this key to pull up the Incoming Inventory box so you can receive the product. (See *"Recording Incoming Inventory – Resale Products"* for more information about receiving inventory.)
[F7] - Clear	Cancels changes before you have saved them.
[F8] - Delete	Deletes the product record currently displayed. When prompted, press this key again to confirm.

INGREDIENTS USED AS RESALE PRODUCTS

For customers who use ingredients as resale products, resale usage can be deducted from the corresponding ingredient's inventory when the ticket is generated.

In order for this feature to work:

- The **Inventory Level** field of the Ingredients screen must be set to **Y** (By Plant) or **S** (System Wide) for each ingredient used as a resale product.

- The **Inventory Enable** and **Deduct from Ingredient** fields of the Resale Products screen must be set to **Y**, and an ingredient must be selected in the **Ingredient Alias** field.

When a batch with the resale product is run, the system deducts the resale amount from the alias ingredient's on-hand amount. The Resale Products Listing and the Resale Product Inventory Report (not shown) will not display an amount for the ingredient used as the resale product. Rather, they will display an asterisk (*) followed by the alias ingredient name in the On-Hand column.

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================================================================================
Monday, March 20, 2000              15:16                              PAGE   1

                          ***      RESALE        ***
                          ***  PRODUCTS LISTING  ***

================================================================================


 PRODUCT                  DESCRIPTION               LIST PRICE      ON-HAND
----------  -----------------------------------  ------------- ---------------

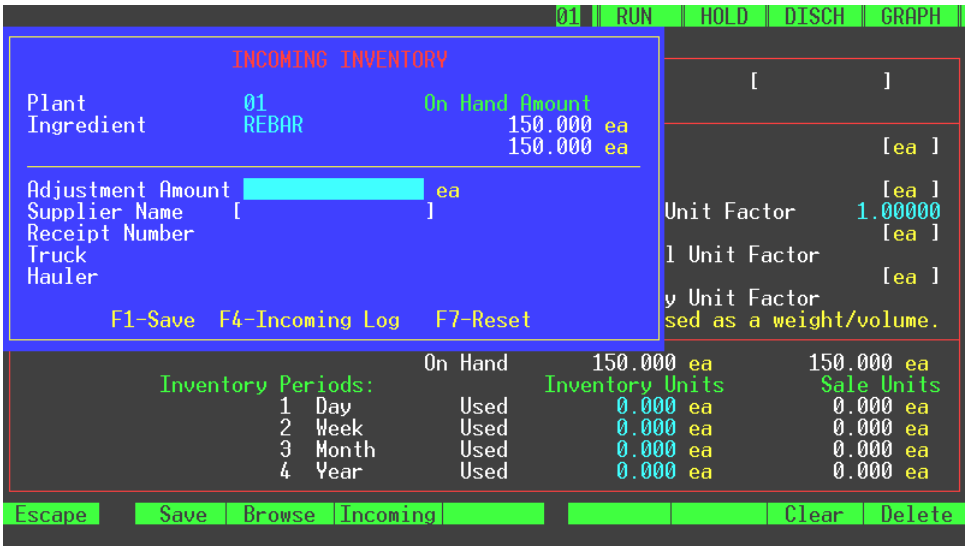
519         WASHOUT CHARGE                          25.00/             0
516         HEATED MATERIALS CHARGE                  7.00/           156
512         FIBER MESH                               0.00/           125
510         SUPER PLASTICIZER                        0.00/           308
505         OVERTIME CHARGE                         60.00/            84
0532        CONVEYOR CHARGE                          0.00/       524,288
SANDRESALE  SAND SOLD SEPARATELY                     0.25/lb      *   SAND TCG
 (*) denotes that the on-hand amount for the product is tracked in the
     ingredient displayed.

                       *  *  *  END OF REPORT  *  *  *
```

RECORDING INCOMING INVENTORY – RESALE PRODUCTS

1. Select **MAIN MENU➡DATA ENTRY➡RESALE PRODUCTS**.
2. In the **Code** field, select the product for which you wish to record incoming inventory.
3. Press **[F3] – Incoming**. The window shown next appears with the cursor on the **Adjustment Amount** field.

Incoming Inventory Window

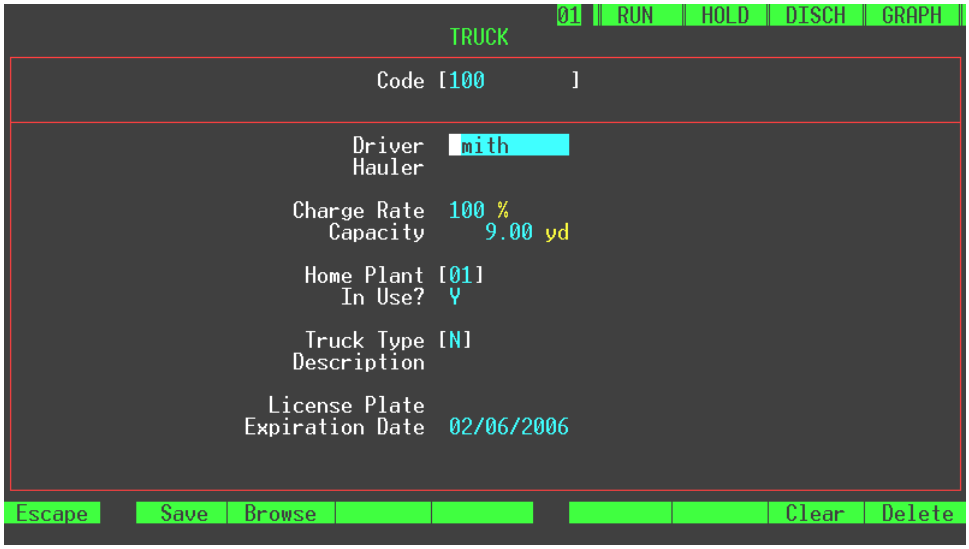


4. Enter the amount of incoming inventory and any other pertinent information (supplier, truck, hauler, etc.).
5. Press **[F1]** to save your entry and update this product's on-hand amount.
6. Press **[ESC]** to go back to the **RESALE PRODUCTS** screen. Repeat Steps 2 through 5 above for each product for which you need to receive inventory.

TRUCKS

Information about trucks used to deliver concrete is stored in the Trucks database table. This information is added, edited, and viewed on the **TRUCKS** screen. To access this screen, select **MAIN MENU➡DATA ENTRY➡TRUCKS**.

Truck Screen



FIELDS

FIELD	DESCRIPTION
Code	Code assigned to the truck. You may browse this field to see a list of resale products in the database.
Driver	Name of driver assigned to the truck.
Hauler	Name of the hauler if the truck is not company-owned, but rented or leased.
Charge Rate %	Percentage rate at which concrete should be discharged into the truck.
Capacity	Maximum number of units the truck can haul.
Home Plant	Plant code of the "home plant" for the truck.
In Use?	**Y** means the truck is available. **N** means the truck is not available (i.e. in the shop for repairs) and cannot be called up on the **BATCH SETUP** screen.

FIELD	DESCRIPTION
Truck Type	Browseable field that may contain one of the following values: • **N** – Normal ready mix truck • **C** – Conveyor truck • **F** – Front discharging truck.
Description	Description of the truck.
License Plate	License plate number of the truck.
Expiration Date	Expiration date of the truck's license plates.

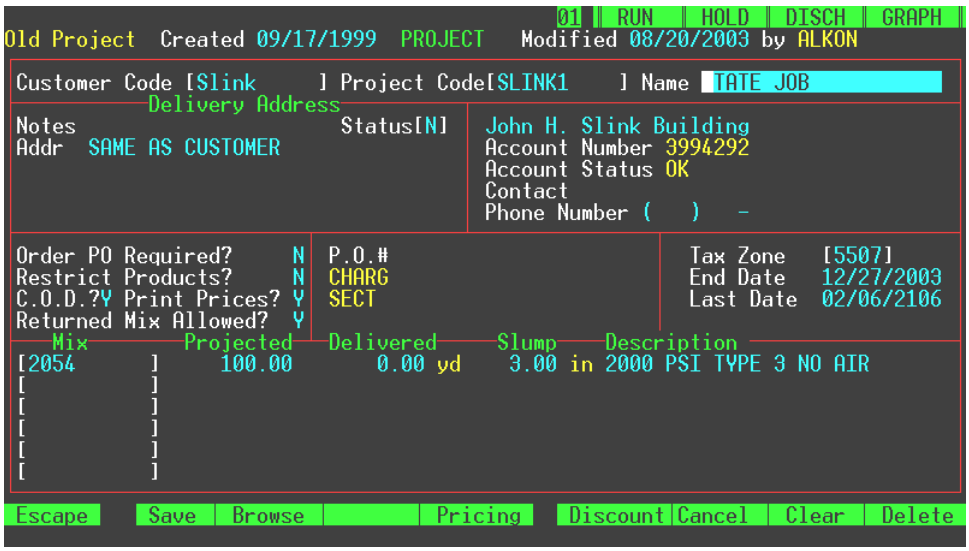
FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F1] - Save	Saves data you have entered or changed.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F7] - Clear	Cancels changes before you have saved them.
[F8] - Delete	Deletes the truck record currently displayed. When prompted, press this key again to confirm.

PROJECTS

Information about projects is stored in the Projects database table. Projects are added and edited on the **PROJECTS** screen. To access this screen, select **MAIN MENU➡DATA ENTRY➡PROJECTS**.

Project Screen



Each project record includes the products, pricing, and projected quantities associated with a particular "quote." A quote is associated with a particular customer and may involve a large project that takes several orders to complete.

In this regard, the Projects database is a great time saver. Project information (which includes customer information) can be called up (by project code) and automatically inserted into each order, thus saving a lot of typing.

FIELDS

NOTE: Many of the fields on the **PROJECTS** screen are automatically populated when the customer code is entered. These default values can be changed, however.

FIELD	DESCRIPTION
Customer Code	Customer code associated with the project. **Required field!**
Project Code	Code assigned to the project.
Name	Name assigned to the project.
Notes	Delivery notes for the project
Status	A browseable field that contains the status of the quote. Valid entries are: • N – Normal (firm) • C – Cancelled (deletes all totals) • E – Ended (keeps delivered totals) • H – Held • W – Will Call
Addr	Delivery address for the project.
Account Number	Account number of the customer attached to the project. The name of the customer is displayed directly above this field.
Account Status	Account status assigned to the customer attached to the project.
Contact	Contact name from the customer record for the customer attached to the project.
Phone Number	Contact telephone number from the customer record for the customer attached to the project.
Order PO Required?	Indicator from the customer record that stipulates whether a Purchase Order is required for all orders.
Restrict Products?	Indicator from the customer record that stipulates if product deviation is allowed when a project is assigned to an order.
C.O.D.?	Indicator from the customer record that stipulates if the customer is a credit or cash customer.
Print Prices?	Indicator from the customer record that stipulates if prices will be printed on delivery tickets.

FIELD	DESCRIPTION
Return Mix Allowed?	Indicator from the customer record that stipulates if the customer will accept returned concrete. **NOTE:** If the **Override Enabled** field on the **SYSTEM MAINTENANCE➡SYSTEM DEFAULTS** screen is set to **N**, the system uses the Returned Concrete flag from the customer record. If, however, the **Override Enabled** field is set to **Y**, you can override the Returned Concrete flag at batch time.
P.O.#	P.O. number that should be assigned to all orders in the project.
UDF 1	This user-defined field may contain up to 20 characters. The field label is also user-defined (on the **SYSTEM MAINTENANCE➡SYSTEM DEFAULTS** screen).
UDF 2	This user-defined field may contain up to 20 characters. The field label is also user-defined (on the **SYSTEM MAINTENANCE➡SYSTEM DEFAULTS** screen).
UDF 3	This user-defined field may contain up to 20 characters. The field label is also user-defined (on the **SYSTEM MAINTENANCE➡SYSTEM DEFAULTS** screen).
Tax Zone	Tax zone from the customer record for the customer attached to the project.
End Date	Expiration date of the project.
Last Date	Last date this project was assigned to an order and ticketed.
Mix	Mix design quoted for the project. You can also enter resale products here.
Projected	Number of units projected to complete the project for each product.
Delivered	System-generated sum of the number of units delivered for each product.
Slump	Default slump assigned to each mix design.
Description	Description of each product.

FUNCTION KEYS

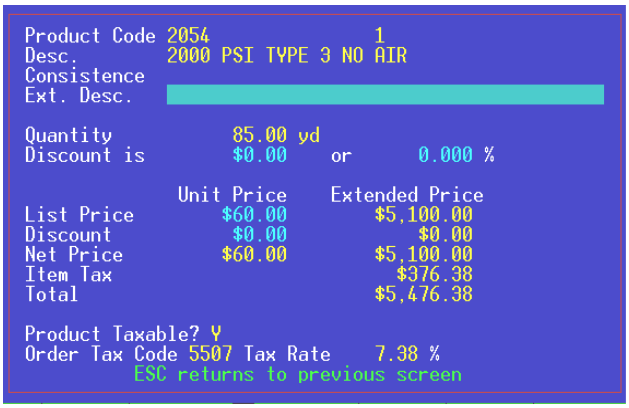
FUNCTION KEY	PURPOSE
[F1] - Save	Saves data you have entered or changed.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F4] - Pricing	Displays the pricing for each product on the project. You **cannot change pricing** through this function.
[F5] - Discount	Pulls up a window so you **can make pricing and discount changes** to products on the project. You can also add or edit Consistence and Extended Description information (required for EN 206 users).
[F6] - Cancel	Shortcut key that enters **C** (for cancelled quote) in the **Status** field.
[F7] - Clear	Cancels changes before you have saved them.
[F8] - Delete	Deletes the project record currently displayed. When prompted, press this key again to confirm.

PROJECT PRICING

Spectrum allows you to record custom pricing and/or discounts for any product specified in a project. To Adjust product pricing:

1. Access or create the project.
2. Add the product(s) to the project.
3. Highlight the product for which you wish to set/adjust pricing.
4. Press **[F5] - Discount**. As shown next, the Discount/Pricing window appears with the product code and projected quantity displayed at the top. (This information is used to calculate the projected total.)

Discount/Pricing Window



To apply a discount per unit:

5. On the **Discount is** line Enter either the *dollars-per-unit* or the *percentage* and press **[ENTER]**. If you enter *dollars-per-unit*, the system calculates the percentage. Similarly, if you enter *percentage*, the dollars-per-unit value is calculated.

To change the list price:

6. On the **List Price** line, enter the **desired** list price over the existing list price and press **[ENTER]**. The system calculates new prices.

   NOTE: You are not limited to either changing the list price or giving a discount. You may do both.

7. Press **[F1]** to save the record. Repeat the process for each product for which you wish to set/adjust pricing.

CONSISTENCE AND EXT. DESCRIPTION

The Consistence and Ext. Desc. Fields on the Discount screen (accessed by pressing **[F5]**) describe concrete production in terminology required by the EN 206 Standards. This information defaults in from the Mix Design record.

To edit or change EN-206 information:

1. Access or create the project.
2. Add a mix to the project, or select the one you want to edit.
3. Press **[F5] - Discount**. The Discount/Pricing window appears.
4. Edit the Consistence and Ext. Desc. fields as needed.
5. Press **[F1]** to save the record.

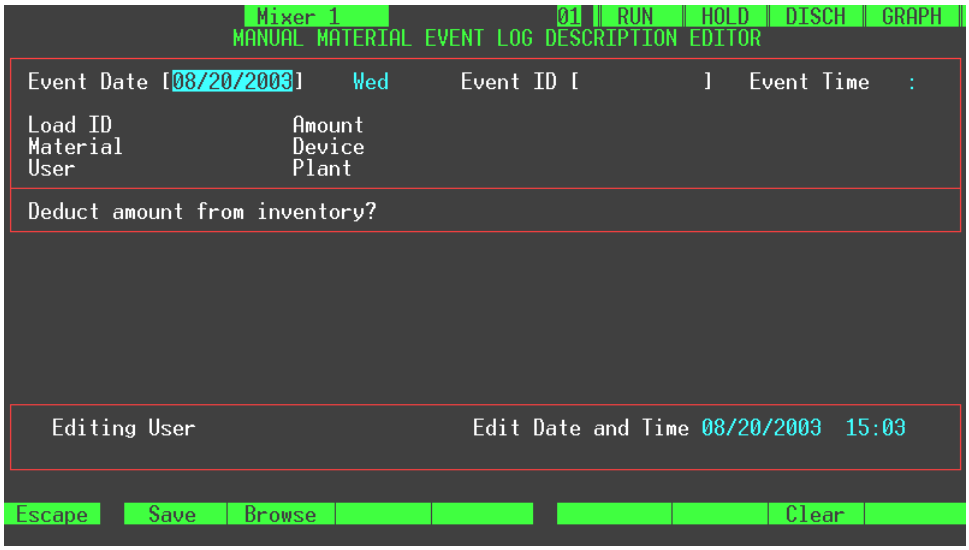
EDIT MMM DESCRIPTION

This function lets you add descriptions or comments to the Manual Material Event Log, which is a record of all materials manually batched. You can also tell the system not to deduct the manually batched material from inventory. To do this, set **Deduct amount from inventory?** to **N**.

To access the **MANUAL MATERIAL MONITOR EVENT LOG DESCRIPTION EDITOR**:

1. Select **MAIN MENU➡DATA ENTRY➡EDIT MMM DESCRIPTION**. The following screen appears with the cursor on the **Event Date** field.

Manual Material Event Log Description Editor



2. Press **[F2]** to browse a list of dates. Select the date for which you wish to edit manual event information and press **[ENTER]**.
3. Move to the **Event ID** field and press **[F2]** to browse a list of manual events for the selected date. Press **[ENTER]**. The appropriate manual event information appears on the screen.
4. If you do not want this material deducted from inventory, tab down to the **Deduct amount from inventory?** field and enter **N**. Otherwise, leave this field set to **Y**, the default setting. Press **[ENTER]**. The cursor moves to the blank comments section.
5. Enter comments if needed then press **[F1]** to save the data.

Timesaver: To cause this screen to always appear when the End of Day process is run (and there are manual events to edit), set the **Edit MM Description** field of the **END OF DAY SETUP** screen to **Y**.

SLUMP TABLES

WHAT IS SLUMP?

Slump is defined as the number of inches (or millimeters) concrete will sag, or slump, when a cone filled with the concrete is turned upside down and the cone pulled off the concrete. Spectrum is capable of adjusting the slump of each load of concrete to meet the needs of customers, especially when those needs are subject to state and governmental requirements.

SLUMP CALCULATIONS - SIMPLIFIED

There are several ways in Spectrum to adjust the slump of a load of concrete.

- You can enter a default slump value for a mix (on the **Mix Designs** screen), and this value will be used whenever the mix is used in a batch.
- On the **Batch Setup** screen, you can adjust the default slump of a mix at batch time.
- On the **Batching Defaults** screen, you can enter a plant-wide default slump value to be automatically entered whenever you create a mix design.
- You can use "slump tables" to vary how much water is added or subtracted for each increment of change specified in the slump table.

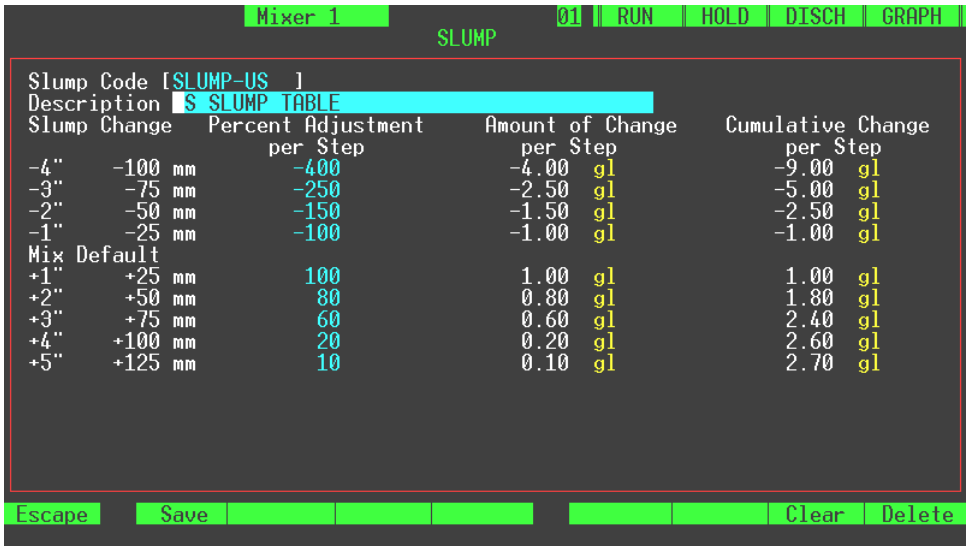
Standard Slump Calculations. Standard slump calculations use a linear method of adjusting slump. For each inch (or 25 mm) that you add to or subtract from the slump value, the system adds or subtracts one gallon (or 5 L) of water per cubic yard (or meter) of concrete. Whether you adjust the slump one inch (25 mm) or three inches (75mm), one gallon (5 L) is still added or subtracted for each inch (25 mm) of change.

Slump Tables. Using Slump Tables, you can vary how much water is added or subtracted for each inch (25 mm) of change in slump. In other words, if you want to add 3 inches to the slump, you can create a slump table that will add one gallon for the first inch and lesser amounts for the second and third inches. This method of slump adjustment can help ensure that your mix will not come out too wet or too dry by allowing you to customize each change in slump step.

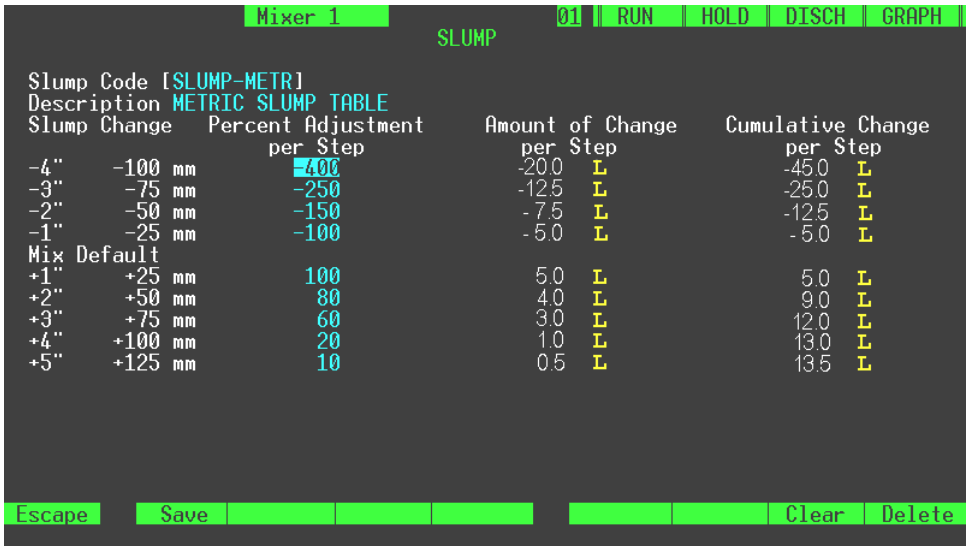
A slump table can be attached to more than one mix design, or you can create a slump table for each mix design. You can also create a "default slump table" and select it on the Batching Defaults screen. This table will then be used if Slump Tables are enabled (on the Batching Defaults screen) but no slump table has been attached to the mix design.

Sample slump tables are shown next (one using US units, the other using Metric).

Slump Table Using US Units



Slump Table Using Metric Units



A description of each column on the Slump Table is given in the following table.

Column	Description
Slump Change	The different amounts of slump typically used for concrete mix designs. This information is read-only.
Percent Adjustment per Step	This is the only column you can edit on this table. It contains the percentage of change in water needed to achieve the Slump Change in column 1.
Amount of Change per Step	Shows the amount of change for each step (slump change value) resulting from the percentage entered in column 2. This information is read-only and is shown in gl for U.S. systems and L for SI.
Cumulative Change per Step	Shows the total changes made against each step (slump change value). This information is read-only and is shown in gl for U.S. systems and L for SI.

SETTING UP SLUMP TABLES

1. To use slump tables instead of the linear method of adjusting slump, select **MAIN MENU➡SYSTEM MAINTENANCE➡BATCHING DEFAULTS** and enter **Y** in the **Enable Slump Table?** field. Press **[F1]** to save your data.
2. Select **Main Menu➡Data Entry➡Slump Table** to access the Slump Table editing screen (shown above).
3. Enter a **Slump Code** and **Description**.
4. In the **Percent Adjustment per Step** column, enter the percentage of change desired for each increment (or "step) of change. It is recommended that you set up your tables something like the example given above.
5. Press **[F1]** to save your data.

CALCULATING SLUMP USING SLUMP TABLES

Water to Add/Subtract = Water Amt per Mix Unit * Sum of Percentages / 100

Where: The percentages for each step used are added. *
Water Amount per Mix Unit is typically
1.0 gl/yd for US systems **
Water Amount per Mix Unit is typically
5.0 L/m3 for Metric systems ***

* Example: To go from a default 3-inch slump to a 5-inch slump using the slump table above, two steps amounting to a two-inch change would be involved. We would add 100 percent for the 1-inch step to the 80 percent for the 2-inch step, resulting in a sum of 180.

** Calculated by multiplying change per step (1 inch) by the Slump Factor for water (1.0 gl/in from Ingredients screen).

*** Calculated by multiplying change per step (25 mm) by the Slump Factor for water (.20 L/mm from Ingredients screen).

Example 1: Default slump is 3" and we want a 5" slump. We would be adding 2" of slump. Using our US slump table (and starting from the "Default" row), we can see that two steps would be involved (the 1" step and the 2" one).

Water to Add = Water Amt per Mix Unit * Sum of Percentages / 100
Water to Add = [100 (for 1" step) + 80 (for 2" step)] * 1.0 / 100
= 180 * 1.0 / 100
= 1.8 gl

Example 2: Default slump is 75mm and we want a 125mm slump. We would be adding 50mm of slump. Using our Metric slump table (and starting from the "Default" row), we can see that two steps would be used (the 25mm step and the 50mm one).

Water to Add = Water Amt per Mix Unit * Sum of Percentages / 100
Water to Add = [100 (for 25mm step) + 80 (for 50mm step)] * 5.0 / 100
= 180 * 5.0 / 100
= 180 * .05
= 9.0 L

Example 3: Default slump is 75mm and we want a 25mm slump. We would be subtracting 50mm of slump. Using our Metric slump table (and starting from the "Default" row), we can see that two steps would be used (the -25mm step and the -50mm one).

Water to Add = Water Amt per Mix Unit * Sum of Percentages / 100
Water to Add = [-100 (for -25mm step) + -150 (for -50mm step)] * 5.0 / 100
= -250 * 5.0 / 100
= -250 * .05
= -12.5 L

CONFIGURING PLANT DEVICES

Plant devices can be configured through screens accessed from the **PLANT SETUP** menu. This is an important part of the installation process because there is a lot of fine-tuning that takes place. Critical parameters that control material feeding and discharge are entered on these screens. In addition to these parameters, Input/Output points are also assigned for each device.

NOTE: Make sure you have added ingredients before you configure devices through the Plant Setup screens.

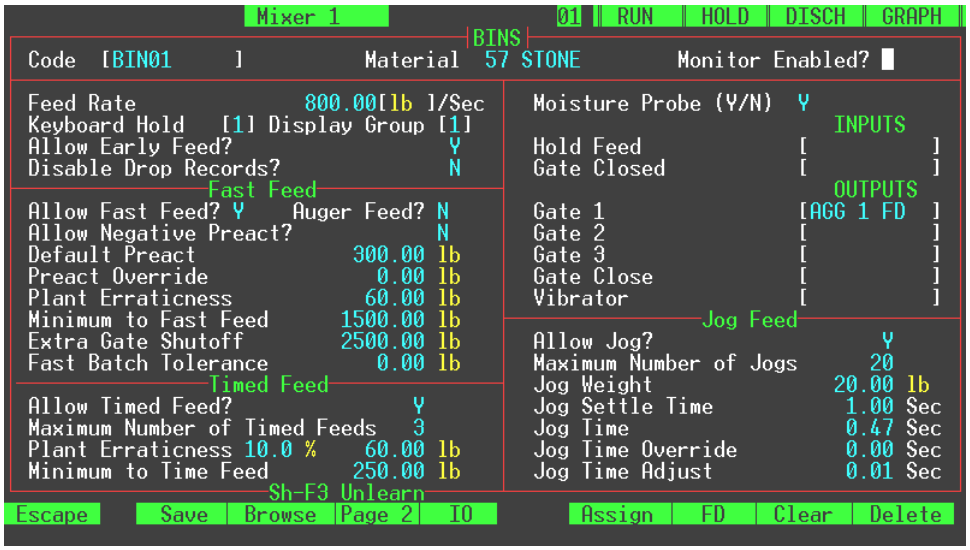
Plant Setup Menu

BINS SCREEN

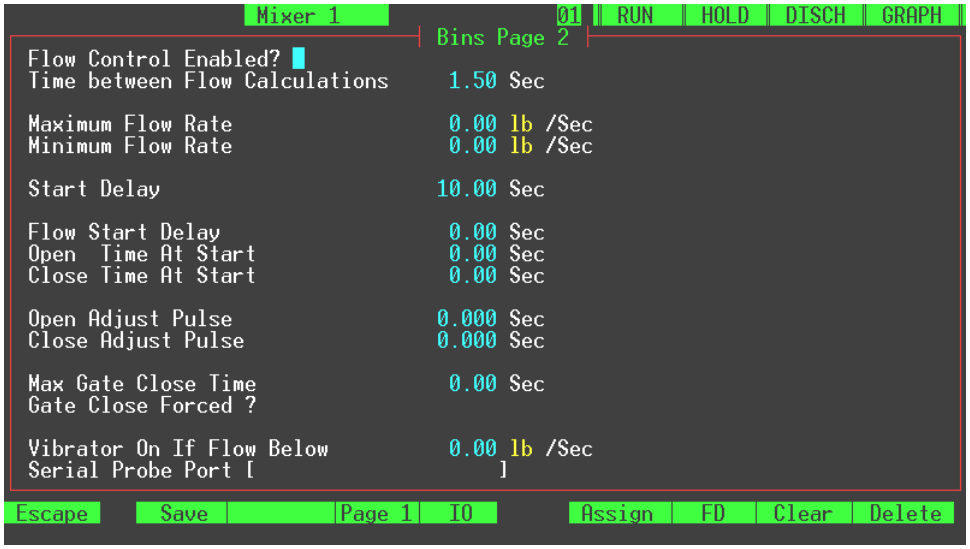
Bins and silos must be set up before you can assign materials or destinations to them. On the **BINS** screen (2 pages shown next), you can add a bin, or edit parameters for an existing one. A description of each field on this screen is given after that.

As with many Spectrum screens, you can go directly to other related screens from this one. For instance, you can press **[F4]** to go to the I/O Assignments screen, or **[F5]** to go to the Material Assignments screen.

Bins Screen – Page 1



Bins Screen – Page 2



FIELDS

FIELD	DESCRIPTION
(PAGE 1 – BINS SCREEN)	
Code	Browseable field containing a list of available bins.
Material	Read-only field showing the material assigned to this bin. If this is the first time this bin has been configured, this field would be blank. (Materials are assigned to bins on the **MATERIAL ASSIGNMENTS** screen.)
Monitor Enabled?	Yes/No field that allows/disallows manual feeding of this material to be tracked and recorded.
Feed Rate	Rate of material flow through the primary gate. In the above example, the feed rate is 800 lb/sec.
Keyboard Hold	Browseable field containing a list of function keys. The one selected can be used on the Graph screen to hold this device from discharging.
Display Group	Browseable field containing a list of group color numbers in which to display this device on the Graph screen. These color numbers correspond to the colors selected for the Graph screen on the Batching Defaults screen.
Allow Early Feed?	Yes/No field that activates/deactivates freewheeling for this device.
Disable Drop Records?	Yes/No field that allows you to disable the dropping of records for the computer's "learning" process.
FAST FEED	
Allow Fast Feed?	Yes/No field that allows/prevents fast feed for this device.
Auger Feed?	This field should be set to "Y" if fast feed should only occur once during the feed cycle. If this field is set to "N," multiple fast feeds can occur.
Allow Negative Preact?	Yes/No field that allows/prevents negative preact values to be used in preact calculations. This is used mostly for pressurized cement feed systems where air pressure exerts force on the scale, causing the scale to read an amount higher than what is actually on the scale.
Default Preact	Preact value used by the computer when it first starts automatically adjusting the preact. If there is a non-zero value in the **Preact Override** field, however, that value is used instead of the one calculated by the computer.

FIELD	DESCRIPTION
Preact Override	Any non-zero amount entered here is used as the preact instead of what is calculated by the computer.
Plant Erraticness	This value takes into account variations in accuracy for fast feed. It works with the Feed Rate and Preact to shut the gate early. This amount is normally two scale graduations.
Minimum to Fast Feed	Fast Feed begins if Fast Feed is enabled for the bin and the Safe Target is greater than the Minimum to Fast Feed value. (See "Feed Types" for more information about the "Safe Target".)
Extra Gate Shutoff	The point at which all gates, except the main gate, are closed to avoid overshooting the target. During Fast Feed, all gates on all bins containing the material being fed are opened. When the scale weight equals (Target – Extra Gate Shutoff – Preact – Plant Erraticness), all gates are closed.
Fast Batch Tolerance	All batches of a multi-batch load, except for the last batch, use the larger of this value and of the absolute and percentage tolerances from the Ingredients screen. The last batch uses only the tolerances from the Ingredients screen.
TIMED FEED	
Allow Timed Feed?	Yes/No field that allows/prevents timed feed.
Maximum Number of Timed Feeds	Maximum number of timed feeds the system can attempt on one batch.
Plant Erraticness % or lb	This value takes into account variations in accuracy for Timed Feed calculations. If both a percentage (%) and an amount (lb) are entered, the system uses the greater of the two.
Minimum to Time Feed	If Timed Feed is enabled and the amount left to feed is greater than the Minimum to Time Feed value, the system searches the previous Drop History for buckets* within + or – 20% of the amount left to feed and calculates a time duration to open the gate based on the found information. * A "bucket" is a weight range of previous drop records used for calculating the current drop time or preact. If drop records are disabled, either the Default Preact or Preact Override value is used.
Moisture Probe (Y/N)	Yes/No field that indicates whether a moisture probe is installed in this device.

FIELD	DESCRIPTION
Hold Feed	Browseable field of I/O points for the gate hold limit switch. Automatically shuts the gate if a problem is detected by the system.
Gate Closed	Browseable field of I/O points for the gate close limit switch.
Gate 1	Browseable field of I/O points for Gate 1.
Gate 2	Browseable field of I/O points for Gate 2.
Gate 3	Browseable field of I/O points for Gate 3.
Gate Close	Browseable field of I/O points for the gate close output.
Vibrator	Browseable field of I/O points for the vibrator output.
JOG FEED	
Allow Jog?	Yes/No field that enables/disables jogs, which are the smallest units in which material can be fed.
Maximum Number of Jogs	Maximum number of times the system will jog the gate open.
Jog Weight	Amount of material that will fall when the gate is opened for the Jog Time duration. Normally set to one scale graduation.
Jog Settle Time	Length of time the gate should stay closed between jogs to allow the scale to settle. Normally set at one second.
Jog Time	Length of time for the gate to feed the Jog Weight of material. Must be greater than 20ms and less than 2 seconds. Automatically adjusted by the computer, using the Jog Time Adjust value.
Jog Time Override	A non-zero value in this field overrides the Jog Time value and opens the gate for this length of time for each jog. **NOTE:** Use this with caution! The Jog Time is a learned value.
Jog Time Adjust	This time is added to or subtracted from the Jog Time to produce a new Jog Time so the next jog can attempt to achieve the Jog Weight.

FIELD	DESCRIPTION
(PAGE 2 – BINS SCREEN)	
Flow Control Enabled?	Yes/No field that allows/disallows the system to open and close the gate to maintain a constant flow rate. If this field is set to "N," the system opens the gate all the way, then closes it once loading is done.
Time between Flow Calculations	Length of time between the computer's flow rate calculations.
Maximum Flow Rate	Maximum flow rate allowed in scale units per second.
Minimum Flow Rate	Minimum flow rate allowed in scale units per second.
Start Delay	Number of seconds to wait before feeding or discharging actually starts.
Flow Start Delay	Length of time, in seconds, the system waits after loading has begun to check the flow rate. This is necessary because the flow rate is erratic at the start of a load.
Open Time at Start	Length of time, in seconds, the gate should be opened at the start of the loading the truck or mixer to get the material flowing.
Close Time at Start	Duration of the gate close output pulse.
Open Adjust Pulse	Length of time, in seconds, the gate opens to keep the material flow rate constant.
Close Adjust Pulse	Length of time, in seconds, the gate closes to keep the material flow rate constant.
Max Gate Close Time	Duration of the gate close output pulse.
Gate Close Forced?	Yes/No field. Forces gate closed before feeding starts from this bin. If "Yes," the gate close time must expire before the scale will be used.
Vibrator On If Flow Below	When the flow rate slows down to this rate, the vibrator is activated.
Serial Probe Port	This field is used when a moisture probe is attached as an external serial device.

FEED CONFIGURATIONS

Bins and silos can be configured to feed at different rates based on the amount of material left to feed and other bin settings. These "feed configurations" take advantage of Spectrum's "feed types" described next.

FEED TYPES

In general, the system attempts, first, to Fast Feed then Time Feed and, finally, Jog Feed to arrive as close as possible to the requested Target. During each "feed type," the system makes calculations based on parameters and previously learned information for the feed type.

FAST FEED

Before Fast Feed starts, a "Safe Target" is calculated by adding the requested Target to the Scale Start Tare then subtracting the Fast Feed Plant Erraticness and Preact values. The Safe Target is less than the requested Target, so that fast feeding does not overshoot the requested Target.

Note: If no Preact Overide is set and a learned Preact is not available, the Default Preact value is used.

Fast Feed begins if Fast Feed is enabled for the bin and the Safe Target is greater than the Minimum to Fast Feed value. Initially, Fast Feed conditionality opens two gates and continuously monitors the scale for the amount left to feed. When the amount left to feed reaches the Extra Gate Shutoff value (if enabled), the second gate is closed. The first gate is closed when the Safe Target value is reached.

Note: When a feed's Safe Target is less than the Minimum to Fast Feed value, Fast Feed is skipped and the system goes directly to Timed Feed.

TIMED FEED

Timed Feed is a timed opening of a single gate for a time duration based on the previous Flow Rates for the bin and material. If Timed Feed is enabled and the amount left to feed is greater than the Minimum to Time Feed value, the system calculates a time duration to open the gate based on the found information.

* A "bucket" is a weight range of previous drop records used for calculating the current drop time or preact. If drop records are disabled, either the Default Preact or Preact Override value is used.

As with Fast Feed, a Safe Target is calculated based on the amount left to feed minus the Timed Feed Plant Erraticness percentage or absolute value. Multiple Timed Feeds can occur up to the Maximum Number of Timed Feeds value.

➢ JOG FEED

Jog Feed is typically used for aggregates and cements and opens and closes the gate enough to allow small jog bites of material to fall through. The time duration the gate opens and closes depends on the Jog Weight, Jog Time and Jog Settle Time values.

The system automatically adjusts the Jog Time by the Jog Time Adjust value to achieve the Jog Weight per jog.

Jog Feed can start if ALL of the following are true:

- Jog Feed is enabled.
- Fast and/or Timed Feed finishes without getting the material to target.
- The Maximum Number of Jogs is a non-zero value.

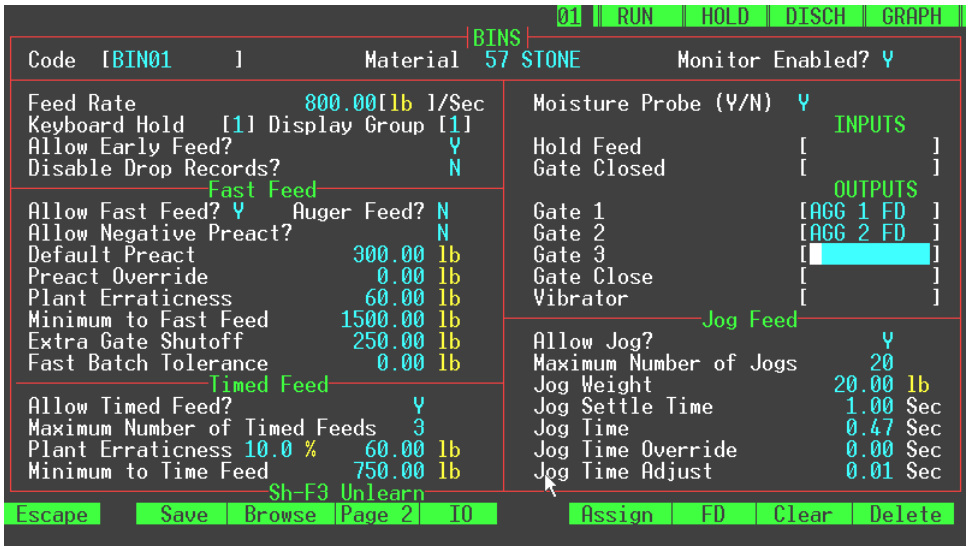
☛ POSSIBLE FEED CONFIGURATION

Feeding occurs in the following order: Fast, Timed, and Jog.

For bins with more than one gate, the only gate that jogs is Gate 1. The other gates stop feeding when the Fast Feed cutoff value is reached (i.e., when the scale weight equals Target – Extra Gate Shutoff – Preact – Plant Erraticness).

The following sample Bins screen shows a possible configuration for an aggregate feed that uses two gates.

Bins Screen (with possible configuration for two gates)



With the configuration shown in the previous screen example:

- Both Gates 1 and 2 **fast feed** until the amount left to feed is less than the Minimum to Fast Feed value (1500 lbs) AND greater than the re-calculated target minus Plant Erraticness for Timed Feed. Then Timed Feed starts for Gate 1 and Gate 2 closes.
- Gate 1 **time feeds** until the amount left to feed is less than the Minimum to Time Feed value (750 lbs) AND less than the re-calculated target minus Plant Erraticness for Timed Feed. Then Jog Feed starts for Gate 1.
- Gates 1 **jog feeds** until the amount left to feed is less than the **Jog Weight** value (jogging ignores scale readings). Gate 1 closes.

Note: Gate 3 is typically used to turn on Aeration for Cement feeds. Manual Material Monitoring is not tracked for Gate 3.

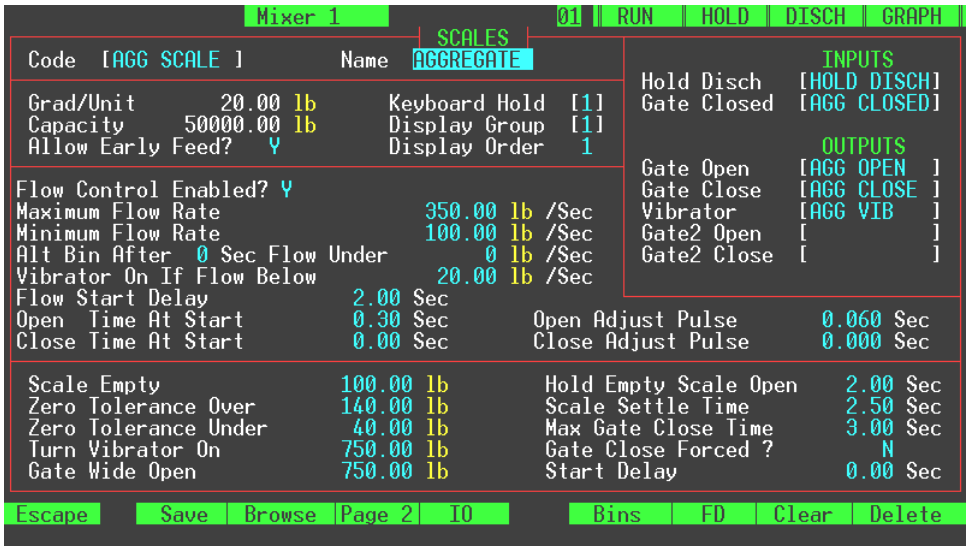
SCALES SCREEN

After configuring bins and silos, you should set up your scales. This is done on the **SCALES** screen (2 pages shown next). On this screen, you can add a scale, or edit parameters for an existing one.

NOTE: If you are setting up a serial scale, see the External Serial Device Setup Guide for instructions.

As with many Spectrum screens, you can go directly to other related screens from this one. For instance, you can press **[F4]** to go to the I/O Assignments screen, or **[F5]** to go to the Bins screen.

Scales Screen – Page 1



Scales Screen – Page 2

FIELDS

FIELD	DESCRIPTION
(PAGE 1 – SCALES SCREEN)	
Code	Browseable list of scales.
Name	Description of the scale.
Grad/Unit	Read-only field that displays the scale graduation size (e.g. 20.00) and scale units (e.g. lb).
Capacity	Read-only field that displays the maximum amount of weight that the scale can hold.
Allow Early Feed?	Yes/No field enables/disables freewheeling for this scale.
Keyboard Hold	Browseable field containing a list of function keys. The one selected can be used on the Graph screen to hold this device from discharging.
Display Group	Browseable field containing a list of group color numbers in which to display this device on the Graph screen. These color numbers correspond to the colors selected for the Graph screen on the Batching Defaults screen.
Display Order	Order in which this scale is to be displayed with other scales on the Graph screen.
Flow Control Enabled?	Yes/No field that allows/disallows the system to open and close the gate to maintain a constant flow rate. If this field is set to "N," the system opens the gate all the way, then closes it once loading is done.
Maximum Flow Rate	Maximum flow rate allowed in scale units per second.
Minimum Flow Rate	Minimum flow rate allowed in scale units per second.
Alt Bin After (sec) **Sec Flow Under(lb/sec)**	These fields work together. If Bin Mapping is allowed on the Batching Defaults screen, the system uses the **Alt Bin After** and **Sec Flow Under** parameters to determine how many seconds to try a feed before switching to the alternate bin.
Vibrator On If Flow Below	When the flow rate slows down to this rate, the vibrator is activated.
Flow Start Delay	Length of time, in seconds, the system waits after loading has begun to check the flow rate. This is necessary because the flow rate is erratic at the start of a load.
Open Time at Start	Length of time, in seconds, the gate should be opened at the start of the loading the truck or mixer to get the material flowing.

FIELD	DESCRIPTION
Close Time at Start	Duration of the gate close output pulse.
Open Adjust Pulse	Length of time, in seconds, the gate opens to keep the material flow rate constant.
Close Adjust Pulse	Length of time, in seconds, the gate closes to keep the material flow rate constant.
Scale Empty	When the material left to discharge reaches this amount, the scale is considered empty by the system.
Zero Tolerance Over	Amount the scale is allowed to read above zero and still be within its zero tolerance range.
Zero Tolerance Under	Amount the scale is allowed to read below zero and still be within its zero tolerance range.
Turn Vibrator On	Scale weight at which the vibrator is turned on during discharge.
Gate Wide Open	Scale weight at which the gate is opened all the way to completely empty the scale.
Hold Empty Scale Open	Length of time, in seconds, the gate should be help open even after the scale weight reads zero to allow the last bits of material to fall out of the scale.
Scale Settle Time	Length of time, in seconds, the system should wait before checking the weight on the scale. This is because the scale tends to bounce up and down after being loaded. Accurate readings cannot be obtained until the scale is allowed to settle.
Max Gate Close Time	Duration of the gate close output pulse.
Gate Close Forced?	Yes/No field. Forces gate closed before feeding starts. If "Yes," the gate close time must always expire before the scale will be used.
Start Delay	Number of seconds to wait before feeding or discharging actually starts.
Inputs	
Hold Disch	I/O point for the HOLD button on the manual station.
Gate Closed	I/O point for the limit switch on the gate that indicates when the gate is closed.
Outputs	
Gate Open	I/O point for the signal the computer sends to open the gate.
Gate Close	I/O point for the signal the computer sends to close the gate.
Vibrator	I/O point for the signal to turn the vibrator on and off.

FIELD	DESCRIPTION
Gate2 Open	(Used for dual gate discharge control.) I/O point for the signal the computer sends to open the gate.
Gate2 Close	(Used for dual gate discharge control.) I/O point for the signal the computer sends to close the gate.
(PAGE 2 – SCALES SCREEN)	
Time between Flow Calculation Updates	Length of time between the computer's flow rate calculations.
Flow based on [scale] lb	The scale that this scale "watches" to base its own flow control on.
Hold Type	Types are: **N** No hold. **Y** Hold the based on device until flow resumes **S** System hold, operator releases.
Plus	Indicates the amount of material on the belt - the amount of material still to be blended after the scale reads empty.
Maximum Flow Rate for Based on Scale	Maximum flow rate allowed for the scale selected in the **Flow based on** field above.
Score Board Port	Port parameter that identifies the device used as a remote scale display. (Port parameters are entered on the Port Parameters screen.)
Serial Scale Port	Port parameter that identifies the device used as a serial scale. (Port parameters are entered on the Port Parameters screen.)
Open2 Time at Start	Length of time, in seconds, the gate should be opened at the start of loading the truck or mixer to get the material flowing.
Close2 Time at Start	Duration of the gate close output pulse.
Open2 Adjust Pulse	Length of time, in seconds, the gate opens to keep the material flow rate constant.
Close2 Adjust Pulse	Length of time, in seconds, the gate closes to keep the material flow rate constant.

MOTION DETECTION

SETUP

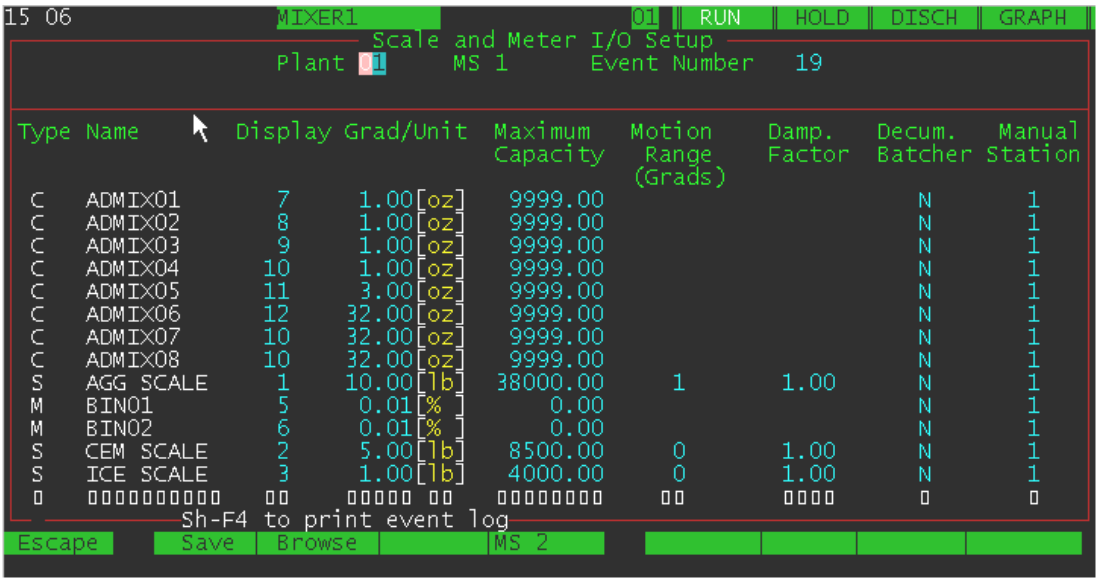
Motion Detection ensures that a scale's reading is stable before its value is recorded. Motion Detection is used in the following situations:

- To capture the scale's Start Tare – before the first material is fed into the scale.
- To record correct Batch Weights - after the scale's Settle delay and before the Tolerance Check on the batched material.
- To capture the scale's End Tare – after the scale's discharge cycle is complete.

To enable Motion Detection:

1. Open the Scale/Meter I/O screen. From the Main Menu, select **Plant Setup** > **Calibration & Test** > **Scale/Meter I/O**.
2. In the **Motion Range** field, enter the number of scale movement graduations that correspond to an "in motion" condition.

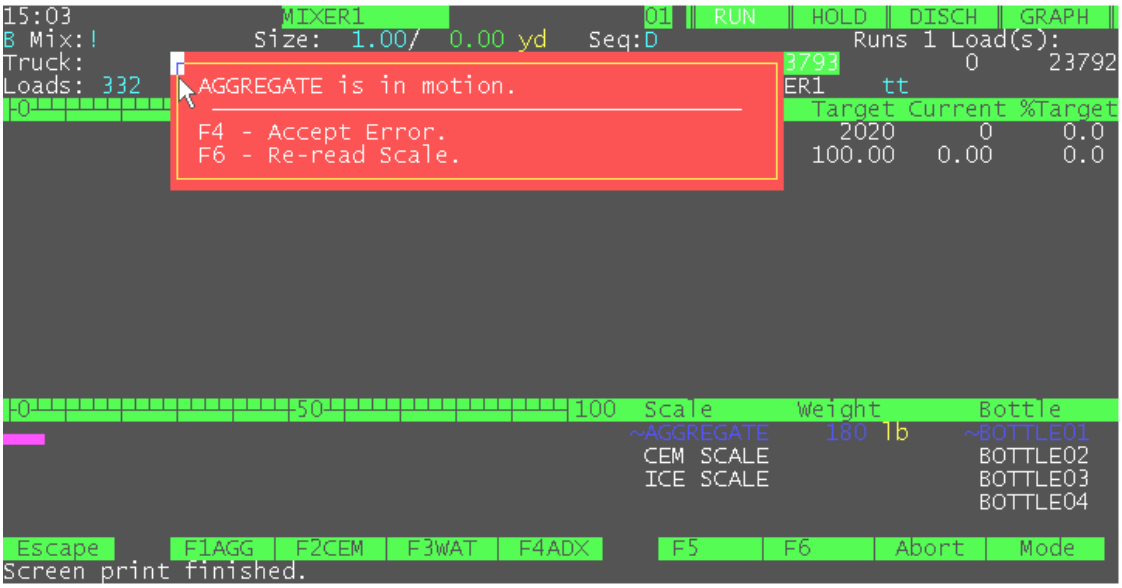
Note: A value of zero in the **Motion Range** field disables motion checking.



OPERATION

When a batch is run, if the scale's flow rate is within the specified motion range for three consecutive samples, taken every one-tenth of a second, the scale is considered stable and the system records the scale's value. If three consecutive "no motion"

samples are not read during a 1.5 second motion sampling period, the system issues the "In Motion" error message as shown in the following screen example.



Operator choices are:

- Press <F4> to accept the error. The accepted motion error (Start Tare, End Tare, or Batch Weight) will then be marked with an "m" beside the weight on the ticket.

Note: Other tolerance check errors take precedence over motion checking and may overwrite the "in motion" flag.

- Press <F6> to re-read the scale and perform the motion check again.

FLOW CONTROL DAMPENING

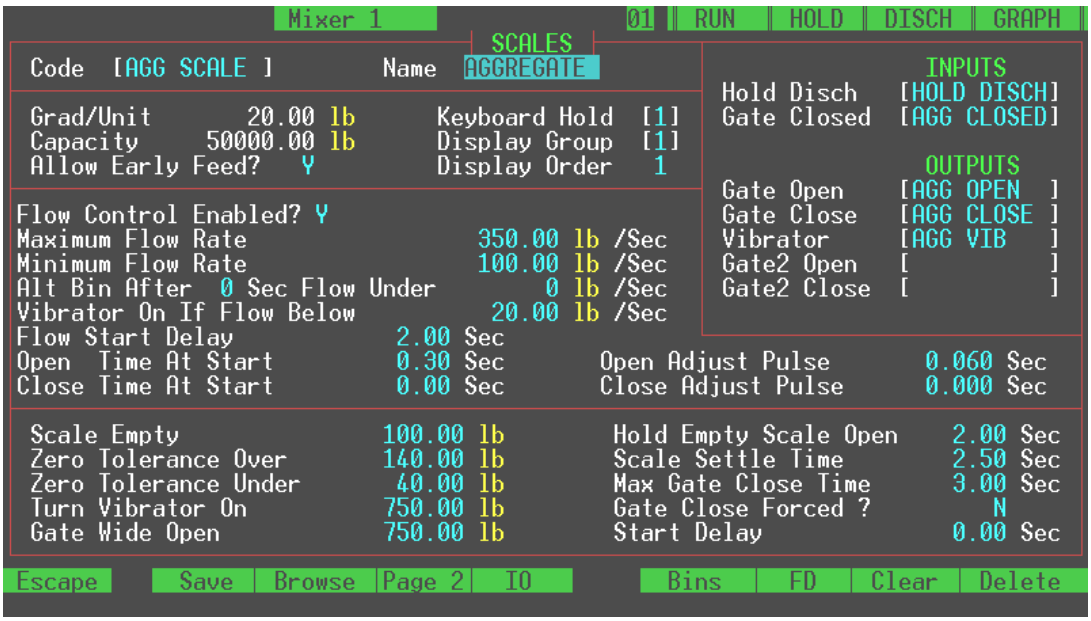
This feature allows scale flow rates to be dampened to allow more precise feed cutoff calculations and drop determinations.

SETUP

For each scale that uses Flow Control:

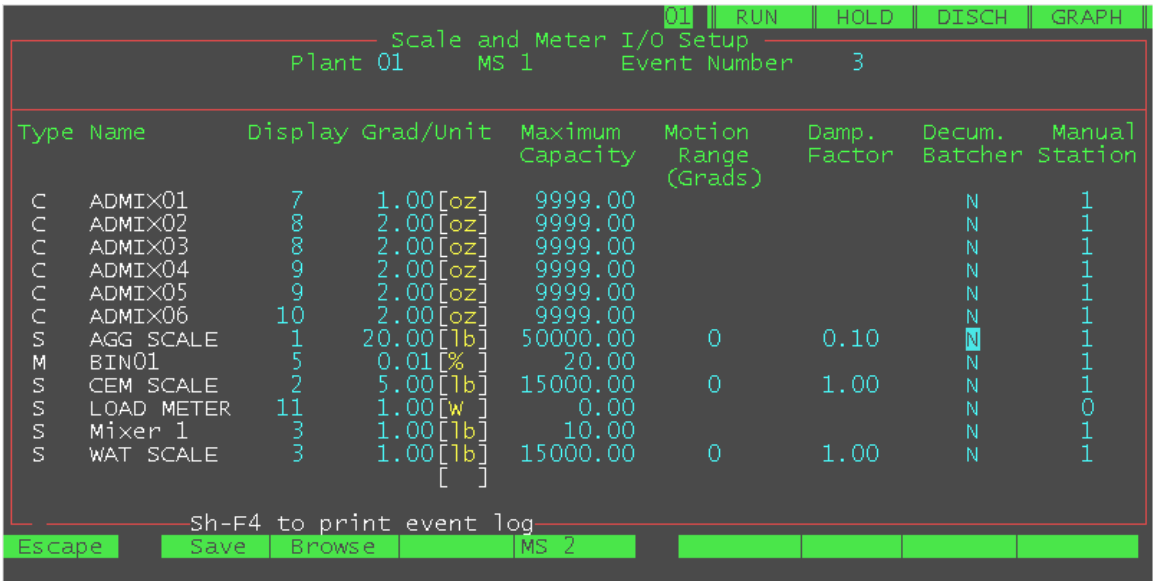
5. From the Main Menu, select Plant Setup > Scales. The Scales screen appears.

Scales Screen



6. Set the **Flow Control Enabled?** field to 'Y'.
7. Save your changes and close the Scales screen.
8. From the Main Menu, select **Plant Setup > Calibration & Test > Scale/Meter I/O**. The Scale/Meter I/O screen appears.

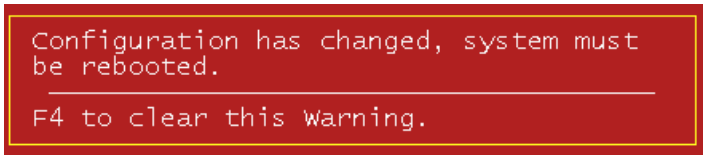
Scale/Meter I/O Screen



9. Enter a value from 0.01 to 0.99 in the **Damp. Factor** field. (A value of 0.1 is recommended.)
10. Save your changes. The following message appears.

    This change will cause weighing errors and will be reported! Proceed? Y/N

11. Press the 'Y' key to continue. The following warning message appears.



12. Press <F4> to clear the warning message.
13. Reboot the RTC.

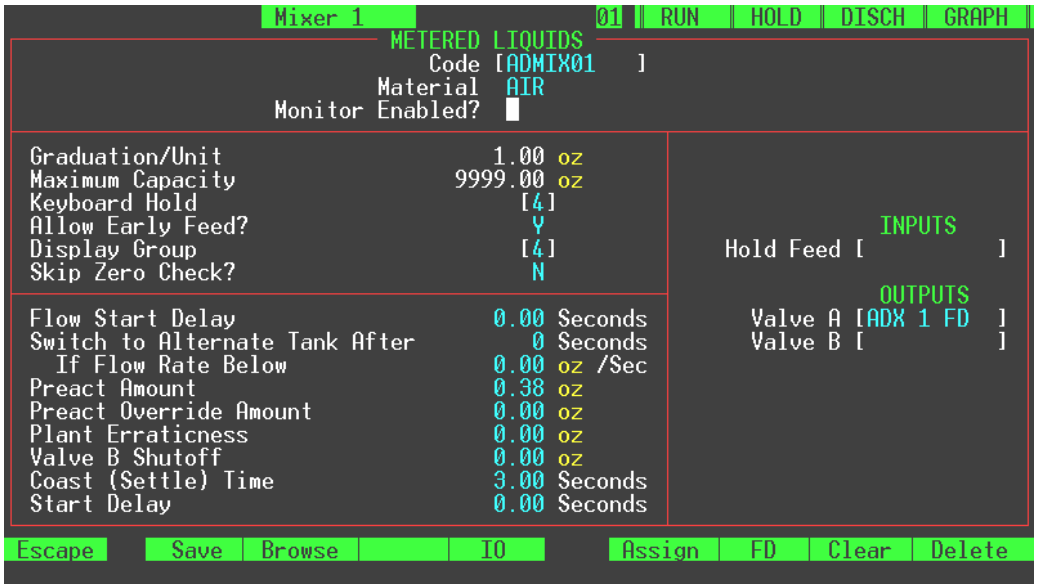
Note: Flow information can be logged to a file for further analysis. See the separate document titled "Flow Control Dampening" for more information about this service tool.

METERED LIQUIDS

After you have set up bins and scales, you should set up metered liquids (e.g. admixes and metered water). In the next section, you will be setting up bottles, then assigning feed destinations to each bin, silo, and bottle. For now, let's focus on the **METERED LIQUIDS** screen (shown next) and a description of the fields on this screen.

As with many Spectrum screens, you can go directly to other related screens from this one. For instance, you can press **[F4]** to go to the I/O Assignments screen, or **[F5]** to go to the Material Assignments screen.

Metered Liquids Screen



FIELDS

FIELD	DESCRIPTION
Code	Browseable list of metered liquids.
Material	Description of the metered liquid.
Monitor Enabled?	Yes/No field that allows/disallows manual feeding of this material to be tracked and recorded.
Graduation/Unit	Read-only field. Amount of this liquid dispensed (in metered units) per meter graduation. This value comes from the Scale and Meter I/O Setup screen, where E-Z Cal Manual Station configurations for plant equipment were entered.

FIELD	DESCRIPTION
Maximum Capacity	Read-only field. Maximum capacity of the tank (in metered units). This value comes from the Scale and Meter I/O Setup screen, where E-Z Cal Manual Station configurations for plant equipment were entered.
Keyboard Hold	Browseable list of function keys. The one selected can be used on the Graph screen to hold this device from discharging.
Allow Early Feed?	Yes/No field enables/disables freewheeling for this scale.
Display Group	Browseable list of group color numbers in which to display this device on the Graph screen. These color numbers correspond to the colors selected for the Graph screen on the Batching Defaults screen.
Skip Zero Check?	Yes/No field that allows/disallows zero checking for this device (i.e. checking to see if scale is within zero range).
Flow Start Delay	Length of time, in seconds, the system waits after the valves are opened to check if the flow rate is between the maximum and minimum flow rates.
Switch to Alternate Tank After (sec) **If Flow Rate Below (lb/sec)**	These fields work together. The system switches to the alternate tank if the flow rate stays below the **If Flow Rate Below** amount for the number of seconds shown in the **Switch to Alternate Tank After** field. (**NOTE:** Bin Mapping must be enabled on the Batching Defaults screen.)
Preact Amount	This value is calculated by the system. This value is the amount of liquid that enters the mix after the valve is closed. The system subtracts this amount from the target amount, then closes the valve at the new target amount.
Preact Override Amount	Any non-zero amount entered here is used as the preact instead of what is calculated by the computer.
Plant Erraticness	Takes into account variations in accuracy for the metering device. The system closes the valve when the liquid dispensed equals the target minus Preact minus Plant Erraticness.
Valve B Shutoff	Used to prevent "water hammers" due to remaining pressure, which causes the target to be exceeded. When the amount dispensed nears the target, the larger valve (Valve B) is shut, and the smaller valve (Valve A) remains open until the target is reached.
Coast (Settle) Time	Length of time, in seconds, required for the pump motor to completely stop running.

FIELD	DESCRIPTION
Start Delay	Length of time, in seconds, the system waits before starting discharge for this metered liquid.
Hold Feed	Browseable field of I/O points for the tank hold limit switch. Automatically shuts the valve if a problem is detected by the system.
Valve A	Browseable list of I/O points for the Valve A feed output.
Valve B	Browseable list of I/O points for the Valve B feed output.

ADMIXTURE BOTTLES

Now that you have set up metered liquids, you can set up the bottles they will feed into. This is done on the **ADMIXTURE BOTTLES** screen (shown next). Fields on this screen are described in the table after that.

As with many Spectrum screens, you can go directly to other related screens from this one. For instance, you can press **[F4]** to go to the I/O Assignments screen, **[F5]** to go to the Metered Liquids screen, or **[F6]** to go to the Feed Destinations screen.

Admixture Bottles Screen

FIELDS

FIELD	DESCRIPTION
Code	Browseable list of admixture bottles.
Name	Description of the admixture bottle.
Capacity/Unit	Maximum capacity of the bottle in the unit selected.
Keyboard Hold	Browseable list of function keys. The one selected can be used on the Graph screen to hold this device from discharging.
Allow Early Feed?	Yes/No field enables/disables freewheeling for this admixture bottle.
Display Group	Browseable list of group color numbers in which to display this device on the Graph screen. These color numbers correspond to the colors selected for the Graph screen on the Batching Defaults screen.

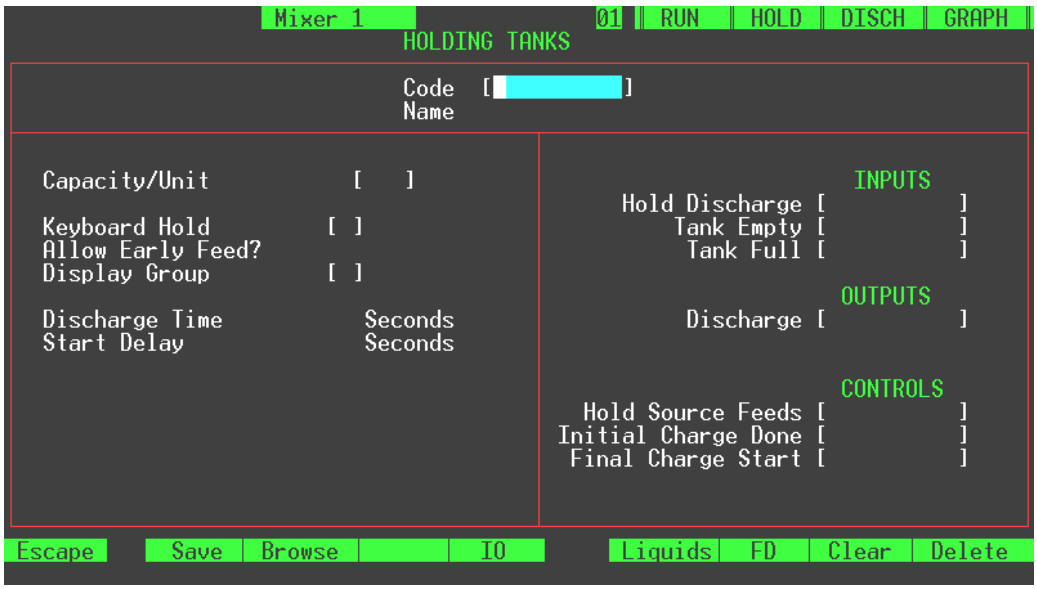
FIELD	DESCRIPTION
Blowout Time	Length of time, in seconds, the valve on the hose must stay open after the bottle is empty to allow all fluid to drain from the hose. (**NOTE:** Prevents lines from freezing in cold weather.)
Start Delay	Length of time, in seconds, the system waits before starting discharge from this admixture bottle.
Hold Discharge	Browseable field of I/O points for the bottle hold limit switch. Automatically shuts the valve if a problem is detected by the system.
Bottle Empty	Browseable list of I/O points for the "Bottle Empty" input.
Bottle Full	Browseable list of I/O points for the "Bottle Full" input.
Discharge	Browseable field of I/O points for the bottle discharge output.

HOLDING TANKS

If holding tanks are used (e.g. for water), you should set them up on the **HOLDING TANKS** screen. This should be done before you assign feed destinations to each device.

As with many Spectrum screens, you can go directly to other related screens from this one. For instance, you can press **[F4]** to go to the I/O Assignments screen, **[F5]** to go to the Metered Liquids screen, or **[F6]** to go to the Feed Destinations screen.

Holding Tanks Screen



FIELDS

FIELD	DESCRIPTION
Code	Browseable list of holding tanks.
Name	Description of the holding tank.
Capacity/Unit	Maximum capacity of the holding tank in the unit selected.
Keyboard Hold	Browseable list of function keys. The one selected can be used on the Graph screen to hold this device from discharging.
Allow Early Feed?	Yes/No field enables/disables freewheeling for this holding tank.
Discharge Time	Length of time, in seconds, the valve on the hose must stay open after the holding tank is empty to allow all fluid to drain from the hose.

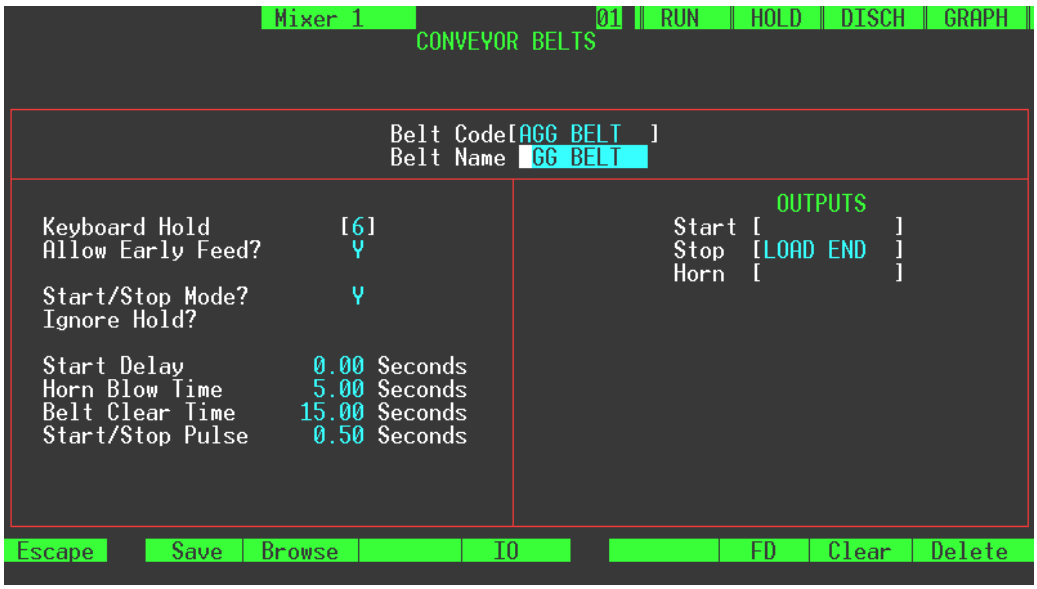
FIELD	DESCRIPTION
Start Delay	Length of time, in seconds, the system waits before starting discharge from the holding tank.
Hold Discharge	Browseable list of I/O points for the tank hold limit switch. Automatically shuts the valve if a problem is detected by the system.
Tank Empty	Browseable list of I/O points for the "Tank Empty" input.
Tank Full	Browseable list of I/O points for the "Tank Full" input.
Discharge	Browseable list of I/O points for the tank discharge output.
Hold Source Feeds	Browseable list of I/O points for the hold source feeds output.
Initial Charge Done	Browseable list of I/O points for the initial charge done output.
Final Charge Start	Browseable list of I/O points for the final charge start output.

CONVEYOR BELTS

If conveyor belts are used, they should be set up on the **CONVEYOR BELTS** screen. This should be done before you assign feed destinations to each device.

As with many Spectrum screens, you can go directly to other related screens from this one. For instance, you can press **[F4]** to go to the I/O Assignments screen, or **[F6]** to go to the Feed Destinations screen.

Conveyor Belts Screen



FIELDS

FIELD	DESCRIPTION
Code	Browseable list of conveyor belts.
Name	Description of the conveyor belt.
Keyboard Hold	Browseable list of function keys. The one selected can be used on the Graph screen to hold this belt.
Allow Early Feed?	Yes/No field enables/disables freewheeling for this device.
Start/Stop Mode	Running mode of the belt. Choices are: Y - means the system sends a pulse to start the belt, then another pulse to stop it. N - means the system sends a continuous signal to start the belt and keep it running. When the system stops sending the signal, the belt stops running.

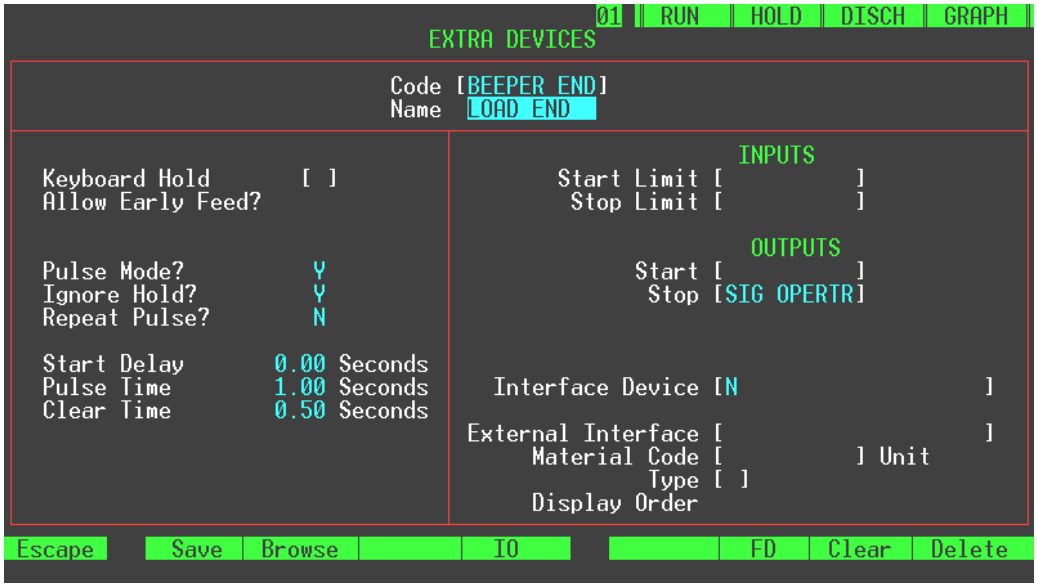
FIELD	DESCRIPTION
Ignore Hold	Y – means this device ignores hold signals from the operator. Prevents belts and diverters from becoming jammed if they stop moving
Start Delay	Length of time, in seconds, the system waits before starting the conveyor belt.
Horn Blow Time	Length of time, in seconds, the horn blows after Start Delay has completed.
Belt Clear Time	Length of time, in seconds, typically required for a "rock" to travel from the beginning to the end of the belt.
Start/Stop Pulse	Duration of the pulse, in seconds, sent to the Start and Stop output addresses.
Start	Browseable list of I/O points for the "Start" output.
Stop	Browseable list of I/O points for the "Stop" output.
Horn	Browseable list of I/O points for the "Horn" output.

EXTRA DEVICES

The **EXTRA DEVICES** screen is used to set up extra devices such as a beeper to signal the end of a load.

As with many Spectrum screens, you can go directly to other related screens from this one. For instance, you can press **[F4]** to go to the I/O Assignments screen, or **[F6]** to go to the Feed Destinations screen.

Extra Devices Screen



FIELDS

FIELD	DESCRIPTION
Code	Browseable list of extra devices.
Name	Description of the extra device.
Keyboard Hold	Browseable list of function keys. The one selected can be used on the Graph screen to hold this device.
Allow Early Feed?	Yes/No field enables/disables freewheeling for this device.

FIELD	DESCRIPTION
Pulse Mode	Running mode of this device. Choices are: Y - means the system sends a pulse to start the device, then another pulse to stop it. Use this for double-action solenoids. N - means the system sends a continuous signal to start the device and keep it running. When the system stops sending the signal, the device stops running. Use this for single-action solenoids.
Ignore Hold	Y – means this device ignores hold signals from the operator. Prevents belts and diverters from becoming jammed if they stop moving
Repeat Pulse	Yes/No field that allows/disallows the pulse attribute to repeat. Ex: This allows a "beeper" function to be created.
Start Delay	Length of time, in seconds, the system waits before starting the device.
Pulse Time	Duration of the pulse, in seconds, that the system sends to move the device. In the case of a diverter, a pulse moves the diverter from one position to another. A second pulse moves the diverter back to its original position.
Clear Time	Length of time, in seconds, the device remains in place or stays on after the load is completed. In the case of a diverter, this allows all material to be cleared from the diverter.
Start Limit	Browseable list of I/O points for the "Start" input.
Stop Limit	Browseable list of I/O points for the "Stop" input.
Start	Browseable list of I/O points for the "Start" output.
Stop	Browseable list of I/O points for the "Stop" output.
Interface Device	Reads data from an external source (manual station display scale or counter, or external serial device) and stores the value for the externally added material.
External Interface	Port parameter for the interface device.
Material Code	Material that can be externally added and whose added amount is recorded by the external source.
Unit	Unit of measure printed on tickets for data received from the extra device.
Type	Device type. **C** (counter), or **S** (scale).
Display Order	Order the extra device is displayed at the bottom of the Graph Screen with scales, bottles, and other devices.

ASSIGNING MATERIALS TO BINS & BOTTLES

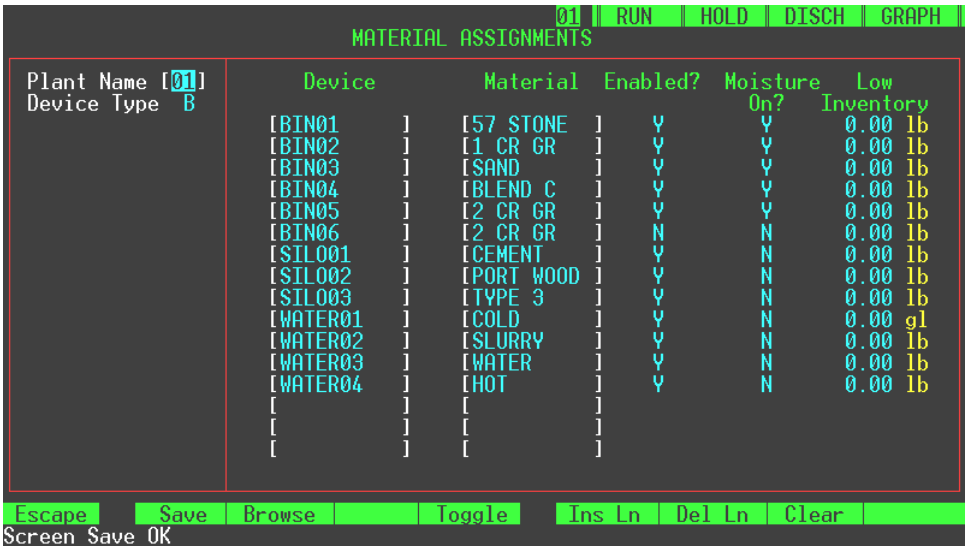
MATERIAL ASSIGNMENTS SCREEN

After feed source and destinations have been set up and ingredients added to the database, you can assign materials to bins and admixes to bottles.

TO ASSIGN MATERIALS TO A DEVICE

1. From the Main Menu, select Plant Setup > Material Assignments. The Material Assignments form appears.

Material Assignments Screen



2. Assign the material to the appropriate bins/silos. (A material can be stored in multiple bins, one or more of which can be currently active.)
3. Save your data.

- In the above screen example, material **2 CR GR** is assigned to Bins 5 and 6. Bin 6 is "inactive," meaning the system will feed from Bin 5 when this material is used. If both bins were enabled, the system would feed from both bins.
- To assign liquid materials to bottles, press <F4> and liquid devices and their assigned materials are displayed.

Fields

Field	Description
Plant	Browseable list of plants.
Device Type	Read-only field showing either **B** (for Bins), or **L** (for Liquids). Defaults to **B**. Press **[F4]** to toggle back and forth between bin-type and liquid-type devices.
Device	Browseable list of bins or admixes. For bin-type devices, this list shows only bins and silos. For liquid-type devices, this list shows only admixes.
Material	Browseable list of all ingredients in the system.
Enabled?	Yes/No field for activating/deactivating the bin or admix tank.
Moisture On?	Yes/No field for allowing/disallowing moisture adjustment calculation for this material.
Low Inventory	When the actual inventory reaches the amount listed here, the material name is displayed in red on the Batch Setup screen.

Function Keys

Function Key	Purpose
[F1] - Save	To save data you have entered or changed.
[F2] - Browse	To pull up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F4] - Toggle	To toggle back and forth between bin-type and admix-type devices.
[F5] - Ins Ln	Inserts a blank row above the current one.
[F6] - Del Ln	Deletes the current row.
[F7] - Clear	Clears all data from the screen. **Be careful about using this function!**

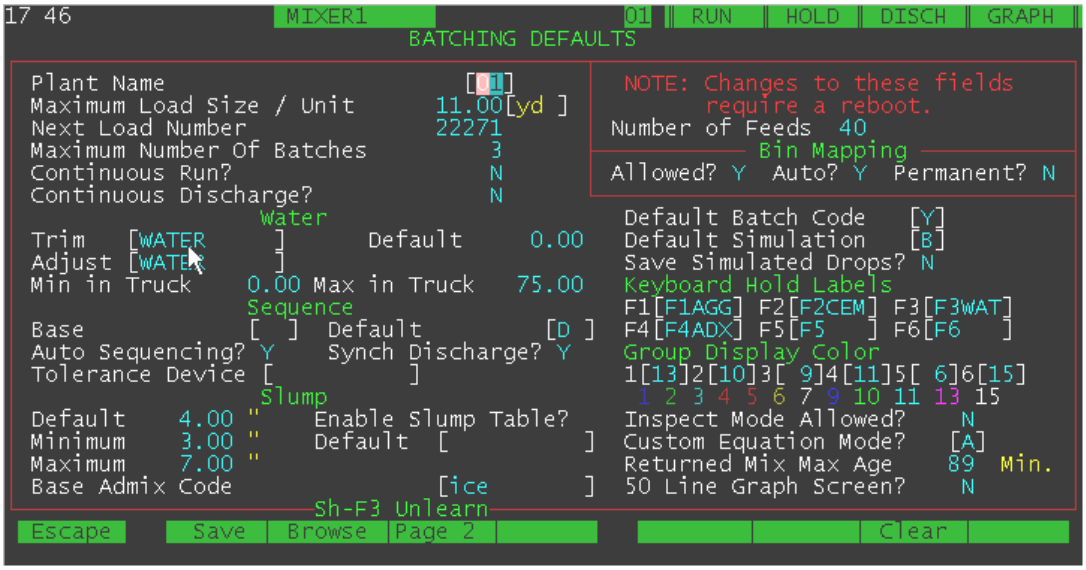
AUTO BIN SWITCHING

This feature causes the system to automatically select an alternate source without operator intervention when a feed timeout occurs.

SETUP

1. From the Main Menu, select **System Maintenance > Batching Defaults**. The Batching Defaults screen appears.

Batching Defaults screen

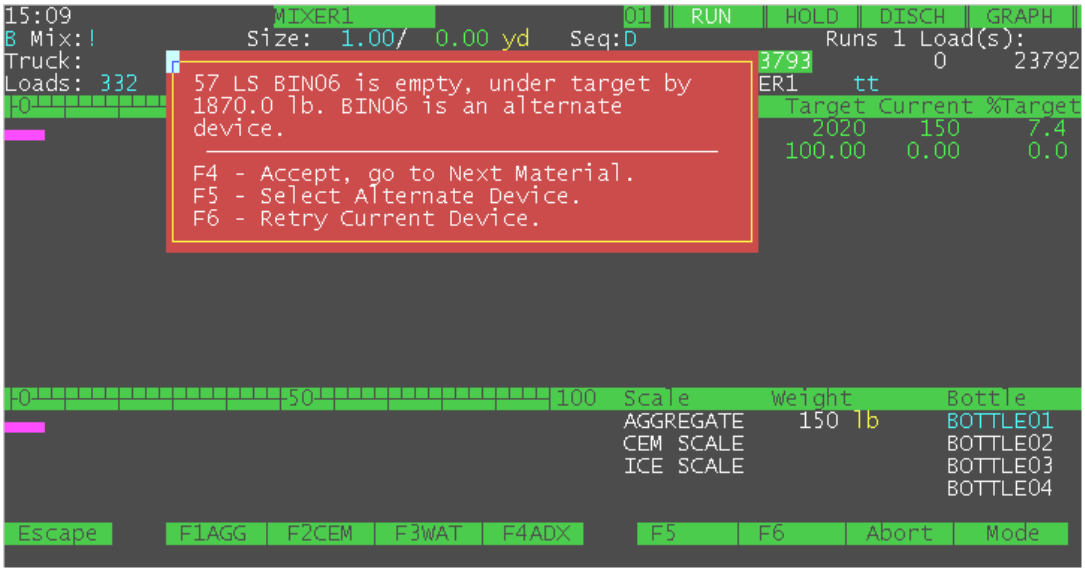


2. In the Bin Mapping section, enter a 'Y' in the **Allowed** field.
3. In the Bin Mapping section, enter a 'Y' in the **Auto** field.
4. Save your changes.

OPERATION

When a feed timeout occurs, the system checks for an alternate source for the material. If an alternate source is available, the remaining required material is fed from the alternate bin. This happens without operator intervention.

If a feed timeout occurs and there are no remaining alternate feed sources, the error pop shown in the following screen example is displayed so that the operator can take action the same way he would for manual bin switching.



TICKET PRINTING FOR SWITCHED BINS

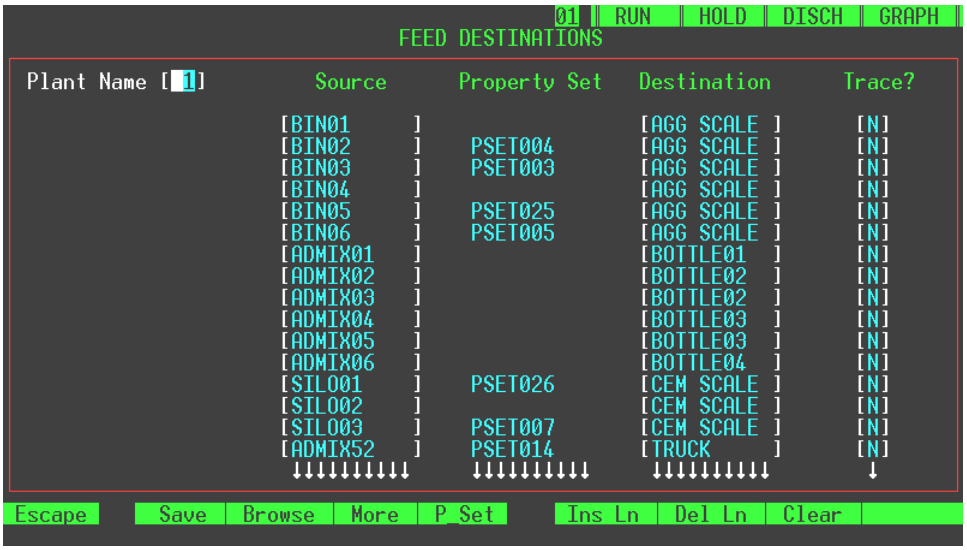
- If an alternate bin was used, a '@' is printed beside the material's Actual amount on the ticket.
- If a substitute material was used, a '#' is printed beside the material's Actual amount on the ticket.
- If material was fed from two different bins, and both bins have a moisture probe, moisture values are 'weighted' for the proportion of each material.

SETTING FEED DESTINATIONS

FEED DESTINATIONS SCREEN

After configuring devices (bins and silos, scales, bottles, mixers, trucks, etc.), you can assign feed destinations to each device. This is done on the **FEED DESTINATIONS** screen (shown next).

Feed Destinations Screen



FIELDS

FIELD	DESCRIPTION
Plant Name	Browseable field containing list of available plants.
Source	The source device for this feed relationship. Examples: A bin can feed into a scale; a scale can feed into a truck, mixer, or holding hopper; an admix can feed into a bottle, mixer, or a truck; a bottle can feed into a mixer or a truck.
Property Set	If a property set record has been created for the source device, the PSET number will appear in this field. (See "*Device Property Sets*" for more information.
Destination	The destination device for this feed relationship. (See examples for Source above.)
Trace?	Yes/No field that sets whether debugging tracepoints are activated for this feed relationship. Defaults to No. Command Alkon personnel should only change this field.

FUNCTION KEYS

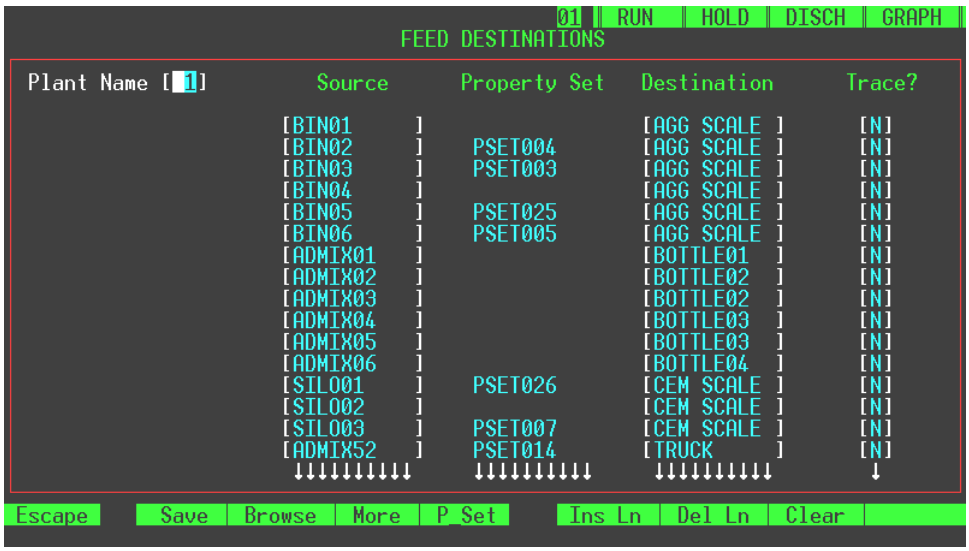
FUNCTION KEY	PURPOSE
[F1] - Save	To save data you have entered or changed. **Note:** Changes to property set records will not become effective until the *Feed Destinations* screen is saved.
[F2] - Browse	To pull up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - More	To "drill down" to the selected device's edit screen. This drill down feature is available for source, destination, and property set devices. **Note:** This key is disabled if the *Feed Destinations* screen was accessed from a device edit screen.
[F4] - P_Set	To create/delete a "property set" device. A property set is created if none exists. If a property set exists, the system asks you if the property set is to the deleted.
[F5] - Ins Ln	Inserts a blank row above the current row.
[F6] - Del Ln	Deletes the current row. **Note:** When you delete a line from a device edit screen, the actual record is not deleted until you save the *Feed Destinations* screen.
[F7] - Clear	Clears the current screen. **Be careful about using this function!**
[F8]	Works with the **[F4]** key to delete a property set record. Position the cursor in **Property Set** column on the row containing the desired property set device and press **[F4]**. The system displays the following prompt: "Press F8 to delete Property Set PSETnn, Esc to continue." Press **[F8]** to blank the field. **Note:** The actual property set record will not be deleted until you save the *Feed Destinations* screen.

DEVICE PROPERTY SETS

A separate device parameter set (Property Set) can be assigned to each source device in a feed destination relationship. This permits a source device to have different settings (I/O, timing, etc.) depending on the destination device. Examples are mixers with multiple doors, or a scale with two sets of discharge gates, each going to a different mixer or truck lane.

Property set records are added, modified, or deleted from the **FEED DESTINATIONS** screen. Procedures for performing these functions are given after the following screen example.

Feed Destinations Screen (showing Property Sets)



ADDING A NEW PROPERTY SET

1. Go to **PLANT SETUP➡FEED DESTINATIONS** and arrow down to the row containing the desired source device.
2. Press **[F4]**. The system creates a property set device record by making a copy of the source device record and assigning a system-generated device code in the form "PSETnnn", where nnn is a value from 000 to 999.

   For example, if you were creating a new property set record for a scale, the PSET number would appear in the **Code** field of a copy of the **SCALES** screen.
3. Change the appropriate data on the new property set record. For example, you might select a different Input or Output.
4. Press **[F1]** to exit the new record and return to the **FEED DESTINATIONS** screen, then press **[F1]** again to save the new property set record.

EDITING AN EXISTING PROPERTY SET

1. On the **FEED DESTINATIONS** screen, position the cursor in the **Property Set** column on the row containing the desired source device and press **[F3]**. The property device record appears for editing. Note that the **Code** field is displayed in yellow and is not editable.
2. Make the desired changes to the record and press **[F1]** to save the record and return to the **FEED DESTINATIONS** screen.

DELETING A DEVICE PROPERTY SET

1. On the **FEED DESTINATIONS** screen, position the cursor on the row containing the desired source device and press **[F4]**. The system displays the following prompt: "Press F8 to delete Property Set PSETnnn, Esc to continue."
2. Press **[F8]** to blank the field.

Note: The actual property set record will not be deleted until you save the **FEED DESTINATIONS** screen.

MANUAL MATERIAL MONITORING OF PSET IO'S

PSET IO's for a given device can also be used for MMM events instead of the IO of the original device. (An MMM event occurs when material is manually batched.)

When the open/discharge IO point of the bottle or scale is activated, the MMM event is started and the current scale or counter value is recorded. At the 'done' event, the current scale or counter value is recorded and a Spectrum mat_log record is created. The difference between the 'done' and 'start' values is the amount used.

If an MMM event occurs during an auto-load when any other auto-feeds are feeding into a shared batcher (scale or metered feed), the auto-feed is 'aborted' and an errpop is displayed stating what happened. The amount used and the load_id are recorded as part of the MMM event.

Example PSET assignments:

Source Device	Property Set	Destination Device	Comments
BIN01	PSET001	AGG1 SCALE	
BIN01	PSET002	AGG2 SCALE	This configuration is rarely used.
AGG1 SCALE	PSET010	MIXER	
AGG1 SCALE	PSET011	TRUCK	
AGG2 SCALE	PSET012	TRUCK	This configuration is rarely used.
WATER	PSET020	MIXER	
WATER	PSET021	TRUCK	
ADMIX01	PSET030	BOTTLE01	
ADMIX01	PSET031	MIXER	
ADMIX01	PSET032	TRUCK	

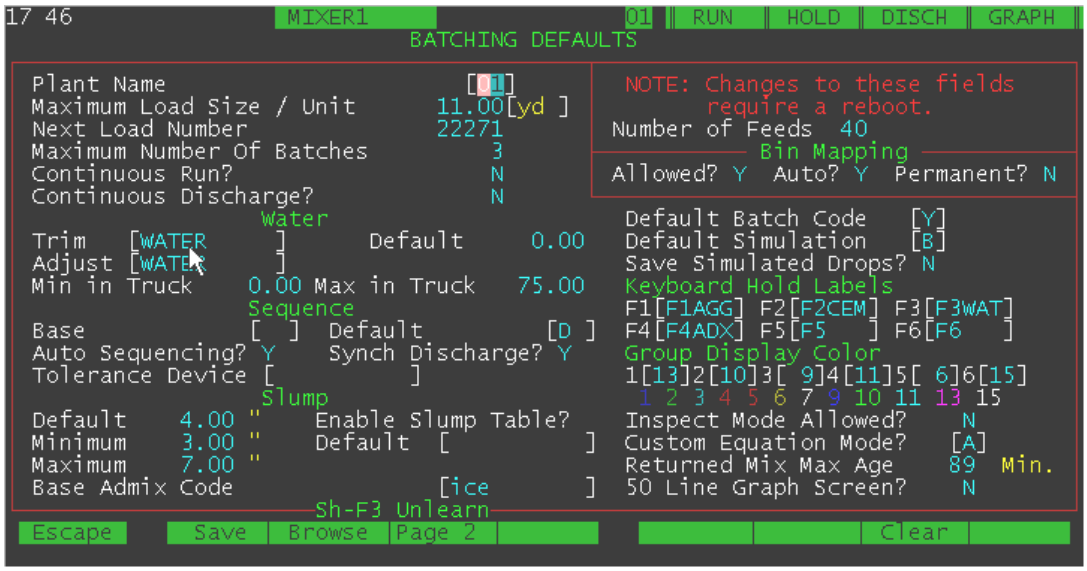
BATCHING & SYSTEM DEFAULTS

After plant devices have been set up and materials assigned to devices, batching and system default parameters need to be entered. The two screens used for these purposes are the **BATCHING DEFAULTS** and **SYSTEM DEFAULTS** screens. These two screens are discussed in this section.

BATCHING DEFAULTS SCREEN

On this screen (2 pages shown next), you can enter or modify default settings that affect batching operations. Important among these settings are maximum load size, default slump, and keyboard holds.

Batching Defaults Screen – Page 1



Batching Defaults Screen – Page 2

FIELDS

FIELD	DESCRIPTION
PAGE 1 – BATCHING DEFAULTS SCREEN	
Plant Name	Browseable field containing list of available plants.
Maximum Load Size / Unit	Default maximum load size that this plant is capable of batching. The Unit is the unit of measure for the load size (yd or m3).
Next Load Number	Number of the next load for this plant. Each time a load is run, this number is incremented by one.
Maximum Number of Batches	Maximum number of batches that this plant can run per load. If this value is "1," multi-batching is disabled.
Continuous Run?	Yes/No field that sets whether the system will run without the operator pressing the **[F9] – RUN** button.
Continuous Discharge?	Yes/No field that sets whether the system will discharge without the operator pressing the **[F11] – DISCH** button.
WATER	
Trim	Ingredient to be trimmed on the Batch Setup screen. Normally water. Both this field and the **Adjust** field must match the main water ingredient or the trim and adjustment of water will not work. For instance, if the main water is COLD, then both fields must have COLD selected. This is a browseable field.

FIELD	DESCRIPTION
Default	Default amount of water to be trimmed from each yd/meter. This value appears on the Batch Setup screen.
Adjust	Ingredient to be adjusted on the Batch Setup screen, where you can adjust the ingredient on a load basis (i.e. gallons per Load).
Min in Truck	Minimum amount of water that can be recorded as in the truck when the load is batched. This value appears on the Batch Setup screen as **In Truck**.
Max in Truck	Maximum amount of water that can be recorded as in the truck when the load is batched. This value appears on the Batch Setup screen as **In Truck**.
SEQUENCE	
Base	Base sequence for this plant. Base means the mix sequence is laid on top of this one.
Default	Default sequence code that is pulled onto the Batch Setup screen. If the mix design contains a sequence code, it overrides the default.
Auto Sequencing?	Yes/No field that sets up basic default sequences when set to "Y." Feeds will start at batch start and discharge devices will start when system discharge has been activated.
Synch Discharge?	Yes/No field that, when set to "Y," holds all discharge devices until all feeds are done.
Tolerance Device	Browseable list of extra devices that could be used to alert the operator of an out-of-tolerance condition.
SLUMP	
Default	Default slump for this plant. This value appears on the Mix Designs screen when you enter a new mix.
Minimum	Minimum slump allowed for a mix used at this plant.
Maximum	Maximum slump allowed for a mix used at this plant.
Enable Slump Table?	Yes/No field that, when set to "Y," allows slump tables to be used for slump calculations. When slump tables are used, the standard "linear" method of slump adjustment is not used. (See "Slump Tables" for more information.)
Default	Default slump table that will be used at batch time if Slump Tables are enabled but no slump table has been attached to the mix design (on the **MIX DESIGNS** screen).

FIELD	DESCRIPTION
Base Admix Code	The code entered here is added to all mixes batched. For instance, if you want to add Hot water to all mixes, you can create an Admix design for Hot water then enter its code in this field. Hot water would then be automatically added to each mix that was batched.
NOTE: Changes to the following fields require a reboot.	
Number of Feeds	Maximum number of feeds that this plant may have active at any one time. DO NOT change this without calling Command Alkon first! Usually set to 20 feeds. Maximum of 100.
Allowed?	Yes/No field that sets whether the system is allowed to switch to a secondary bin if the primary bin runs low. We recommend that this be set to "Y."
Auto?	Yes/No field that sets whether the system switches to a secondary bin without alerting the operator that bin switching is occurring. If this field is set to "Y", the Allow field must also be set to "Y".
Permanent?	Yes/No field that sets whether the system is allowed to make a secondary bin the primary bin if the original primary bin runs empty. Should be set to "Y."
Default Batch Code	Default batch code that appears on the Batch Setup screen. Choices are: **B** – Print ticket WITHOUT batch weights. **Y** – Print ticket WITH batch weights.
Default Simulation Code	Default simulation status that appears on the Batch Setup screen. Choices are: **B** – Run an actual batch. **S** – Run a simulated batch. **T** – Run a training batch.
Save Simulated Drops	Yes/No field that sets whether the system will save records for debugging purposes from simulated batches.

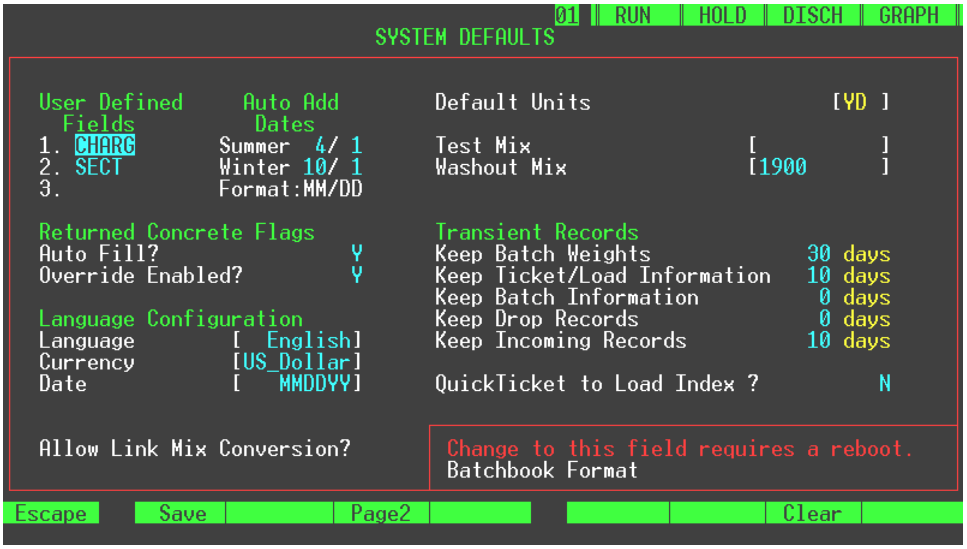
FIELD	DESCRIPTION
KEYBOARD HOLD LABELS	
F1 **F2** **F3** **F4** **F5** **F6**	Meaningful labels for the keyboard hold keys used on the Graph screen can be assigned here. Select them from browseable lists or enter your own. **NOTE:** The actual function keys used for holding bins, scales, bottles, and other devices are designated on the appropriate Plant Setup screens. For instance, the keyboard hold for Agg feed is set on the Bins screen, and the hold for Agg discharge is set on the Scales screen. Normally, F1 is used for Aggregate, F2 for Cement, F3 for Water, and F4 for Admix.
GROUP DISPLAY COLOR	
1, 2, 3, 4, 5, 6	Colors in which groups of materials will be displayed on the Graph screen. Each group number has a browseable list of colors. Choose a color for each group.
Inspect Mode Allowed?	Yes/No field that sets whether the system will run in Inspect Mode. This requires that an INSPECT_OK I/O point be defined.
Custom Equation Mode	Activates/deactivates custom equation processing (software that emulates a PLC controller). Choices are: **A** – for Activate **O** – for Off
Returned Mix Max Age	Length of time, in minutes, a returned mix can be in the truck and still be used.
50 Line Graph Screen	**Y** – means the Graph screen will be displayed with 50 rows. **N** – means the Graph screen will be displayed with 25 rows.
PAGE 2 – BATCHING DEFAULTS SCREEN	
CEMENT	
Trial	(Applies to Mix Design Polynomials. Refer to the Mix Design Polynomial document for details.)
Min	(Applies to Mix Design Polynomials. Refer to the Mix Design Polynomial document for details.)
Max	(Applies to Mix Design Polynomials. Refer to the Mix Design Polynomial document for details.)

FIELD	DESCRIPTION
Moisture Entry Type	Used for moisture and absorption calculations. Choices are **S** (for SSD) and **D** (for Oven Dry).
Default Mix Entry Type	Mix Type that appears by default when you create a new mix design. Choices are **S** (for SSD), **O** (for Oven Dry MnDOT), and **D** (for Oven Dry). **Note:** For "Oven Dry MnDOT" water is entered in the mix design as FREE water instead of as TOTAL water.
Round Batch Size By	This factor is used for rounding batch sizes up or down so that they are evenly divisible by this factor. By default, this field is set to zero so that Spectrum will divide a large load into multiple batches of equal size. When a value besides zero is entered in this field, Spectrum rounds each batch of a multi-batch load (except for the last batch) by this factor. Ideally, the load size should be evenly divisible by the round-by factor. Two examples are given next, one for a load size evenly divisible by the round-by factor and another for a load size that is not. **Example 1:** Load Size evenly divisible by Round-By Factor Load Size = 6.2 m3 Batch Size Round By Factor = .10 Max Batch Size = 5 m3 This load would be split into two batches of 3.1 m3 each. **Example 2:** Load Size NOT evenly divisible by Round-By Factor Load Size = 6.15 m3 Batch Size Round By Factor = .10 Max Batch Size = 5 m3 This load would be split into two batches. The first batch would be 3.1 m3 and the second (and last) batch would be 3.05 m3.

SYSTEM DEFAULTS

On this screen (2 pages shown below), you can do things like assign labels to user defined fields, set default truck trip times, and set how many days to keep batch weight, ticket, and other records.

System Defaults Screen – Page 1



System Defaults Screen – Page 2

FIELDS

FIELD	DESCRIPTION
(PAGE 1 – SYSTEM DEFAULTS SCREEN)	
USER DEFINED FIELDS	
1. **2.** **3.**	Field labels for user-defined fields that appear on the Order Entry, Projects, and Edit Tickets screens. These labels can be up to 5 characters long.
AUTO ADD DATES	
Summer	You can apply special charges to batches run on or after this date but before the **Winter** date. MM/DD format. You can also automatically add extra products to the order based on the Summer and Winter dates. They will be pulled into the order automatically.
Winter	You can apply special charges to batches run on or after this date but before the **Summer** date. MM/DD format. You can also automatically add extra products to the order based on the Summer and Winter dates. They will be pulled into the order automatically.
RETURNED CONCRETE FLAGS	
Auto Fill?	If you enter a truck number and a returned quantity, the last mix batched on this truck is pulled into this field.
Override Enabled?	If you are using returned concrete which is incompatible with the mix in the order, an error pop occurs. This field lets you override the error pop and use the returned concrete, even though it is incompatible.
LANGUAGE CONFIGURATION	
Language	Either English or Spanish.
Currency	Either US_Dollar or Peso.
Date	Date format. Either MMDDYY (US) or DDMMYY (European).

FIELD	DESCRIPTION
Allow Link Mix Conversion?	This flag is used with COMMANDbatch and should be set to Y so that Ulink converts amounts on the COMMANDbatch ticket/load to match Spectrum's units.
Default Units	Either YD (for cubic yards) or M3 (for cubic meter).
Test Mix	Mix code used for test purposes.
Washout Mix	Mix code used for truck washout.
TRANSIENT RECORDS	
Keep Batch Weights	Default number of days to keep batch weights. Batch weights older than this are deleted.
Keep Ticket/Load Information	Default number of days to keep ticket records. Ticket records older than this are deleted.
Keep Batch Information	Default number of days to keep batch records. Batch records older than this are deleted.
Keep Drop Records	Default number of days to drop records for debugging purposes. Drop records older than this are deleted.
Keep Incoming Records	Default number of days to keep incoming inventory records. Incoming inventory records older than this are deleted.
Quick Ticket to Load Index?	Yes/No field that sets whether to display "quick tickets" on the Load Index. (Quick tickets are normally generated for non-concrete products.)
NOTE: Changes to the following field requires a reboot.	
Batchbook Format	(Used with Mix Design Polynomials.)
(PAGE 2 – SYSTEM DEFAULTS SCREEN)	
DEFAULT TRUCK TRIP TIMES **These default times appear on the "Order Times" window of the Order Entry screen (by pressing [F3]). You can change these times on this window.**	
Traveling Time	Default length of time for a truck to drive from a plant to a job site.
Waiting Time	Default length of time that a truck must wait at the job site before unloading.
Unloading Time	Default length of time needed for a truck to completely unload all of its concrete at the job site.
Unloading Time Per Unit	Default length of time needed for a truck to unload a cubic yard or cubic meter of concrete.
Washing Out Time	Default length of time needed to wash out a truck after it has completed unloading its concrete.

FIELD	DESCRIPTION
Returning Time	Default length of time needed for a truck to travel from the job site back to the plant.
DISPATCH AUTOMATIC STATUS CONFIGURATION **NOTE: Used Only with the Mini-Dispatch Feature**	
Allow Auto Truck Status ?	Yes/No field that sets whether trucks can automatically advance through the phases of a delivery on the Mini-Dispatch screen.
Enable Auto Travel Status ?	Yes/No field that sets whether a truck can automatically advance from the "Washing Down" to the "Traveling to" status.
Enable Auto On Job Status ?	Yes/No field that sets whether a truck can automatically advance from the "Traveling to" to the "Waiting On Job" status.
Enable Auto Unloading Status ?	Yes/No field that sets whether a truck can automatically advance from the "Waiting On Job" to the "Unloading" status.
Enable Auto Wash Out Status ?	Yes/No field that sets whether a truck can automatically advance from the "Unloading" to the "Washing Out" status.
Enable Auto Return Status	Yes/No field that sets whether a truck can automatically advance from the "Washing Out" to the "Returning" status.

MATERIAL CALCULATIONS SCREEN

CAUTION! Only properly trained and authorized personnel should make entries on this screen. Incorrect entries on this screen can result in bad batches.

OVERVIEW

Material calculations define the manner in which mix design weights are converted to target batch weights. Material calculations use material **Groups**, with each material belonging to one or more Groups, and each type of calculation being performed simultaneously on the entire Group. Calculations are performed in the order listed on the **MATERIAL CALCULATIONS** screen and are independent of the order of ingredients in the mix design.

There are pre-defined material Groups: Cement – 2 CEM, Aggregate – 1 AGG , Admixture – 4 ADX, Water – 3 WAT, Water Admix – 5 WATADX, and ALL. There are also three user-defined Group codes allowed, which are defined by being entered in the **Group Code**, **Auxiliary Group**, or **Aux2 Group** fields on the **INGREDIENTS** screen.

Some calculations use only the ingredient quantities and the *material calculation factor* recorded on the Material Calculations screen. Other calculations use factors from the Ingredients screen.

The final target batch weights may or may not have the same **units** as the ingredients in the mix. For instance, conversions between weight and volume units (e.g. lb to gal) use the Weight-to-Volume Factor from the Ingredients screen.

Because material calculations are based on Groups and not on individual materials, there are some restrictions. For example, an Admixture cannot be based on one Cement and not on another, since by definition all Cements are in the same Group. The amount of the based-on Admixture is therefore dependent upon the total amount of **ALL** Cements.

There is a way to base an Admixture on one Cement. Assign the Cementitious ingredient to its own user-defined Group. Then base the Admixture on this user-defined Group.

CAUTION! This reorganization of Cement ingredients may alter the functioning of other material calculations, such as Cements being based on and correcting themselves.

To solve this problem, assign the Ingredient to more than one Group. In the above case, you can make the Cementitious ingredient a member of two Groups, Cements and CemAdx, with CemAdx being the user-defined additional Group. The Cement

based-on and correction calculations can still work on all Ingredients in the Cements Group, and the Admixture based-on Cements calculation can specify that it will only use Cementitious Ingredients in the CemAdx Group.

Note: Only one Admixture can be used to correct the Water Group (using the *correction factor* entered for the Admixture ingredient).

STANDARD CONFIGURATION

The standard configuration for the Material Calculations screen is shown in the following table.

Position	Group 1	Group 2	Type	Factor	Recalculate? Target	Trace	Comments
1	2 CEM	2 CEM	X	0.000	N	N	
2	2 CEM	4 ADX	B	0.000	N	N	
3	4 ADX	4 ADX	E	0.000	N	N	
4	2 CEM		F	0.000	N	N	
5	2 CEM		R	1.000	N	N	
6	4 ADX	3 WAT	C	1.000	N	N	
7	5 WATADX	3 WAT	S	1.000	N	N	
8	5 WATADX	1 AGG	S	0.000	N	N	
9	ALL		T	0.000	N	N	
10	ALL		A	0.000	N	N	
11	1 AGG	3 WAT	M	0.000	Y	N	
12	3 WAT	3 WAT	C	0.000	N	N	
13	3 WAT	3 WAT	X	0.000	N	N	
14	ALL		L	0.000	N	N	

FIELDS – MATERIAL CALCULATIONS SCREEN

FIELD	DESCRIPTION
Position	Number that specifies the order in which the calculation is performed in relation to all calculations listed on this screen.
Group 1	First group in the row to have the calculation specified in the **Type** column run against it.
Group 2	Second group in the row to have the calculation specified in the **Type** column run against it.
Type	Specifies the calculation to be performed on the group(s) listed in this row. Only one type can be selected from the browse list. (See "Material Calculation Types" for an explanation of each calculation type.)
Factor	Calculation factor used for a particular calculation type. Not all calculations use calculation factors. For those that do, the factor is pre-determined by industry standards.

FIELD	DESCRIPTION
Recalculate? **Target**	A "Y" entered here instructs the system to perform the calculation 10 times a second on the "target" amounts of materials in the specified group(s). This helps the system adjust for dynamic situations (i.e. moisture fluctuations). **Note:** All Recalculate flags after the first "Y" on the Material Calculations screen are effectively forced to "Y" also. For this reason, groups that require recalculations (i.e. Aggregate and Water) should be listed near the end.
Trace?	A "Y" entered here turns on error tracing for the calculation listed in this row.
Comments	This column is provided for you to enter any comments about a particular row of calculations.

FUNCTION KEYS – MATERIAL CALCULATIONS SCREEN

FUNCTION KEY	PURPOSE
[F1] - Save	Saves data you have entered or changed.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F5] - Insert	Inserts a new row *above* the row currently selected.
[F7] - Clear	Clears all information from the screen. **Caution:** This operation erases all material calculation information from the system! Be sure this is what you want to do before you save this change!
[F8] - Delete	Deletes the row currently selected. **Caution:** Be sure this is what you want to do before you save this change!

MATERIAL CALCULATION TYPES

The calculation type determines which calculation will be performed on materials specified for the group(s) listed in a particular row on the **MATERIAL CALCULATIONS** screen. The calculation type is selected in the **Type** column. Each calculation type is described below.

Type	Name	Description of Calculation
A	**Adjustment**	First Group = First Group – Adjustment Factor Amount Used when the In Truck amount on the Batch Setup form is subtracted from the calculated water amount for the load.
B	**Based On**	Second Group = First Group x Based On Factor Bases the amount of one Group on the amount of another Group. Typically, Admixtures are based on Cements.
C	**Correction**	Second Group = First Group x Correction Factor Corrects the amount of one Group using the amount of another Group. Typically, Admixtures or Aggregates correct Waters.
E	**Effectiveness**	First Group = First Group / Effectiveness Factor Used to determine how much to adjust the target of a material according to the material's Effectiveness percentage.
F	**Substitution**	First Group = First Group x Substitution Factor Used when one material is substituted for another and it is not a one-to-one substitution. For example, it takes 1.05 units of flyash to equal 1 unit of cement.
G	**General**	First Group = First Group x Mat Calculation Factor Used for adding multiple parameters as necessary to a group of materials.
I	**Load Size No Ret**	All Groups = All Groups x Load Size_Amount Used when Returned Concrete amounts are excluded from load size and target calculations in multi-batch loads.
J	**1Load Size No Re**	First Group = First Group x Load Size_Amount Used when Returned Concrete amounts are excluded from load size and target calculations in single-batch loads.
K	**Error Correct**	Second Group = Second Group +/- First Group Batch Errors Used to correct one material based on the batching error of another material (example: water corrections based on ice). **Note:** This material calculation type must be entered on the last line of the Material Calculations screen.
L	**Load Size (All)**	All Groups = All Groups x (Load Size_Amount – Ret) Used when calculated material amounts are multiplied by the load size to determine amounts for the entire load.
M	**Moisture**	Second Group = Second Group - (First Group x Moisture Percent) Used when moisture probes and manually entered moisture values use SSD weights (where % moisture of the material is handled as free water).

1	**Load Size (One)**	Second Group = Second Group - (First / (1 - %Moisture)) Used when moisture probes and manually entered moisture values use Oven Dry weights (where the difference between the % moisture and % absorption determine the free water for the material).
N	**No Load Size**	First Group = First Group x 1.00 Used for skipping the load size calculation for a group.
R	**Return Concrete**	First Group = First Group – Factor Amount Used when a returned mix contains materials that can be used in the next load. Typically pertains to the 2 CEM group.
S	**Slump**	First Group = First Group – (Change in Slump x Slump Factor) Used to accommodate changes in slump caused by modifying the amount of water or aggregates.
T	**Trim**	First Group = First Group – (Load Size x Trim Factor) Used to automatically trim a material or admix design on Batch Setup. Water can also be trimmed per yard and per load.
U	**Slurry Solids**	Second Group = Second Group + First Group x %Total Solids Used to adjust for the amount of the solids in a slurry mix. Each solids group to be adjusted must be listed on a separate row.
X	**Combination**	Combination of Based On and Correction Calculations. Bases **and** corrects the amount of one Group based on the amount of Ingredients in the same Group. The usual Groups affected by this calculation are Cements or Waters. For example, Flyash can be *based on* and also *correct* Cement.
Y	**Slurry**	First Group = First Group / (1 - %Total Solids) Used to adjust the main water to account for the water in the slurry mix. **Note:** The calculation that determines the amount of water in the slurry mix is done before any adjustments for moisture and before based-on calculations that consider water groups.
Z	**One LoadSize**	First Group = First Group x (Load Size_Amount – Ret) Used when calculated material amounts are multiplied by the load size to determine amounts for a material group in the load.

Internally, pounds are converted to kilograms for material calculations, and then converted back into pounds. For these calculations, a Weight-to-Volume conversion factor must be entered for the ingredient on the Ingredients screen.

SLURRY CALCULATIONS

There are three methods for slurry calculations:

- Percentage substitution of slurry water against main water
- Absolute entry of slurry water amount in the mix design
- Mix slurry target specific gravity

Corrections against water can be made on either a **Percentage** or an **Absolute** basis. For the Percentage method, corrections are made against the main (fresh) water. For the Absolute method, the slurry water ingredient is entered as an absolute amount in the mix design. This means there is no "based on" entry in the mix design. If more than one type of water is used (i.e. fresh water, hot water and slurry water), the system will still perform moisture and admix water corrections against the main water.

For the **Mix Slurry Target Specific Gravity** method, the specific gravities of the slurry water, slurry solids, and fresh water are used in calculations to meet the slurry target specific gravity as entered in the mix.

SETUPS

- For the **Percentage** and **Mix Slurry Target Specific Gravity** methods to be enabled and correction to occur, the "slurry water" ingredient must have the following entries on the Ingredients screen:

  "sg" in the **Based On** field.

  A value in the **Specific Gravity of Slurry Solids** field.

  The slurry ingredient needs to be part of the '3 WAT' and '3 SLURRY' groups.

- For the **Absolute** method, the slurry water ingredient is entered as an absolute amount in the mix design. This means there is no "based on" entry in the mix design.
- The solids portion of the Slurry can be used to adjust an aggregate or cement material. This can be done with any of the slurry calculation methods mentioned above.
- The "aggregate" material to be adjusted for slurry solids needs to be part of the '1 FINES' group. The value in the **Factor** field of the Material Calculations screen is used as the "percentage" to adjust the aggregate material in the slurry solids calculation.

- The "cement" material to be adjusted for slurry solids needs to be part of the '2 FINES' group. The value in the **Factor** field of the Material Calculations screen is used as the "percentage" to adjust the cement material in the slurry solids calculation.
- You should add a row to the Material Calculations screen with 'U' as the **Type**, '3 SLURRY' as **Group 1**, and '2 FINES' as **Group 2**.
- Since all corrections to water should be done to the "fresh water", the row for '3 WAT' with a 'X' as the **Type** should be moved up on the Material Calculations screen.
- The Correction **Weighting** factor for water should be set to '1.00' on the Ingredients screen.

A typical setup for slurry calculations on the Material Calculations screen is shown next.

Position	Group 1	Group 2	Type	Factor	Recalculate Targets?	Trace	Comment
1	2 CEM	2 CEM	X	0.000	N	N	
2	2 CEM	4 ADX	B	0.000	N	N	
3	4 ADX	4 ADX	E	0.000	N	N	
4	2 CEM		F	0.000	N	N	
5	2 CEM		R	1.000	N	N	
6	ALL		T	0.000	N	N	
7	ALL		A	0.000	N	N	
8	3 WAT	3 WAT	X	0.000	N	N	
9	4 ADX	3 WAT	C	1.000	N	N	
10	5 WATADX	3 WAT	S	1.000	N	N	
11	5 WATADX	1 AGG	S	0.000	N	N	
12	1 AGG	3 WAT	M	0.000	Y	N	
13	3 SLURRY		Y	0.000	N	N	
14	3 SLURRY	1 FINES	U	-1.000	N	N	
15	ALL		L	0.000	N	N	

CORRECTIONS BASED ON ICE

This feature allows Spectrum to correct the batching targets of a material or group of materials based on the actual batching error(s) of another material or group of materials. A typical use is the correction of water targets based on Ice weighing errors.

For corrections based on Ice, the material calculation type "K" is used as shown in the following sample screen.

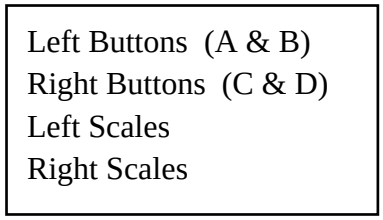
Note: Calculations for Ice must be entered on the last line of the screen!

Position	Group 1	Group 2	Type	Factor	Recalculate Targets?	Trace	Comment
1	2 CEM	2 CEM	X	0.000	N	N	
2	2 CEM	4 ADX	B	0.000	N	N	
3	4 ADX	4 ADX	E	0.000	N	N	
4	2 CEM		F	0.000	N	N	
5	2 CEM		R	1.000	N	N	
6	ALL		T	0.000	N	N	
7	ALL		A	0.000	N	N	
8	3 WAT	3 WAT	X	0.000	N	N	
9	4 ADX	3 WAT	C	1.000	N	N	
10	5 WATADX	3 WAT	S	1.000	N	N	
11	5 WATADX	1 AGG	S	0.000	N	N	
12	1 AGG	3 WAT	M	0.000	Y	N	
13	3 SLURRY		Y	0.000	N	N	
14	3 SLURRY	1 FINES	U	-1.000	N	N	
15	ALL		L	0.000	N	N	
16	ICE	ICE ADJ	K	1.000	N	N	Must be the last line!

- Type "K" corrections are made to load targets. When a material is multi-batched, corrections will be applied proportionately across the load.
- Ingredients in Group 1 must have a Batch Calculation Type of 'n' (entered on the Ingredients screen). This type disables Group 1's batch-to-batch material corrections because Group 2 materials make the corrections.
- Ingredients in Group 2 must have a Batch Calculation Type of 'N' to allow the Group 2 material (water, slurry water, etc.) to correct for errors in the weigh up of Ice.
- Group 2 materials must not complete their feeds before ALL Group 1 materials have finished feeding. Depending on the system configuration, it might be necessary to add a "Holdback" sequence for the Group 2 materials.

CREATING MANUAL STATION LABELS

1. Select **MAIN MENU➡SYSTEM MAINTENANCE ➡MANUAL STATION LABELS**. The following selection box appears:



2. Select the set of labels you want to print or edit, and press **[ENTER]**. A screen with blank label blocks appears for that set of labels.
3. You can create new labels or edit the default ones, which will appear if you select "Manual Station 1 1 / 2" in the **Name** field. In either case, use the arrow, **[TAB]**, or **[ENTER]** keys to move to a label block, then enter text for that label.
4. After you have entered/edited all labels for this part of the Manual Station, press **[F1]** to save your changes.
5. Ensure that the printer is turned on and that the paper tear-off is just above the print head. Set the print quality to "NLQ" and the character pitch to "10." Make sure the printer is in IBM emulation mode, not Epson emulation mode; otherwise, the borders will not print correctly.
6. Press **[F4]** to print the labels for this part of the Manual Station.
7. Cut the labels along the lines provided on the printout.
8. Insert the label into the small slot on the edge of the Manual Station overlay. Widths of the slots can vary slightly, so you may need to trim some labels.
9. Repeat Steps 2 through 8 for the other parts of the Manual Station panel.

NOTES:

- Pressing **[F8]** deletes all labels for this part of the panel. Make sure this is what you want to do before proceeding!
- Pressing **[F7]** clears the text from all labels on the screen. Again, make sure this is what you want to do.

CREATING TICKET LAYOUTS (SCRIPTS)

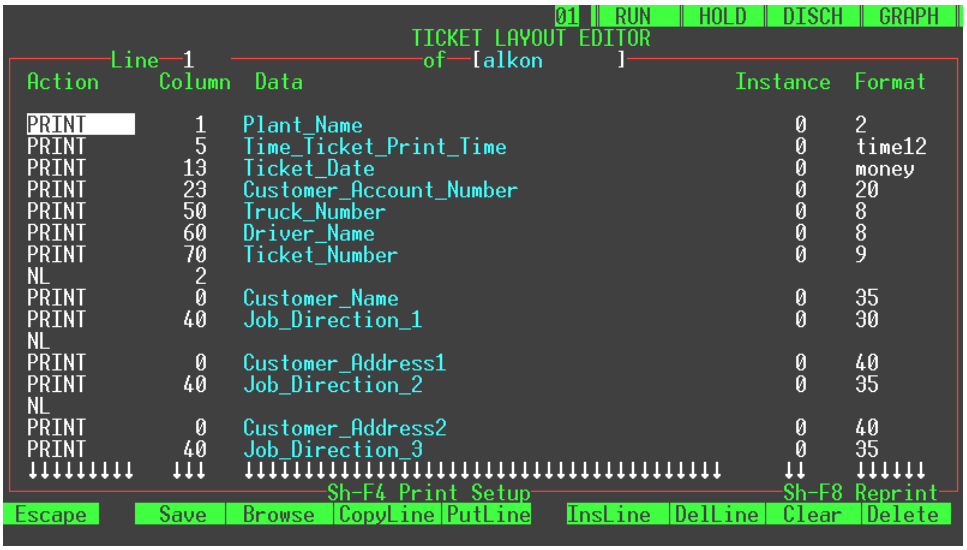
This section explains how you can change the format and content of printed tickets. We start with a description of the **TICKET LAYOUT EDITOR** screen, followed by a description of the **Ticket Alias File**. Then we give the general procedures for creating and editing ticket scripts.

THE TICKET LAYOUT EDITOR SCREEN

Ticket scripts are created and modified on this screen. A ticket script controls "what" is printed on a load ticket, as well as "where" it is printed. You must understand how to use the **TICKET LAYOUT EDITOR** before you begin creating or editing ticket scripts.

The **TICKET LAYOUT EDITOR** screen is accessed by selecting **MAIN MENU➡SYSTEM MAINTENANCE ➡TICKET LAYOUT EDITOR**. When this screen first appears, it is blank. The example below shows the first page of a completed ticket script.

Ticket Layout Editor Screen



The table beginning on the next page explains the information you can enter into each field of the **TICKET LAYOUT EDITOR**. You can pull up a browse list for each field except for the **Column** and **Instance** fields.

☛ FIELDS

FIELD	DESCRIPTION / ACTION
Line	Line number on the printed ticket. The **NL** action described below creates a new line. Each time you move the cursor past a **NL**, the line number increments by one.
Of [ ]	Name of the ticket script. Press **[F2]** to pull up a browse list of ticket scripts (if any have been created).
Action	Action to be taken when a ticket is to be printed. Can be selected from a **[F2]** browse list. Some actions (e.g., **PRINT**) affect data fields in the **Data** column. Some actions (e.g., **NL**) affect printer functions only. Valid actions are: **PRINT** – prints the data field listed under **Data**. **TEXT** – prints user-defined text (captions, disclaimers, etc.). **FF** – executes a hard printer form feed. **NL** – executes a hard printer new line command. Actions listed after this command pertain to a new line on the ticket. **HL** – executes a hard printer half-line (carriage return/half linefeed). **RESALE+/-** – begins and ends a loop for all resale items on the ticket. Anything between **RESALE+** and **RESALE-** will be printed for each item on the resale product list. Use this loop for descriptions, pricing, etc. **UNDER+/-** – starts/stops the underlining of text. **BOLD+/-** – starts/stops bold printing. **COMP+/-** – starts/stops compressed printing. Compressed printing is equal to 17 CPI on an Okidata 320. **WIDE+/-** – starts/stops wide printing. Wide printing prints one character in the space two characters normally occupy. **IF+/-** – starts/stops a group of actions (usually **PRINT**). The + starts the actions if the condition on that line is true. The – stops the actions. **IF+/-** cannot be used within a Resale Loop. **IF** – single conditional statement. If the condition on the **IF** line is true, the action listed on the next line takes place.

FIELD	DESCRIPTION / ACTION
	JUMP – instructs the printer to scroll to a designated line number. This jump is ***absolute***, not relative. This means that if you specify *JUMP 6*, the printer will jump to line 6, not 6 lines from the current position. If the specified line has already been passed, this action will have no effect. **RESET** – Use this at the top of the ticket. This sets the printer to 10cpi, 6 lpi and draft mode. IBM emulation will not change to the draft mode. **PRINT_ALT** – converts the statement to the other measurement system (US or Metric). If the statement cannot be converted (e.g., bags), it will be printed as if the action were PRINT. **6/8LPI** – switches between 6 and 8 lines per inch. **RESALE_EX** – keeps the system from duplicating a product within the resale loop. This must be entered directly before the RESALE+ action. You may enter up to three of these exclusions per ticket. **REVERSE** – performs a reverse linefeed. If batch weights are to be printed, the system waits until they are printed before it reverses. This is used for forms tear off.
Column	Specifies the column on the ticket where the item listed under **Data** will be printed. If this column number (plus the length of the field to be printed) exceeds the **Ticket Width** (entered in **PRINTER SETUP**), the system selects a lower column number so the complete field can be printed. For example, **Ticket Width** = 80 and you want to print the date at column 75. The date is an 8-character field, so the column would be adjusted to 72 and you would be warned of this action. For actions that do not use columns, i.e. **RESALE+**, the column number should always be 0.

FIELD	DESCRIPTION / ACTION
Data	Data to be printed on the ticket at the specified column. Can be selected from the **[F2]** browse list. • For the **TEXT** action, this data is the actual text to be printed on the ticket (e.g., disclaimers). • For the **PRINT** and **PRINT_ALT** actions, this data is an "Alias" name for the actual database field. (See "The Ticket Alias File.") • You can also enter basic math operators ('+' for addition, '-' for subtraction, '*' for multiplication, and '/' for division) between the aliases for data fields. Example: **PRINT 40 Prod_Ord-Prod_Del 0 p6.2** In this example, the amount to be delivered (Product_Ordered – Product_Delivered) would be printed in column 40. Up to 6 digits, including 2 decimal places could be printed. '0.00' would be printed for a zero value.
Instance	Refers to a particular resale product within the order. Delivery Charge is always instance 2. Mix Design is always instance 1. For all Resale Loops, leave this field set to 0. The system automatically increments through all instances.
Format	Several different formats are available, depending on the type of data being printed on the ticket. • Example of format for an alphanumeric string: **20** means the field can be no longer than 20 characters. • Examples of formats for numeric strings: **8.2** means 8 digits with 2 decimal places. **p8.2** means 8 digits, 2 decimal places, and do not print the number if it is equal to zero (0.000). **c8.2** means 8 digits, 2 decimal places, decimal point ".", separator ",", and do not print the number if it is equal to zero (0,000). (Press **[F2]** from the **Format** field to see more examples.)

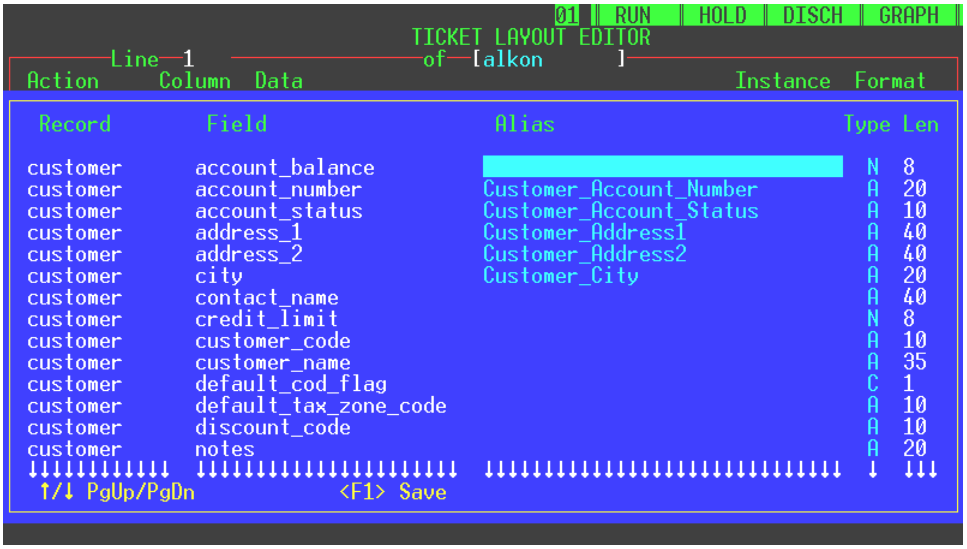
☛ FUNCTION KEYS

FUNCTION KEY	PURPOSE
Sh-F4 Print Setup	Takes you to the **PRINTER SETUP** screen.
Sh-F8 Reprint	Reprints the last ticket.
[F3] - CopyLine	Places the contents of the current line in a stack, i.e. clipboard. ***Not recommended***.
[F4] - PutLine	Places the contents of the stack, i.e. clipboard, into the current line. ***Not recommended***.
[F5] - InsLine	Inserts a data line (not a ticket line). You must press **[ENTER]** after selecting this function.
[F6] - DelLine	Deletes the current data line. You must press **[ENTER]** after selecting this function.
[F7] - Clear	Clears the current screen.
[F8] - Delete	Deletes the current ticket script.

THE TICKET ALIAS FILE

The **Ticket Alias File** allows you to assign "aliases" to database fields so you do not have to memorize their formal names. This is helpful when you are creating a ticket script. The **Ticket Alias File** is displayed when you press **[Shift + F5]** from the **TICKET LAYOUT EDITOR**. An example of the **Ticket Alias File** is shown next.

Ticket Alias File



FIELDS

FIELD	DESCRIPTION
Record	Database table where the data field is stored.
Field	Formal name of the database field. All fields available for printing are displayed in this column.
Alias	Alias name assigned to the database field. This is what you enter in the **Data** field of the **TICKET LAYOUT EDITOR**. **NOTE:** Default aliases are assigned to some fields. For others, you can assign your own. You can change the alias for any field, however.
Type	**A** for alphanumeric string **N** for numeric (decimal point) **I** for numeric (integer) **D** for jam defined date – yy **Y** for jam defined date – yyyy **C** for condition

	T for jam defined time – 12h **M** for jam defined time – 24h **S** for jam defined time – minsec **U** for jam defined currency
Len	Length of the data field.

↳ TO ADD AN ALIAS NAME

1. Select **MAIN MENU➡SYSTEM MAINTENANCE ➡TICKET LAYOUT EDITOR**.
2. Press **[SHIFT + F5]** from the **TICKET LAYOUT EDITOR** screen. The **Ticket Alias File** appears.
3. Move the cursor to the database field for which you want to create an alias name. Move the cursor to the **Alias** column for this database field.
4. Type the alias name and press **[ENTER]**.
5. Press **[F1]** to save the alias.

↳ TO CHANGE AN ALIAS NAME

1. Select **MAIN MENU➡SYSTEM MAINTENANCE ➡TICKET LAYOUT EDITOR**.
2. Press **[SHIFT + F5]** from the **TICKET LAYOUT EDITOR** screen. The **Ticket Alias File** appears.
3. Move the cursor to the alias name you want to change.
4. Type the new alias name and press **[ENTER]**.
5. Press **[F1]** to save the new alias.

CREATING A NEW TICKET SCRIPT

A ticket script controls "what" is printed on a load ticket, as well as "where" it is printed. Normally, the top half of the ticket contains delivery information, followed by product information. The bottom half contains the batch weights. (A sample ticket is given at the end of this section.)

To create a ticket script:

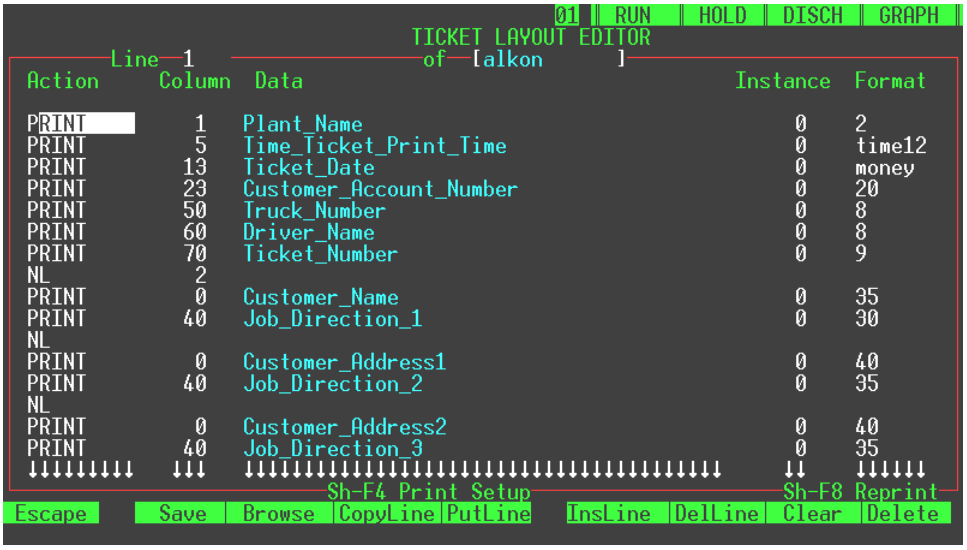
1. Determine the order in which you wish information to be printed on load tickets.
2. Select **MAIN MENU➡SYSTEM MAINTENANCE ➡TICKET LAYOUT EDITOR**. A blank **TICKET LAYOUT EDITOR** screen appears.
3. In the **of [ ]** field at the top of the screen, type the name of the new ticket script. Press **[ENTER]** to move to the **Action** field.

(Delivery Information):

Using the screen example on the next page as a guide, do the following:

4. From the **Action** field, press **[F2]**. A list of valid actions appears. Select the desired action (e.g., PRINT) from the list and press **[ENTER]**. That action appears in the **Action** field. Press **[ENTER]** to move to the **Column** field.
5. Type the column number where you want this data to be printed on the ticket. Press **[ENTER]** twice. The cursor moves to the **Data** field.
6. From the **Data** field, press **[F2]** to pull up the **Ticket Alias File**. Select the desired database field and press **[ENTER]**. That field and its alias appear on the **TICKET LAYOUT EDITOR** screen.
7. Press the Down Arrow key to move to the next line. Repeat Steps 4, 5 and 6 above for all Delivery Information you want to be printed on the ticket. Enter **NL** when you want the data to be printed on a new line of the ticket.

Delivery Information on Ticket Script

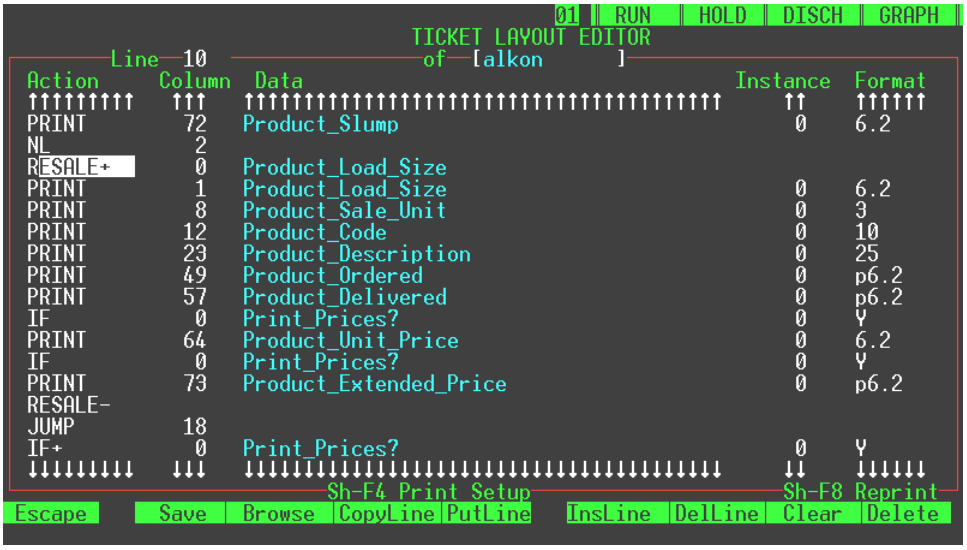


(Product Information):

Using the screen example on the next page as a guide, do the following:

8. Enter a **NL** action immediately after the Delivery Information. Arrow down to the next action line and enter **RESALE+** and press **[ENTER]**. Press **[ENTER]** to move to the **Data** field.
9. In the **Data** field for this first line of Product Information, enter the "trigger" for the Resale Loop. This is usually "Product Load Size." Press **[ENTER]**. The cursor moves to the **Action** field for the next data field.
10. Enter **PRINT** for this action and press **[ENTER]**. The cursor moves to the **Column** field.
11. Enter the column number where you want this data to be printed on the ticket. Press **[ENTER]**. The cursor moves to the **Data** field.
12. Enter the next data field to be printed for Product Information. Press **[ENTER]** three times. This bypasses the **Instance** and **Format** fields and moves the cursor to the **Action** field for the next data field. (Notice that the field length is automatically entered in the **Format** field.)
13. Repeat Steps 10, 11, and 12 above for all product information you want printed on the ticket. Enter **NL** when you want the data to be printed on a new line of the ticket.
14. When you have entered all product information, enter **RESALE-** on the next available **Action** line.
15. Press **[F1]** to save the ticket script. The system assigns a **.y** extension to the script name.

Product Information on Ticket Script



SPECIFYING WHICH TICKET SCRIPT TO USE

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡PRINTER SETUP**.
2. Verify that the Node for which you wish to assign a ticket script is selected. If not, change the node field to reflect the desired node.
3. Select the **Ticket Script Name(s)** field.
4. Type the name of the ticket name you wish to print in this field. The ticket name must be preceded by a **–t** and ended with a **.y**.
5. Press **[F1]** to save your entry.

EDITING AN EXISTING TICKET SCRIPT

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡TICKET LAYOUT EDITOR**. A blank **TICKET LAYOUT EDITOR** screen appears.
2. Press **[F2]** to browse the ticket name field.
3. Highlight the ticket script you wish to edit and press **[ENTER]**. The ticket script appears on the screen.
4. When editing, remember that information is printed in the order it is entered on this screen. Use the **[F5] – Insert Line** and the **[F6] – Delete Line** functions as appropriate.
5. Press **[F1]** to save your changes.

PRINTER SETUP SCREEN

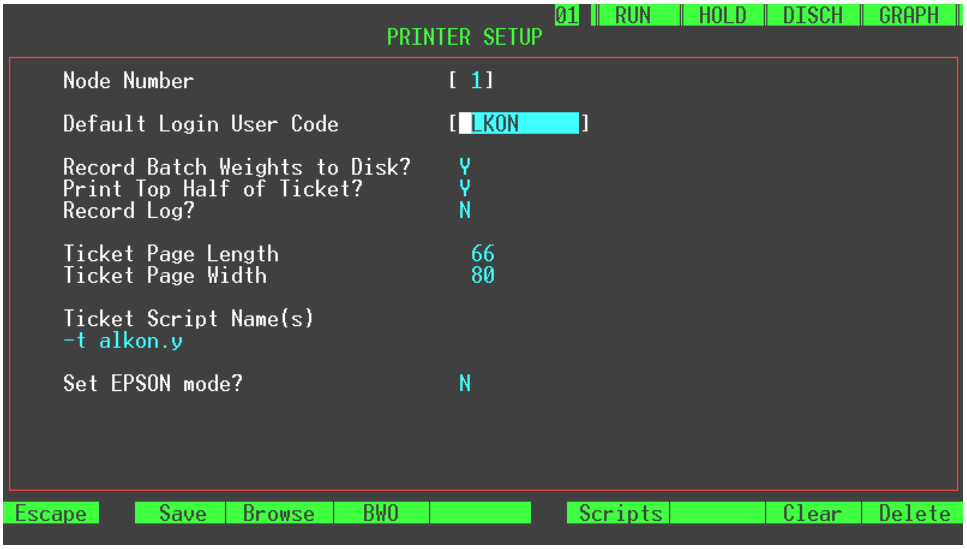
In the previous section, we learned how to create ticket scripts which control "what" to print on tickets, as well as "where" to print it. In this section, we discuss the **PRINTER SETUP** screen, which gives you even more control over ticket printing. On this screen, you can do the following:

- Change the length and width of the ticket page.
- Select which ticket script to use.
- Choose to print or not to print delivery information on the top half of the ticket.
- Cause the system to prompt you for a truck code before discharge can commence.
- Save or not save batch weights to floppy disk.
- Choose to print batch weights for each weigh cycle of a multi-batch load.
- Include/exclude individual items from the batch weights portion of the ticket.

Note: To prevent batch weights from printing on tickets, you must set the **Batch Code** field of the **BATCH SETUP** screen to **B**. To allow batch weights printing, leave this field set to **Y**.

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡PRINTER SETUP**. A blank **PRINTER SETUP** screen appears with the cursor on the **Node Number** field.
2. Press **[F2]** to pull up a list of nodes. Select the appropriate node and press **[ENTER]**. The screen will then look something like the one shown next.

Printer Setup Screen



FIELDS – PRINTER SETUP SCREEN

FIELD	DESCRIPTION
Node Number	Spectrum batch computer being configured.
Default Login User Code	User login to appear when this node is booted up.
Record Batch Weights to Disk?	**Y** means save batch weights to hard disk. **N** means do not save batch weights to hard disk.
Print Top Half of Ticket?	**Y** means print delivery and product information. **N** means do not print delivery and product information (only print batch weights).
Record Log?	**Y** means enable the logging printer selected on **MAIN MENU➡SYSTEM MAINTENANCE➡PLANTS.**
Ticket Page Length	Number of lines from top to bottom of ticket. 66 is the default.
Ticket Page Width	Number of characters that can be printed from left to right on the ticket. 80 is the default.

FIELD	DESCRIPTION
Ticket Script Name(s)	Ticket script to be used for printing tickets. Press **[F2]** from this field to pull up two lists of flags. Flags in the first list are replacement scripts. You can type one of these flags directly before the script name. Example: **-t alkon.y** -t top of the ticket script(s). -w batch weights script(s). -l log script(s). -m mixer script(s). -b batch weights to disk script(s). Flags in the second list determine when the top of the ticket will be printed. You can type one of these flags directly after the script name. Example: **-t alkon.y –5** -3 print at LOAD START -4 print at LOAD WEIGH -5 print at LOAD DISCHARGE -6 print at LOAD MIX -7 print at LOAD DONE Only one numbered ticket print flag may be specified. The default value is print at LOAD START Usually the default settings should not be changed. The following flags can also be entered: -F forces the system to always prompt you for a truck code before starting discharge -T causes the system to prompt you for a truck code before starting discharge only if the **Truck** field of the Batch Setup screen is blank. Example: **-t alkon.y –5 -F**
Set EPSON mode?	**Y** means use Epson printer emulation. **N** means do not.

MULTI-BATCH PRINTING

You can set the system to print batch weights for each weigh cycle of a multi-batch load (some states require this). This is accomplished as follows:

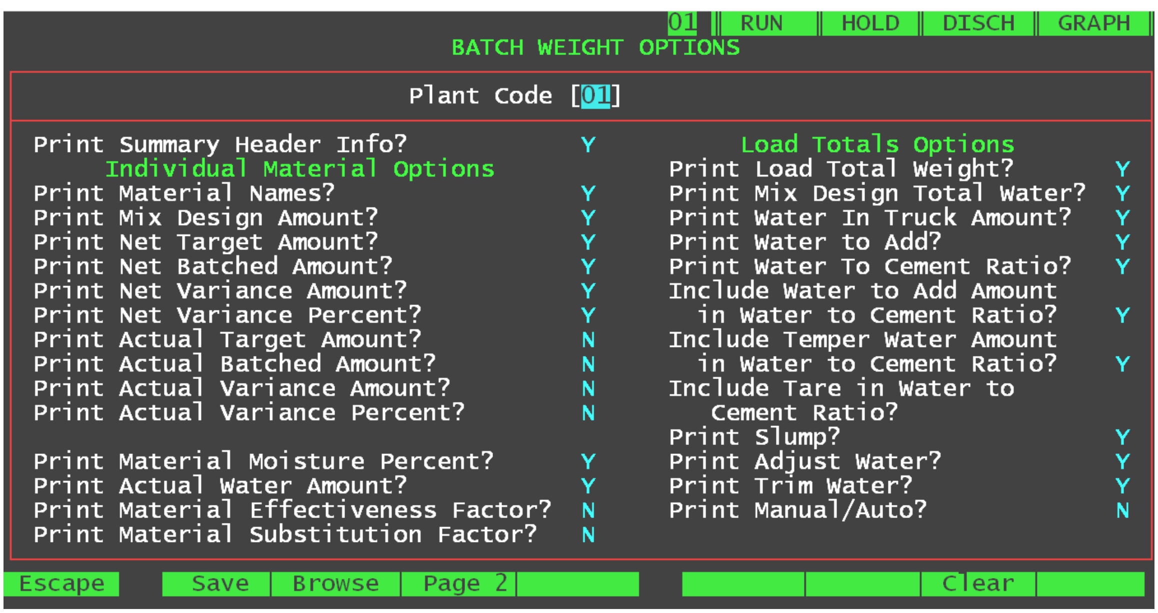
1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡PRINTER SETUP**. A blank **PRINTER SETUP** screen appears with the cursor on the **Node Number** field.
2. Press **[F2]** to pull up a list of nodes. Select the appropriate node and press **[ENTER]**.
3. In the **Ticket Script Name(s)** field, enter **-w** to print batch weights, or leave this field blank to print one set of batch weights for the entire load.
4. Press **[F1]** to save the data.

SELECTING BATCH WEIGHT ITEMS FOR PRINTING

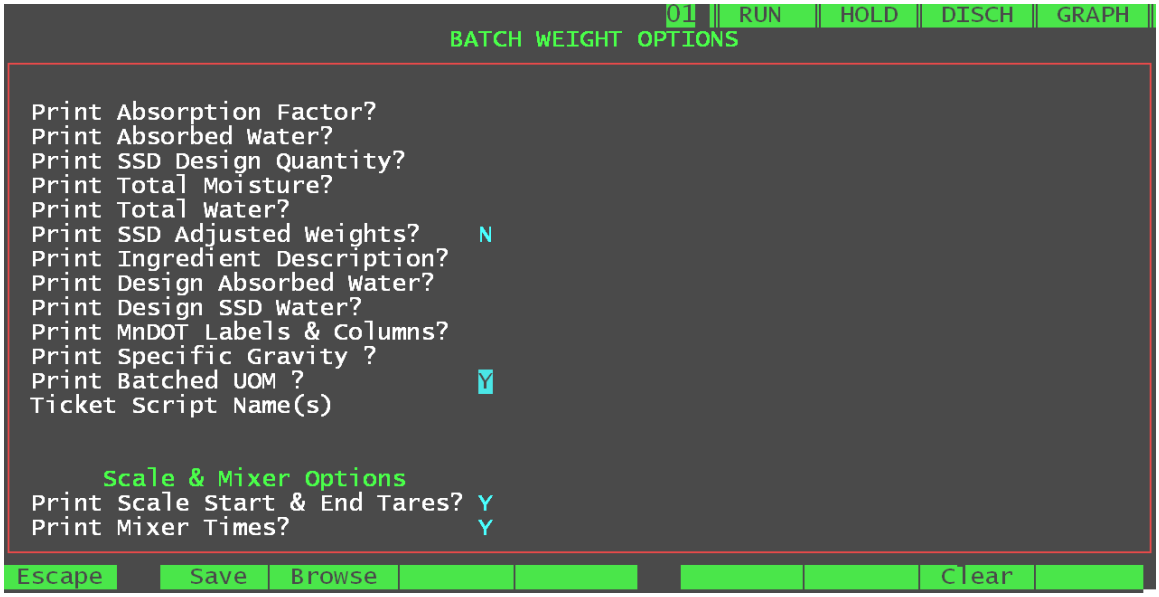
The information printed in the batch weights section of the ticket (or on batch weight reports) is selected on the **Batch Weight Options** screen (shown next), which is accessed by pressing **[F3]** from the **System Maintenance→Printer Setup** screen.

To select an option, move the cursor to that line and type a '**Y**' over the '**N**'. Be sure to press **[F1]** to save your selections. (For a description of the more common batch weight information, see "Batch Weights".)

Batch Weight Options – Page 1



Batch Weight Options – Page 2



Note: The "Print Batched UOM" flag must be set to "Y" so that printed scale or meter values use the same UOM as their respective measuring devices. This is a requirement for state inspections.

BAR CODE PRINTING

You can cause bar codes to be printed on tickets (top portion) by entering literal strings on the Ticket Layout Editor screen. This feature uses the built-in bar code support found in many printers.

The following table shows the Bar Code Types that can be printed on the OKI 320 Turbo 9-Pin dot matrix printer, and on the Lexmark laser printer.

Bar Code Type	OKI 320 Turbo 9 Pin	Lexmark	Max Data Size	Prints Alphanumeric
EAN 8	Y	Y	8	N
EAN 13	Y	Y	13	N
UPC A	Y	Y	12	N
UPC E	Y	N	6	N
Code 39	Y	Y	43	Y[1]
Code 128	Y	Y	50	Y[2]
Interleaved 2/5	Y	Y	50	N
ZIP Code	Y	Y	9	N

[1] Code 39 prints the following character set:
123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ-. $/+%

[2] Code 128 prints from one of three subsets (A,B,C). Refer to the printer manual for details.

EXAMPLE: PRINTING A BAR-CODE TICKET NUMBER

The following example prints a bar-coded ticket number starting at position 67 on the "top" part of the ticket. All codes are shown in decimal values. The "@" following the ticket_number tells the printer to calculate and print the checksum value. Note that the number of data bytes specified in the Print Bar Code escape sequence is eight. This includes the 7-digit ticket number (with required leading zeros) and the @ sign.

Note: If a bar code is required at the "bottom" of the ticket, then the same sequence of characters can be output from within the vweights2, bwv_vw2 or other script. Contact Command Alkon Support Services if you need this kind of functionality.

BAR CODE ESCAPE SEQUENCE

Enter the following sequence shown between a set of <L>…</L> delimiters on the Ticket Layout Editor to tell Spectrum that bar codes are going to be printed.

Bytecode	Use	
27	Select bar code escape sequence	
16		
65		
8	Number of data bytes following	
0	n1	Bar Code Type Selection
1	n2	
0	n3	Vertical Height of the bar code
3	n4	
1	n5	Width of one barcode character (0 .. 7)
1	n6	Ignored for EAN8
1	n7	Wide to Narrow ratio settings (0 .. 7)
2	n8	Print quality of plain writing.

☛ PRINT BAR CODE ESCAPE SEQUENCE

Enter the following sequence between a set of <L>…</L> delimiters on the Ticket Layout Editor to tell the printer to print bar codes.

Bytecode	Use
27	Print Barcode escape sequence
16	
66	
8	Number of data bytes following

☛ TICKET LAYOUT EDITOR ENTRIES

The following example shows all of the entries needed on the Ticket Layout Editor for printing the bar-coded ticket number.

```
  Action Column  Data                                    Instance  Format

  TEXT      67    <L>27 16 65 8 0 1 0 3 1 1 1 2</L>
  TEXT      67    <L>27 16 66 8</L>
 PRINT      67    Ticket_Number                                       07
  TEXT      67    @
```

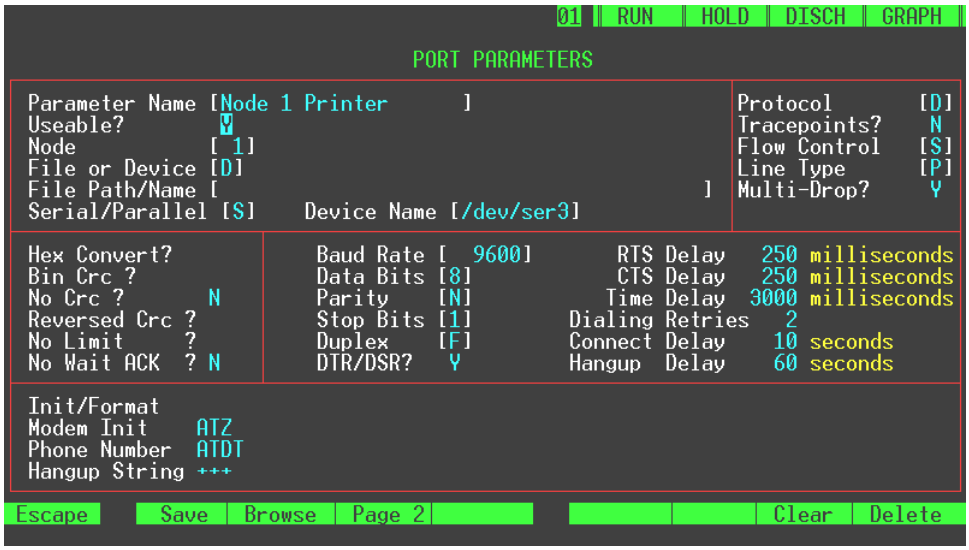
CONFIGURING A PRINTER

After you have set up your ticket format and script, you are ready to connect the printer and configure it.

TO SET UP A PRINTER

1. Connect the printer to the appropriate port (usually the first parallel port) on the Spectrum computer. Plug the power cord into the appropriate electrical outlet.
2. Select **MAIN MENU➡SYSTEM MAINTENANCE ➡PORT PARAMETERS**. The screen shown below appears.

Port Parameter for a Printer



Note: The Port Parameters screen is also used for configuring other devices such as a Remote Scale Display or Water Controller.

3. Using the example above and the field descriptions on the following pages, configure the printer. Normally, this is done at the factory.

↳ FIELDS – PORT PARAMETERS SCREEN

FIELD	DESCRIPTION
Parameter Name	Browseable field. Name of the device to which you want to send information.
Useable?	Yes/No field indicating whether this device can be used on the **PLANTS** screen. "Y" is the default.
Node	Node to which this device is connected. "1" is the default.
File or Device	Browseable field. Enter either "F" for file, or "D" for a port device such as a printer. "D" is the default.
File Path/Name	Browseable field. Path to file on the hard drive where information is to be sent. You may enter your own file path or select a predefined one from the browse list. Do not enter the Node number. Default is blank. **NOTE:** If you enter your own file path/name, the directories you enter must already exist on the hard drive. The Spectrum will not create them.
Serial/Parallel	Browseable field. Port type: "S" for serial, or "P" for parallel. Default is "P." For a dial-up serial printer or a directly connected printer, select "S." For a parallel printer, select "P."
Device Name	Browseable field which displays a list of parallel and serial ports. Default is "/dev/par1" for the first parallel port. The ports on the back of the computer are labeled appropriately.
Protocol	Browseable field. Form in which data is sent or received. "R" is the default. Choices are: R – Raw (used for printing tickets and reports normally) L – Link-20 (for sending data to Spectrum Ver. 4.x) U – Universal (for sending data over a Universal Interface) B – Boral (for sending data over a Boral Interface) I – Incoming (for receiving data via a Link-20 interface) S – Score Board H – Hanson W – Water Controller D – Scale Display

FIELD	DESCRIPTION
Tracepoints?	This field determines whether tracepoints are enabled and recorded in the Error file (for debugging). Options are: **Y** – enable Tracepoints. **N** – do not enable Tracepoints. **V** – enable Tracepoints and provide more details in the Error file. (The 'V' is short for 'Verbose'.)
Flow Control	Browseable field. Type of handshaking used by the device. **S** – for XOn/Xoff software handshaking **H** – for RTS/CTS hardware handshaking **NOTE:** RTS/CTS means Ready To Send / Clear To Send
Line Type	Browseable field. "P" for a direct connection, or "D" for a dial-up connection (phone line).
Multi-Drop?	Yes/No field that indicates whether the plant has dedicated phone lines for data transfer that are specially installed by the phone company, and that do not require any dialing, but connect automatically upon being used. A CAS switch is very useful with this type of phone line.
Hex Convert?	Yes/No field. Used only with the Boral link and sets whether transmissions are converted from ASCII codes to hexadecimal numbers. Example: Instead of a one-byte 'A' character, a two-byte hex number '41' is transmitted.
Bin Crc ?	Yes/No field. Sets whether the CRC is in binary form. For example, if the CRC for a message is 254, then 254 is assigned to the one CRC byte; otherwise, the CRC would be in an ASCII hexadecimal format in two bytes. This option can only be used if the serial port/modem connection has hardware flow control enabled. It will cause a software flow controlled connection to fail because the CRC may then take a value that is the same as XON or XOFF.
No Crc ?	Yes/No field. Sets whether CRC calculations or tests are performed for a transmission.
Reversed Crc ?	Yes/No field. Sets whether the byte order of the ASCII CRC is switched. This has no effect on the binary CRC.
No Limit ?	Yes/No field. Ulink maintains an internal queue of tickets that it receives. With **No Limit** enabled, if the queue is full and a new ticket arrives, the earliest ticket is removed. **NOTE:** With recent changes, this option is obsolete.
No Wait ACK ?	Yes/No field. Sets whether the system disregards the receipt of acknowledgements.

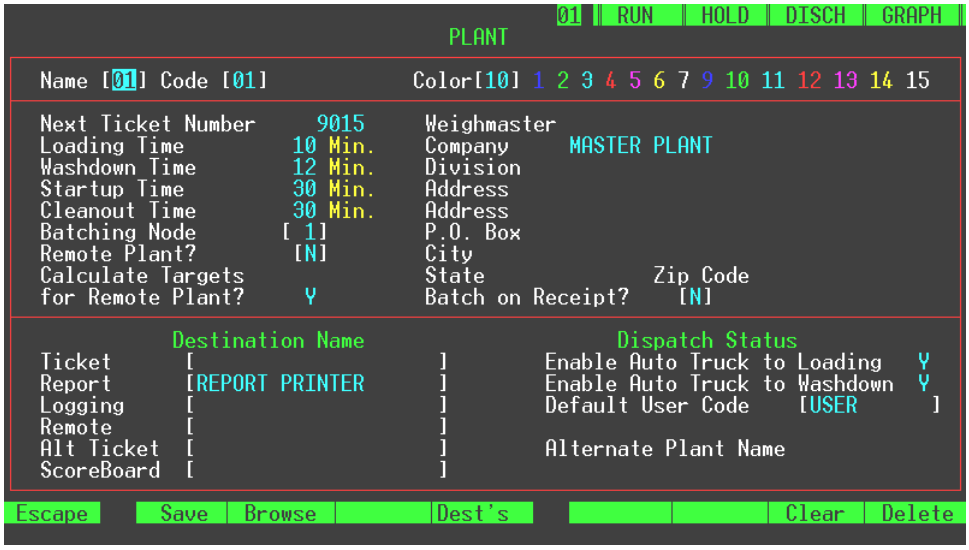
FIELD	DESCRIPTION
Baud Rate	Browseable field. Amount of information transmitted in bits per second. A bit is a binary unit of information (a "0" or a "1"). Default is "9600." **NOTE:** Be sure the modem and serial port can transmit data at the baud rate selected.
Data Bits	Browseable field. Number of data bits sent between stop bits. Choices are "6," "7," and "8." The default is "8."
Parity	Browseable field. Parity is used for error checking to ensure that no information is lost in transmission. Default is "N." Choices are: N – None O – Odd E – Even M – Mark S – Space
Stop Bits	Browseable field. Number of bits that act as markers between the data bits. Choices are "1" or "2." The default is "1."
Duplex	Browseable field. Duplex setting for serial printers connected to PCs. Default is "F." Choices are: F – Full (PC echoes commands you type) H – Half (feature is turned off)
DTR/DSR?	Yes/No field that enables/disables DTR/DSR hardware handshaking for this device. DTR/DSR stands for Data Terminal Ready / Data Send Ready.
RTS Delay	Length of time, in milliseconds, the PC sends a "ready to send" signal to the device. Default is 250 milliseconds (ms). **NOTE:** Set this time to less than the **Timeout Delay**; otherwise the connection may be abruptly ended before all of the information has been transferred to the port device.
CTS Delay	Length of time, in milliseconds, the device sends a "clear to send" signal to the PC. Default is 250 milliseconds (ms). **NOTE:** Set this time to less than the **Timeout Delay**; otherwise the connection may be abruptly ended before all of the information has been transferred to the port device.

FIELD	DESCRIPTION
Time Delay	Length of time, in milliseconds, the sending device waits for the receiving device to respond before the sending device disconnects itself. Default is 3000 ms. **NOTE:** Set this time higher than the **RTS and CTS Delays**; otherwise the connection may be abruptly ended before all of the information has been transferred to the port device.
Dialing Retries	Used only if **Line Type** is "D" (for dial-up line). Number of times the system will attempt to dial the line if the previous attempt was unsuccessful. Default is "2."
Connect Delay	Number of seconds the system will ring the line trying to establish a connection. Default is 10 seconds.
Hangup Delay	Number of seconds the system will hold the line open. This should be set high enough to ensure that tickets and reports have completed printing. Default is 60 seconds.
Init/Format	Command codes necessary to initialize this printer. Used primarily to advance and retreat paper, change fonts, etc., especially for serial dial-up printers. Default is a blank entry.
NOTE: **Modem Init**, **Phone Number**, and **Hangup String** are used only if **Line Type** = **D**.	
Modem Init	Command codes necessary for the modem to be initialized. Check the manual for the modem for the correct codes. Default is "ATZ."
Phone Number	Phone number of this destination device if this is a dial-up printer, and the codes needed to open the phone line and start a dial tone. Default is "ATDT."
Hangup String	Command codes necessary for the modem to stop transmitting and hang up the phone line. Default is "+++."

4. On the **PLANT** screen (shown next), select the appropriate printer for the Ticket, Report, Logging, and any other device destinations.

Note: Descriptions of fields on the **PLANT** screen begin on the next page.

Plant Screen



5. From any Spectrum screen, press **[CTRL + P]** to print a copy of the screen. If the screen is printed correctly, the printer is ready to use. You can also use **[CTRL + P]** to print a report to test the printer, although there probably won't be any data except for the headers, etc.

Fields – Plant Screen

Field	Description
Name	Name assigned to this plant. Browseable field.
Code	Code assigned to this plant. Browseable field.
Color	Browseable list of colors (by number) that you can assign to trucks assigned to this plant. This also changes the color of the Run bar at the top of the screen. There are 15 colors from which to choose. Each of the 15 numbers across the top of the screen is displayed in the color associated with that number. The browse list gives a text description of the color for each number.
Next Ticket Number	Next ticket number that will be used for this plant. This number can be up to six digits long. You only need to change this number when you want to start numbering tickets all over again from zero.
Loading Time	Default loading time, in minutes, for trucks at this plant.
Washdown Time	Default washdown time, in minutes, for trucks at this plant.

FIELD	DESCRIPTION
Startup Time	Default startup time, in minutes, for this plant. Startup time includes morning tasks needed to get the plant ready for batching (starting equipment, computers, etc.).
Cleanout Time	Default cleanout time, in minutes, for this plant. Cleanout time includes tasks needed to get plant equipment ready for shutdown (cleaning chutes and mixers, turning off the power, etc.).
Batching Node	Node number of the PC that controls batching for this plant.
Remote Plant?	Select one of the following: **Y** (for Yes) – if there is a remote batching PC. **N** (for No) – if there is no remote batching PC. **V** (for Virtual) – if you want to use two different ticket formats for the same plant.
Calculate Targets for Remote Plant?	Yes/No field that indicates whether the Mini-Dispatch will calculate net material targets for tickets not batched at plants using Version 6 Spectrum.
Weighmaster through Zip Code fields	Weighmaster name and employer information.
Batch on Receipt?	Batch on Receipt type used. Choices are: **N** Not Enabled **Y** Enabled **L** Link Tickets Only **D** Demands **d** Demands Debug
Destination Name Determines where the following information is sent or printed. These are browseable lists of port destinations (from the Port Parameters screen). To modify a port destination, select it and press [F4] to pull it up on the Port Parameters screen.	
Ticket	Destination device for tickets.
Report	Destination device for reports.
Logging	Destination device for logs of each order.
Remote	Destination device for batches controlled by a remote system.
Alt Ticket	Destination device for alternate tickets. The Spectrum can be configured to print two different pre-printed tickets from one plant with the same ticket format.

FIELD	DESCRIPTION
Scoreboard	Destination port for information sent to a Scoreboard. (**Note:** This port is configured on the Port Parameters screen.)
Dispatch Status	
Enable Auto Truck to Loading	Yes/No field that sets whether trucks automatically advance from the 'ticketed' to the 'loading status' on the Dispatch screen.
Enable Auto Truck to Washdown	Yes/No field that sets whether trucks automatically advance from 'loading' to the 'washdown' status on the Dispatch screen.
Default User Code	Default user for this plant. Only orders for this plant will be displayed. To display all orders for all plants, leave this field blank.
Alternate Plant Name	The Spectrum can be configured to print to two different pre-printed tickets from one plant with the same ticket format. The **Alternate Plant Name** and **Alt Ticket** fields are used for this purpose.
Master Plant Code	This field only appears if 'V', for Virtual, is selected in the Remote Plant field. In this field, select the master, or "real" plant code.

INVENTORY

OVERVIEW OF SPECTRUM INVENTORY FUNCTIONS

Spectrum provides access to inventory and usage data for all ingredients and products in the database. The following table gives a quick overview of how to access this information. NOTE: Access information for ingredient inventory and usage data is not included in the table because it is discussed in detail in the remainder of this section.

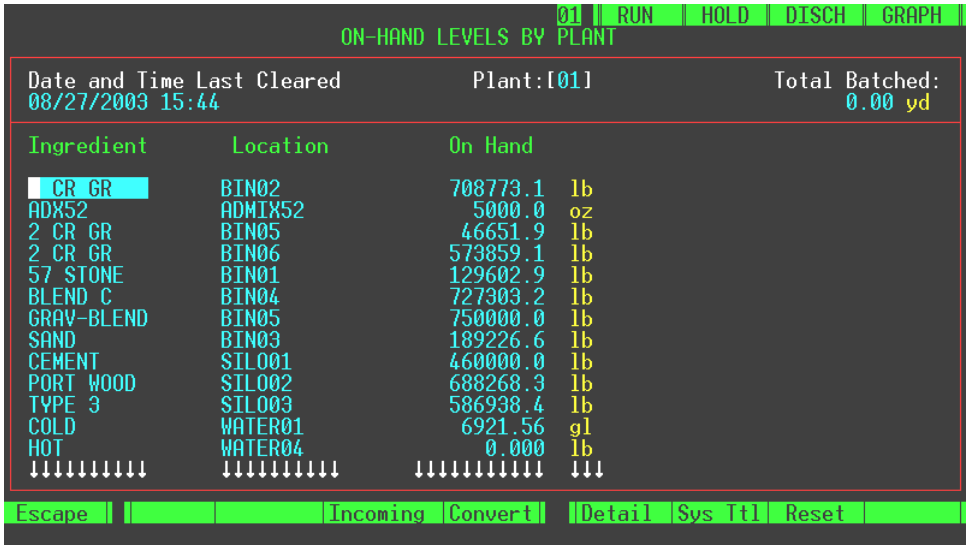
Ingredient Inventory Levels	(Discussed in detail in this section.)
Ingredient Usage Data	(Discussed in detail in this section.)
Usage for a Single Mix Design	Select **MAIN MENU➡DATA ENTRY➡MIX DESIGNS**. Select a code. Make sure the **Inventory?** field is set to **Y**. Press **[ENTER]**. Usage data for the selected mix design appears in the lower-right portion of the screen.
Usage for All Mix Designs	Select **MAIN MENU➡REPORTS➡MIX DESIGN LISTING** and press **[ENTER]**. The report is generated and sent to the printer.
Inventory For a Single Resale Product	Select **MAIN MENU➡DATA ENTRY➡RESALE PRODUCTS**.
List of All Resale Products	Select **MAIN MENU➡REPORTS ➡RESALE PRODUCT LISTING** and press **[ENTER]**. The list is generated and sent to the printer.
Log of Manually Batched Ingredients	Select **MAIN MENU➡REPORTS ➡MANUAL MATERIAL MONITOR**.

INGREDIENT INVENTORY LEVELS – "SINGLE" PLANT

To view ingredient inventory levels (for a single plant):

1. Select **MAIN MENU➡DATA ENTRY➡UPDATE INVENTORY**. A sub-menu appears, giving you the option of choosing one of the following views: *Daily Inventory*, *Weekly Inventory*, *Monthly Inventory*, or *Yearly Inventory*.
2. Select the desired view. The **ON-HAND LEVELS BY PLANT** screen (shown next) is displayed. In the example below, the *weekly* view is selected. All "views" contain the same type of information, except for the total amount batched.

On Hand Levels By Plant



3. If you need to look at inventory for another plant, press **[F2]** from the **Plant** field to pull up a browse list, select the desired plant and press **[ENTER]**.

FIELDS

- The **Date** and **Time Last Cleared** field shows when the inventory levels were last cleared and updated (see *"Clearing Inventory."*)
- The **Total** Batched field shows the total yards batched by the plant for the selected period (daily, weekly, monthly, or yearly).
- The **Ingredient**, **Location**, and **On Hand** fields are self-explanatory. They show the ingredient, its location (bin, silo, etc.), and its current on hand amount.

FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F3] - Incoming	Pulls up the Incoming Inventory box so you can receive incoming inventory.
[F4] - Convert	Displays inventory in the alternate units of measure. Press this key again to return to the original units of measure.
[F5] - Detail	Pulls up the **DETAILED USAGE BY PLANT** screen.
[F6] - Sys Ttl	Pulls up the **USAGE BY MATERIAL** screen, which shows total ingredient usage for all plants for the selected inventory period.
[F7] - Reset	Causes the On Hand amounts of all mix design ingredients to be reset to "zero" balances.

INGREDIENT INVENTORY LEVELS – "ALL" PLANTS

To view ingredient inventory for all plants:

1. Select **MAIN MENU ➡REPORTS➡INGREDIENT LISTING** and press **[ENTER]**.
2. The inventory list is sent to the printer (or to a file if this was specified on the **PLANTS** screen).

.

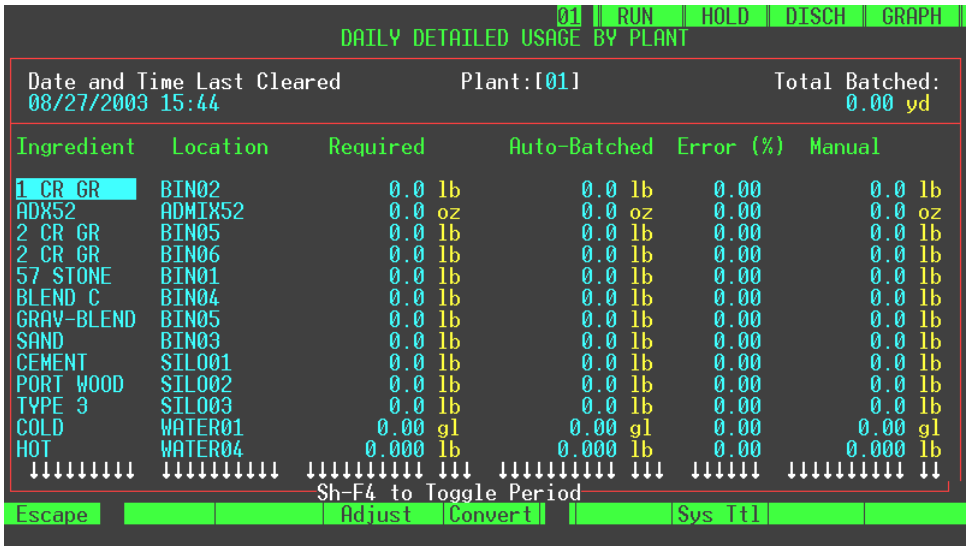
INGREDIENT USAGE DATA – "SINGLE" PLANT

To view ingredient usage data (for a single plant):

NOTE: This list includes ingredients manually batched. To view a log of manually batched ingredients only, select **MAIN MENU ➡REPORTS➡MANUAL MATERIAL MONITOR**, then select the date(s).

1. Select **MAIN MENU➡DATA ENTRY➡UPDATE INVENTORY**. A sub-menu appears, giving you the option of choosing one of the following views: *Daily Inventory*, *Weekly Inventory*, *Monthly Inventory*, or *Yearly Inventory*.
2. Select the desired view. The **ON-HAND LEVELS BY PLANT** screen is displayed.
3. Press **[F5] – Detail** to pull up the **DETAILED USAGE BY PLANT** screen (shown next).

Detailed Usage By Plant



FIELDS

- The **Required** field shows target weight totals for each ingredient for the selected inventory period.
- The **Auto-Batched** field shows the total system-batched weight for each ingredient for the selected inventory period.
- The **Error (%)** field shows the total of the error percentage for each ingredient for the selected inventory period. (Error (%) is the percentage auto-batched over or under target.)
- The **Manual** field shows the totals manually batched for each ingredient for the selected inventory period.

FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F3] - Adjust	Allows you to adjust the Required and Auto-Batched amounts for an ingredient. **NOTE:** To prevent unauthorized use, all adjustments to inventory are recorded in the Incoming Inventory Log.
[F4] - Convert	Displays amounts in the alternate units of measure. Press this key again to return to the original units of measure.
[F6] - Sys Ttl	Pulls up the **USAGE BY MATERIAL** screen, which shows total ingredient usage for all plants for the selected inventory period.

INGREDIENT USAGE DATA – "ALL" PLANTS

To view ingredient usage for all plants:

1. Press **[F6]** from either the **ON-HAND LEVELS BY PLANT** or the **DETAILED USAGE BY PLANT** screen.
2. Press **[SHIFT + F4]** to see usage data for the next inventory period (Daily, Weekly, Monthly, or Yearly).

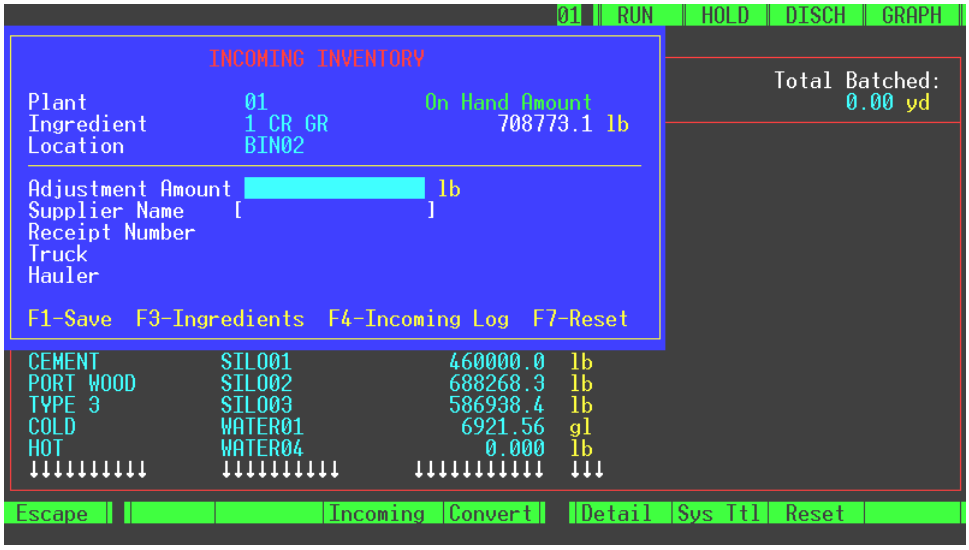
RECORDING INCOMING INVENTORY - INGREDIENTS

NOTE: To record incoming inventory of Resale Products, see *"Resale Products."*

To record incoming inventory:

1. Select **MAIN MENU➡DATA ENTRY➡UPDATE INVENTORY➡DAILY INVENTORY**.
2. Move the cursor to the ingredient for which you wish to record incoming inventory.
3. Press **[F3] – Incoming**. The screen shown next appears with the cursor on the **Adjustment Amount** field.

Incoming Inventory



4. Enter the amount of incoming inventory and any other pertinent information (supplier, truck, hauler, etc.).

   NOTE: If the **On Hand Amount** and **Adjustment Amount** fields do not show the correct inventory units, press **[F3]** to go to the **INGREDIENTS** screen, where you can set the correct inventory units.

5. Press **[F1]** to save your entry and update this ingredient's on-hand amount.
6. Press **[ESC]** to go back to the inventory screen. Repeat Steps 2 through 5 above for each ingredient for which you need to receive inventory.

↳ FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F1] - Save	Saves changes and returns you to the Daily Inventory screen.
[F3] - Ingredients	Takes you to the **INGREDIENTS** screen.
[F4] - Incoming Log	Pulls up a log of each adjustment made to inventory amounts.
[F7] - Reset	Causes the On Hand amount of the currently selected ingredient to be reset to a "zero" balance.

CLEARING INVENTORY

The recommended way to clear inventory is to run the End of Day procedure. The **Clear and Reset . . . Inventory** field of the "End of" setup screens must be set to **Y**, however. (See *"End of Day Procedures"* for more information.)

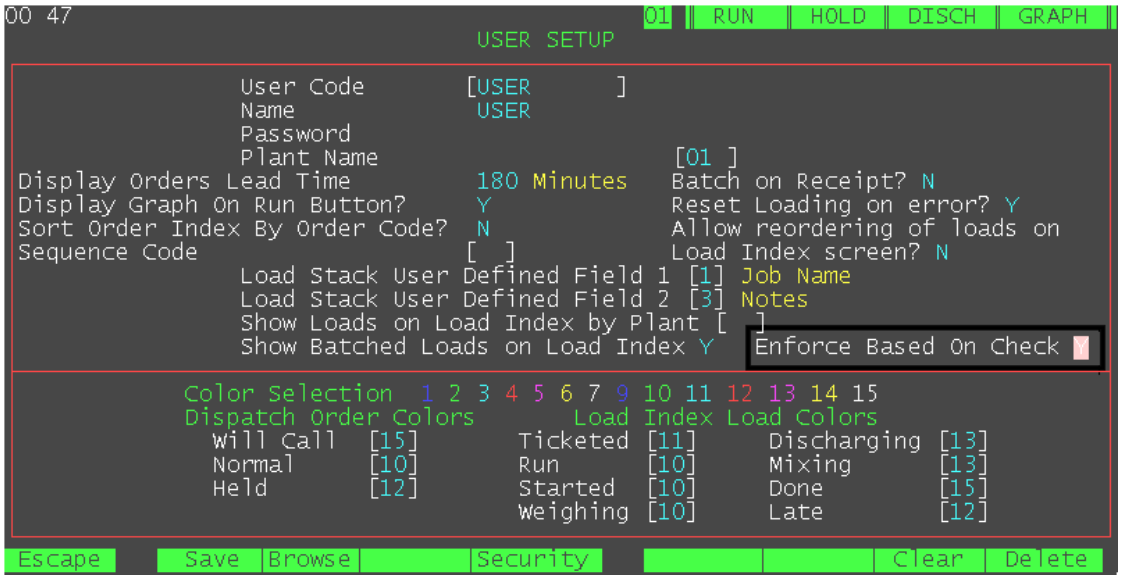
An alternate way to clear inventory is to press **[F7]** from the **ON-HAND LEVELS BY PLANT** screen, enter **Y** for the appropriate inventory period (s), and press **[F1]**. This method can be used if you clear inventory more than once a day.

SETTING UP USER ACCOUNTS

The **USER SETUP** screen is used to add new users and to set passwords. Only users with proper permissions can access this screen (see *"User Security"*).

Other uses for this screen include setting the display colors for dispatched orders and load statuses, and setting other times and flags for dispatched orders.

User Setup Screen



To add a new user account:

1. Select **Main Menu > System Maintenance > Users**. The User Setup screen (shown above) appears.
2. Enter a **User Code**. This code can be no longer than 10 letters.
3. Tab down to the **Name** field and enter the first and last name of the new user.
4. Tab down and enter a **Password** (up to 6 characters in length).
5. Fill in the rest of the **USER SETUP** screen, using the field descriptions table on the following pages as a guide.
6. Press <F1> to save the new user data and password.

↳ FIELDS – USER SETUP SCREEN

FIELD	DESCRIPTION
User Code	Browseable field. 10-letter code name for the user.
Name	First and last name of the user.
Password	User's password. Up to 6 characters. To change an existing user's password, select the user code, type the new password here, then press [F1] to save the new password.
Plant Name	Browseable field. 2-character name for the default plant of the user. This field is used by the Plants screen to determine where reports should be printed.
Display Orders Lead Time	Determines when orders appear on the Dispatch screen. Default is 180 minutes, which means the order appears on the Dispatch screen 3 hours before the order's first truck should be loaded.
Display Graph On Run Button?	Yes/No field that sets whether the Graph screen is automatically displayed when the [F9] – RUN button is pressed.
Sort Order Index By Order Code?	Yes/No field that sets whether the Order Index will have its orders sorted by Order Code or by the projected time for the next load on the order.
Sequence Code	Default sequence code to use when this user enters an order.
Batch on Receipt?	Yes/No field that sets whether to batch tickets as soon as they are received from the dispatching computer.
Reset Loading on error?	Yes/No field. **Y** – Resets the Discharge Authorize key <F11> to "Off" whenever an error occurs during batching and Discharge Authorize is armed. **N** – The state of the Discharge Authorize key <F11> will remain unchanged whenever an error occurs during batching.
Allow reordering of loads on Load Index Screen	Yes/No field that sets whether you can change the order of unbatched loads on the Load Index screen (by pressing [CTRL +↑] to move a load up, or [CTRL + ↓] to move a load down the list.

FIELD	DESCRIPTION
Load Stack User Defined Field n **(n = 1 or 2)**	Browseable field. Sets which additional information is displayed on the Load Index. Choices are: 1 Job name 2 Job Address 3 Notes 4 Delivery Instructions 5 User Defined Field 6 Load ID 7 Returned Amt and Mix 8 Customer Name 9 Dispatch Ticket Number
Show Loads on Load Index by Plant	Browseable field. Sets which plant's loads will be displayed on the Load Index for this user.
Show Batch Loads on Load Index	Yes/No field that sets whether batched loads are displayed on the Load Index for this user.
Enforce Based On Check	• If this field is set to Yes and an ingredient has been assigned a "Based On" unit, users can only edit the ingredient's "Based On" amount on the Mix Designs screen. • If this field is set to No, the system operates as normal and allows the user to enter either an Absolute or a Based On value, not both.
Dispatch Order Colors	Browseable fields. Sets the color in which orders are displayed, depending on their statuses. There are 15 colors to choose from.
Load Index Load Colors	Browseable fields. Sets the colors in which loads will be displayed on the Load Index, depending on their statuses. There are 15 colors to choose from.

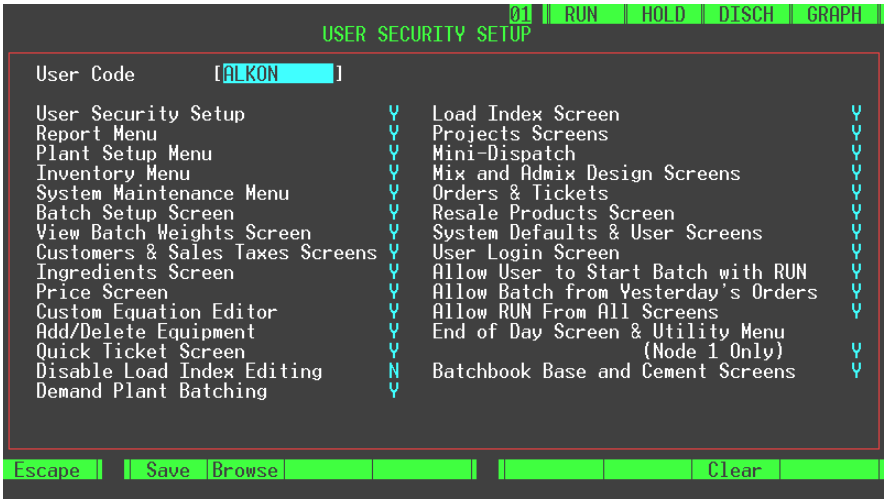
USER SECURITY

The **USER SECURITY SETUP** screen is used to prohibit access to certain parts of the system. For example, you can limit an Order Entry user's access to the Customers, Sales Tax Rates, Resale Products, Projects, Orders, and Tickets screens.

Select **Main Menu > System Maintenance > Users** then press <F4> to access the **USER SECURITY SETUP** screen.

Spectrum comes with three pre-defined user accounts: ALKON, MANAGER, and USER. (ALKON has been selected in the **User Code** field in the following screen example. Notice that this user account has full access to the system.)

User Security Setup – Alkon



For each screen or function listed on this screen, an "N" prevents access and a "Y" allows access (except for "Disable Load Index Editing" – an "N" here actually allows Load Index editing).

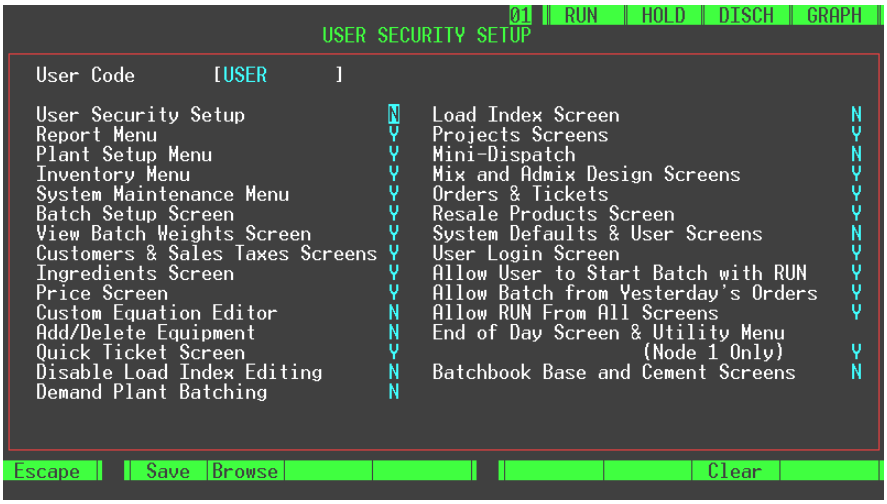
NOTE: Do not deny access to "User Login Screen" if you want the user to be able to login with another user code and change their access privileges.

If you select "MANAGER" in the **User Code** field, the following screen appears with fewer access rights than the ALKON user. For instance, a manager would not need access to order entry, customers, and other database screens. He/she would, however, need access to reports and inventory screens.

User Security Setup – Manager

If you select "USER" in the **User Code** field, the following screen appears with another set of access rights (Load Index, Batch Setup, Price, End of Day, etc.).

User Security Setup – Alkon



BATCHING OPERATIONS

INTRODUCTION

Batching consists of two parts. The first part is the Batching Cycle, where materials are weighed or metered into scales, holding hoppers or bottles. The second part is the Discharge Cycle, where the scales and holding hoppers or bottles are discharged into a truck or mixer, and where direct-metered admixes and water are normally added.

We will start with a general discussion of these two cycles, including some of the technical terms used in concrete batching. Next, we will briefly discuss how to run an automatic batch. (For a discussion of manual batching, see the E-Z Cal User's Manual.)

Then, we will discuss the screens used in the batching process (**ORDER ENTRY, LOAD INDEX, ORDER INDEX, BATCH SETUP**, and **GRAPH**). Most of the details about batching (order entry, calculating dimensions, adjusting batch information, etc.) are contained in the discussions of these screens.

BATCHING CYCLE

All materials for each scale or meter, except for those that are metered directly into the truck or mixer, are batched into their respective scales, hoppers, or bottles during the Batching Cycle. To batch ***manually***, you must feed one material at a time. To batch ***automatically***, however, you can call up pre-defined formulas, then let the Spectrum System control feeding, weigh-up, and discharge.

Scales and admix bottles should be empty. Each scale should be within a range of true zero (an amount between the *Zero Tolerance Over* and *Zero Tolerance Under* values set on the **SCALES** screen for that scale). *Zero Tolerance* is not used for admixes. Admix holding bottles normally send "bottle empty" signals back to the Spectrum System to indicate they are ready.

PREACT

In a typical gravity-fed batch plant, the feeding of aggregate material is stopped at a point short of the target weight to compensate for airborne material that has not reached the scale. This is referred to as **Preact**. For example, if the end target is 1000 pounds, and 100 pounds of free fall material is anticipated, the Preact value would be **100**. The column of airborne material grows shorter as the pile in the scale grows taller – meaning Preact is smaller for large batch sizes.

FEED TYPES

In general, the system attempts, first, to Fast Feed then Time Feed and, finally, Jog Feed to arrive as close as possible to the requested Target. During each "feed type," the system makes calculations based on parameters and previously learned information for the feed type.

FAST FEED

Before Fast Feed starts, a "Safe Target" is calculated by adding the requested Target to the Scale Start Tare then subtracting the Fast Feed Plant Erraticness and Preact values. The Safe Target is less than the requested Target, so that fast feeding does not overshoot the requested Target.

Note: If no Preact Overide is set and a learned Preact is not available, the Default Preact value is used.

Fast Feed begins if Fast Feed is enabled for the bin and the Safe Target is greater than the Minimum to Fast Feed value. Initially, Fast Feed conditionality opens multiple gates and continuously monitors the scale for the amount left to feed. When the amount left to feed reaches the Extra Gate Shutoff value (if enabled), the second gate is closed. The first gate is closed when the Safe Target value is reached.

Note: When a feed's Safe Target is less than the Minimum to Fast Feed value, Fast Feed is skipped and the system goes directly to Timed Feed.

TIMED FEED

Timed Feed is a timed opening of a single gate for a time duration based on the previous Flow Rates for the bin and material. If Timed Feed is enabled and the amount left to feed is greater than the Minimum to Time Feed value, the system calculates a time duration to open the gate.

As with Fast Feed, a Safe Target is calculated based on the amount left to feed minus the Timed Feed Plant Erraticness percentage or absolute value. Multiple Timed Feeds can occur up to the Maximum Number of Timed Feeds value.

JOG FEED

Jog Feed is typically used for aggregates and cements and opens and closes the gate enough to allow small jog bites of material to fall through. The time duration the gate opens and closes depends on the Jog Weight, Jog Time and Jog Settle Time values.

The system automatically adjusts the Jog Time by the Jog Time Adjust value to achieve the Jog Weight per jog.
Jog Feed can start if ALL of the following are true:

- Jog Feed is enabled.
- Fast and/or Timed Feed finishes without getting the material to target.
- The Maximum Number of Jogs is a non-zero value.

MULTI-BATCHING

Some plants must make several small batches because of limited batching capacity. To solve this problem, the Spectrum divides a load into smaller batches if the load amount exceeds the maximum batch size set for the system. Once started, batching continues until the entire load is batched.

FEED SEQUENCING

Sequencing gives you complete control over the feeding of ingredients. Feed sequences define when a device starts and stops, and the quantity of material that should be fed. A separate sequence is created for each device. Many conditions can be set for sequences, making any discussion of this topic a difficult one. One simple condition could be that the completion of feeding of one ingredient could trigger the start of feeding of another ingredient.

Only qualified personnel should create or edit sequences. For these reasons, this *Guide* does not discuss how to create sequences. (If you have any questions about sequencing, please contact your Quality Control representative or call the Command Alkon Service Department.

DISCHARGE CYCLE

After all ingredients with holding facilities (scales, bottles, or holding hoppers) have been weighed up, they can be discharged into a truck or mixer. There are two kinds of discharge: (1) Choke Feeding; and (2) Inching Discharge. With Choke Feeding, the gates are held fully open until the scales are empty. Choke Feeding is used when the truck or mixer can handle very fast discharge rates. With Inching Discharge, the gates are pulsed open and closed to create a smooth flow of material from the scales. Inching Discharge helps to avoid overflowing the truck or mixer.

Assuming there are no problems, initial water is fed, then the remaining materials are discharged in the order established in the sequence set for this mix design. Several discharge and system parameters control the discharge rate. Discharge continues until there is a certain amount of material left in each scale. At this point, the gates open fully and the vibrators come on to clear hung-up material. When each scale reaches its zero point (Scale Empty value), its gate is held open for a set amount of time, then closed. Remaining water is then fed. When all devices are empty, an end-of-load signal is generated.

To avoid overflowing a truck, you can assign a percentage of the discharge rate to the truck (on the **TRUCKS** screen). The discharge rate is then automatically reduced to what the truck can handle.

BASIC STEPS FOR AUTOMATIC BATCHING

To simplify our discussion of automatic batching, we start with the basic steps for running a batch. These are general guidelines only, provided solely as an overview to understanding Spectrum batching; they do not include details. Details are given when we discuss the screens used to enter orders and prepare and run batches. Without further adieu, then, here are the basic steps for running a batch automatically:

1. From the **ORDER INDEX** or **LOAD INDEX** screen, select the order you want to batch. (Remember, the Order Index is used for orders entered locally on the Spectrum while the Load Index screen is used for orders downloaded from a Dispatch System.) Press **[F1]** to pull the order onto the **BATCH SETUP** screen.
2. Make any necessary adjustments to the order (this information is covered in the section titled *"Batch Setup Screen"*).
3. Press **[F9] – RUN** to start the batch. The RUN prompt at the top of the screen turns white to show that the batch has been started. The **GRAPH** screen appears. This screen shows the progress of weigh-up (by ingredient at the top of the screen, by scale at the bottom). (See *"The Graph Screen"* section for details.) Also, the top portion of the ticket is normally printed at this time.

   NOTE: If tolerance errors occur during weigh-up, a red error window pops up. You can choose to accept the error by pressing **[F4]**, retry feeding by pressing **[F6]**, or you can press the manual feed button until enough material is fed then press **[F6]**.

4. Once the materials have weighed up and a truck is in place, press **[F11] – DISCH** to start discharge. The DISCH prompt at the top of the screen turns white while discharge is occurring. You will see the colored bars at the bottom of the screen move from right to left to show the scales discharging. Normally, the remainder of the ticket (batch weights) are printed at this time.
5. When discharge is complete, both the RUN and DISCH prompts at the top of the screen turn back to the normal black color. Press **[F12]** to return to the **BATCH SETUP** screen.

   NOTE: If the ***Batch on Receipt*** feature is enabled, a batch is automatically run each time a ticket is received. The ticket can come from either the Spectrum or a communications link (e.g., Link-2000). If multiple tickets are received, the next batch *freewheels* (i.e., when one device is empty, it weighs up material for the next batch).

SCREENS USED FOR AUTOMATIC BATCHING

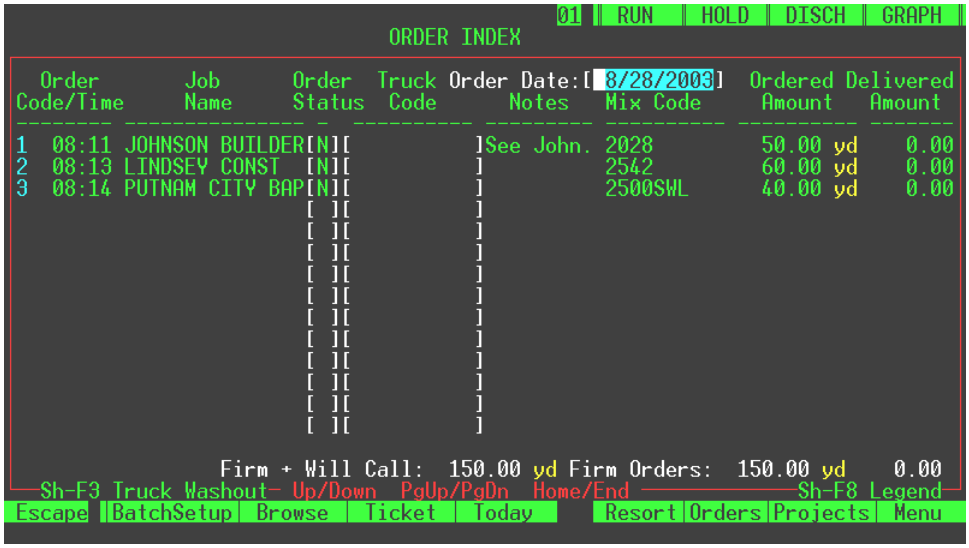
In this section, we will discuss the screens used for entering orders, and for preparing and running batches. Our discussion will follow a logical workflow, starting with a discussion of the **ORDER INDEX** and **LOAD INDEX** screens and ending with running batches on the **GRAPH** screen.

ORDER INDEX AND LOAD INDEX SCREENS

These screens function the same in that they allow you to select an order and transfer it to the **BATCH SETUP** screen, where you can prepare it for batching. They are different in that the **ORDER INDEX** lists orders that were entered locally on the Spectrum, while the **LOAD INDEX** screen lists orders downloaded from a Dispatch System. Another difference is that on the **ORDER INDEX**, you can make some changes to the orders on the index. You cannot make any changes to orders listed on the **LOAD INDEX**.

An example of each screen is shown next. Each example is followed by a description of its fields and functions keys.

Order Index



☛ FIELDS - ORDER INDEX

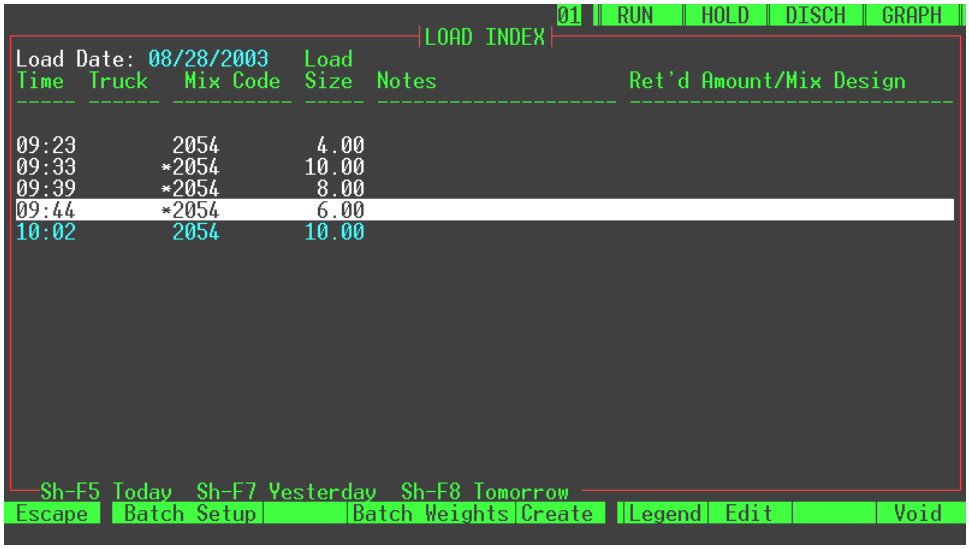
Information that appears on this screen is pulled from the Order Entry screen. Each field on this screen, except for **Mix Code** and **Delivered Amount**, is editable. Changes made to these fields also change the order record.

FIELD	DESCRIPTION
Order Date	Contains the date for which orders are being displayed. Only one date can be displayed. Browse this field to select a different date.
Order Code/Time	Two-part field. The first part is the system-generated order code. The second part is the time the first load of the order is to arrive on the job.
Job Name	Job name associated with the order. If a project is not associated with the order, the name of the customer is displayed in this field.
Order Status	Browseable field of order statuses. Valid entries are: • N **–** Normal (firm) • C – Cancelled (cancels all totals) • E – Ended (keeps delivered totals) • H – Held • W – Will Call
Truck Code	Truck code assigned to the order. When this field contains a truck code, the information is carried over to the **BATCH SETUP** screen. This information can be changed at any time.
Notes	Any notes entered on the order.
Mix Code	Mix code entered on the order. Cannot be changed here.
Ordered Amount	Total yards ordered for the order. **You may add a + after the number to designate that a finish load is needed.**
Delivered Amount	This number is updated by the system each time a load is batched for the order.
Firm + Will Call:	System-generated total of Firm + Will Call yards ordered for the order date. Orders with a status of **N** or **H** are considered firm orders.
Firm Orders:	System-generated total of yards delivered for the day. Orders with a status of **N** or **H** are considered firm orders.

☛ FUNCTION KEYS - ORDER INDEX

FUNCTION KEY	PURPOSE
[F1] - Batch Setup	Takes you directly to the **BATCH SETUP** screen. Information for the highlighted order is automatically pulled onto this screen..
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - Ticket	Takes you directly to the **QUICK TICKET** screen for the highlighted order.
[F4] - Today	Returns you to the current day's orders if you are viewing orders for a past or future date.
[F5] - Resort	Updates the Order Index with any new orders added via a remote terminal.
[F6] - Orders	Takes you directly to the **ORDER ENTRY** screen. If an order is highlighted when you press this key, that order is displayed on the **ORDER ENTRY** screen.
[F7] - Projects	Takes your directly to the **PROJECTS** screen.
[F8] - Menu	Takes your directly to the **DATA ENTRY MENU**.

Load Index



- Information that appears on this screen comes from a Dispatch system (or from a COMMANDbatch system).
- You cannot change any information on this screen, but you can change the order of unbatched loads by moving them up or down the list. Press **[CTRL + ↑]** to move a load up. Press **[CTRL + ↓]** to move a load down the list.
- The asterisk (*) beside a mix code means that extra products were attached to the ticket.
- Tickets are displayed in different colors, depending their load status. Press **[F5]** from the Load Index to pull up a list explaining what each color means.

☛ FIELDS - LOAD INDEX

FIELD	DESCRIPTION
Time	Time the order is to be batched.
Truck	Truck assigned to the ticket. If the ticket was generated from COMMANDbatch, the truck number will not appear.
Mix Code	Mix code to be batched for the ticket.
Load Size	Load size to be batched.
Notes	Special instructions attached to the ticket.
Ret'd Amount/Mix Design	Amount and mix code of the returned mix, if any.

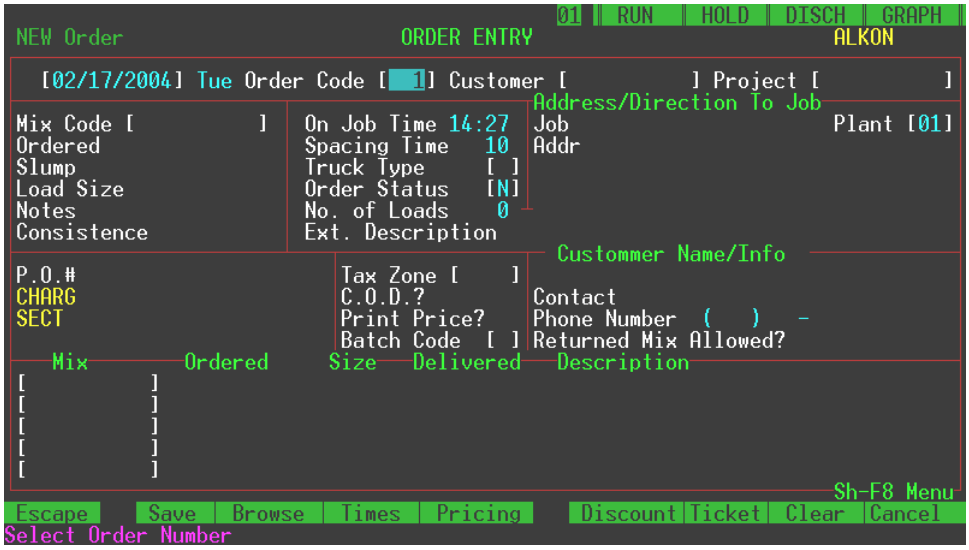
☛ FUNCTION KEYS - LOAD INDEX

FUNCTION KEY	PURPOSE
[SHIFT + F5]	If you are viewing orders for any day other than today, pressing this key combination pulls up orders for today.
[SHIFT + F7]	Press this key combination to view orders for previous dates. Each time you press this key combination, you go back one day.
[SHIFT + F8]	Press this key combination to view orders for future dates. Each time you press this key combination, you go forward one day.
[F1] - Batch Setup	Takes you directly to the **BATCH SETUP** screen. Information for the highlighted order is automatically pulled onto this screen.
[F3] - Batch Weights	Pulls up the batch weights for the highlighted order. If no batches have been run against the order, the "Required" and "Batched" weights will contain zeros.
[F4] - Create	Pulls up a Quick Load Create box so you can enter an order without the Order Entry or Dispatch functions. Only minimal information can be entered. The "quick load" appears on the Load Index for batching. This is used mostly with systems with Dispatch links. (See "*Quick Load*" for more information.)
[F5] - Legend	Pulls up a box explaining the meaning of colors used on this screen.
[F6] - Edit	Pulls up the selected order for editing. You cannot change the Mix Code, however.
[F8] - Void	Voids (cancels) the selected order. Works for either batched or un-batched orders.

ORDER ENTRY SCREEN

If you do not receive orders from a Dispatch system, you must manually enter orders on the **ORDER ENTRY** screen, which is accessed by selecting **MAIN MENU➡DATA ENTRY➡ORDERS**.

Order Entry Screen



FIELDS

FIELD	DESCRIPTION
Date	Date for which the order was placed. Defaults to the current date.
Order Code	System-generated field. Each day, order codes begin at **1** and then increase. The order code is not unique within the system, only unique within a given day.
Customer	Customer for which the order was placed.
Project	Project, if any, from which the order was generated.
Mix Code	Mix code ordered. Each order can have only one mix code.
Ordered	Amount of the mix design that was ordered. **You may add a "+" after the number to designate that a finish load is needed.**
Slump	Ordered slump of the mix design.
Load Size	Load size for the order.
Notes	Any notes entered from a project, customer, or manually by the order entry person.

FIELD	DESCRIPTION
Consistence	For EN 206 users, this field contains the EN 206 Consistence Class (S1, S2, etc.) or Slump in millimeters. This information defaults in from the mix design and onto tickets for the order.
On Job Time	Time that the **first** load is to arrive on the job. This field adds travel and waiting times when posted on the **ORDER INDEX**, even if the times are equal to zero.
Spacing Time	Amount of time between loads requested by the customer. May be entered from a project, or manually by the order entry person.
Truck Type	Browseable field of valid truck types from the truck database. Use this field only to limit the type of truck that can deliver the concrete.
Order Status	Browseable field order statuses. Valid entries are: • N **–** Normal (firm) • C – Cancelled (cancels all totals) • E – Ended (keeps delivered totals) • H – Held • W – Will Call
No. Of Loads	Number of loads delivered for the order. This system-generated field should not be changed.
Ext. Description	For EN 206 users, this field can contain a string of information about Strength Class, Exposure Class, Flow Class, Maximum Aggregate Size, and Cement Type. For non-EN 206 users, this field can be blank or used for entering additional information. This information defaults in from the mix design and onto tickets for the order.
Job	Job name - filled in automatically if a project is associated with the order.
Plant	Plant from which the concrete will be shipped.
Addr	Four address lines for delivery information. Filled in automatically if a project is associated with the order.
P.O.#	If a P.O.# is required, it is entered here. This field flashes if a P.O.# is required (set in the Customer record).

FIELD	DESCRIPTION
UDF 1	User-defined field - may contain up to 20 characters. The label is also user-defined.
UDF 2	User-defined field - may contain up to 20 characters. The label is also user-defined.
UDF 3	User-defined field - may contain up to 20 characters. The label is also user-defined.
Tax Zone	Tax zone assigned to the customer in the customer file. You may change this information.
C.O.D.?	Indicates whether the order is a credit or cash order. This can be pulled in from either the customer or project file.
Print Price?	Indicates if pricing will print on tickets generated for this order. This can be pulled in from either the customer or project file.
Batch Code	*Y* or *B* value. *Y* instructs the system to print batch weights on tickets for this order. *B* instructs the system to refrain from printing batch weights on tickets for this order.
Customer Name/Info	Customer name, contact name, contact and phone number are automatically inserted from the customer file.
Returned Mix Allowed?	Indicates whether concrete can be returned to the plant for this mix design.
Mix	The mix design ordered by the customer is displayed in this area. Resale products can also be entered in this area.
Ordered	Total amount ordered for each product is entered in this field.
Size	Load size for this mix design. (For resale products, this is the amount to be delivered with each load.)
Delivered	As products are delivered, the system updates this field with the total amount delivered.
Description	Description of the product. Automatically entered but can be changed if needed.

☛ FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F1] - Save	Saves data you have entered or changed.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - Times	Pulls up a box so you can change Order Times (travel, waiting, unloading, etc.).
[F4] - Pricing	Displays pricing for each product on the order. You **cannot change pricing** through this function.
[F5] - Discount	Pulls up a window so you **can make pricing and discount**

	changes to products on the order. You can also add or edit Consistence and Extended Description information (required for EN 206 users).
[F6] - Ticket	Pulls up a list of tickets against this order. You can edit these tickets, and you can pull up the batch weights for this ticket.
[F7] - Clear	Cancels changes before you have saved them.
[F8] - Cancel	Shortcut key that enters **C** (for cancelled order) in the **Order Status** field.

☛ TO ENTER AN ORDER

1. Select **MAIN MENU➡DATA ENTRY➡ORDERS**. The **ORDER ENTRY** screen appears with the cursor in the **Order Code** field. The Order Code is automatically assigned by the system. Press **[ENTER]** to move to the **Customer** field.

   NOTE: If you want to change the date of the order, say, to create an order for tomorrow, press **[SHIFT + TAB]** from the **Code** field to move to the **Date** field. Type the desired order date and press **[ENTER]**.

2. Move to the **Customer** field. Either browse to select or type the customer code and press **[ENTER]**. The cursor moves to the **Project** field.

3. **(For non-Project related orders):** Press **[ENTER]** to bypass the **Project** field and move to the **Mix Code** field.

   (For Project related orders): Browse the list of projects or type the Project Code. Press **[ENTER]** to move to the **Mix Code** field.

4. Browse the list of mix designs. Select the appropriate one and press **[ENTER]**. The cursor moves to the **Ordered** field.

5. Type in the quantity ordered. If a finish load will be needed, type a "+" next to the quantity. Press **[ENTER]**. The cursor moves to the **Slump** field.

6. Using the table of field descriptions given on the previous page as a reference, make changes to the remaining fields as necessary. If resale products are included, add them in the **Mix** field.

7. Press **[F1]** to save the order.

☛ TO EDIT AN ORDER

There is more than one way to edit an order. One way is from the **ORDER ENTRY** screen. Another way is from the **ORDER INDEX**. Obviously, editing is limited on the **ORDER INDEX** because less information is displayed. But this is a quick way to change data such as order time, status, or amount. Changes such as travel and waiting times must be made from the **ORDER ENTRY** screen. Editing from both of these screens is discussed next.

Editing from the Order Index

You can change the following items directly from the **ORDER INDEX**. To do this, type over the existing information. The message "Update occurred" appears at the bottom-left of the screen.

- Order Time (time first load is to arrive at job site)
- Job Name
- Order Status

- Truck Code
- Notes
- Ordered Amount

NOTE: You cannot change the Mix Code or Delivered Amount.

Editing from the Order Entry Screen

1. Select **MAIN MENU➡DATA ENTRY➡ORDERS** (or press **[F6]** from the **ORDER INDEX**). Either way, the **ORDER ENTRY** screen appears with the cursor on the **Order Code** field. "NEW Order" should appear at the top left corner of the screen, and the current date and day should appear on the next line.
2. To edit one of today's orders, type or browse for the appropriate Order Code and press **[ENTER]**. The Order Code appears on the screen along with other information for the order.

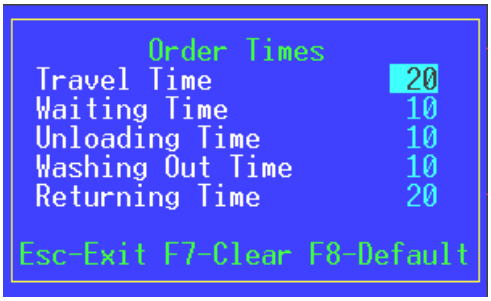
   To edit an order for a day other than today, move the cursor over the current date and type or browse for the appropriate date. Press **[ENTER]**. The cursor moves to the **Order Code** field. Type or browse for the appropriate Order Code and press **[ENTER]**. The Order Code appears on the screen along with other information for the order.
3. Move the cursor to the appropriate field and type the new information. (When you start typing, the old information disappears.) Press **[ENTER]** to move to the next field. (Press **[ENTER]** to move past fields until you get to the one you want.)
4. When you are finished editing, press **[F1]** to save your changes.

To Change Order Times:

Default times (travel, waiting, unloading, washing out, and returning) are assigned to each order. These times are used to calculate the batch time of the next load. These times can also be printed on customer delivery tickets. To change order times:

1. Select **MAIN MENU➡DATA ENTRY➡ORDERS**.
2. Type or browse for the Order Code. Press **[ENTER]**. The Order Entry screen appears.
3. Press **[F3] – Times**. The Order Times box appears as shown below.

Order Times Box



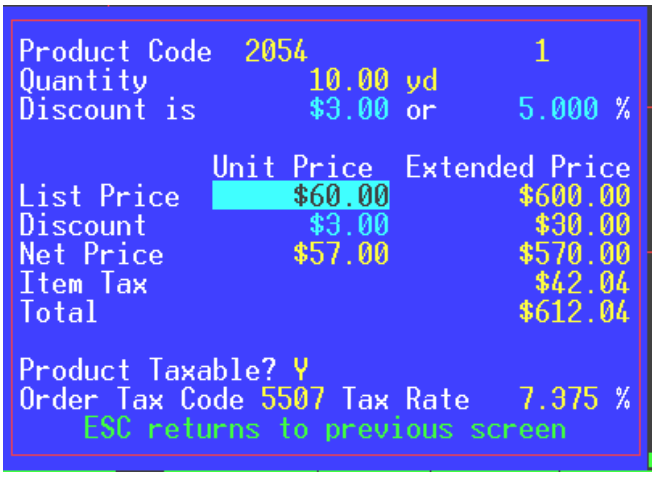
4. To change a time, type over the existing time.
5. Press **[ESC]** to exit the Order Times box, then be sure to press **[F1]** to save your changes to the order.

To Change Order Pricing:

For an order associated with a project, pricing is usually driven by the project. For an order not associated with a project, you can change pricing as explained below. Pricing can be changed while the order is being created or after the order is saved.

1. Select **MAIN MENU➡DATA ENTRY➡ORDERS**.
2. Type or browse for the Order Code. Press **[ENTER]**. The order appears on the screen with the mix design and any resale products displayed at the bottom.
3. Highlight the product that requires a pricing adjustment.
4. Press **[F5] - Discount** to pull up the Discount Pricing box (shown next).

Discount Pricing Box



5. To apply a Discount, type either the *dollars-per-unit* or the *percentage* amount on the **Discount is** line and press **[ENTER]**. If you type a dollars-

per-unit amount, the system calculates the percentage for you. Similarly, if you type a percentage, the system calculates the dollars-per-unit.

In the example above, we entered 5 percent. The remainder of the pricing was automatically updated when we pressed **[ENTER]** or **[TAB]**.

6. To change the List Price, type the desired list price over the existing list price in the **List Price** field under the Unit Price column. Press **[ENTER]** or **[TAB]**. The system calculates the remaining pricing information.
7. Press **[ESC]** to exit the Discount Pricing box.
8. Repeat Steps 3 – 7 for each product for which you wish to adjust pricing.
9. Before you exit the **ORDER ENTRY** screen, be sure to press **[F1]** to save your changes!

To edit or change EN-206 information:

The Consistence and Ext. Desc. Fields on the Discount screen (accessed by pressing **[F5]**) describe concrete production in terminology required by the EN 206 Standards. This information defaults in from the project record. If no project is used, it comes from the mix design record.

1. Select **MAIN MENU➡DATA ENTRY➡ORDERS**.
2. Type or browse for the Order Code. Press **[ENTER]**. The order appears on the screen with the mix design and any resale products displayed at the bottom.
3. Press **[F5] - Discount**. The Discount/Pricing window appears.
4. Edit the Consistence and Ext. Desc. fields as needed.
5. Press **[F1]** to save the record.

☛ TO COPY AN ORDER

As a timesaver, you can copy an order from the current or a previous date and save it for the current or a future date. For simplicity's sake, we will show how to copy an order from a previous date to use on the current date.

1. Select **MAIN MENU➡DATA ENTRY➡ORDER Entry**. The cursor appears on the **Order Code** field.
2. Press **[SHIFT + TAB]** to move to the previous (date) field. Press **[F2]** to pull up the list of order dates. Select the appropriate date and press **[ENTER]**.
3. The selected date is entered in the (date) field, and the cursor moves back to the **Order Code** field.

4. Press **[F2]** to pull up the list of order codes. Select the appropriate Order Code and press **[ENTER]**. The order to be copied appears on the screen.
5. Press **[SHIFT + TAB]** until the cursor is again on the first (date) field.
6. Enter today's date and press **[ENTER]**.
7. Enter a new Ordered amount and Load Size.
8. Press **[F1]** to save the new order. The order is saved with the next Order Code for today and added to today's **ORDER INDEX**.

CONCRETE CALCULATOR SCREEN

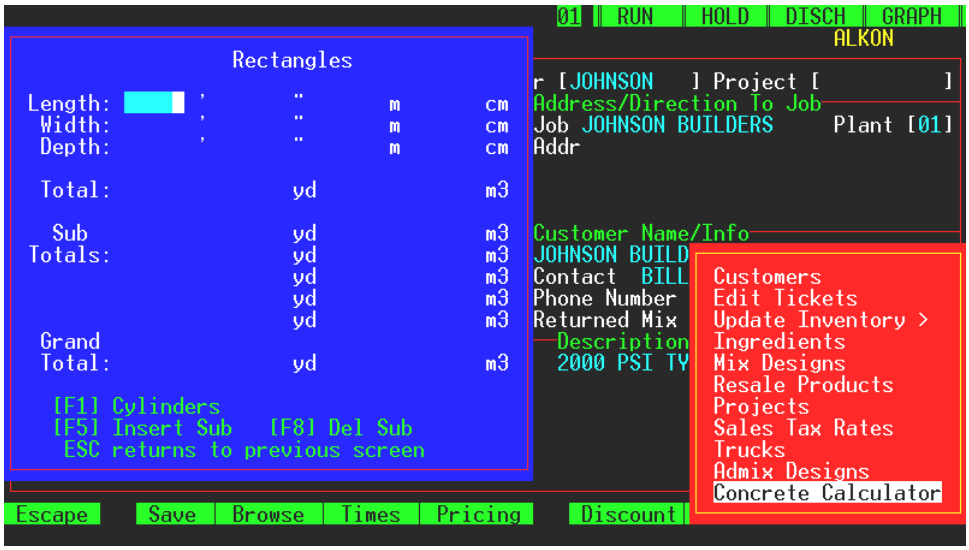
Use the Concrete Calculator as a quick way to determine cubic yards (or meters) of concrete the customer needs. Enter the measurements the customer gives you on the **CONCRETE CALCULATOR** screen then enter the results on the **ORDER ENTRY** screen.

You can access the Concrete Calculator screen one of two ways:

- By selecting **MAIN MENU➡DATA ENTRY➡CONCRETE CALCULATOR**, meaning you have to press **[ESC]** until you get back to the Main Menu; or,
- By pressing **[SHIFT + F8]** from the **ORDER ENTRY** screen, selecting "Concrete Calculator," then pressing **[ENTER]**.

The second method is recommended if you are already at the **ORDER ENTRY** screen. In either case, the Concrete Calculator appears.

Concrete Calculator



Procedures for using the Concrete Calculator are given next.

☛ TO CALCULATE RECTANGULAR SHAPES

1. Access the Concrete Calculator as described on the previous page.
2. Enter measurements for the Length, Width, and Depth. Press **[ENTER]** after each entry. After you press **[ENTER]** for the Depth, the system calculates the Total. Write this amount on paper so you can enter it when you go back to the **ORDER ENTRY** screen.
3. If you need to calculate other rectangular shapes for this order, press **[F5]** after you have entered the Depth for the first shape. This inserts the Total into the Sub Totals area (so all Sub Totals can later be added to obtain a Grand Total).
4. Repeat Steps 2 and 3 above for each rectangular shape.
5. Write the Grand Total on paper so you can enter it when you go back to the **ORDER ENTRY** screen.

☛ TO CALCULATE CYLINDRICAL SHAPES

1. Access the Concrete Calculator as described on the previous page.
2. Press **[F1]** to pull up the Concrete Calculator for cylindrical shapes. (You can also press this key to go back to the calculator for rectangular shapes.)
3. Enter measurements for the Diameter and Height. Press **[ENTER]** after each entry. After you press **[ENTER]** for the Height, the system calculates the Total. Write this amount on paper so you can enter it when you go back to the **ORDER ENTRY** screen.
4. If you need to calculate other cylindrical shapes for this order, press **[F5]** after you have entered the Height for the first shape. This inserts the Total into the Sub Totals area (so all Sub Totals can later be added to obtain a Grand Total).
5. Repeat Steps 3 and 4 above for each cylindrical shape.
6. Write the Grand Total on paper so you can enter it when you go back to the **ORDER ENTRY** screen.

BATCH SETUP SCREEN

Loads are prepared for batching on the **BATCH SETUP** screen. On this screen, you can change target weights for ingredients not locked by mix design or material. You can adjust water volume (Slump, In Truck, and Trim fields). You can also adjust moisture and the truck's discharge rate.

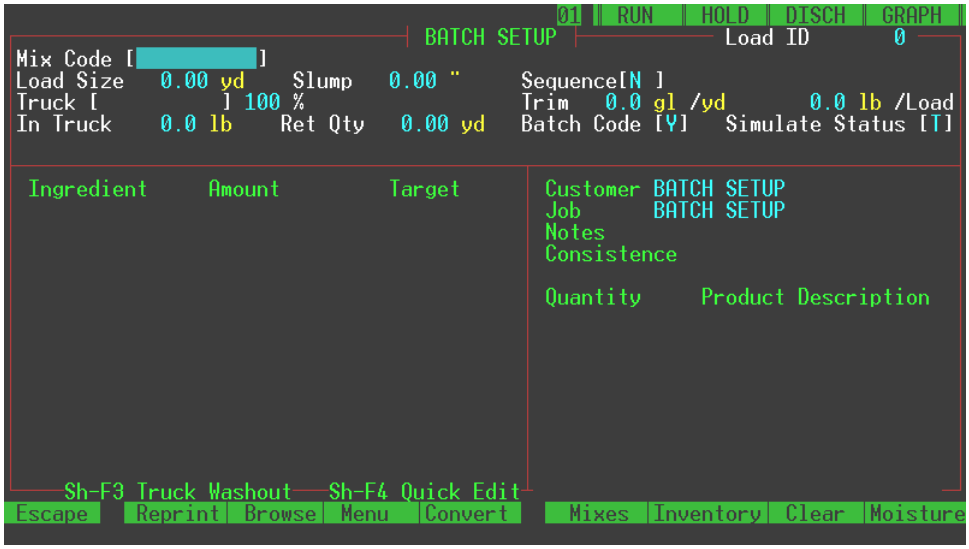
Adjustments are only in effect as long as you do not exit the **BATCH SETUP** screen. If you exit and re-enter this screen, you will have to re-enter any adjustments.

Most adjustments you make on this screen do not change system records. The exceptions are changes to moisture, which update system moisture records.

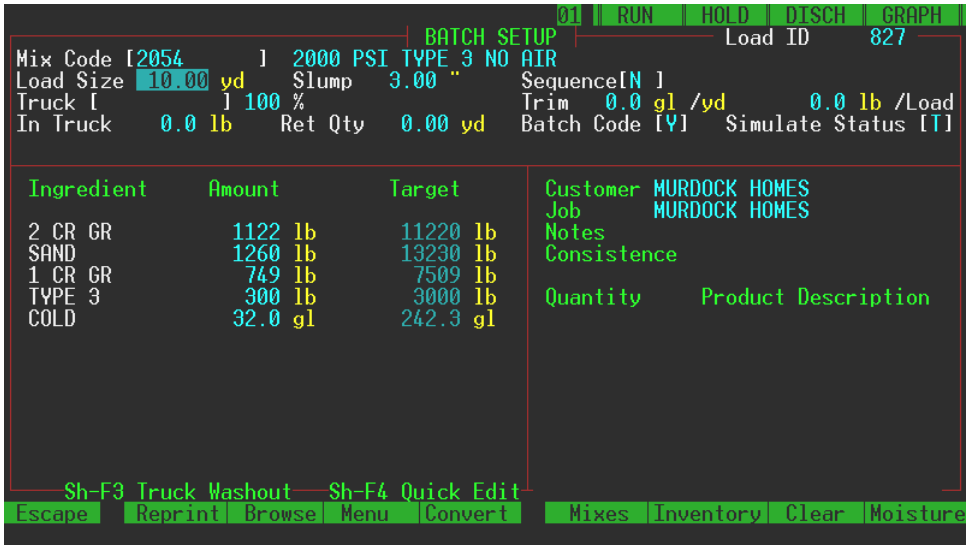
IMPORTANT ! It is highly recommended that you run batches from the **BATCH SETUP** screen only. You can start batches from other Spectrum screens but you cannot see which order is currently active on the **BATCH SETUP** screen.

Two examples of the **BATCH SETUP** screen are given next – one blank and the other with an order transferred onto it. After that, we describe the fields and function keys associated with this screen. After that, we discuss how to prepare batches with and without an order. Then we talk about the adjustments you can make on this screen.

Batch Setup Screen (blank)



Batch Setup Screen (with an Order)



☛ FIELDS

FIELD	DESCRIPTION
Mix Code	Mix code to be batched. If the **BATCH SETUP** screen was accessed from either the **ORDER** or **LOAD INDEX**, the mix code is filled in by the system and cannot be changed. Otherwise, browse this field to select a mix or type in the mix code.
Load Size	Amount of concrete to be delivered in the truck. You can edit this data if it was not sent from a Dispatch System.
Slump	Slump value for mix. You can change this value. (See *"To Change Mix Slump:"* for more information.)
Truck	Code of the truck that will deliver the concrete. You can select another truck. When a truck is assigned, the charge rate for the truck appears in the **%** field. Also, the name of the driver appears just to the right of the charge rate.
%	The rate at which the truck will be loaded. The percentage entered here means that the truck will be loaded at this percentage of the plant's discharge rate. Example: 50% entered here means the truck will be loaded at half the plant's discharge rate. (See *"Changing Discharge Rate"* later in this section for more information.)
In Truck	Amount of water in the truck before the load is batched. The target for water will be reduced by this amount. You can change this data. Also used to increase water to add on the job.

FIELD	DESCRIPTION
Ret Qty	Amount of concrete in the truck returned from the previous load. When this value is greater than zero, the **Returned Mix** field also appears on the screen. (See the description for **Returned Mix** later in this table.) You can change this amount.
Sequence	Sequence code (feed sequencing) to be used. Defaults in with the mix code but you can select another sequence code.
Mixer Time	Appears only for sequences using a mixer. Amount of time the mix must to stay in the mixer before it can be discharged into a truck. Defaults to the mixer time set in **MIX DESIGNS**. If no mixer time was set for the mix, defaults to the mixer time set on the **MIXERS** screen.
Trim (/yd)	Amount of water to trim per yard, negative or positive. You can change this data. Also used to increase water to add on the job.
Trim (/Load)	Amount of water to trim per load, negative or positive. You can change this data. Also used to increase water to add on the job.
Batch Code	You can select either a *Y* or *B* value. *Y* instructs the system to print batch weights on tickets for this order. *B* instructs the system to refrain from printing batch weights on tickets for this order.
Simulate Status	One of these three values: **B** – Actual batch. A batch of concrete will be created and inventory and delivered amounts will be affected by this batch. **S** – Simulated demo batch. Concrete will not be created but inventory and delivered amounts will be affected. **T** – Training batch. No concrete will be created and the inventory and delivered amounts will not be affected. You can change this information.
Return Mix	Mix Code of the returned concrete. (This field appears only if the **Ret Qty** value is greater than zero.) You can edit this information. **NOTE:** If the mix code of the returned concrete is incompatible with the mix to be batched, a Warning box pops up. You can press **[F4]** to clear this box.
Age	Number of minutes returned mix has been in the truck. (This field is visible only if the **Ret Qty** value is greater than zero.) You can edit this information.
Ingredient	Read-only field. Lists each ingredient in the mix design.

FIELD	DESCRIPTION
Amount	Target amount (per cubic yd/m3) for each ingredient. You can change this information. The amount under the Target column is updated to accordingly. Also, a red "#" sign appears beside the changed amount.
Target	Read-only field. Total target amount for the load. Equals the amount per cubic yd/m3 multiplied by the load size, plus any calculations for moisture, water correction, etc.
Customer	Customer for whom the load is being batched. You can change this data, but whatever you enter will be printed on the load ticket.
Job	If the load is associated with a project, the job name is displayed. If no job exists, the customer name is displayed. You can change this data, but whatever you enter will be printed on the load ticket.
Notes	Notes entered against the order or project. You can change this data, but it will be printed on the load ticket.
Consistence	For EN 206 users, this field contains the EN 206 Consistence Class (S1, S2, etc.) or Slump in millimeters. The line under this field contains the EN 206 Extended Description for the mix. Information in these fields defaults in with the mix or order and defaults onto Tickets using the mix.
Quantity	Read-only field. Quantity of resale products associated with this batch.
Product Description	Read-only field. Description of resale products associated with this batch.

☛ FUNCTION KEYS

Function Key	Purpose
[F1] - Reprint	Causes the last ticket generated to reprint. You will be prompted to press **[F1]** again to confirm.
[F2] - Browse	Pulls up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - Menu	Takes you to a subset of the **MAIN MENU**, which lets you go directly to the Material Overview screen, or to other menus like Plant Setup and Data Entry.

Function Key	Purpose
[F4] - Convert	Displays amounts in the alternate units of measure (US or Metric). Does not change the units of measure set for the system, however.
[F5] - Mixes	Takes you to the **MIX DESIGNS** screen. Press **[ESC]** to return to **BATCH SETUP**.
[F6] - Inventory	Takes you to the **ON HAND LEVELS BY PLANT** screen. Press **[ESC]** to return to **BATCH SETUP**.
[F7] - Clear	Clears all information from the screen.
[F8] - Moisture	Takes you to the **MOISTURES** screen where moisture data can be viewed and modified. (See *"Adjusting Batch Information."*)
[F9] - RUN	Causes the batch on this screen to start weighing up. **NOTE:** Although this function can be accessed from any screen in the Spectrum System , it is highly recommended that you run batches from the **BATCH SETUP** screen only. This way you can ensure you are batching the correct order.
[F10] - HOLD	Causes the batch that is currently running to hold, or suspend. This function can be accessed from any screen in the Spectrum System.
[F11] - DISCHARGE	Causes the load currently weighing up to discharge. This function can be accessed from any screen in the Spectrum System.
[F12] - GRAPH	Displays the **GRAPH** screen that shows the progress of weigh-up and discharge. This function can be accessed from any screen in the Spectrum System.

☛ ADJUSTING BATCH INFORMATION

As you can tell from the field descriptions given earlier, most of the information on the **BATCH SETUP** screen can be changed before a batch is run. Some of this information is very critical to the strength and make-up of the concrete. For this reason, further explanation is given in the next few sub-sections. We will first discuss changing target weights, followed by changes that affect the water target only, and ending with changing the discharge rate into a truck.

➢ CHANGING TARGET WEIGHTS

You can change the "target amount" of an ingredient for the batch currently on the **BATCH SETUP** screen. This is often done to change the amount of a chemical, e.g., calcium, in a mix design. This changes the target amount for one unit (1 cubic yard

or meter). As soon as you make this change, the target amount of this ingredient for the load is also updated.

To change a target amount:

1. Press **[ENTER]** until the **Amount** field for the ingredient whose target you wish to adjust is highlighted.
2. Type the desired target amount for one unit (1 cubic yard or meter).
3. Press **[ENTER]**. The target amount of the ingredient for the entire batch is updated, as shown in the **Target** field. A red # appears directly to the right of the **Amount** value to indicate that a manual change was made.

Note: If the **Modify Flag** field of the Ingredients screen is set to **N** for a particular ingredient, the target for that ingredient cannot be modified on the **BATCH SETUP** screen. The **Amount** values for ingredients "locked" in this manner are highlighted in yellow.

➢ ADJUSTMENTS TO WATER

Adjustments to the **Slump**, **In Truck**, and **Trim** fields all have an affect on the amount of water in the mix design. These adjustments are discussed next.

To Change Mix Slump:

1. On the **BATCH SETUP** screen, press **[TAB]** until the **Slump** field is highlighted.
2. Type the desired slump value and press **[ENTER]**. The **Target** value of the water ingredient changes based on the value entered in the **Slump** field. If you increased the slump value, the water target increases. If you decreased the slump value, the water target decreases. A red # appears directly to the right of the **Slump** field to indicate that this field was manually changed.

Note: The amount of change in the water target depends on whether standard slump calculations or slump tables are used.

To Change In Truck Water Volume:

1. On the **BATCH SETUP** screen, press **[TAB]** until the **In Truck** field is highlighted.
2. Type the total number of gallons that the truck is carrying from the last washout and press **[ENTER]**. The water target automatically decreases.

To Adjust Water Trim on a "Per Yard" Basis:

1. On the **BATCH SETUP** screen, press **[TAB]** until the **Trim gl / yd** field is highlighted.
2. Type either a positive or a negative amount in this field. A positive amount increases the water for each yard by the amount entered in this field. A negative amount decreases the water in the same manner.

   Example: If you enter a 1 in this field for a 10-yard load, the water target is increased by 10 gallons.

To Adjust Water on a "Per Load" Basis:

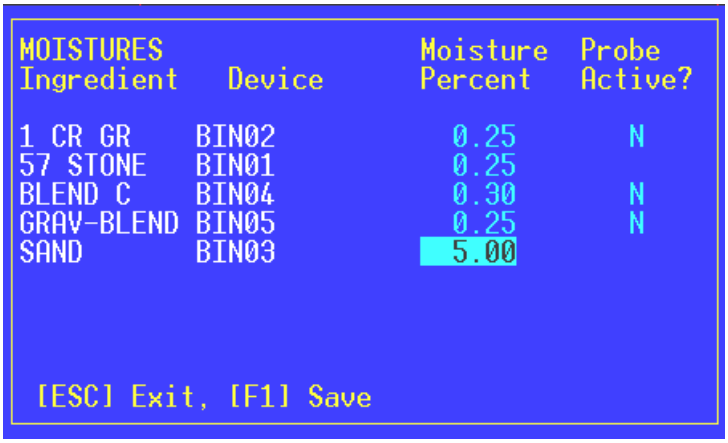
1. On the **BATCH SETUP** screen, press **[TAB]** until the **Trim gl / Load** field is highlighted.
2. Type either a positive or a negative amount in this field. A positive amount increases the water for the load by the amount entered in this field. A negative amount decreases the water in the same manner.

   Example: If you enter a 5 in this field for a 10-yard load, the water target increases by 5 gallons.

➢ ADJUSTMENTS TO MOISTURE

1. On the **BATCH SETUP** screen, press **[F8] – Moisture**. The Moistures box appears as shown next.

Moistures Box



2. Press **[TAB]** until the **Moisture Percent** field is highlighted for the ingredient whose moisture percentage you wish to change.
3. Type the new moisture percentage and press **[ENTER]**.

Notes:

- The water target will only be adjusted if the ingredient whose moisture was adjusted is part of the mix design.
- The **Probe Active** field indicates whether a moisture probe is being used for the ingredient, or whether the initial probe reading is used. Y, N, or S is displayed in this field:
  - **Y** – means a probe is used.
  - **N** – means a probe is not used.
  - **S** – means the system uses the probe reading taken at the beginning of the batch for the entire batch.

4. Press **[F1]** to save the data and exit the **MOISTURES** box. The water target will be automatically adjusted based on the percentage you just entered.

➢ EDITING THE TRUCK CODE BEFORE DISCHARGE

Besides selecting the truck code in the **Truck** field of the Batch Setup screen, there are three other ways you can change the truck code BEFORE a batch discharges. These methods are listed here and discussed immediately after that.

- By pressing **[ALT + A]** to pull up the Assign Truck Code dialog before the ticket starts to print. (By default, tickets are set to start printing at LOAD START but this flag can be changed in the **Ticket Script Name(s)** field of the Printer Setup screen.)
- By entering the **-T** argument in the **Ticket Script Name(s)** field of the Printer Setup screen so the system will prompt you for a truck code only if the **Truck** field of the Batch Setup screen is blank.
- By entering the **-F** argument in the **Ticket Script Name(s)** field of the Printer Setup screen so the system will always prompt you for a truck code before it prints the ticket.

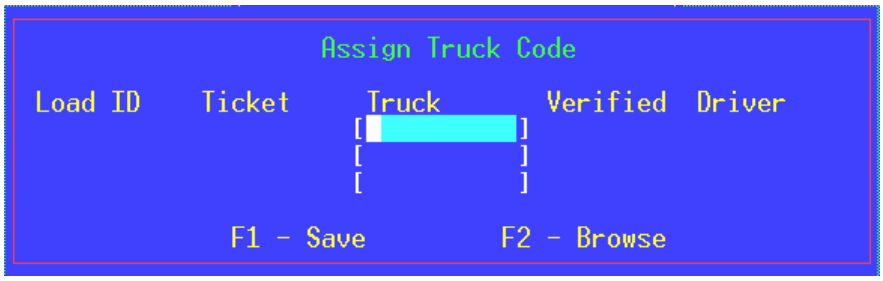
Note: Once the load has discharged (and the ticket has printed), you will have to go to the Edit Ticket screen to change the truck code and/or driver. You cannot modify the truck discharge rate on this screen, however.

Alt + A

To use this method:

1. Press **[ALT + A]** from any screen to pull up the Assign Truck Code dialog (shown next).

Assign Truck Code Box



Note: A maximum of three tickets can be active at one time, meaning no more than three tickets can appear on the Assign Truck Code dialog.

2. Enter the truck code and driver, or edit the existing ones for the selected ticket.
3. Make sure 'Y' is selected in the **Verified** column for the selected ticket.
4. Press **[F1]** to save the information.

Note: If the ticket has already started to print before you have saved your data, the new or revised truck information will not be printed on the ticket. You would have to go to the Edit Ticket screen to edit the truck information then reprint the ticket.

-T Option in the Ticket Script

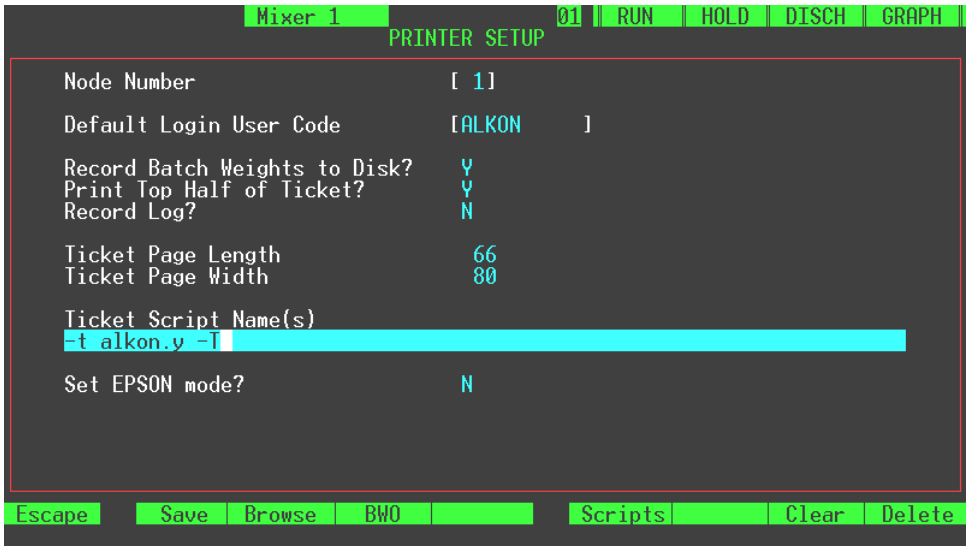
Typically, this method is used if you don't want to select a truck until the mixer is ready to discharge into a truck. This way you can wait to see which truck is ready for the load.

Note: If this method is used, the ticket will not print until the truck code is verified.

To use this method:

1. Go to **SYSTEM MAINTENANCE➡PRINTER SETUP** and select the appropriate Node Number.

Printer Setup Screen (with –T argument)



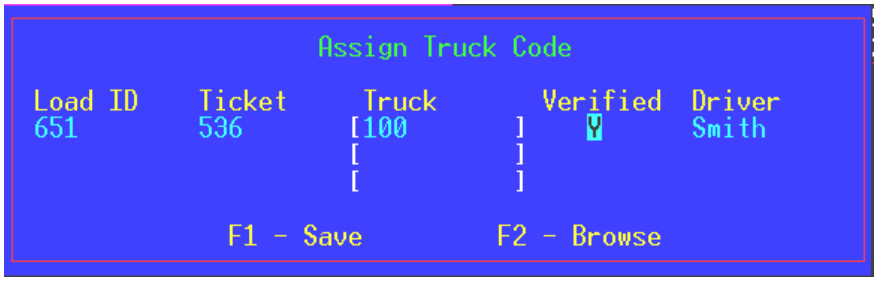
2. Add the **–T** argument to the script in the **Ticket Script Name(s)** field as shown in the example above.
3. Press **[F1]** to save your data.
4. Then, when you run a batch without entering a truck code, the system will prompt you with the following message.

Truck Code Message

Note: Exactly when this message appears depends on when tickets were set up to print (in the **Ticket Script Name(s)** field of the Printer Setup screen). By default, tickets start to print at LOAD START, meaning this warning message would pop up as soon as you pressed **[F9]** to start the batch.

5. Press **[F4]** to clear the message then press **[ALT + A]** to pull up the Assign Truck Code box.
6. Arrow up or down to select the correct ticket. Press **[F2]** and select a truck code. The driver name is pulled in when you select the truck code (if a driver was assigned to the truck).
7. Enter a driver name or edit the one that appears.
8. Make sure 'Y' is selected in the **Verified** column for the selected ticket. An example of the completed Assign Truck Code box is shown next.

Assign Truck Code Box (completed)



9. Press **[F1]** to save the information.

   The ticket will then print (or finish printing) and will show the new or revised truck information.

Caution! If you forget to verify the truck code, the ticket will not print. You will have to go to the Edit Ticket screen to edit the truck information before the ticket will print. (See "Editing the Truck Code After Discharge" for more information.)

-F Option in the Ticket Script

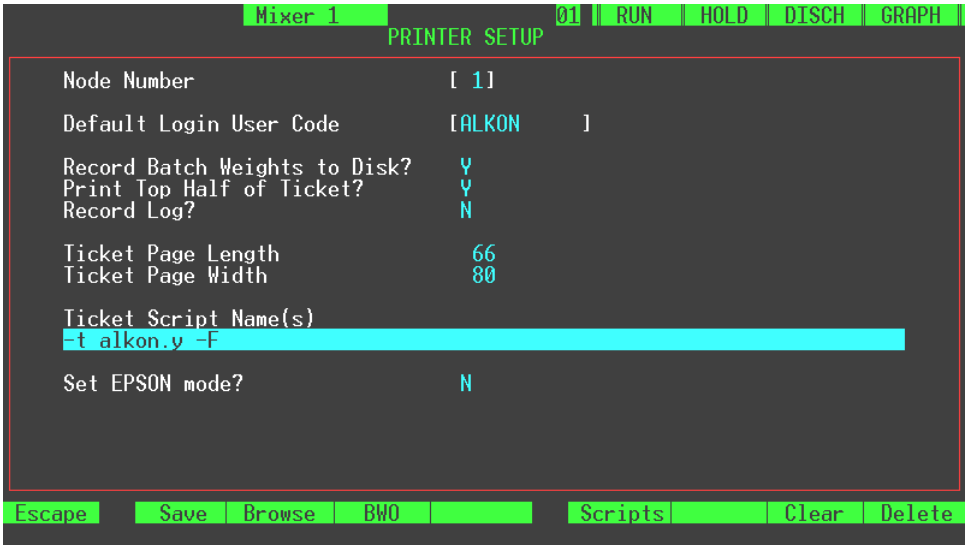
This method can be used if you want the system to ALWAYS prompt you for a truck code.

Note: If this method is used, the ticket will not print until the truck code is verified.

To use this method:

1. Go to **SYSTEM MAINTENANCE➡PRINTER SETUP** and select the appropriate Node Number.
2. Add the **–F** argument to the script in the **Ticket Script Name(s)** field as shown next.

Printer Setup Screen (with –F argument)



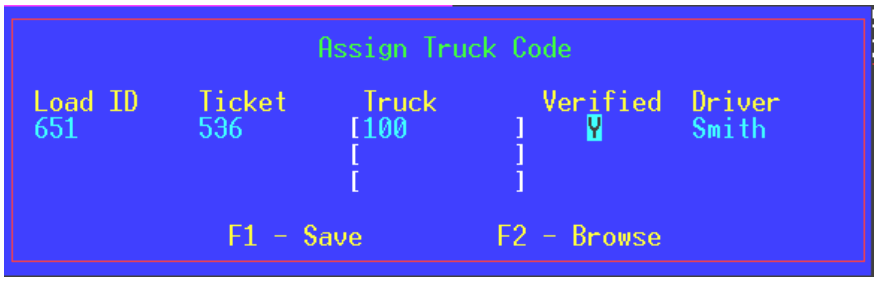
3. Press **[F1]** to save your data.
4. Then, the system will always prompt you with the following message when you try to run a batch, even if you have already entered a truck code on the Batch Setup screen.

Truck Code Message

Note: Exactly when this message appears depends on when tickets were set up to print (in the **Ticket Script Name(s)** field of the Printer Setup screen). By default, tickets start to print at LOAD START, meaning this warning message would pop up as soon as you pressed **[F9]** to start the batch.

5. Press **[F4]** to clear the message then press **[ALT + A]** to pull up the Assign Truck Code dialog.
6. Arrow up or down to select the correct ticket. Press **[F2]** and select a truck code. The driver name is pulled in when you select the truck code (if a driver was assigned to the truck).
7. Enter a driver name or edit the one that appears.
8. Make sure 'Y' is selected in the **Verified** column for the selected ticket. An example of the completed Assign Truck Code box is shown next.

Assign Truck Code Box (completed)



9. Press **[F1]** to save the information.

   The ticket will then print (or finish printing) and will show the new or revised truck information.

Caution! If you forget to verify the truck code, the ticket will not print. You will have to go to the Edit Ticket screen to edit the truck information before the ticket will print. (See "Editing the Truck Code After Discharge" for more information.)

➤ EDITING THE TRUCK CODE AFTER DISCHARGE

Use this method to edit the truck code and print the ticket if you did not do so when prompted to verify the truck code.

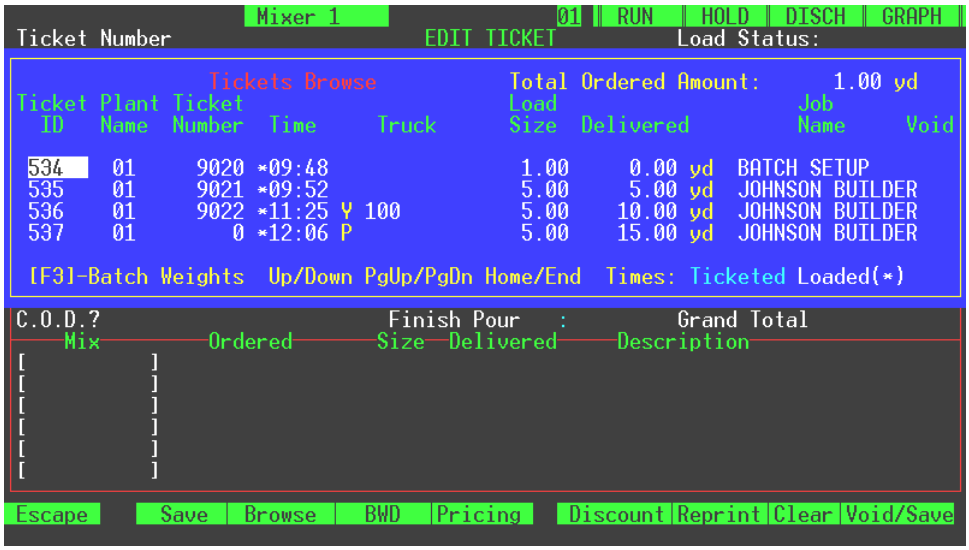
Note: You will only be prompted to verify the truck code if there is either a **–T** or **–F** flag in the **Ticket Script Name(s)** field of the Printer Setup screen.

Caution! If you do not verify the truck code as prompted by the warning message, the ticket will not print.

To edit/verify the truck code from the Edit Ticket screen:

1. Go to **DATA ENTRY➡EDIT TICKETS**.
2. Press **[F2]** to pull up a list of ticket dates.
3. Arrow down to the appropriate date and press **[ENTER]**. The cursor moves to the **Ticket ID** field.
4. Press **[F2]** to pull up the Tickets Browse window as shown next.

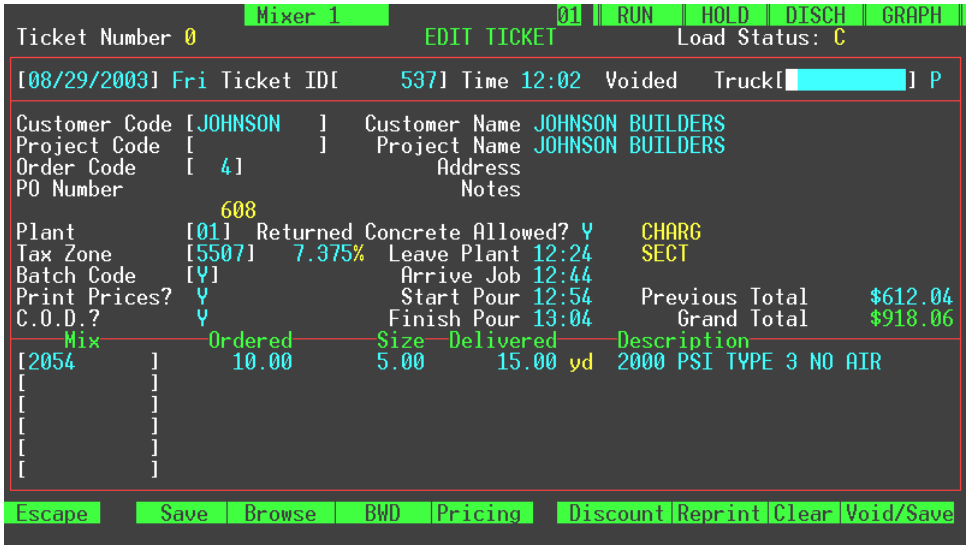
Ticket Browse Window



Tickets whose truck codes have not been verified are displayed with a '**P**' just to the right of the Time column. Also there is a '**0**' in the Ticket Number column for these tickets.

5. Arrow down to the appropriate ticket and press **[ENTER]**. The ticket appears on the Edit Ticket screen as shown next.

Ticket with No Truck



6. The cursor should be on the **Truck** field in the upper right-hand corner of the screen. Press **[F2]** to pull up a list of trucks.
7. Arrow down to the appropriate truck code and press **[ENTER]**. The new code appears in the **Truck** field and the cursor moves to the '**P**' just to the right of the **Truck** field.
8. Type '**Y**' over the '**P**' then press **[F1]** to save the changes. As soon as you press **[F1]**, the ticket prints.
9. Repeat steps 2 through 8 for other unprinted tickets.

➢ ADJUSTING TRUCK CHARGE RATE

The truck charge rate is automatically entered in the **%** field of the **BATCH SETUP** screen when a truck is assigned to the load. This rate shows the percentage of the plant's discharge rate that the truck can handle.

The system controls discharge into the truck as follows:

Each scale discharges at a rate that is the median point of the **Maximum** and **Minimum** flow rates for that scale. For example, if the Aggregate scale's maximum flow rate is 300 lb/sec and its minimum flow rate is 100 lb/sec, the scale's actual discharge rate would be 200 lb/sec. A 100% truck charge rate on the **BATCH SETUP** screen means the Aggregate scale would load the truck at the 200 lb/sec discharge rate. A 50% truck charge rate means the Aggregate scale would load the truck at 100 lb/sec (half of the scale's discharge rate).

To Adjust the Truck Charge Rate:

1. On the **BATCH SETUP** screen, press **[TAB]** until the **%** field is highlighted. (This field is just to the right of the **Truck** field.)
2. Type the desired discharge rate percentage and press **[ENTER]**.
3. Proceed with the batching process.

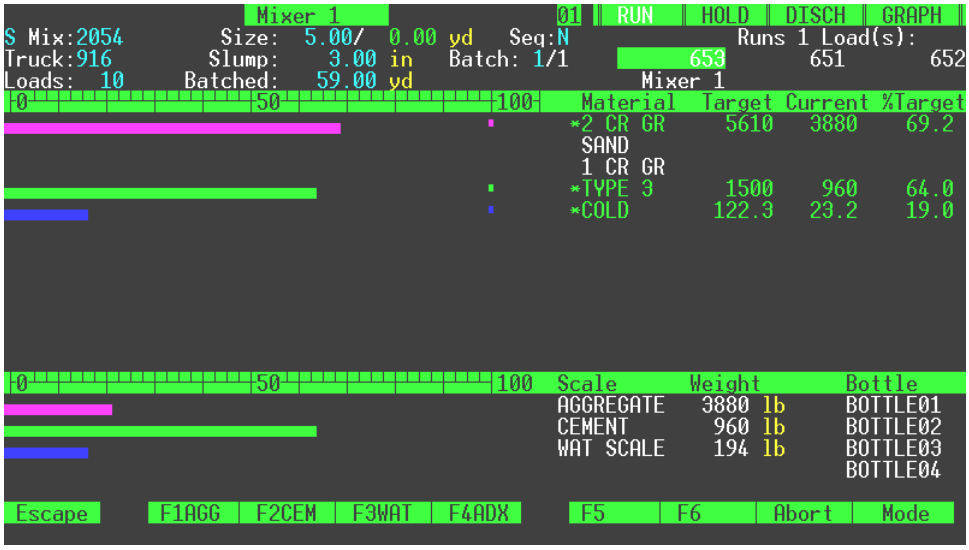
Note: Changes to the truck charge rate on the **BATCH SETUP** screen do not change the charge rate for the truck in the **TRUCKS** database table.

THE GRAPH SCREEN

The **GRAPH** screen shows the progress of weigh up and discharge for the batch most recently started. Across the top portion of the screen, a colored bar for each material moves from left to right to indicate the progress of weigh up. Colored bars at the bottom of the screen move from right to left to indicate the progress of discharge from scales and extra devices.

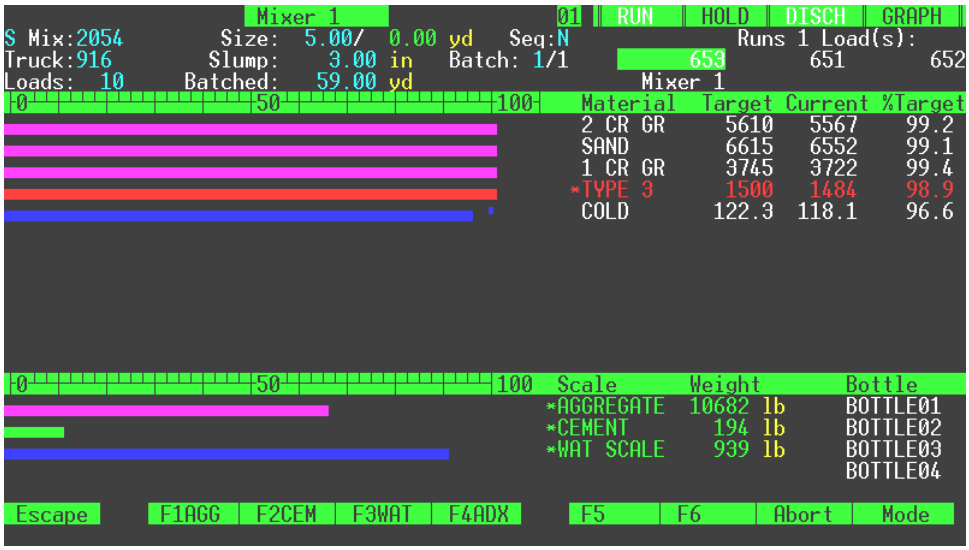
Two examples of this screen are given next, one showing weigh-up, the other showing discharge. After that, we describe the fields and function keys associated with this screen.

Graph Screen (showing Weighup)



- The RUN function key prompt at the top of the screen appears in white when you press **[F9]** to start the batch.
- For each ingredient, a colored bar moves from left to right in the top portion of the screen to show the progress of feeding.
- An asterisk (*****) appears next to a material name when that material is Fast Feeding.
- A (**t**) appears next to a material name when that material is Time Feeding.
- A (**j**) appears next to a material name when that material is Jogging.
- If a scale (non-decumulative) goes over capacity, the entire system goes into Hold so the operator can determine whether to stop feeding into the scale before pressing **[F10]** to take the system off Hold and continue batching. Also, OVER is displayed in red text in the scale's Weight column.
- ***** is displayed in the scale's Weight column if the scale's load cell is bad.

Graph Screen (showing Discharge)



- The RUN and DISCH function key prompts at the top of the screen appear in white until discharge is complete.
- For each scale, a colored bar moves from right to left across the bottom part of the screen to show the progress of discharge.
- An asterisk (*) appears next to a scale or bottle name when that device is discharging.

☛ FIELDS – GRAPH SCREEN

Field	Description
Mix	Mix code of the order/load being batched.
Size	Load size for the order/load being batched.
Sequence	Sequence code to be used for feeding ingredients..
Truck	Truck that will carry the order/load being batched.
Slump	Slump value of the order/load being batched.
Batch	Number of batches required to make the load (e.g., 1/1).
Loads	Number of loads batched for the current day.
Batched	Number of yards batched for the current day.
Material	Code for each ingredient in the mix design.
Target	Target, based on the load size, for each ingredient in the mix design.
Current	Amount fed for each ingredient. Increases as the ingredient feeds. Also, for each ingredient, a colored bar moves from left to right across the screen to show the progress of feeding.
%Target	Percentage of the target fed so far for each ingredient. Increases as the ingredient feeds. This field is actually a display area for 4 different fields. **%Target** is the default field. Press **[F8]** to cause another field to be displayed. (See the description for the **[F8]** function key for more information.)
Scale	Name of each scale or measurement device.
Weight	Weight of the materials in each scale.
Bottle	Name of each bottle assigned to a measurement device.

☛ FUNCTION KEYS – GRAPH SCREEN

Function Key	Purpose
[F1] - F1AGG	Press this key to hold the AGG scale. Press this key again to release the scale. This is a user-defined field.
[F2] - F2CEM	Press this key to hold the CEM scale. Press this key again to release the scale. This is a user-defined field.
[F3] - F3WAT	Press this key to hold the WAT measurement device. Press this key again to release this device. This is a user-defined field.
[F4] - F4ADX	Press this key to hold the ADX measurement device. Press this key again to release this device. This is a user-defined field.
[F7] - Abort	Press this key to abort the batch. You will be asked to press this key again to confirm. Once a batch is aborted, it cannot be restarted.
[F8] - Mode	The **%Target** field is a display area for 4 different fields. **%Target** is displayed by default. You can display 3 other fields. Each time you press **[F8]**, one of these fields is displayed in place of the previous one. The other 3 fields are: • **% To go** Percentage of target yet to feed. • **To go** Amount in lbs left to feed. • **%Moist** Current moisture of ingredients with an active moisture probe.
[F9] - RUN	Causes the batch currently displayed on the **BATCH SETUP** screen to start weighing up. **NOTE:** Although this function can be accessed from any screen in the Spectrum System, it is highly recommended that you run batches from the **BATCH SETUP** screen only. This way you can "see" that you are batching the correct order.
[F10] - HOLD	Causes the batch currently running to hold, or suspend. This function can be accessed from any screen in the Spectrum System.

Function Key	Purpose
[F11] - DISCHARGE	Causes the load currently weighing up to discharge. This function can be accessed from any screen in the Spectrum System. (See *"Starting Discharge."*)
[F12] - GRAPH	When pressed from any screen, this key displays the **GRAPH** screen. Pressing this key from the **GRAPH** screen takes you back to the previous screen. When a batch is finished, you can quickly return to the **BATCH SETUP** screen by pressing this key.

☛ STARTING DISCHARGE

Discharge is initiated by pressing **[F11]** from any Spectrum screen. You can also do this as soon as you have pressed **[F9]** to start a batch. This "arms" the system to automatically start discharge as soon as all ingredients are weighed up. Here are a few things to keep in mind.

- If you have to clear or accept any feeding errors, you will have to press **[F11]** again to resume discharge.
- Direct-metered ingredients (admixes and water) start as soon as you press **[F11]**.
- Make sure a truck is in place (or the mixer is running and empty) before you initiate discharge!

☛ ABORTING BATCHES

Press **[F7]** twice to abort **all** loads currently queued up.

Press **[SHIFT + F7]** on any load other than the current load to abort that load as well as subsequent loads.

TICKET PRINTING

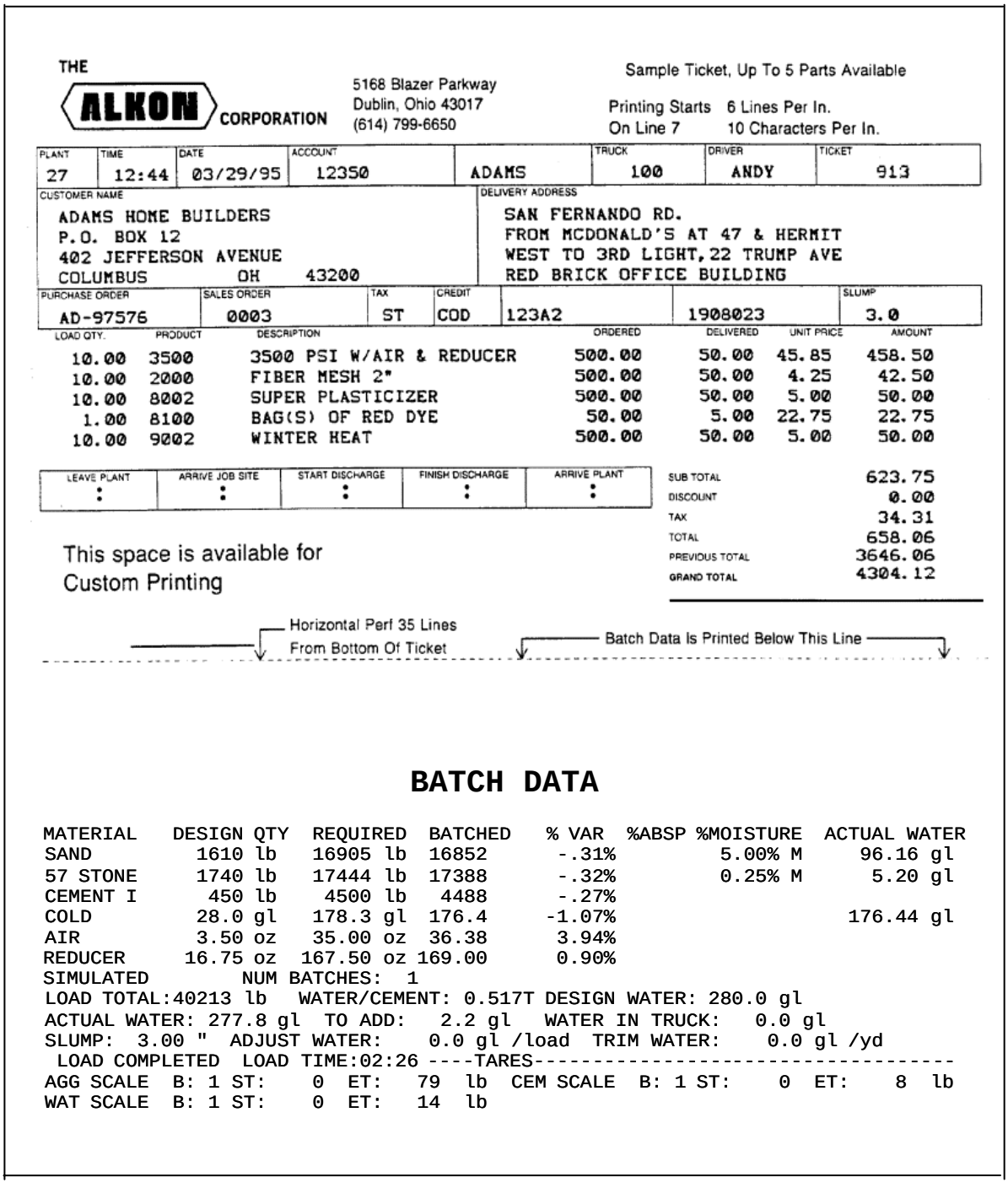
OVERVIEW

Normally, a load ticket is printed each time a batch is run. Typically, the top half of the ticket (delivery address and product information) is printed as soon as the batch starts weighing up. As soon as the batch starts discharging, batch weight information and scale tares are printed.

The reason for this two-part print process is as follows. The top portion can be torn off as soon as it is printed and given to the driver. This saves time because the batch operator doesn't have to wait for the entire ticket to be printed before he or she starts the next batch. When the batch weight portion of the ticket is printed, it can be torn off and set aside for record purposes.

A sample ticket is shown on the next page.

SAMPLE TICKET



THE ALKON CORPORATION
5168 Blazer Parkway
Dublin, Ohio 43017
(614) 799-6650

Sample Ticket, Up To 5 Parts Available
Printing Starts 6 Lines Per In.
On Line 7 10 Characters Per In.

PLANT	TIME	DATE	ACCOUNT		TRUCK	DRIVER	TICKET
27	12:44	03/29/95	12350	ADAMS	100	ANDY	913

CUSTOMER NAME
ADAMS HOME BUILDERS
P.O. BOX 12
402 JEFFERSON AVENUE
COLUMBUS OH 43200

DELIVERY ADDRESS
SAN FERNANDO RD.
FROM MCDONALD'S AT 47 & HERMIT
WEST TO 3RD LIGHT, 22 TRUMP AVE
RED BRICK OFFICE BUILDING

PURCHASE ORDER	SALES ORDER	TAX	CREDIT			SLUMP
AD-97576	0003	ST	COD	123A2	1908023	3.0

LOAD QTY.	PRODUCT	DESCRIPTION	ORDERED	DELIVERED	UNIT PRICE	AMOUNT
10.00	3500	3500 PSI W/AIR & REDUCER	500.00	50.00	45.85	458.50
10.00	2000	FIBER MESH 2"	500.00	50.00	4.25	42.50
10.00	8002	SUPER PLASTICIZER	500.00	50.00	5.00	50.00
1.00	8100	BAG(S) OF RED DYE	50.00	5.00	22.75	22.75
10.00	9002	WINTER HEAT	500.00	50.00	5.00	50.00

LEAVE PLANT	ARRIVE JOB SITE	START DISCHARGE	FINISH DISCHARGE	ARRIVE PLANT
:	:	:	:	:

SUB TOTAL	623.75
DISCOUNT	0.00
TAX	34.31
TOTAL	658.06
PREVIOUS TOTAL	3646.06
GRAND TOTAL	4304.12

This space is available for Custom Printing

Horizontal Perf 35 Lines From Bottom Of Ticket

Batch Data Is Printed Below This Line

BATCH DATA

```
MATERIAL    DESIGN QTY  REQUIRED  BATCHED   % VAR  %ABSP %MOISTURE  ACTUAL WATER
SAND          1610 lb   16905 lb  16852      -.31%         5.00% M     96.16 gl
57 STONE      1740 lb   17444 lb  17388      -.32%         0.25% M      5.20 gl
CEMENT I       450 lb    4500 lb   4488      -.27%
COLD          28.0 gl   178.3 gl  176.4     -1.07%                    176.44 gl
AIR           3.50 oz   35.00 oz  36.38      3.94%
REDUCER      16.75 oz  167.50 oz 169.00      0.90%
SIMULATED         NUM BATCHES:  1
LOAD TOTAL:40213 lb   WATER/CEMENT: 0.517T DESIGN WATER: 280.0 gl
ACTUAL WATER: 277.8 gl  TO ADD:   2.2 gl   WATER IN TRUCK:   0.0 gl
SLUMP:  3.00 "  ADJUST WATER:    0.0 gl /load  TRIM WATER:    0.0 gl /yd
 LOAD COMPLETED  LOAD TIME:02:26 ----TARES-----------------------------------
AGG SCALE  B: 1 ST:    0  ET:   79  lb  CEM SCALE  B: 1 ST:    0  ET:    8  lb
WAT SCALE  B: 1 ST:    0  ET:   14  lb
```

TOLERANCE ERROR SYMBOLS

Any or all of the symbols described below can appear on batch weight reports and on load tickets. These symbols indicate the type of tolerance errors that occurred during a batch. These symbols let the operator know if the material was out of tolerance, over- or under-tolerance, and whether re-trying the scale read had any effect on the tolerance error. The absence of these symbols means that no tolerance error occurred.

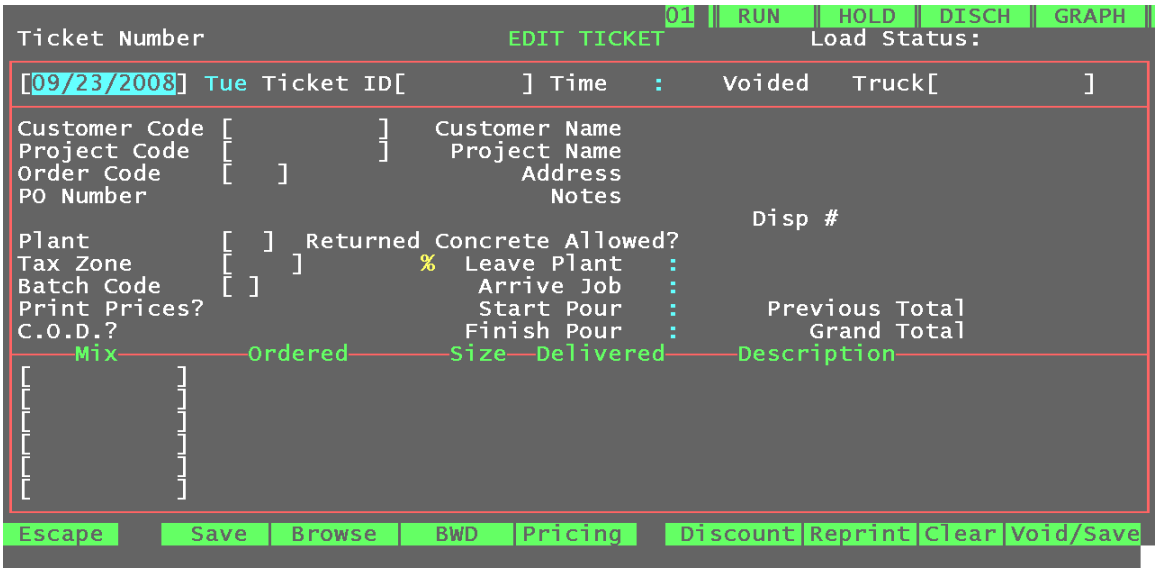
Asterisk *	Indicates that the material was either under- or over-tolerance on the first scale reading, and that the operator pressed **[F6] - Retry** from the error pop to re-read the scale. Also means that the new scale reading was, for whatever reason, back in tolerance.
Plus +	Indicates that the material went *over tolerance*, and that the operator did not press **[F6] - Retry** from the error pop to re-read the scale.
Minus –	Indicates that the material went *under tolerance*, and that the operator did not press **[F6] - Retry** from the error pop to re-read the scale.
Greater Than >	Indicates that the material went *over tolerance*, and that the operator pressed **[F6] - Retry** at least once from the error pop, but the value re-read from the scale was still out of tolerance.
Less Than <	Indicates that the material went *under tolerance*, and that the operator pressed **[F6] - Retry** at least once from the error pop, but the value re-read from the scale was still out of tolerance.

EDITING TICKET DATA

From the Edit Ticket screen, you can edit everything to be printed on the ticket except for batch weights. Procedures for editing tickets are given next.

1. Select **MAIN MENU➡DATA ENTRY➡EDIT TICKETS**. A blank **EDIT TICKET** screen appears with the cursor on the **Date** field.

Edit Ticket Screen



2. Make sure the **Date** field shows the correct date (defaults to the current date). If it does not, press **[SHIFT + TAB]** until the cursor is on this field, type the date or select it from the browse list, and press **[ENTER]**. The cursor moves to the **Ticket ID** field.
3. Type or select the correct Ticket ID from the browse list. Press **[ENTER]**. Information for that Ticket ID appears on the screen, and the cursor moves to the **Truck** field.
4. Edit fields as needed, pressing **[ENTER]** each time to move to the next field. Some fields have no browse lists. For these fields, type the new information over the old (as soon as you start typing the old information disappears).
   - To edit pricing, discount, and EN-206 information (Consistence and Ext. Desc. fields), press **[F5]** to pull up the Discounts screen.
   - To edit Truck Code, see "Editing the Truck Code After Discharge".
   - To make a local ticket a dispatch ticket, see "Making a Local Ticket a Dispatch Ticket".
5. When you are finished editing the ticket, press **[F1]** to save your changes.

MAKING A LOCAL TICKET A DISPATCH TICKET

You can turn a local ticket into a dispatch ticket if the dispatch link goes down. When the link comes back up, batch results for the edited ticket will then be available when the dispatch computer requests batch results.

To make a local ticket a dispatch ticket:

1. Select the date and Ticket ID on the Edit Tickets screen.
2. Press <Shift + F4>. The cursor moves to the Disp # field.
3. Enter a unique Dispatch Ticket Code.
4. Press <F1> to save your changes.

REPRINTING TICKETS

You can print a copy of an existing ticket. This does not affect inventory or delivered amounts. Tickets may be reprinted from either the **BATCH SETUP** or the **EDIT TICKET** screens. Use the **BATCH SETUP** to reprint the last ticket. Use the **EDIT TICKET** screen to reprint older tickets.

TO REPRINT THE LAST TICKET

1. Select **MAIN MENU➡BATCH SETUP**.
2. Press **[F1]**. The system prompts you to press **[F1]** to reprint the last ticket, or **[ESC]** to continue what you were doing.
3. Press **[F1]** to reprint the last ticket.

TO REPRINT AN OLDER TICKET

1. Select **MAIN MENU➡DATA ENTRY➡EDIT TICKETS**. A blank Edit Ticket screen appears with the cursor on the **Date** field.
2. Type or select from the browse list the desired date. Press **[ENTER]**. The cursor moves to the **Ticket ID** field.
3. Type or select from the browse list the desired Ticket ID. Press **[ENTER]**. Ticket information for the selected ticket populates the screen.
4. Press **[F6]** to reprint the ticket.

TICKET REPORTS

Examples of ticket reports are provided in the "Reports" section of this guide.

BATCH WEIGHTS

Batch weight items can be included or excluded from the batch weight information saved to hard disk and printed on tickets and batch weight reports. This is accomplished on the Batch Weight Options screen (accessed by pressing [F3] from the System Maintenance→Printer Setup screen). (See "Selecting Batch Weight Items for Printing" for more information.)

The following table describes most of the items that can be printed on batch weight reports and on tickets. (See "Reports" for an example of batch weight reports.)

COMMON ITEMS ON BATCH WEIGHT REPORTS

ITEM	DESCRIPTION
MATERIAL	Name of the ingredient as entered in the Spectrum database.
SOURCE	The first 10 characters of the Ingredient description.
DESIGN(OD) **-or-** **DESIGN QTY**	Amount of material needed to batch 1 cubic yard/meter of the mix design. DESIGN(OD) is printed for Oven Dry mixes. DESIGN QTY is printed for SSD mixes. **Note:** Moisture in SSD (Saturated Surface Dry) materials ranges from 1 to 3% above Oven Dry.
SSD	SSD Design weight.
ADJ.T	Adjusted SSD Design weight (after moistures)
REQUIRED	Amount of this material needed to batch this load. For cement and flyash, this value is equal to DESIGN QTY * LOAD SIZE. For aggregates and water, the DESIGN QTY would be adjusted for moisture in the aggregate.
BATCHED	Amount of this material actually batched.
VAR	Amount the final target varies above or below the required amount. Equal to BATCHED – REQUIRED.
% VAR	Percentage the batched amount varies above or below the required amount. Can be a negative value. Equal to (BATCHED – REQUIRED) / REQUIRED.

ITEM	DESCRIPTION
%ABSP	Percentage of moisture above Oven Dry needed to achieve SSD (Saturated Surface Dry) weight. This value comes from the Absorption field of the Ingredients screen and typically ranges from 1 to 3% above Oven Dry. **Note:** This column appears if either of the variance columns (% or amount) is turned off and "Print Material Moisture Percent?" is turned on.
%TOTMOIST	Total moisture (absorbed plus free moisture) in the aggregate material of the mix design.
ABS.WAT	Absorbed moisture in the aggregate material as set by the supplier.
TOT.WAT	Total water in the batch. Sum of free water and absorbed water.
%FREE WAT **-or-** **%MOISTURE**	Percentage of moisture detected by the probe or manually entered. %FREE WAT is printed for Oven Dry mixes. %MOISTURE is printed for SSD mixes. This value can be followed by one of the following: **M** – means the moisture value was manually entered on the Moisture edit dialog (accessed from the Batch Setup screen). **A** – means the moisture value was obtained from the automatic probe. **E** – means the system had problems obtaining the correct moisture value from the automatic probe.
FREE WATER **-or-** **ACTUAL WAT**	Weight of free water in the aggregate ingredient for Oven Dry mixes. Volume of free water in the aggregate ingredient for SSD mixes. FREE WATER is printed for Oven Dry mixes. ACTUAL WAT is printed for SSD mixes.
ABS	Calculated absorbed water in the mix per yd3 or m3.
FREE MST	Calculated free water in the mix per yd3 or m3.
TICKET SCRIPT NAME(S)	Ticket scripts to be used for the selected plant. This entry overrides the "base" scripts for the company. For more information, see the description for the Ticket Script Name(s) field in the table titled "Fields – Printer Setup Screen".

ITEM	DESCRIPTION
System Messages: **SIMULATED** **NON-SIMULATED**	 Batch was run in simulator mode. An actual batch was run.
NUM BATCHES:	Number of batches need to complete the load.
Auto HH:MM:SS **Manual HH:MM:SS**	The following scenarios determine when these fields are displayed. **If Manual Power is turned OFF during a batch**: Auto HH:MM:SS and Manual HH:MM:SS both show the Load Start Time. **If Manual Power ON at batch start (and left ON):** Auto HH:MM:SS and Manual HH:MM:SS both show the Load Start Time. **If Manual Power is turned ON during a batch:** Auto HH:MM:SS is not displayed. Manual HH:MM:SS shows the time Manual Power was turned on. **If Manual Power is OFF at batch start (and left OFF):** Auto HH:MM:SS and Manual HH:MM:SS are both not displayed. **Note:** If the Print Manual/Auto option is set to "Yes" on the Batch Weight Options screen, the name and amount of the manually fed material is printed with the batch weights.
LOAD TOTAL:	Total load weight.
DESIGN W/C:	Water/cement ratio of the amounts specified in the mix design. Equals: TOTAL WATER WGT / TOTAL CEMENT WGT
WATER/CEMENT:	Water/cement ratio of the amounts actually batched. Equals: TOTAL WATER WGT / TOTAL CEMENT WGT This ratio can be followed by one of the following codes: **T** – means you can add water up to the TO ADD amount without changing the stated water / cement ratio. **A** – means you cannot add water. This code appears if the TO ADD value is zero.
DESIGN WATER:	Amount of water needed to batch this load. Equals DESIGN QTY * LOAD SIZE.
ACTUAL WATER:	Amount of water actually used to batch this load (minus the TO ADD amount).

ITEM	DESCRIPTION
TO ADD:	Amount of water that can be added in the mixer.
SLUMP:	Slump maintained for this batch. If slump tables are not used, this value defaults to the mix's design slump.
WATER IN TRUCK:	Amount of water already in the truck.
ADJUST WATER:	Amount of water added or subtracted from this batch, besides the trim amount.
TRIM WATER:	Amount of water to be added as trim. This value is set in the **Trim** field of the Batch Setup screen.
LOAD COMPLETED LOAD TIME:	Time the batch was completely discharged into the truck (or mixer).
----TARES----------	Start Tare (ST) and End Tare (ET) for each scale used to batch this load.

TOLERANCE ERROR SYMBOLS

Any or all of the symbols described below can appear on batch weight reports and on load tickets. These symbols indicate the type of tolerance errors that occurred during a batch. These symbols let the reader know if the material was out of tolerance, over- or under-tolerance, and whether re-trying the scale read had any effect on the tolerance error. The absence of these symbols means that no tolerance error occurred.

Asterisk *	Indicates that the material was either under- or over-tolerance on the first scale reading, and that the operator pressed **[F6] - Retry** from the error pop to re-read the scale. Also means that the new scale reading was, for whatever reason, back in tolerance.
Plus +	Indicates that the material went *over tolerance*, and that the operator did not press **[F6] - Retry** from the error pop to re-read the scale.
Minus –	Indicates that the material went *under tolerance*, and that the operator did not press **[F6] - Retry** from the error pop to re-read the scale.
Greater Than >	Indicates that the material went *over tolerance*, and that the operator pressed **[F6] - Retry** at least once from the error pop, but the value re-read from the scale was still out of tolerance.
Less Than <	Indicates that the material went *under tolerance*, and that the operator pressed **[F6] - Retry** at least once from the error pop, but the value re-read from the scale was still out of tolerance.

ADVANCED BATCHING FEATURES

MULTI-BATCHING

The Spectrum can run batches automatically back to back. This is called multi-batching. There are two different ways to multi-batch, ***Continuous Run*** and ***Freewheeling***. Each of these methods is discussed in this section.

CONTINUOUS RUN

If you need to batch the same mix design over and over (used mostly for products plants), you can use the ***Continuous Run*** feature.

TO SET UP CONTINUOUS RUN:

Set the **Continuous Run?** field of the Batching Defaults screen to **Y**. The **Continuous Discharge?** field of this same screen should also be set to **Y**.

TO RUN CONTINUOUS BATCHES:

1. Start the load.
2. Press **[SHIFT + F9]**. The RUN prompt at the top of the **GRAPH** screen appears as CRUN.
3. To initiate discharge, do one of the following:
   - (For continuous discharge): press **[SHIFT + F11]**. The DISCH prompt at the top of the screen changes to CDISC. Then press **[F11]** to arm continuous discharge. (The CDISC prompt turns white.)

     - or -

   - (To discharge each batch individually): press **[F11]** any time during the batch process.

NOTES: If error pops appear for any batch, you must press **[F11]** again to reset discharge authorization.

TO STOP CONTINUOUS BATCHING:

Press **[SHIFT + F9]** while the last batch is weighing up.

☛ FREEWHEELING

Freewheeling is an optional mode that allows you to "queue" a batch while another one is running. You can queue up to 3 batches, each with a different or the same mix design. Simply put, freewheeling means that as soon as a device (e.g. scale or bottle) is emptied, it starts weighing up the next, or queued, batch.

➢ TO FREEWHEEL:

1. Select the first load from the **ORDER INDEX** or **LOAD INDEX** and send it to the **BATCH SETUP** screen. Or, pull up a mix design on the **BATCH SETUP** screen.
2. Make any necessary adjustments to the batch and press either **[F9]** or **[ALT + F9]** to queue this load for the first time.
3. Do one of the following to queue a second load:
   - Escape back to the **ORDER INDEX** or **LOAD INDEX** and send another order to the **BATCH SETUP** screen. Make any necessary adjustments and press **[ALT + F9]** to queue this load.

     - or -

   - Press **[ALT + F9]** from the **GRAPH** screen while the first load is weighing up to queue up the same mix a second time.

   (In either case, the RUN prompt at the top of the screen changes to RUN2.)
4. You can queue a third load by repeating step 3. (This time, the RUN prompt changes to RUN3.)
5. To initiate discharge, press **[F11]** any time during the batch process.

NOTES:

➔ As scales and bottles weigh up for the 1st load, an asterisk (*) appears just to the left of the device name on the **GRAPH** screen. As these devices weigh up for the 2nd and 3rd loads, a period (.) appears instead of the (*).

➔ The load number of the 2nd queued load is displayed in a cyan color at the top of the Graph screen. The 3rd load number is displayed in dark blue.

➔ If error pops appear for any batch, you must press **[F11]** again to reset discharge authorization.

QUICK LOAD

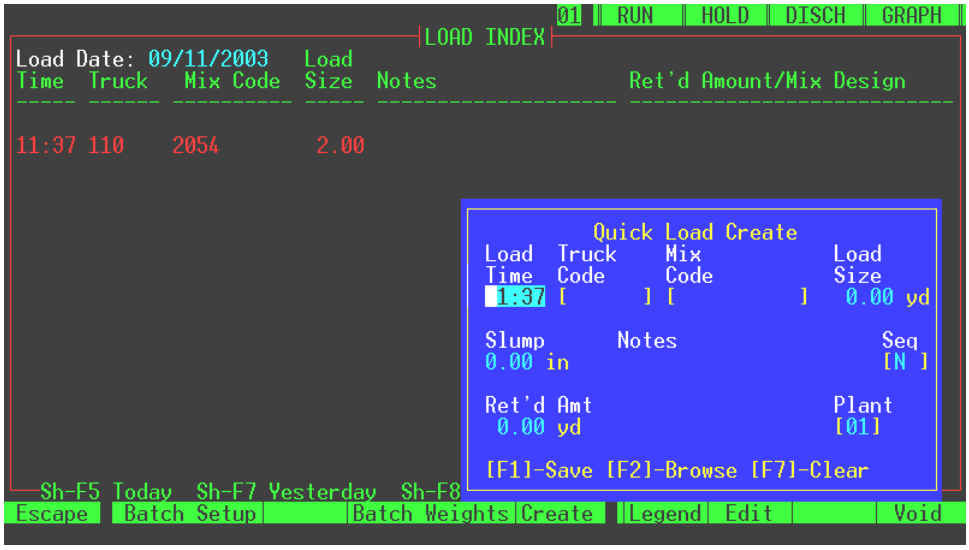
The ***Quick Load*** feature lets you enter minimal load information without using the **ORDER ENTRY** screen or waiting for the ***Dispatch*** link to send a new ticket. It is used mostly with ***Dispatch*** links. The "quick load" appears on the **LOAD INDEX** screen as soon as you save it.

When the quick load is batched, a ticket is generated but there is no customer or delivery information. However, you can add a short note to the quick load to be printed on the ticket.

TO CREATE LOAD INFORMATION USING QUICK LOAD

1. Select **MAIN MENU➡LOAD INDEX**.
2. Press **[F4]** – **Create**. The screen shown next appears.

Quick Load Screen



3. The cursor is on the **Load Time** field. Type the desired load time or press **[ENTER]** to accept the current time.
4. The cursor moves to the **Truck Code** field. Select the desired truck and press **[ENTER]**.
5. The cursor moves to the **Mix Code** field. Select the desired mix code for that ticket and press **[ENTER]**.
6. The cursor moves to the **Load Size** field. Type the load size and press **[ENTER]**.

7. The cursor moves to the **Slump** field. The default slump is displayed. Press **[ENTER]** to accept this value or type the desired value and press **[ENTER]**.
8. The cursor moves to the **Notes** field. Enter any notes that you want the batch plant operator to see and press **[ENTER]**.
9. The cursor moves to the **Seq** field. Press **[ENTER]** to accept the default or select from the browse list the appropriate sequence code and press **[ENTER]**.
10. The cursor moves to the **Ret'd Amt** field. Enter the amount of returned concrete currently on the truck and press **[ENTER]**. You may also just press **[ENTER]** to accept the default of zero in this field.
11. The cursor moves to the **Plant** field. Press **[ENTER]** to accept the default or select the desired plant and press **[ENTER]**.
12. Press **[F1]** to save the load. The load is then displayed on the **LOAD INDEX** for the selected plant. The load is displayed in red text until batched. Then it is displayed in white.

☛ TO EDIT QUICK LOAD INFORMATION:

1. On the **LOAD INDEX** screen, select the load you want to edit and press **[F6]**.

   NOTE: You cannot change the mix code or edit a load already batched.

2. Make the desired changes and press **[F1]** to save your changes.

☛ TO BATCH A QUICK LOAD BATCH:

1. On the **LOAD INDEX** screen, select the load you want to batch and press **[F1]**. The **BATCH SETUP** screen appears.
2. Following the steps given in the "Basic Steps for Automatic Batching" section, make any necessary adjustments and press **[F9]** to run the batch.

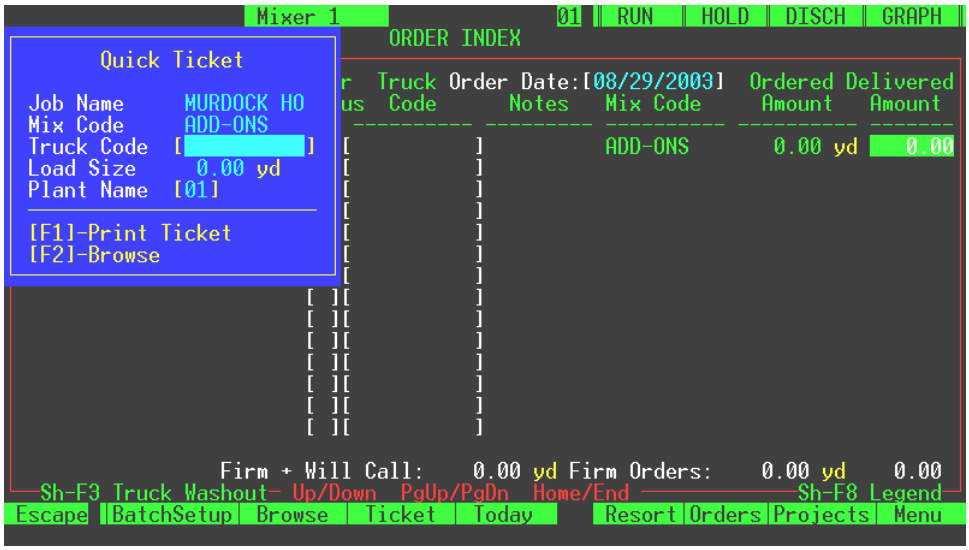
QUICK TICKET

The *Quick Ticket* function lets you print a ticket without batching a load of concrete. This function is accessed from the **ORDER INDEX** screen and is normally used for non-concrete orders. When entering a non-concrete order, the mix code should be entered as something like **NONE** or **PRODUCT** to distinguish it from orders of concrete.

To generate a Quick Ticket:

1. Enter a Mix Design with no materials. In the **Mix Code** field, enter something that identifies this mix design as being used for non-concrete orders. (Examples: **ADD-ONS**, **NONE**, **PRODUCT**.) Save this mix design.
2. Enter an order that contains the appropriate non-concrete product(s). Pull in the mix design you entered in Step 1 above. Save this order. It will appear on your **ORDER INDEX**.
3. Select **MAIN MENU➡ORDER INDEX** and select the order to quick ticket.
4. Press **[F3]**. The screen shown next appears.

Quick Ticket Box

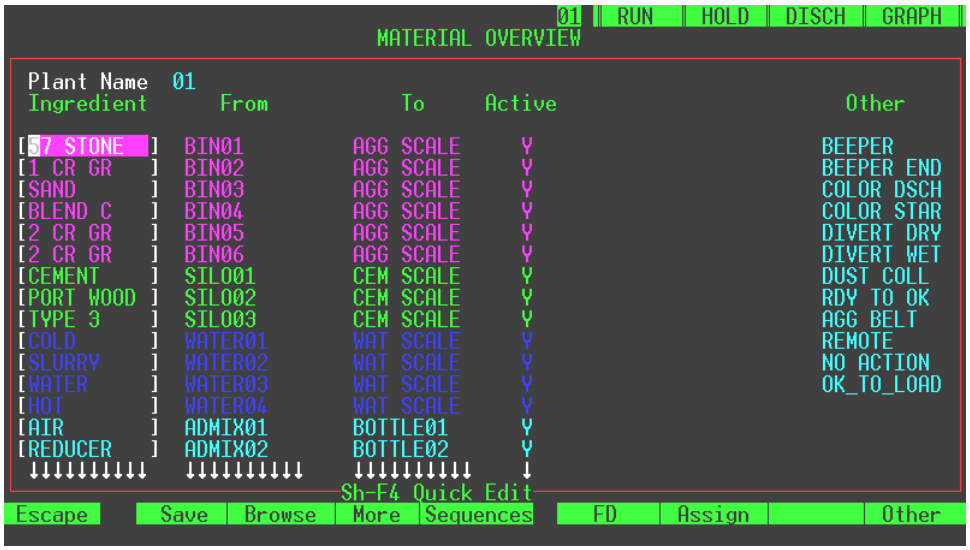


5. All information except for **Truck Code** is filled in by the system. Enter a **Truck Code** (if applicable) and press **[ENTER]**.
6. Press **[F1]** to print the ticket.

BIN SWAPPING

The **MATERIAL OVERVIEW** screen pulls information from the **MATERIAL ASSIGNMENTS** and **FEED DESTINATIONS** screens so you can see, at a glance, all bin mapping for your plant. This screen allows you to quickly change ingredients assigned to devices (known as *bin swapping*). For example, you can select the same ingredient to be fed from two different bins during fast feed. You can also turn mapping on or off for an ingredient. This should "not" be done while a batch is in progress!

Material Overview Screen



To swap ingredients for a bin/silo:

1. While a batch is "not" running, press **[F3]** from the **BATCH SETUP** screen, select "Material Overview," and press **[ENTER]**. (You can also select **MAIN MENU➡PLANT SETUP➡MATERIAL OVERVIEW**.) In either case, the **MATERIAL OVERVIEW** screen appears with the cursor on the first ingredient.
2. Arrow down to the appropriate ingredient and bin combination. Press **[F2]** to pull up a Browse list of ingredients.
3. Arrow down (or up) to the ingredient you want and press **[ENTER]**. That ingredient replaces the old one.
4. Press **[F1]** to save your changes.

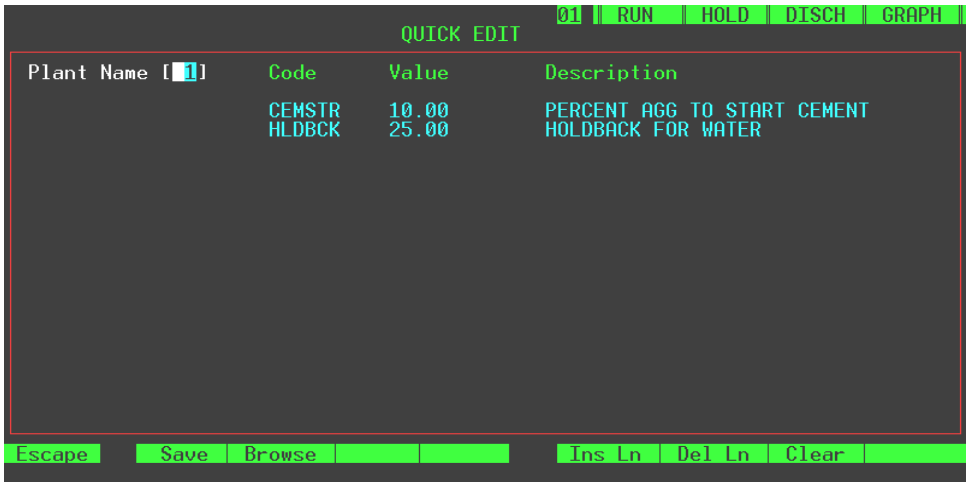
Notes:

- Your changes will take effect on the next batch if you make a change or clear the Batch Setup screen.
- You can enable/disable feeding for an ingredient-bin by selecting "N" in its **Active** field.

QUICK EDIT

On this screen, you can create and edit macros to be used in Custom Equations and Sequences. For example, the CEMSTR macro in the example below can be used in a sequence where 10 percent of the aggregate is to be fed before the cement starts. The benefit of using a macro is that you can use it several places in custom equations and sequences but only have to change its value in one place - on the Quick Edit screen.

Quick Edit Screen



FIELDS

FIELD	DESCRIPTION
Plant Name	Browseable list of plants.
Code	Name assigned to the macro. Cannot be the same name as a global I/O or a step label in a sequence.
Value	Amount or percentage associated with the macro.
Description	Literal description of the macro.

FUNCTION KEYS

FUNCTION KEY	PURPOSE
[F1] - Save	To save data you have entered or changed.
[F2] - Browse	To pull up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F5] - Ins Ln	Inserts a blank row above the current one.
[F6] - Del Ln	Deletes the current row.
[F7] - Clear	Clears all data from the screen. Be careful about using this function!

MATERIAL OVERVIEW

Once you have set up your plant (bins, scales, destinations, etc.), you can control material-bin assignments and feed/discharge parameters from one screen - the **MATERIAL OVERVIEW** screen. You can use this screen to assign/reassign materials to bins and bottles, and to activate/deactivate these devices. From this screen, you can also change feed or discharge parameters. These topics are discussed later in this section.

A description of the fields and function keys on the **MATERIAL OVERVIEW** screen is given in the tables that follow the sample screen below.

Material Overview Screen

FIELDS

FIELD	DESCRIPTION
Ingredient	Browseable list of ingredients.
From	Bin, silo, or tank to which the ingredient is assigned. **Note:** Ingredient-bin assignments can be changed by pressing **[F6]** to pull up Material Assignments screen.
To	Scale or bottle into which the "From" device discharges. **Note:** Scale or measuring device assignments can be changed by pressing **[F5]** to pull up the Feed Destinations screen.
Active	Yes/No toggle for activating/deactivating the device.

FIELD	DESCRIPTION
Other	Extra devices are listed here. **Note:** You can change the Start Delay, Pulse Time, and Clear Time for one of these devices by highlighting the device and pressing **[F3] – More** to access the appropriate screen.

☛ FUNCTION KEYS

FUNCTION KEY	PURPOSE
[SHIFT + F4]	To pull up the Quick Edit screen to change global feed sequence parameters (i.e. % of aggregate to be fed before starting cement).
[F1] - Save	To save data you have entered or changed.
[F2] - Browse	To pull up a list of possible entries. Browseable fields have these brackets **[ ]**.
[F3] - More	To pull up a subset of the Bins or Scales screen, depending on which field (**From** or **To**) is highlighted.
[F4] - Sequences	To pull up the Sequences screen.
[F5] - FD	To pull up the Feed Destinations screen.
[F6] - Assign	To pull up the Material Assignments screen.
[F8] - Other	Moves the cursor to the **Other** devices, and vice versa.

☛ TO REASSIGN INGREDIENTS

1. Select **MAIN MENU ➡PLANT SETUP ➡MATERIAL OVERVIEW**.
2. Arrow down to the desired ingredient and press **[F2]** to pull up the list of ingredients.
3. Select the new ingredient and press **[ENTER]**. The new ingredient appears in place of the old one.
4. Press **[F1]** to save your changes.

☛ TO ACTIVATE / DEACTIVATE A DEVICE

1. Select **MAIN MENU ➡PLANT SETUP ➡MATERIAL OVERVIEW**.
2. Arrow down to the row containing the desired device. Tab over to the **Active** column.
3. Use the **[SPACE BAR]** to toggle the value to either **Y** (for activate), or **N** (for deactivate).
4. Press **[F1]** to save your changes.

☛ TO CHANGE FEED AND DISCHARGE PARAMETERS

1. Select **MAIN MENU ➡PLANT SETUP ➡MATERIAL OVERVIEW**.
2. Arrow down to the row containing the desired device.
3. (For changing feed parameters): Tab over to the **From** column.

   (For changing discharge parameters): Tab over to the **To** column.
4. Press **[F3]** to pull a subset of the appropriate screen (Bins screen for feed parameters, Scales screen for discharge parameters).
5. Make changes to the appropriate feed or discharge parameters. Press **[F1]** to save your changes.
6. Press **[ESC]** to return to the Material Overview screen.

TRUCK WASHOUT

This feature lets you create a water-only mix design for washing out trucks. The procedure below assumes that a washout (WO) sequence with "skip discharge authorize" set has been created. It also assumes that items in the base sequence have been added to the WO sequence to defeat their functionality. For example, the step label "BEEPER" could be used to remove the "V DIS_AUTH" stop condition line so that the washout load will automatically discharge without authorization.

1. Create a washout mix design that has inventory tracking disabled and that uses the WO sequence.
2. Enter the mix code in the **Washout Mix** field of the System Defaults screen.
3. Initiate Truck Washout using one of the following methods:
   - From any Spectrum screen press **[ALT + T]** to load the Batch Setup screen with the washout mix design for one unit load of the washout mix. Press **[ALT + T]** a second time to start the washout batch and display the Graph screen. Discharge occurs automatically, so when washout is complete you can escape out of the Graph and Batch Setup screens to return to the screen you were on when you initiated washout.
   - Another way to initiate truck washout is by pressing **[SHIFT + F3]** from the Load Index, the Order Index, or Batch Setup screens. Pressing **[SHIFT + F3]** a second time starts the washout load the same way as described above. When truck washout is complete, you are returned to the screen from which you initiated truck washout.
   - A third way to initiate and start truck washout is to press **[F3]** from the Batch Setup screen to pull up a menu. Select "Truck Washout" from the menu and press **[ENTER]**. The washout mix is loaded onto the Batch Setup screen. Press **[F9]** to start the washout load. When washout is complete, escape back to the blank Batch Setup screen.

MIXER OPERATION (FOR PLANTS WITH MIXERS)

OVERVIEW

➔ **TO MAKE EXPLANATION SIMPLER, THIS OVERVIEW ASSUMES THE MIXER IS SET FOR AUTOMATIC OPERATION.**

To start the mixer motor, the operator presses and holds the START button until the motor starter is engaged and "locked up" through its auxiliary contacts to power provided by the normally closed STOP switch. The START switch lamp comes on and stays on once the starter is engaged.

If an I/O has been assigned to the Running Input on the Mixers screen, Spectrum checks to make sure the mixer is running. Spectrum also checks for the presence of the Tilted (Opened) signal which indicates that the mixer is empty. (NOTE: This assumes the operator has manually tilted and righted the mixer once). When the mixer is empty and running, the name of the mixer (i.e. MIXER) appears at the top of the Spectrum screen.

Spectrum can now load the mixer. As this happens, the name of the mixer at the top of the screen is replaced by the LOADING status message. When loading is complete, the LOADING message is replaced by the MIXING TIME message. Remaining mix time is displayed just to the right of this status message.

Note: The system uses the **Mixer Time** as set in the mix design. If no mix time was entered in the mix design, the system uses the **Mixing Time** value from the **Mixers** screen.

When **Mixing Time** expires, and the necessary interlocks are met (shroud, diverter, etc.), the MIXING TIME status message is replaced by OPENING then OPENED then DISCHARGING. Assuming the mixer is set for Automatic operation, discharge occurs as controlled by the Partial Open Time, Partial Open Pause, Full Open Time, and Discharge Time.

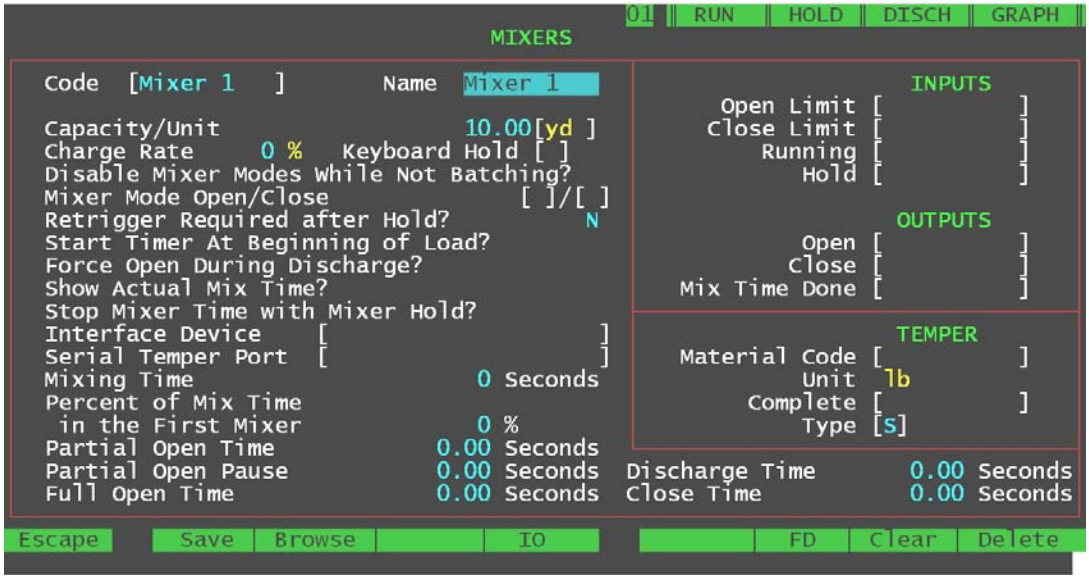
Once Discharge Time expires, the status message changes to CLOSING as the mixer moves from the fully open to the fully closed position. The mixer is now ready for another batch.

Note: If the load size exceeds the mixer's capacity, the mixer multi-batches the load.

MIXERS SCREEN

On this screen, you can enter parameters and the operating mode for mixers. Up to three mixers can be configured.

Mixers Screen



FIELDS

FIELD	DESCRIPTION
Code	Browseable list of mixers.
Name	Description of the mixer.
Capacity/Unit	Maximum capacity for this mixer in this unit of measure (e.g. 10.00 cubic yards).
Charge Rate	Percentage of the system discharge rate that this mixer can handle. This percentage can be higher than the normal charging rate (say, 150%) because mixers can accept material at a higher charge rate than trucks can.
Keyboard Hold	Browseable list of function keys. The one selected can be used on the Graph screen to hold this mixer.
Disable Mixer Modes While Not Batching?	Yes/No field enables/disables automatic mixer operation if a batch is not in progress.

FIELD	DESCRIPTION
Mixer Mode Open/Close	Browseable list of modes of operation for the Open and Close functions of this mixer. There are two fields – one for Open and one for Close. The choices for each are: **O** – for offline **M** – for Manual (operator presses and holds down on the button) **T** – for Triggered (operator presses and releases the button) **A** – for Automatic
Retrigger Required after Hold?	Yes/No field. **Y** – if the mixer is put on hold while tilting, you must press the Tilt button after releasing the Hold button to resume tilting. **N** – if the mixer is put on hold while tilting, the mixer will resume tilting once you release the Hold button.
Start Timer At Beginning of Load?	Yes/No field. **Y** – means the timer starts when the first bit of material reaches the mixer. **N** – means the timer starts after all material has been loaded into the mixer.
Force Open During Discharge?	Used for a single-action gate. Works the same way as a scale by holding the gate open during discharge and then releasing it.
Show Actual Mix Time?	Yes/No field. If you open the mixer before mix time expires, do you want that time printed on the ticket or the original mix time? **Y** – means print the actual mix time on the ticket. **N** – means print the original mix time on the ticket.
Stop Mixer Time with Mixer Hold?	Yes/No field. **Y** – means the mixer timer stops counting when the mixer is put into hold. **N** – means the mixer timer keeps counting when the mixer is put into hold.
Interface Device	When an external moisture control device is attached as a serial device, you can select it in this field.
Serial Temper Port	When an external temper control device is attached as a serial device, you can select it in this field.
Mixing Time	Default length of time, in seconds, that the mixer mixes a load. This time is used on the Batch Setup and Mix Designs screens as the default mixer time.

FIELD	DESCRIPTION
Percent of Mix Time in the First Mixer	Used for a shrink mixer. This means you can designate a certain percentage of the mix time to occur while the material is in the first (barrel) mixer before the material goes to the (tilt) mixer.
Partial Open Time	Length of time, in seconds, required for the mixer to open partially from the closed position.
Partial Open Pause	Length of time, in seconds, the mixer remains partially open. Because trucks cannot accept material as quickly as the mixer can dump it, the mixer is only partially opened when it starts to load the truck. Then, after some of the material is in the truck, the mixer will open fully.
Full Open Time	Maximum length of time, in seconds, the system waits for the Open limit to be met before giving a warning message. If this time is left at zero, no warning message will be given.
Discharge Time	Length of time, in seconds, that the mixer remains fully open.
Close Time	Maximum length of time, in seconds, the system waits for the Closed limit to be met before giving a warning message. If this time is left at zero, no warning message will be given.
INPUTS	
Open Limit	Browseable list of I/O addresses for the limit switch that indicates when the mixer is in the "tilted" position.
Close Limit	Browseable list of I/O addresses for the limit switch that indicates when the mixer is in the "righted" position.
Running	Browseable list of I/O addresses for the switch that signals when the mixer is running. If material is loaded into a mixer that is not running, it may not be possible to start the mixer due to the added weight of the material.
Hold	Browseable list of I/O addresses for the HOLD button on the manual station. Pressing the HOLD button stops the automatic dumping of material from the mixer into the truck.
OUTPUTS	
Open	Browseable list of I/O addresses for the "tilt" signal sent from the system to the mixer.
Close	Browseable list of I/O addresses for the "righted" signal sent from the system to the mixer.
Mix Time Done	Browseable list of I/O addresses for the signal sent from the system to the mixer when mix time has expired.
TEMPER	

FIELD	DESCRIPTION
Material Code	Browseable list of names for materials to be tempered (usu. Water).
Unit	Read-only field that shows the unit of measure used for the material to be tempered (usu. gl).
Complete	Browseable list of I/O addresses for the input that signals when temper is complete. You can select the same I/O point as the Tilt Limit so that when the mixer is done tilting, the temper stops.
Type	Temper device type. **C** (counter), or **S** (scale).

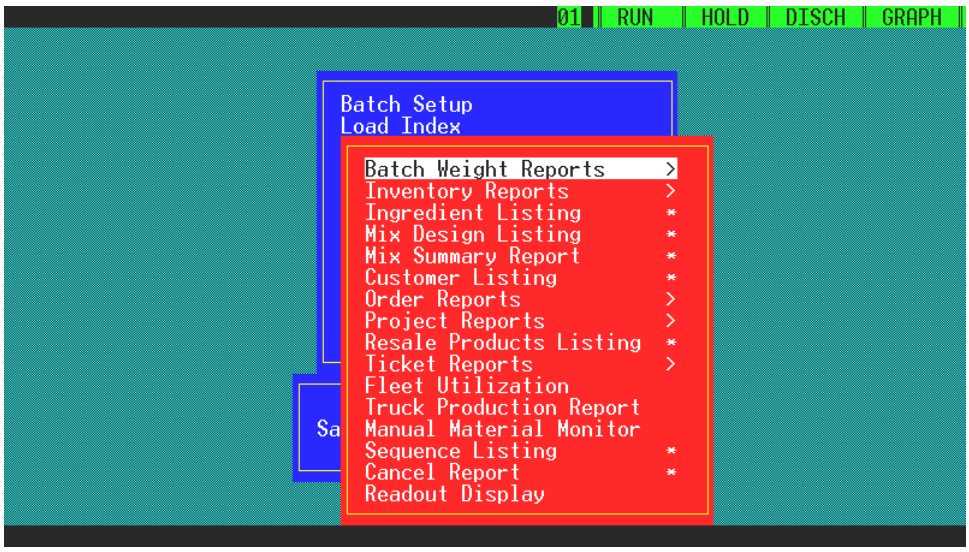
REPORTS

The Spectrum allows you to generate reports pertaining to batch weights, inventory, ingredients, mix designs, customers, orders, projects, resale products, tickets, trucks, sequences, and manual material usage. Reports are printed at the node destination selected for the Report printer on the **PLANTS** screen. A sample of each report is provided in this section.

PRINTING REPORTS

1. Select **MAIN MENU➡REPORTS**. The **REPORTS MENU** appears.

Reports Menu



2. Select the report or report category and press **[ENTER]**.
   - When you select an item having an asterisk (*) next to it and press **[ENTER]**, the report is generated and sent to the printer.
   - When you select an item having a greater-than sign (>) next to it and press **[ENTER]**, a submenu appears.
   - For some reports, all you have to do is select them from the submenu and press **[ENTER]** to print them.
   - For others, when you select them from the submenu and press **[ENTER]**, another screen appears so you can enter a date range and/or other parameters (e.g. order status). You can then press **[F1]** to print the report.
   - When you select an item with nothing next to it and press **[ENTER]**, another screen appears so you can select a date range and/or other parameters. After you do this and press **[F1]**, the report is printed.

CANCELING PRINTING OF ALL REPORTS

If you decide to cancel the printing of all reports being generated, select **MAIN MENU➡REPORTS MENU➡CANCEL REPORT** and press **[ENTER]**. A message appears to inform you that all reports were cancelled and that information already sent to the printer may still print.

NOTE: You cannot cancel the printing of individual reports.

DISPLAY BATCH WEIGHTS REPORT

Note: The sample report below does not contain all the items that can be printed. For a more complete list, see "Common Items on Batch Weight Reports".

1. Select **Main Menu ➡Reports ➡Batch Weight Reports ➡Display Batch Weights**. A selection screen appears with the cursor on the **Load Date** field and today's date already entered by default.
2. To view batch weights for dates other than today, enter the appropriate date in MMDDYYYY format (the system supplies the slashes "/") and press **[ENTER]**. Or, press **[F2]** to pull up a list of dates, highlight the appropriate date, and press **[ENTER]**.
3. Tab over to the **Load ID** field. Press **[F2]** to pull up a list of load ID's for the selected date.
4. Highlight the appropriate load ID from the list. As soon as you press **[ENTER]**, the Batch Weights Report appears for that load ID.
5. To view batch weights for other load ID's for the selected date, press **[PAGE UP]** or **[PAGE DOWN]**.
6. Press **[F1]** to send the report for the selected load ID to the printer. An example is shown below.

```
================================================================================
Monday, September 25, 2000        13:44
                        ***  BATCH WEIGHTS REPORT  ***
                        for load       427
                        thru load      427
================================================================================

CUSTOMER                                TICKET NO     LOAD NO      PLANT NAME
LINDSEY CONST                              8898         8908      01
TRUCK       USER LOGIN  DRIVER          TICKET NUM  TICKET ID  TIME      DATE
            ALKON                            8898        336  13:41  09/25/2000
LOAD SIZE   MIX CODE                                          SEQ   LOAD ID
10.00 yd    3500                                               W        427
MATERIAL    DESIGN QTY   REQUIRED  BATCHED   % VAR  %ABSP %MOISTURE  ACTUAL WAT
SAND          1610 lb   16905 lb  16852      -.31%         5.00% M    96.16 gl
57 STONE      1740 lb   17444 lb  17388      -.32%         0.25% M     5.20 gl
CEMENT I       450 lb    4500 lb   4488      -.27%
COLD          28.0 gl   178.3 gl  176.4     -1.07%                    176.44 gl
AIR           3.50 oz   35.00 oz  36.38      3.94%
REDUCER      16.75 oz  167.50 oz 169.00      0.90%
SIMULATED         NUM BATCHES:  1
LOAD TOTAL:40213 lb   WATER/CEMENT: 0.517T DESIGN WATER: 280.0 gl
ACTUAL WATER: 277.8 gl  TO ADD:   2.2 gl   WATER IN TRUCK:   0.0 gl
SLUMP:  3.00 "  ADJUST WATER:    0.0 gl /load  TRIM WATER:    0.0 gl /yd
 LOAD COMPLETED  LOAD TIME:02:26 ----TARES-----------------------------------
AGG SCALE  B: 1 ST:    0  ET:   79  lb  CEM SCALE  B: 1 ST:    0  ET:    8  lb
WAT SCALE  B: 1 ST:    0  ET:   14  lb
```

NOTE: When oven dry mixes are used, the %MOISTURE and ACTUAL WAT column labels will read **%FREE WAT** and **FREE WATER**, respectively.

BATCH WEIGHTS REPORT (BY DATE)

Note: The sample report below does not contain all the items that can be printed. For a more complete list, see "Common Items on Batch Weight Reports".

1. Select **Main Menu ➡Reports ➡Batch Weight Reports ➡Batch Weights by Date**. A selection screen appears with the cursor on the **Start Date** field. By default, today's date is already entered in this field, as well as in the **End Date** field.
2. To view batch weights for dates other than today, enter the appropriate date (in MMDDYYYY format – the system supplies the slashes "/") and press **[ENTER]**.

   Or, press **[F2]** to pull up a list of dates, highlight the appropriate date, and press **[ENTER]**.
3. Tab down to the **End Date** field. Repeat the process given in Step 2.
4. Press **[F1]** to send the report to the printer. An example is shown below. Note that only the results for one batch are shown – the report would normally consist of many batch results.

```
================================================================================
Tuesday, September 26, 2000      13:28
                          ***  BATCH WEIGHTS REPORT  ***
                          for Tuesday, September 26, 2000
                          thru Tuesday, September 26, 2000
================================================================================

CUSTOMER                                  TICKET NO     LOAD NO     PLANT NAME
BATCH SETUP                                  8899         8909     01
TRUCK       USER LOGIN   DRIVER          TICKET NUM  TICKET ID  TIME     DATE
779         ALKON        RICHARD              8899        337  13:17  09/26/2000
LOAD SIZE   MIX CODE                                          SEQ   LOAD ID
10.00 yd    3500                                             W        429
MATERIAL    DESIGN QTY   REQUIRED  BATCHED   % VAR  %ABSP  %MOISTURE  ACTUAL WAT
SAND          1610 lb    16905 lb  16880      -.15%          5.00% M    96.32 gl
57 STONE      1740 lb    17444 lb  17414      -.17%          0.25% M     5.20 gl
CEMENT I       450 lb     4500 lb   4482      -.40%
COLD          28.0 gl    178.3 gl  176.4     -1.07%                     176.36 gl
AIR           3.50 oz    35.00 oz  36.38      3.94%
REDUCER     16.75 oz   167.50 oz 169.00      0.90%
SIMULATED         NUM BATCHES:  1
LOAD TOTAL:40261 lb   WATER/CEMENT: 0.517T DESIGN WATER: 280.0 gl
ACTUAL WATER: 277.9 gl  TO ADD:   2.1 gl   WATER IN TRUCK:   0.0 gl
SLUMP:  3.00 "  ADJUST WATER:    0.0 gl /load  TRIM WATER:    0.0 gl /yd
 LOAD COMPLETED  LOAD TIME:02:27 ----TARES-----------------------------------
AGG SCALE  B: 1 ST:    0  ET:   94  lb  CEM SCALE  B: 1 ST:    0  ET:   12  lb
WAT SCALE  B: 1 ST:    0  ET:   14  lb
```

NOTE: When oven dry mixes are used, the %MOISTURE and ACTUAL WAT column labels will read **%FREE WAT** and **FREE WATER**, respectively.

BATCH WEIGHTS REPORT (BY LOAD)

Note: The sample report below does not contain all the items that can be printed. For a more complete list, see "Common Items on Batch Weight Reports".

1. Select **Main Menu ➡Reports ➡Batch Weight Reports ➡Batch Weights by Load**. A selection screen appears with cursor on the **Start Load** field.
2. Enter the appropriate load ID and press **[ENTER]**.

   Or, press **[F2]** to pull up a list of load ID's, highlight the appropriate ID, and press **[ENTER]**.
3. Tab down to the **End Load** field. Repeat the process given in Step 2.
4. Press **[F1]** to send the report to the printer. An example is shown below.

```
================================================================================
Monday, September 25, 2000        13:44
                        ***  BATCH WEIGHTS REPORT  ***
                        for load       427
                        thru load      427
================================================================================

CUSTOMER                                TICKET NO     LOAD NO     PLANT NAME
LINDSEY CONST                              8898         8908     01
TRUCK       USER LOGIN  DRIVER          TICKET NUM  TICKET ID  TIME     DATE
            ALKON                          8898        336  13:41  09/25/2000
LOAD SIZE   MIX CODE                                          SEQ   LOAD ID
10.00 yd    3500                                               W        427
MATERIAL   DESIGN QTY  REQUIRED  BATCHED   % VAR  %ABSP %MOISTURE  ACTUAL WAT
SAND         1610 lb   16905 lb  16852      -.31%          5.00% M    96.16 gl
57 STONE     1740 lb   17444 lb  17388      -.32%          0.25% M     5.20 gl
CEMENT I      450 lb    4500 lb   4488      -.27%
COLD         28.0 gl   178.3 gl  176.4     -1.07%                     176.44 gl
AIR          3.50 oz   35.00 oz  36.38      3.94%
REDUCER     16.75 oz  167.50 oz 169.00      0.90%
SIMULATED         NUM BATCHES:  1
LOAD TOTAL:40213 lb   WATER/CEMENT: 0.517T DESIGN WATER: 280.0 gl
ACTUAL WATER: 277.8 gl  TO ADD:   2.2 gl   WATER IN TRUCK:   0.0 gl
SLUMP:  3.00 "  ADJUST WATER:    0.0 gl /load  TRIM WATER:    0.0 gl /yd
 LOAD COMPLETED  LOAD TIME:02:26 ----TARES-----------------------------------
AGG SCALE  B: 1 ST:    0  ET:   79  lb  CEM SCALE  B: 1 ST:    0  ET:    8  lb
WAT SCALE  B: 1 ST:    0  ET:   14  lb
```

NOTE: When oven dry mixes are used, the %MOISTURE and ACTUAL WAT column labels will read **%FREE WAT** and **FREE WATER**, respectively.

INCOMING INVENTORY REPORT

```
==========================================================================
Tuesday, April 18, 2000            10:58                          PAGE   1
                     ***  INCOMING INVENTORY REPORT  ***
                      for  Tuesday, April 18, 2000
                      thru Tuesday, April 18, 2000
==========================================================================
                Incoming Inventory for Material:DARACCEL
  Date  Time  Plant  Bin/Tank   Amount   Units   Supplier        Receipt Number
==========================================================================
Apr. 18 10:57  01  ADMIX07         5000.00 oz   ED'S ADMIXES     26

Subtotal Supplier ED'S ADMIX:      5000.00 oz
--------------------------------------------------------------------------

Total Amount for DARACCEL   :      5000.00 oz
==========================================================================
                Incoming Inventory for Material:TYPE 3
  Date  Time  Plant  Bin/Tank   Amount   Units   Supplier        Receipt Number
==========================================================================
Apr. 18 10:56  01  SILO03        100000.00 lb   ED'S CEMENTS     25

Subtotal Supplier ED'S CEMEN:    100000.00 lb
--------------------------------------------------------------------------

Total Amount for TYPE 3     :    100000.00 lb
==========================================================================
                           ***  END OF REPORT  ***
```

MATERIAL USAGE BY MATERIAL

Select Time Period: 1 for Day, 2 for Week, 3 for Month, or 4 for Year.
Example below shows Today's Totals.

```
================================================================================
Friday, November 1, 2002          14:37                                PAGE   1
                       ***  USAGE BY MATERIAL REPORT  ***
                                 TODAY'S TOTALS
                              Run from plant: 01
Last Cleared Time/Date 06/26/2002 11:27
================================================================================
INGREDIENT   REQUIRED         AUTO-BATCHED     ERROR (%)    ON HAND
1 A'S              0.00 lb          0.00 lb      0.00          0.00 lb
1 CR GR       151525.88 lb     151044.81 lb      -.32     9505017.00 lb
1 CR ST C     113710.73 lb     113453.53 lb      -.23     3342546.50 lb
1 RD GR            0.00 lb          0.00 lb      0.00          0.00 lb
2 CR GR       165938.86 lb     165177.44 lb      -.46      589758.56 lb
BLEND C       298628.78 lb     297123.34 lb      -.50     4265181.50 lb
GRAV-BLEND    431620.38 lb     429798.09 lb      -.42     4890358.00 lb
SAND TCG     1002252.94 lb     998015.50 lb      -.42     6545947.50 lb
CEMENT          8100.00 lb       8081.39 lb      -.23     6585320.50 lb
FINE AGG L         0.00 lb          0.00 lb      0.00     2386523.00 lb
FLYASH             0.00 lb          0.00 lb      0.00          0.00 lb
PORT ST M          0.00 lb          0.00 lb      0.00          0.00 lb
PORT WOOD     311306.94 lb     309609.78 lb      -.55      290390.31 lb
PORTWOOD L         0.00 lb          0.00 lb      0.00          0.00 lb
TYPE 3             0.00 lb          0.00 lb      0.00          0.00 lb
COLD          103567.38 gl     100652.62 gl     -2.81      733899.25 gl
HOT                0.00 lb          0.00 lb      0.00          0.00 lb
100 XR             0.00 oz          0.00 oz      0.00          0.00 oz
220-N           5813.88 oz       5868.00 oz      0.93       22532.00 oz
DARACCEL           0.00 oz          0.00 oz      0.00          0.00 oz
DARACEM 55         0.00 oz          0.00 oz      0.00       5000.00 oz
MB-VR           1633.61 oz       1667.50 oz      2.07       28332.50 oz
MICRO AIR       2089.02 oz       2201.00 oz      5.36        7799.00 oz
POZZ             307.80 oz        309.00 oz      0.39       19691.00 oz
POZZUTEC           0.00 oz          0.00 oz      0.00       10000.00 oz
RHEOBUILD          0.00 oz          0.00 oz      0.00       22000.00 oz
                          ***  END OF REPORT  ***
```

MATERIAL USAGE BY PLANT

Select Time Period: 1 for Day, 2 for Week, 3 for Month, or 4 for Year.
Example below shows Today's Totals.

Friday, November 1, 2002 14:40

*** USAGE BY PLANT ***
TODAY'S TOTALS
PLANT: 01

Last Cleared Time/Date 06/26/2002 11:31

INGREDIENT	LOCATION	ON HAND	REQUIRED	AUTO-BATCHED	ERROR (%)	MANUAL	TOTAL BATCHED	MATERIAL USAGE COST
1 CR GR	BIN02	9505019.00 lb	151525.84 lb	151044.81 lb	-.32	0.00 lb	151044.81 lb	755.21
1 CR ST C	BIN01	3342546.50 lb	113710.73 lb	113453.53 lb	-.23	0.00 lb	113453.53 lb	678.40
2 CR GR	BIN06	589758.56 lb	165938.86 lb	165177.44 lb	-.46	0.00 lb	165177.44 lb	789.73
BLEND C	BIN04	4265180.50 lb	298628.78 lb	297123.34 lb	-.50	0.00 lb	297123.34 lb	1240.11
GRAV-BLEND	BIN05	4882801.00 lb	439199.34 lb	437356.22 lb	-.42	0.00 lb	437356.22 lb	2015.01
SAND TCG	BIN03	6545946.50 lb	1002252.94 lb	998015.50 lb	-.42	0.00 lb	998015.50 lb	2105.67
CEMENT	SILO01	6585320.50 lb	8100.00 lb	8081.39 lb	-.23	0.00 lb	8081.39 lb	898.10
PORT WOOD	SILO02	288288.81 lb	313421.94 lb	311711.19 lb	-.55	0.00 lb	311711.19 lb	1540.86
TYPE 3	SILO03	0.00 lb	0.00 lb	0.00 lb	0.00	0.00 lb	0.00 lb	0.00
COLD	WATER01	733899.38 gl	103567.39 gl	100652.62 gl	-2.81	0.00 gl	100652.62 gl	0.00
100 XR	ADMIX04	0.00 oz	0.00 oz	0.00 oz	0.00	0.00 oz	0.00 oz	0.00
220-N	ADMIX02	22487.00 oz	5856.19 oz	5913.00 oz	0.97	0.00 oz	5913.00 oz	298.56
DARACCEL	ADMIX07	0.00 oz	0.00 oz	0.00 oz	0.00	0.00 oz	0.00 oz	0.00
DARACEM 55	ADMIX01	5000.00 oz	0.00 oz	0.00 oz	0.00	0.00 oz	0.00 oz	0.00
MB-VR	ADMIX05	28332.50 oz	1633.61 oz	1667.50 oz	2.07	0.00 oz	1667.50 oz	185.49
MICRO AIR	ADMIX06	7776.00 oz	2135.37 oz	2224.00 oz	4.15	0.00 oz	2224.00 oz	145.32
POZZ	ADMIX03	19691.00 oz	307.80 oz	309.00 oz	0.39	0.00 oz	309.00 oz	67.35
POZZUTEC	ADMIX08	10000.00 oz	0.00 oz	0.00 oz	0.00	0.00 oz	0.00 oz	0.00
RHEOBUILD	ADMIX09	22000.00 oz	0.00 oz	0.00 oz	0.00	0.00 oz	0.00 oz	0.00

*** END OF REPORT ***

MATERIAL USAGE BY BIN

Select Time Period: 1 for Day, 2 for Week, 3 for Month, or 4 for Year.
Example below shows Today's Totals.

```
================================================================================
Friday, November 1, 2002          14:51
                          ***  USAGE BY BIN REPORT  ***
                               TODAY'S TOTALS
                                   PLANT: 01
Last Cleared Time/Date 06/26/2002 11:27
================================================================================
   CODE      DEVICE   UNITS  REQUIRED     MANUAL      BATCHED     ON HAND
BLEND C    BIN04      lb       298628.8         0.0     297123.3   4265180.5
GRAV-BLEND BIN05      lb       439199.3         0.0     437356.2   4882801.0
1 CR GR    BIN02      lb       151525.8         0.0     151044.8   9505019.0
1 CR ST C  BIN01      lb       113710.7         0.0     113453.5   3342546.5
SAND TCG   BIN03      lb      1002252.9         0.0     998015.5   6545946.5
RHEOBUILD  ADMIX09    oz            0.0         0.0          0.0     22000.0
POZZUTEC   ADMIX08    oz            0.0         0.0          0.0     10000.0
220-N      ADMIX02    oz         5856.2         0.0       5913.0     22487.0
DARACCEL   ADMIX07    oz            0.0         0.0          0.0         0.0
MICRO AIR  ADMIX06    oz         2135.4         0.0       2224.0      7776.0
MB-VR      ADMIX05    oz         1633.6         0.0       1667.5     28332.5
100 XR     ADMIX04    oz            0.0         0.0          0.0         0.0
DARACEM 55 ADMIX01    oz            0.0         0.0          0.0      5000.0
POZZ       ADMIX03    oz          307.8         0.0        309.0     19691.0
CEMENT     SILO01     lb         8100.0         0.0       8081.4   6585320.5
COLD       WATER01    gl       103567.4         0.0     100652.6    733899.4
2 CR GR    BIN06      lb       165938.9         0.0     165177.4    589758.6
TYPE 3     SILO03     lb            0.0         0.0          0.0         0.0
PORT WOOD  SILO02     lb       313421.9         0.0     311711.2    288288.8
                            ***  END OF REPORT  ***
```

MIX INVENTORY

Select Time Period: 1 for Day, 2 for Week, 3 for Month, or 4 for Year.
Example below shows Today's Totals.

```
================================================================================
Tuesday, April 18, 2000              12:58                              PAGE   1
                          ***  MIX INVENTORY REPORT  ***
                                   TODAY'S TOTALS
                             PLANT: 01  BATCH UNITS: yd
================================================================================


                   **** ACTIVITY  TODAY   ****    ****** TOTAL  ACTIVITY  ******
  MIX CODE         RETURNED    BATCHED    LOADS     RETURNED    BATCHED
LOADS
--------------    ----------- ----------- ------  ----------- ----------- ------

1600       yd           0.00       12.00      3          0.00       12.00      3
1900       yd           0.00        2.00      1          0.00      104.00     31
2000       yd           0.50       10.50      3          0.50       54.50     17



                   **** ACTIVITY  TODAY   ****    ****** TOTAL  ACTIVITY  ******
                   RETURNED    BATCHED    LOADS     RETURNED    BATCHED    LOADS
                  ----------- ----------- ------  ----------- ----------- ------
GLOBAL TOTAL yd          0.50       24.50      7          0.50      255.50    158
                              ***  END OF REPORT  ***
```

RESALE PRODUCT INVENTORY

Select Time Period: 1 for Day, 2 for Week, 3 for Month, or 4 for Year.
Example below shows Today's Totals.

```
================================================================================
March 23, 2000                         12:13                              PAGE   1
                   ***  RESALE PRODUCT INVENTORY REPORT ***
                                TODAY'S TOTALS
                         PLANT: 01           USER: ALKON
================================================================================


                 -- SHIPPED  TODAY  --         --- TOTAL SHIPPED ---
    PRODUCT      ON-HAND      QUANTITY               QUANTITY
-------------- ------------ ------------           ------------

0532              524,288.4          0.0                    0.0
505                    84.5          0.0                    0.0
510                     308          0.0                    0.0
512                     125          0.0                    0.0
516                     156          0.0                    0.0
519                     0.0          0.0                    0.0
553         oz          0.0          0.0                    0.0
554         oz      6,000.0          0.0                    0.0
555         bag        62.0         18.0                   18.0
SANDRESALE lb  *   SAND TCG          0.0                    0.0
 (*) denotes that the on-hand amount for the product is tracked in the
     ingredient displayed.

                            ***  END OF REPORT  ***
```

AVERAGE MOISTURE REPORT

When you run the report from the Reports Menu, select a Date and Time Range. The End of Day and End of Week processes automatically run the report for the current day and week, respectively.

The example below shows totals for two days, 02/16/2004 through 02/18/2004.

```
================================================================================
Tuesday, April 18, 2000                                                   10:58
                          ***  AVERAGE MOISTURE REPORT  ***
                               FROM: 02/16/2004 08:00
                                 TO: 02/17/2004 18:00
================================================================================
MATERIAL          BATCHED          FREE        SSD          TOTAL        TOTAL
                                   WATER      MOIST.        WATER        MOIST.
--------------------------------------------------------------------------------
1 CR GR        149300 lb         370 lb      0.25 %       370 lb       0.25 %
SAND           264190 lb       12580 lb      5.00 %     12580 lb       5.00 %

                          ***  END OF REPORT  ***
```

INGREDIENT LISTING

Thursday, March 23, 2000 12:13 PAGE 1

*** INGREDIENT LISTING ***

PRODUCT	DESCRIPTION	COST	ON-HAND	TOTAL COST
1 A'S	1 A'S	0.00/lb	0 lb	0.00
1 CR GR	1 CR GR	0.00/lb	9,505,017 lb	0.00
1 CR ST C	1 CR ST C	0.00/lb	3,342,546 lb	0.00
1 RD GR	1 RD GR	0.00/lb	0 lb	0.00
100 XR	100 XR	0.00/oz	0 oz	0.00
2 CR GR	2 CR GR	0.00/lb	589,759 lb	0.00
220-N	220-N	0.00/oz	22,532 oz	0.00
BLEND C	BLEND C	0.00/lb	4,265,182 lb	0.00
CEMENT	CEMENT	0.00/lb	6,585,320 lb	0.00
COLD	COLD	0.00/gl	733,899 gl	0.00
DARACCEL	DARACCEL	0.00/oz	0 oz	0.00
DARACEM 55	DARACEM 55	0.00/oz	5,000 oz	0.00
FINE AGG L	FINE AGG L	0.00/lb	2,386,523 lb	0.00
FLYASH	FLYASH	0.00/lb	0 lb	0.00
GRAV-BLEND	GRAV-BLEND	0.00/lb	4,890,358 lb	0.00
HOT	HOT WATER	0.00/lb	0 lb	0.00
MB-VR	MB-VR	0.00/oz	28,332 oz	0.00
MICRO AIR	MICRO AIR	0.00/oz	7,799 oz	0.00
PORT ST M	PORT ST M	0.00/lb	0 lb	0.00
PORT WOOD	PORT WOOD	0.00/lb	290,390 lb	0.00
PORTWOOD L	PORTWOOD L	0.00/lb	0 lb	0.00
POZZ	POZZ	0.00/oz	19,691 oz	0.00
POZZUTEC	POZZUTEC	0.00/oz	10,000 oz	0.00
RHEOBUILD	RHEOBUILD	0.00/oz	22,000 oz	0.00
SAND TCG	SAND TCG	0.00/lb	6,545,948 lb	0.00
TYPE 3	TYPE 3	0.00/lb	0 lb	0.00

*** END OF REPORT ***

MIX DESIGN LISTING

Only the first few mix designs of many is shown below.

```
==========================================================================
Thursday, March 23, 2000            12:13                        PAGE   1

                            ***  MIX DESIGNS  ***

==========================================================================


NAME:  1000         DESCRIPTION:  NYSDOT CLASS A                          yd

     INGREDIENT       AMOUNT
     ----------   ---------------
     BLEND C       1887.0000 lb
     SAND TCG      1043.0000 lb
     PORT WOOD      606.0000 lb
     COLD           265.0000 gl
     MB-VR            2.7500 /C
     220-N            2.0000 /C
     POZZ             0.0000 oz
     100 XR           0.0000 oz
     DARACCEL         0.0000 oz
     POZZUTEC         0.0000 oz


NAME:  1000BG       DESCRIPTION:  1:1 STATE GROUT                         yd

     INGREDIENT       AMOUNT
     ----------   ---------------
     SAND TCG      1374.0000 lb
     PORT WOOD     1215.0000 lb
     COLD           275.0000 lb


NAME:  1010         DESCRIPTION:  NYSDOT CLASS A                          yd

     INGREDIENT       AMOUNT
     ----------   ---------------
     2 CR ST C        0.0000
     SAND TCG      1035.0000 lb
     1 CR ST C      749.0000 lb
     PORT WOOD      515.0000 lb
     FINE AGG L      91.0000 lb
     COLD           270.0000 lb
     220-N            2.0000 /C
     MB-VR            1.8000 /C
     POZZ             0.0000 oz
```

MIX DESIGN SUMMARY

Only the first part of the report is shown.

Thursday, March 23, 2000 12:14 PAGE 1

*** MIX DESIGN SUMMARY REPORT ***

MIX CODE	LIST PRICE	SEQUENCE CODE	ALLOW MODIFY?	MIX CLASS	DESCRIPTION
1000	0.00		Y		NYSDOT CLASS A
1000BG	0.00	N	Y		1:1 STATE GROUT
1010	0.00	N	Y		NYSDOT CLASS A
1050	0.00	N	Y		NYSDOT CLASS MS
10G	0.00	N	Y		10 BAG GROUT
1100	0.00		Y		NYSDOT CLASS C
1111	0.00		Y		NYSDOT CLASS C
1200	0.00	N	Y		NYSDOT CLASS D
1212	0.00	N	Y		NYSDOT CLASS D
1300	0.00	N	Y		NYSDOT CLASS E
1300G	0.00	N	Y		1:3 STATE GROUT
1313	0.00	N	Y		NYSDOT CLASS E
1400	0.00	N	Y		NYSDOT CLASS F
1600	0.00	N	Y		NYSDOT CLASS H
1600G	0.00	N	Y		NYSDOT CLASS H GRAVEL
1616	0.00	N	Y		NYSDOT CLASS H
1700	0.00	N	Y		NYSDOT CLASS J
1717	0.00	N	Y		NYSDOT CLASS J
1800	0.00	N	Y		NYSDOT CLASS I
1818	0.00	N	Y		NYSDOT CLASS I
1900	0.00	N	Y		2500 PSI BACKING
1919	0.00	N	Y		1:3:6 STATE CURB BACK
2000	0.00	N	Y		CITY SIDEWALK
2020	0.00	N	Y		CITY SIDEWALK WITH FLYASH
2020G	0.00	N	Y		3600 PSI SIDEWALKS GRAVEL
2028	50.00	D	Y		2000 PSI SLABS
2041	0.00	N	Y		2000 PSI SIZE #7
2047	0.00	N	Y		2000 PSI SLAB
2054	0.00	N	Y		2000 PSI TYPE 3 NO AI
2100	0.00	N	Y		CITY BASE
2100G	0.00	N	Y		3600 PSI CITY BASE
2121	0.00	N	Y		CITY BASE FLY ASH
2200	0.00	N	Y		CITY CURB
2222	0.00	N	Y		3000 PSI #1&2 GR PECR2E
2500SWL	0.00	D	Y		2500 PSI WALL/FOOTER
2500SWLF	0.00	N	Y		2500 PSI WALL/FOOTER
2521	0.00	N	Y		5 BAG PEA GRAVEL
2522	0.00	N	Y		2500 PSI CR GR
2522NA	0.00	N	Y		2500 PSI FLATWORK NO AIR
2523	0.00	N	Y		2500 PSI CR GR
2524	0.00	N	Y		2500 PSI CLASS 2 PIPE ENC
2525	0.00	N	Y		5 BAG NO. 1 STONE

CUSTOMER LISTING

Only part of the list is shown below.

```
================================================================================
Thursday, March 23, 2000            12:14                              PAGE   1

                              ***  CUSTOMERS  ***

================================================================================


 CUSTOMER
   CODE                NAME AND ADDRESS                      MISC INFO
----------  ---------------------------------------   ------------------------
ALKON       ALKON CORP.                               Account Status : STATUS
            BILLING ADDRESS LINE NUMBER 1             Account Balance:    1304.77
            BILLING ADDRESS LINE NUMBER 2             Discount Code  : DISCOUNT
            PO-BOX                                    Tax Zone       : TAX
            DUBLIN                OH    43017         COD?           : Y
   Contact: CONTACT NAME                              Print Prices?  : Y
     Phone: (CON)PHN-NUMB
     Notes: NOTES FIELD
Account No: ACCOUNT NUMBER


----------  ---------------------------------------   ------------------------
Evans       Evans Building Supply                     Account Status : OK
            143 South High Street                     Account Balance:    5697.37
                                                      Discount Code  :
                                                      Tax Zone       : 5507
            Ralston               OH    43210         COD?           : Y
   Contact: Mr. John Evans                            Print Prices?  : Y
     Phone: (614)234-8585
     Notes:
Account No: 39484020


----------  ---------------------------------------   ------------------------
LIN500      LINDSEY CONST                             Account Status :
                                                      Account Balance:     500.00
                                                      Discount Code  :
                                                      Tax Zone       :
                                                      COD?           : N
   Contact:                                           Print Prices?  : N
     Phone: (   )   -
     Notes:
Account No:


----------  ---------------------------------------   ------------------------
MUR140      MURDOCK HOMES                             Account Status :
                                                      Account Balance:    1500.00
                                                      Discount Code  :
                                                      Tax Zone       :
                                                      COD?           : N
   Contact:                                           Print Prices?  : N
     Phone: (   )   -
     Notes:
Account No:
```

CURRENT ORDERS

Enter the status or orders to be included in the report:

N Normal
C Cancelled
E Ended
H Held
W Will Call

```
================================================================================
Thursday, March 23, 2000          12:15                                PAGE   1
                        ***  CURRENT ORDER REPORT  ***
                        ***  BY ORDER TYPE  N      ***
================================================================================
CODE PLANT  CUSTOMER   OJ/LT    PROJECT CODE       ORDERED     DELIVERED
---- ----- ----------  ----- ----------------- ------------- ------------

1     01   Evans      08:29                        60.00  yd     27.00 yd
                Evans Buil 08:09  1492 AMERICAN WAY
                                  2500 PSI BACKING    1900

2     01   LIN500     09:29                        60.00  yd     20.00 yd
                LINDSEY CO 09:09  1492 AMERICAN WAY
                                  CITY SIDEWALK       2000

3     01   MUR140     10:29                        60.00  yd     30.00 yd
                MURDOCK HO 10:09  1724 PLEASANT PL
                                  2000 PSI SLABS      2028

-------------------------------------------------------------  -------------
                                                        TOTAL     77.00 yd
-------------------------------------------------------------  -------------
                            ***  END OF REPORT  ***
```

ALL ORDERS

(Tomorrow's, Yesterday's, Future, and Past Order reports are not shown because they have the same layout as the All Orders report.)

```
==========================================================================
Thursday, March 23, 2000            12:16                          PAGE   1
                            ***  ORDER REPORT  ***
                        for  Tuesday, December 14, 1999
                        thru Saturday, July 1, 2000
==========================================================================
CODE PLANT STATUS CUSTOMER  OJ/LT    PROJECT CODE       ORDERED     DELIVERED
---- ----- ---- ----------  -----  ----------------- ------------ ------------

1     01   NORM ALKON      03:39                        11.75           6.00
               ALKON CORP 03:19
                                  3000 3/6 WRA        2051

1     01   NORM Evans      10:10                        40.00  yd       0.00 yd
               Evans Buil 09:50
                                  2000 PSI SLABS      2028

2     01   END  PUT225     10:11                         8.00  yd       8.00 yd
               PUTNAM CIT 09:51  RIGHT OFF STATE ST.
                                  2500 PSI WALL/FOOTE 2500SWL

3     01   NORM PUT225     14:22                         0.00  yd       0.00 yd
               PUTNAM CIT 14:02  RIGHT OFF STATE ST.
                                  2500 PSI WALL/FOOTE 2500SWL

4     01   NORM PUT225     14:34                         8.00  yd       8.00 yd
               PUTNAM CIT 14:14  RIGHT OFF STATE ST.
                                  2500 PSI WALL/FOOTE 2500SWL

1     01   NORM Evans      15:06                        18.00  yd       6.00 yd
               Evans Buil 14:46
                                  2500 PSI  BACKING    1900

1     01   NORM Evans      08:29                        60.00  yd      27.00 yd
               Evans Buil 08:09  1492 AMERICAN WAY
                                  2500 PSI  BACKING    1900

2     01   NORM LIN500     09:29                        60.00  yd      20.00 yd
               LINDSEY CO 09:09  1492 AMERICAN WAY
                                  CITY SIDEWALK        2000

3     01   NORM MUR140     10:29                        60.00  yd      30.00 yd
               MURDOCK HO 10:09  1724 PLEASANT PL
                                  2000 PSI SLABS       2028

------------------------------------------------------------------- ------------
                    TOTAL FOR ALL PLANTS    Firm:     265.75  yd     105.00 yd
                                         Will Call:     0.00  yd
------------------------------------------------------------------- ------------
                            ***  END OF REPORT  ***
```

SELECT ORDER DATES

March 23, 2000 has been selected for the following report.

```
================================================================================
Thursday, March 23, 2000            12:16                                 PAGE   1
                             ***  ORDER REPORT  ***
                        for  Thursday, March 23, 2000
                        thru Thursday, March 23, 2000
================================================================================
CODE PLANT STATUS CUSTOMER  OJ/LT    PROJECT CODE       ORDERED     DELIVERED
---- ----- ---- ----------  ----- ------------------ ------------- ------------

1      01   NORM Evans      08:29                         60.00  yd      27.00 yd
                 Evans Buil 08:09  1492 AMERICAN WAY
                                   2500 PSI BACKING    1900

2      01   NORM LIN500     09:29                         60.00  yd      20.00 yd
                 LINDSEY CO 09:09  1492 AMERICAN WAY
                                   CITY SIDEWALK       2000

3      01   NORM MUR140     10:29                         60.00  yd      30.00 yd
                 MURDOCK HO 10:09  1724 PLEASANT PL
                                   2000 PSI SLABS      2028

------------------------------------------------------------------ -------------
                     TOTAL FOR ALL PLANTS    Firm:      180.00  yd      77.00 yd
                                        Will Call:        0.00  yd
------------------------------------------------------------------ -------------
                            ***  END OF REPORT  ***
```

LOADS BY ORDER

```
================================================================================
Thursday, March 23, 2000            12:16                              PAGE   1
                      ***  LOADS SUMMARIZED BY ORDER  ***
                       for  Thursday, March 23, 2000
                       thru Thursday, March 23, 2000
================================================================================
  Customer: Evans Building Supply
  --------

      Order: 1      Job name:#10 FORENSIC PARK        Time: 08:29 Spacing: 10
      -----

   TRUCK             From
            Load     Plant  Leave   Travel  Wait   Pour   Wash Travel  Return
--------------------------------------------------------------------------------
             9.00 yd  01      11:14    20.0   10.0   10.0  ????? ?????  00:00
100          9.00 yd  01      11:21    20.0   10.0   10.0  ????? ?????  00:00
100          9.00 yd  01      11:09    20.0   10.0   10.0  -28.2 -40.3  11:21
                                      --------------------------------
Delivered   27.0 yd       Averages:    20.0   10.0   10.0  ????? ?????
  Customer: LINDSEY CONST
  --------

      Order: 2      Job name:#10 FORENSIC PARK        Time: 09:29 Spacing: 10
      -----

   TRUCK             From
            Load     Plant  Leave   Travel  Wait   Pour   Wash Travel  Return
--------------------------------------------------------------------------------
779          10.00 yd  01      11:29    20.0   10.0   10.0  ????? ?????  00:00
779          10.00 yd  01      11:26    20.0   10.0   10.0  -37.2 -49.3  11:29
                                      --------------------------------
Delivered   20.0 yd       Averages:    20.0   10.0   10.0  ????? ?????
  Customer: MURDOCK HOMES
  --------

      Order: 3      Job name:MURDOCK CIRCLE           Time: 10:29 Spacing: 10
      -----

   TRUCK             From
            Load     Plant  Leave   Travel  Wait   Pour   Wash Travel  Return
--------------------------------------------------------------------------------
123          10.00 yd  01      11:54    20.0   10.0   10.0  ????? ?????  00:00
123          10.00 yd  01      11:54    20.0   10.0   10.0  -39.9 -50.4  11:54
123          10.00 yd  01      11:32    20.0   10.0   10.0  -18.2 -50.5  11:54
                                      --------------------------------
Delivered   30.0 yd       Averages:    20.0   10.0   10.0  ????? ?????
                        ***  END OF REPORT  ***
```

ORDERS BY PLANT

```
===============================================================================
Thursday, March 23, 2000           12:16                              PAGE   1
                        ***  ORDER SUMMARY BY PLANT  ***
                       for  Thursday, March 23, 2000
                       thru Thursday, March 23, 2000
                 Times shown are average minutes in each status
===============================================================================


                           PLANT: 01 , Batch Unit: yd
                           --------------------------


  Evans Building Supply

  Order          Units/            Wash                     Wash         Trip
  Number Deliver Hour  YARDS  Load  Down  Travel Wait  Pour  Out   Travel Hours
  -----------------------------------------------------------------------------
  1        3       0.0  27.0   0.0 ?????   20.0  10.0  10.0  13.0  ????? ?????


  LINDSEY CONST

  Order          Units/            Wash                     Wash         Trip
  Number Deliver Hour  YARDS  Load  Down  Travel Wait  Pour  Out   Travel Hours
  -----------------------------------------------------------------------------
  2        2       0.0  20.0   0.0 ?????   20.0  10.0  10.0  12.0  ????? ?????


  MURDOCK HOMES

  Order          Units/            Wash                     Wash         Trip
  Number Deliver Hour  YARDS  Load  Down  Travel Wait  Pour  Out   Travel Hours
  -----------------------------------------------------------------------------
  3        3       0.0  30.0   0.0 ?????   20.0  10.0  10.0  17.8  ????? ?????
     Averages for Plant 01
  =============================================================================
                   0.0  77.0   0.0 ?????   20.0  10.0  10.0  14.6  ????? ?????
  =============================================================================
Company Averages   0.0  77.0   0.0 ?????   20.0  10.0  10.0  14.6  ????? ?????
                            ***  END OF REPORT  ***
```

PROJECT LISTING

```
================================================================================
Thursday, March 23, 2000          12:17                                PAGE   1
                            ***  PROJECTS  ***
                Date:Thursday, March 23, 2000

================================================================================

================================================================================
PROJECT CODE: PROJECT               CUSTOMER CODE: ALKON
NAME: PROJECT NAME>>>>>>>>          NAME: ALKON CORP.
ADDRESS: ADDRESS>>>>>>>>>>>>>>>>>>>>    ACCOUNT: ACCOUNT NUMBER
END DATE: 04/13/1998  LAST DATE: 04/13/1998
================================================================================

 PRODUCT               PRODUCT DESCRIPTION             PROJECTED      DELIVERED
----------  ------------------------------------ -------------  -------------
TEST 1      <<<<<<<<<<,,,ALKON TEST NUMBER 1>>>>>    100.00          15.00
TEST 2      <<<<<<<<<<,ALKON TEST NUMBER 2>>>>>>>>    100.00          15.00

================================================================================
PROJECT CODE: SLINK1                CUSTOMER CODE: Slink
NAME: STATE JOB                     NAME: John H. Slink Building
ADDRESS: SAME AS CUSTOMER                ACCOUNT: 3994292
END DATE: 09/27/1999  LAST DATE: 09/22/1999
================================================================================

 PRODUCT               PRODUCT DESCRIPTION             PROJECTED      DELIVERED
----------  ------------------------------------ -------------  -------------
1919        1:3:6 STATE CURB BACK                     100.00 yd        0.00 yd

                            ***  END OF REPORT  ***
```

PROJECTS BY CUSTOMER

```
==========================================================================================
Thursday, March 23, 2000            12:17                                  PAGE   1
                        ***  PROJECTS BY CUSTOMER  ***
==========================================================================================

==========================================================================================
CUSTOMER CODE             CUSTOMER NAME                ACCOUNT NUMBER
==========================================================================================
 ALKON        ALKON CORP.                            ACCOUNT NUMBER

PROJECT CODE    PROJECT NAME             PROJECT ADDRESS
------------ ------------------- ------------------------------
PROJECT     PROJECT NAME>>>>>>>> ADDRESS>>>>>>>>>>>>>>>>>>>>

 PRODUCT             PRODUCT DESCRIPTION               PROJECTED     DELIVERED
---------- ------------------------------------ ------------- -------------

TEST 1     <<<<<<<<<<,,,ALKON TEST NUMBER 1>>>>>>    100.00         15.00
TEST 2     <<<<<<<<<<,ALKON TEST NUMBER 2>>>>>>>>    100.00         15.00

==========================================================================================
CUSTOMER CODE             CUSTOMER NAME                ACCOUNT NUMBER
==========================================================================================
 Slink        John H. Slink Building               3994292

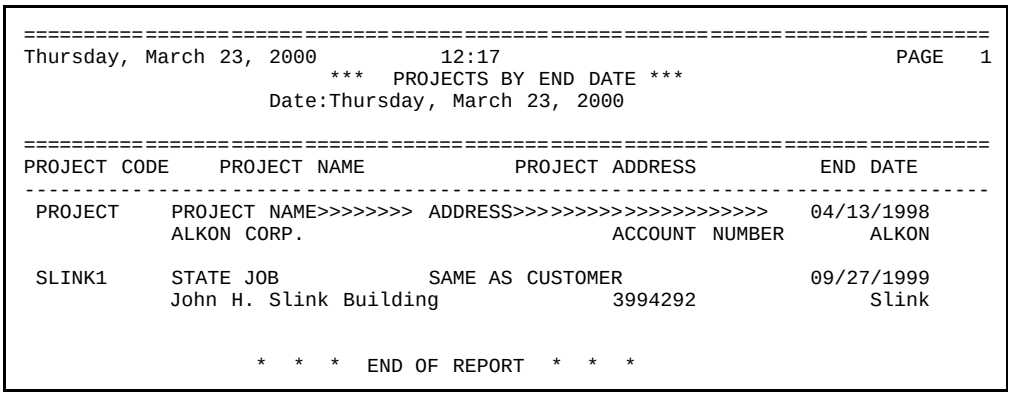
PROJECT CODE    PROJECT NAME             PROJECT ADDRESS
------------ ------------------- ------------------------------
SLINK1      STATE JOB            SAME AS CUSTOMER

 PRODUCT             PRODUCT DESCRIPTION               PROJECTED     DELIVERED
---------- ------------------------------------ ------------- -------------

1919       1:3:6 STATE CURB BACK                     100.00 yd       0.00 yd

                           ***  END OF REPORT  ***
```

EXPIRED PROJECTS



```
================================================================================
Thursday, March 23, 2000          12:17                                PAGE   1
                        ***  PROJECTS BY END DATE ***
                     Date:Thursday, March 23, 2000

================================================================================
PROJECT CODE    PROJECT NAME             PROJECT ADDRESS           END DATE
--------------------------------------------------------------------------------
 PROJECT     PROJECT NAME>>>>>>>> ADDRESS>>>>>>>>>>>>>>>>>>>>    04/13/1998
             ALKON CORP.                          ACCOUNT  NUMBER       ALKON

 SLINK1      STATE JOB            SAME AS CUSTOMER                 09/27/1999
             John H. Slink Building               3994292               Slink


                    *  *  *  END OF REPORT  *  *  *
```

PROJECTS BY LAST USED DATE

Last used date of March 23, 2000 has been selected for the report below.

```
================================================================================
Thursday, March 23, 2000          12:17                                PAGE   1
                    ***  PROJECTS BY LAST DATE USED ***
               Date: Thursday, March 23, 2000

================================================================================
PROJECT CODE       PROJECT NAME              PROJECT ADDRESS          LAST DATE
--------------------------------------------------------------------------------
 PROJECT     PROJECT NAME>>>>>>>> ADDRESS>>>>>>>>>>>>>>>>>>>>    04/13/1998
             ALKON CORP.                          ACCOUNT NUMBER        ALKON

 SLINK1      STATE JOB            SAME AS CUSTOMER                09/22/1999
             John H. Slink Building               3994292              Slink


                    *  *  *  END OF REPORT  *  *  *
```

RESALE PRODUCTS LISTING

```
==========================================================================================
Thursday, March 23, 2000            12:17                                  PAGE   1

                           ***       RESALE         ***
                           ***   PRODUCTS LISTING   ***

==========================================================================================


 PRODUCT                    DESCRIPTION                 LIST PRICE       ON-HAND
----------  -----------------------------------  -------------  ---------------

555          CALCIUM BAG                            17.00/bag           62 bag
554          3% CALCIUM                              0.00/oz         6,000 oz
553          2% CALCIUM                              0.00/oz             0 oz
519          WASHOUT CHARGE                         25.00/               0
516          HEATED MATERIALS CHARGE                 7.00/      ??????????
512          FIBER MESH                              0.00/      ??????????
510          SUPER PLASTICIZER                       0.00/      ??????????
505          OVERTIME CHARGE                        60.00/              84
0532         CONVEYOR CHARGE                         0.00/         524,288
SANDRESALE   SAND SOLD SEPARATELY                    0.25/lb       *    SAND TCG
 (*) denotes that the on-hand amount for the product is tracked in the
     ingredient displayed.

                    *  *  *  END OF REPORT  *  *  *
```

C.O.D. TICKETS

Non-C.O.D. and All Ticket reports are laid out the same way, so they are not shown.

```
================================================================================
Thursday, March 23, 2000             12:17                          PAGE   1
                            ***  C.O.D. TICKETS  ***
                         for  Thursday, March 23, 2000
                         thru Thursday, March 23, 2000
================================================================================
NUMBER    DATE        TRUCK      JOB NAME
------ ----------- ---------- -------------
8816   03/23/2000  100        #10 FORENSIC

PRODUCT   LOAD   LOAD  BATCH
 CODE     SIZE   UNIT  CHARGE
-------  ------- ---  --------
1900        9.00 yd       0.00
555         6.00 bag    102.00

Ticket Totals:
Discount     Tax      Ticket
  Total     Total     Total
------------------------------
     0.00       7.52    109.52

NUMBER    DATE        TRUCK      JOB NAME
------ ----------- ---------- -------------
8817   03/23/2000             #10 FORENSIC

PRODUCT   LOAD   LOAD  BATCH
 CODE     SIZE   UNIT  CHARGE
-------  ------- ---  --------
1900        9.00 yd       0.00
555         0.00 bag      0.00

Ticket Totals:
Discount     Tax      Ticket
  Total     Total     Total
------------------------------
     0.00       0.00      0.00

NUMBER    DATE        TRUCK      JOB NAME
------ ----------- ---------- -------------
8818   03/23/2000  100        #10 FORENSIC

PRODUCT   LOAD   LOAD  BATCH
 CODE     SIZE   UNIT  CHARGE
-------  ------- ---  --------
1900        9.00 yd       0.00
555        12.00 bag    204.00

Ticket Totals:
Discount     Tax      Ticket
  Total     Total     Total
------------------------------
     0.00      15.05    219.05


================================================================================
Report Totals:
Discount     Tax      Ticket
 Total      Total     Total
------------------------------
     0.00      22.57    328.57
================================================================================

                            ***  END OF REPORT  ***
```

VOIDED TICKETS

No tickets were voided on March 23, 2000.

```
================================================================================
Thursday, March 23, 2000          12:18                                PAGE   1

                         ***  VOIDED TICKETS REPORT  ***
                     for Thursday, March 23, 2000
                     thru Thursday, March 23, 2000

================================================================================
Ticket   Sequence Customer   Order Plant                        Load     Load
Number    Number    Code     Code  Code          Job Name      Amount    Units
-------- -------- ---------  ----  ----- --------------------  --------- -----

-------------------------------------------------------------   -------------
                                     TOTAL VOIDED QUANTITY:       0.00 yd
-------------------------------------------------------------   -------------

                   *  *  *  END OF REPORT  *  *  *
```

TICKETS BY CUSTOMER

Only part of the report is shown.

```
================================================================================
Thursday, March 23, 2000            12:18                            Page   1
                    ***  CUSTOMER/ORDER/TICKET LISTING  ***
                       for  Thursday, March 23, 2000
                       thru Thursday, March 23, 2000
================================================================================
================================================================================

CUSTOMER NAME: Evans Building Supply      CUSTOMER CODE: Evans
CUSTOMER ADDRESS:

================================================================================

                      ORDER CODE: 1            P.O. NUM:
         PROJECT CODE (BY ORDER):

TICKET    DATE       TRUCK    PLANT   MIX      LOAD      TAX     TOTAL
NUMBER                        NAME    CODE    SIZE/UNIT  CHARGE   CHARGE
------  --------   ---------- --- ---------- ---------- ------   ------
   8816 03/23/2000 100        01  1900         9.00 yd     7.52   109.52
   8817 03/23/2000            01  1900         9.00 yd     0.00     0.00
   8818 03/23/2000 100        01  1900         9.00 yd    15.05   219.05
                                                ------------------------------
  ORDER TOTALS:                                   27.00 yd     22.57    328.57

                                                 ----------------------------
  CUSTOMER TOTALS:                                27.00 yd     22.57    328.57
_____________________________________________________________________________

================================================================================

CUSTOMER NAME: LINDSEY CONST              CUSTOMER CODE: LIN500
CUSTOMER ADDRESS:

================================================================================

                      ORDER CODE: 2            P.O. NUM:
         PROJECT CODE (BY ORDER):

TICKET    DATE       TRUCK    PLANT   MIX      LOAD      TAX     TOTAL
NUMBER                        NAME    CODE    SIZE/UNIT  CHARGE   CHARGE
------  --------   ---------- --- ---------- ---------- ------   ------
   8819 03/23/2000 779        01  2000        10.00 yd     0.00     0.00
   8820 03/23/2000 779        01  2000        10.00 yd     0.00     0.00
                                                ------------------------------
  ORDER TOTALS:                                   20.00 yd      0.00      0.00

                                                 ----------------------------
  CUSTOMER TOTALS:                                20.00 yd      0.00      0.00
_____________________________________________________________________________
```

MATERIAL COSTS

Only part of the report is shown.

```
================================================================================
Thursday, March 23, 2000            12:18                          Page   1
                     ***  CUSTOMER/ORDER/TICKET LISTING  ***
                        for  Thursday, March 23, 2000
                        thru Thursday, March 23, 2000
================================================================================
================================================================================

CUSTOMER NAME: Evans Building Supply      CUSTOMER CODE: Evans
CUSTOMER ADDRESS:

================================================================================

                       ORDER CODE: 1           P.O. NUM:
         PROJECT CODE (BY ORDER):

TICKET   DATE      TRUCK    PLANT  MIX       LOAD       TAX      TOTAL     MAT
NUMBER                      NAME   CODE    SIZE/UNIT    CHARGE   CHARGE    COST
------ --------- ---------- --- ---------- ----------   -------  -------- --------
 8816 03/23/2000 100        01  1900         9.00 yd       7.52    109.52     0.00
 8817 03/23/2000            01  1900         9.00 yd       0.00      0.00     -.an
 8818 03/23/2000 100        01  1900         9.00 yd      15.05    219.05     -.an
                                          ----------------------------------------
  ORDER TOTALS:                             27.00 yd      22.57    328.57     -.an

                                          ----------------------------------------
  CUSTOMER TOTALS:                          27.00 yd      22.57    328.57     -.an

================================================================================

CUSTOMER NAME: LINDSEY CONST              CUSTOMER CODE: LIN500
CUSTOMER ADDRESS:

================================================================================

                       ORDER CODE: 2           P.O. NUM:
         PROJECT CODE (BY ORDER):

TICKET   DATE      TRUCK    PLANT  MIX       LOAD       TAX      TOTAL     MAT
NUMBER                      NAME   CODE    SIZE/UNIT    CHARGE   CHARGE    COST
------ --------- ---------- --- ---------- ----------   -------  -------- --------
 8819 03/23/2000 779        01  2000        10.00 yd       0.00      0.00     -.an
 8820 03/23/2000 779        01  2000        10.00 yd       0.00      0.00     -.an
                                          ----------------------------------------
  ORDER TOTALS:                             20.00 yd       0.00      0.00     -.an

                                          ----------------------------------------
  CUSTOMER TOTALS:                          20.00 yd       0.00      0.00     -.an
```

FLEET UTILIZATION

Thursday, March 23, 2000 12:19 PAGE 1

*** FLEET UTILIZATION REPORT ***
for Thursday, March 23, 2000
thru Thursday, March 23, 2000

Plant 01

Truck	License Number	Active Hours	Units Per Hour	Trips	Total Units	Load	Wash Down	Travel	Wait	Pour	Wash Out	Travel	% Capacity
100	NONE	0.20	45.83	1	9.00	0.9	0.0	20.0	10.0	10.0	12.1	0.0	100.00
123		0.36	27.59	1	10.00	20.8	0.0	20.0	10.0	10.0	32.3	0.0	83.33
779		0.05	210.53	1	10.00	1.5	0.0	20.0	10.0	10.0	12.1	0.0	90.91
Plant 01 Totals:		47.82		3	29.00	23.1	0.0	60.0	30.0	30.0	56.5	0.0	90.62
Average Minutes Per Delivery						7.7	0.0	20.0	10.0	10.0	18.8	0.0	
Percent of Times Spent						63.54	0.00	164.91	82.46	82.46	155.25	0.00	
Company Totals:		47.82		3	29.00	23.1	0.0	60.0	30.0	30.0	56.5	0.0	90.62
Average Minutes Per Delivery						7.7	0.0	20.0	10.0	10.0	18.8	0.0	
Percent of Times Spent						63.54	0.00	164.91	82.46	82.46	155.25	0.00	

Productivity Summary..... 47.82 yards per driver hour 1.3 minutes per yard

*** END OF REPORT ***

TRUCK PRODUCTION REPORT

Tuesday, August 28, 2001 07:19 PAGE 1

*** TRUCK PRODUCTION REPORT ***
FROM: 08/27/2001 07:18
TO: 08/28/2001 07:18

TRUCK	DRIVER	LOAD DATE	LOAD TIME	CUSTOMER	PROJECT	ORDER CODE	TICKET NUMBER	ADDRESS	MIX CODE	LOAD SIZE
100	Smith	08/27/2001	15:55	MUR140		1	0017		2054	9.00 yd
									Total:	9.00 yd
110	Johnson	08/27/2001	16:35	LIN500		2	0018		2054	8.00 yd
									Total:	8.00 yd
123	Jones	08/27/2001	17:00	EVANS		3	0019		2054	8.00 yd
									Total:	8.00 yd

*** END OF REPORT ***

MANUAL MATERIAL MONITOR

This report shows any events where material was manually batched.

```
==========================================================================================
Thursday, March 23, 2000        12:19                                          PAGE   1
                      *** Manual Material Monitor Report ***
                                Plant:
                        for  Thursday,  March 23, 2000
                        thru Thursday,  March 23, 2000
==========================================================================================
------------------------------------------------------------------------------------------
                              Date: 03/23/2000

                             Load
Plant   Type          Time    ID   Ingredient  Bin/Tank   Amount      Units
------------------------------------------------------------------------------
     System Restart 10:25                                          0.00

 * denotes  Manual Feed where amount could not be accurately determined.
                         *  *  *  END OF REPORT  *  *  *
```

SEQUENCE LISTING

Only the first few steps of the first sequence is shown.

```
==========================================================================================
Thursday, March 23, 2000              12:20                                PAGE   1
                            ***  SEQUENCES REPORT  ***

==========================================================================================

==========================================================================================
                                PLANT CODE: 01
==========================================================================================
==========================================================================================
                             SEQUENCE CODE: D
==========================================================================================

  STEP       SOURCE    DESTINATION
----------  ----------  -----------
AGG SCALE   AGG SCALE   TRUCK
QUANTITY:100%
START:F~WAT SCALE~*[-HLDBCK_%]^V~DVT AT DRY
START DELAY:  0.00 seconds  MULTI-BATCH? Y   TRACEPOINTS ON? N  TYPE: F
CHARGE RATE:100   USE TRUCK CHARGE RATE? N   SKIP DISCHARGE AUTHORIZATION? N
STOP:
COMMENT:
Start agg scale when intial water has fed and Divertor at Dry


  STEP       SOURCE    DESTINATION
----------  ----------  -----------
BOTTLE01    BOTTLE01    TRUCK
QUANTITY:100%
START:V~DVT AT DRY
START DELAY:  0.00 seconds  MULTI-BATCH? Y   TRACEPOINTS ON? N  TYPE: F
CHARGE RATE:  0   USE TRUCK CHARGE RATE?     SKIP DISCHARGE AUTHORIZATION? N
STOP:
COMMENT:
Divertor is at Dry


  STEP       SOURCE    DESTINATION
----------  ----------  -----------
BOTTLE02    BOTTLE02    TRUCK
QUANTITY:100%
START:V~DVT AT DRY
START DELAY:  0.00 seconds  MULTI-BATCH? Y   TRACEPOINTS ON? N  TYPE: F
CHARGE RATE:  0   USE TRUCK CHARGE RATE?     SKIP DISCHARGE AUTHORIZATION? N
STOP:
COMMENT:
Divertor is at Dry
```

END OF DAY PROCEDURES

The End of Day process provides a way for you to run daily, weekly, monthly, or yearly reports and back up the database all at the same time. Once the processes are set up, simply press **[F1] - Start** from The End of Day Procedure Screen to run them.

CATEGORIES

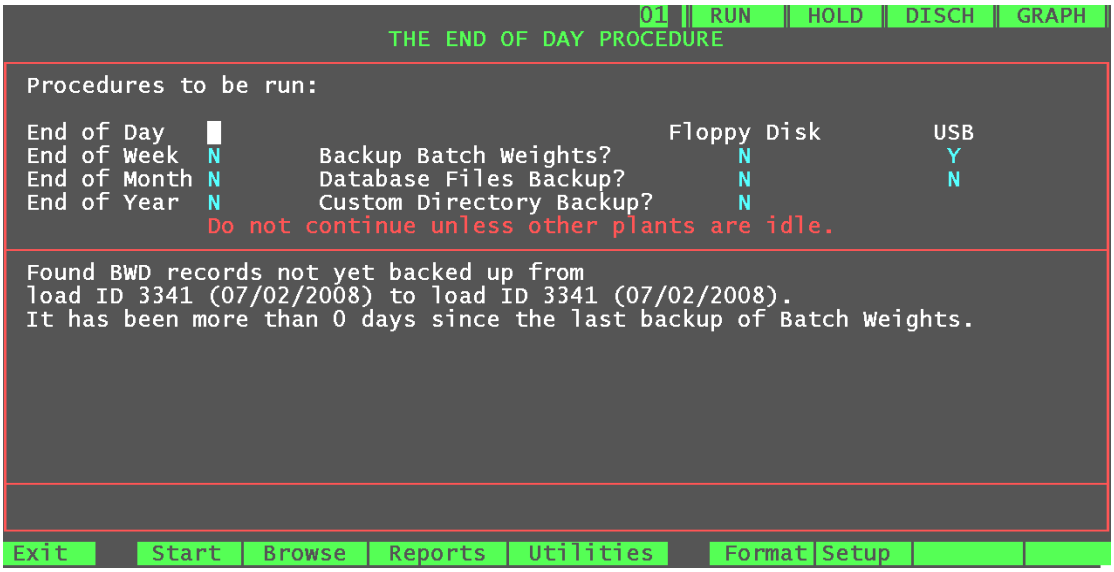
There are four separate End of Day categories: Daily, Weekly, Monthly, and Yearly. Each category lists Reports and Procedures you can select to run or not run. You cannot add reports or procedures; you can only choose which ones to run or not run.

SELECTING WHAT TO RUN

To select which procedures and reports to run for a category:

1. Select **MAIN MENU ➡END OF DAY**. A screen similar to the one shown next appears.

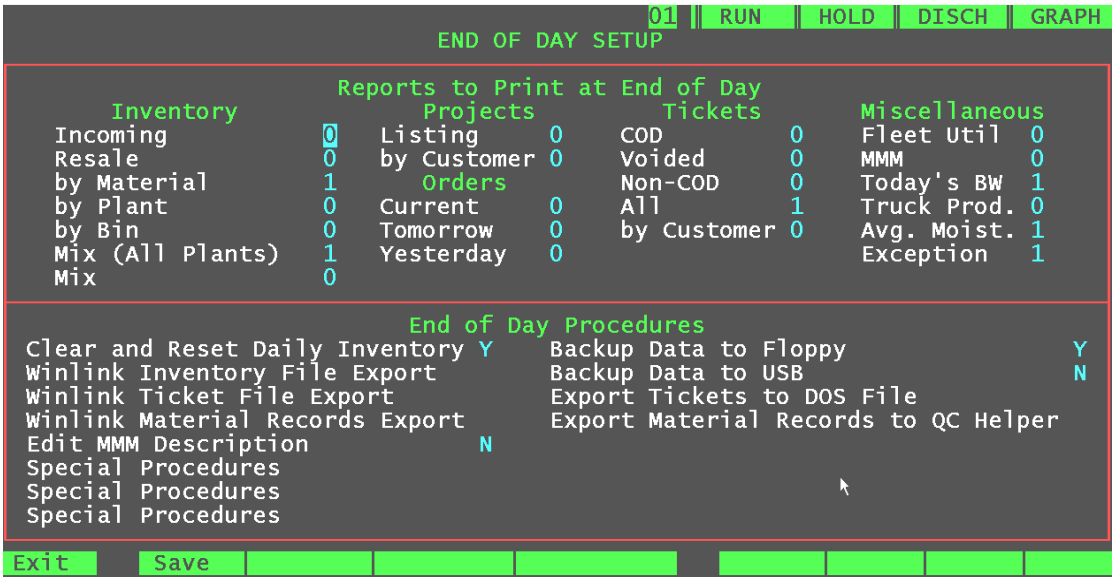
End of Day Procedure Screen



2. Press **[F6] – Setup**. A selection box showing the following categories appears:
   - End of Day Setup
   - End of Week Setup
   - End of Month Setup
   - End of Year Setup

3. Select a category and press **[ENTER]**. The appropriate setup screen appears. In the following example, we selected "End of Day."

End of Day Setup Screen



4. On the top half of the screen, enter the number of copies to print for each ***report***. (Leave a zero for each report you do not want printed.)
5. On the bottom half of the screen, enter a **Y** for each ***procedure*** you want to run.
6. Press **[F1]** to save your entries.
7. Press **[ESC]** to return to the Setup selection box if you need to select another category to set up.
8. Repeat steps 3 through 7 for each remaining category (End of Week, End of Month, and End of Year).

IMPORTANT NOTES:

- "Clear and Reset . . . Inventory" should be set to **Y** so inventory totals are always reset.
- If you purchased the Winlink product, refer to the User's Manual for file export information.
- For End of Day and End of Week setups, you can enter **Y** for either "Backup Data to Floppy" or "Backup Data to USB," not both.
- **End of Month Inventory Report Flag.** You can select the current working month in the **Set the Current Working Month for Automatic EOM Operation** field of the End of Month Setup screen so the system will automatically remind you if you haven't run an End of Month Inventory report. If the report needs to be run, the End of Month screen automatically

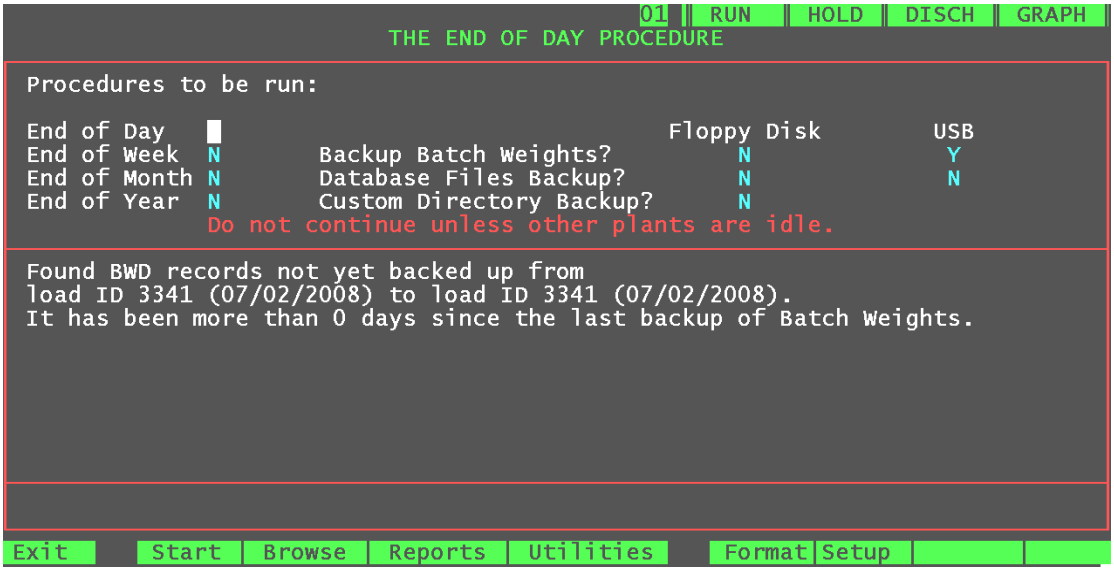
appears when you restart the Spectrum (assuming you properly shut down the system the night before).

RUNNING "END OF" PROCESSES

All "End of" processes are controlled from the End of Day Procedure screen. The general procedure for running "End of" processes is:

1. Select **MAIN MENU ➡END OF DAY**. The following screen appears.

End of Day Procedure Screen



2. On the top half of the screen, type a **Y** next to the "End of" procedures you want to run.
3. Also on the top half of the screen, type a **Y** under the Floppy Disk or USB column (not both) for Backup Batch Weights and Database Files Backup. (You can only back up Custom directory files to floppy disk.)

Note: For Backup Batch Weights, you can enter a **P** so that batch weights will be purged when the End of Day process is run (even if batch weights have not been backed up).

4. Press **[F1] – Start** to initiate the selected procedure(s). Once the "End of" process is finished, the system automatically performs the proper shutdown procedure. It then informs you that shutdown has been completed. You may then power off the Spectrum.

Note: If batch weights are older than the number of days specified on the **SYSTEM DEFAULTS** screen, a message to this effect is displayed on the bottom half of the End of Day Procedure screen. If you do not back up batch weights 10 days after this default deadline, the system automatically backs them up.

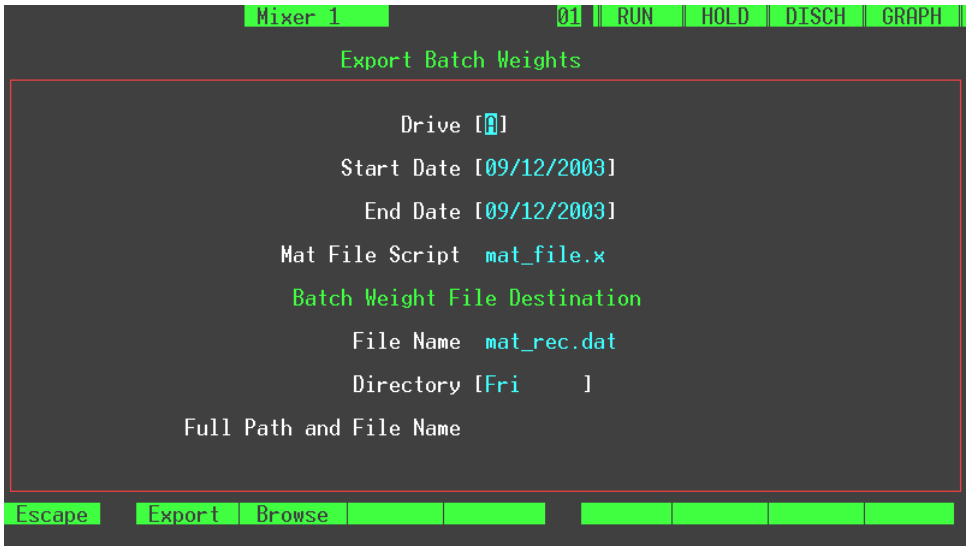
☛ FUNCTION KEYS – THE END OF DAY PROCEDURE SCREEN

FUNCTION KEY	PURPOSE
[F1] - Start	Initiates the End Of process.
[F3] - Reports	Takes you directly to the **REPORTS MENU.**
[F4] - Utilities	Takes you directly to the **DISK UTILITIES MENU**.
[F5] - Format	Allows you to format a floppy disk. **NOTE:** Before you format a disk, please see "Format Disks".
[F6] - Setup	Lets you select a category (End of Day, End of Week, End of Month, or End of Year) to set up.

EXPORTING BATCH WEIGHTS TO QC HELPER

This utility lets you transfer batch weight information to Command Alkon's QC Helper, to a Microsoft Windows quality control program, or to a QNX disk.

Export Batch Weights Screen



TO EXPORT BATCH WEIGHTS:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡EXPORT BATCH WEIGHTS TO QC HELPER.**
2. The **Drive** field is selected with **A** as the default entry. Possible entries (from the browse list) are:

   A First DOS Floppy
   B Second DOS Floppy
   C First DOS Hard Disk
   D Second DOS Hard Disk
   Q QNX Directory
   W Winlink Directory
   E USB Removable Device

   Select the appropriate drive and press **[ENTER]**. The cursor moves to the **Start Date** field.
3. Select the **Start Date**. The default is today's date. You can browse for dates with batch weights. Press **[ENTER]**. The cursor moves to the **End Date** field.
4. Select the **End Date**. The default is today's date. You can browse for dates with batch weights. Press **[ENTER]**. The cursor moves to the **Mat File Script** field.

5. Enter the material file script (file where batch weights data is stored in the Spectrum). The default is ***mat_file.x***. (To export load-level batch weights, enter ***mat_file_by_load.x***.) Press **[ENTER]**. The cursor moves to the **File Name** field.
6. Enter the name of the file to which batch weights will be exported. The default is ***mat_rec.dat***. Press **[ENTER]**. The cursor moves to the **Directory** field.

   Remember: DOS file names can only have 8 characters, a period, then a 3-character extension.
7. Enter the directory to which batch weights will be copied. The default is the 3-letter abbreviation for the current day of the week (e.g. Tue). (**Note:** The browse list lets you choose from a list of 3-letter abbreviations for days of the week.) Press **[ENTER]**. The cursor moves to the **Full Path and File Name** field.
8. If you want to use another file path and name besides the ones specified in the **Directory** and **File Name** fields, enter it here.
9. Press **[F1]** to export the batch weights.

PROPER SHUTDOWN WHEN EOD IS NOT RUN

The system automatically shuts down at the end of an "End of" process. If you shut down the Spectrum without performing an "End of" process, **always** perform the proper shutdown procedure as explained below. **Never** power off the computer unless you run an "End of" process or you perform the following shutdown procedure.

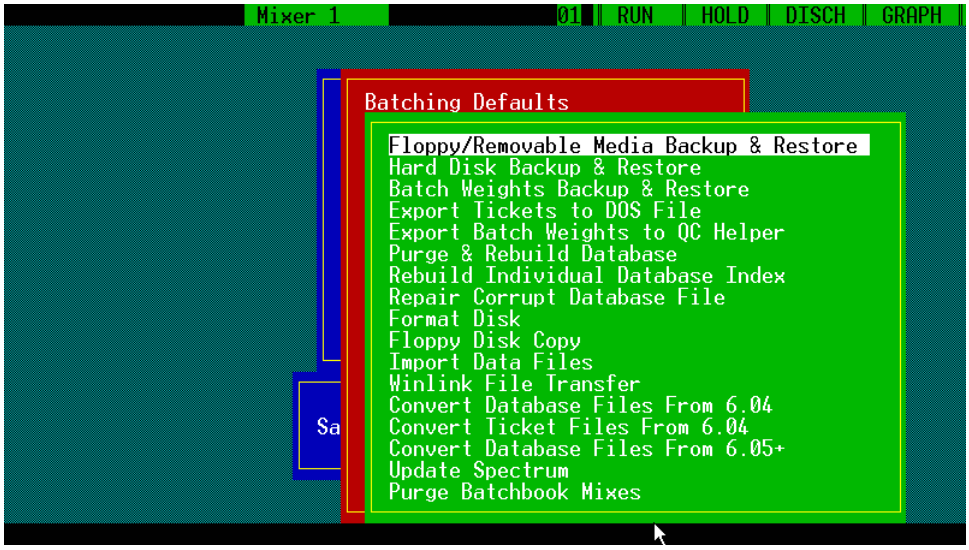
1. Select **MAIN MENU➡QUIT SPECTRUM**. A warning screen appears.
2. Press **[F1]** to acknowledge the warning. The system begins the shutdown process (this may take a few minutes). The Spectrum system informs you when shutdown is complete.
3. Turn off the power to the Spectrum computer.

DISK UTILITIES

From the **DISK UTILITIES MENU** you can back up and restore the database, as well as format floppy disks and perform other specialized functions. The options listed below are the only ones you should use. They are discussed in this section. The remaining options are either duplicated in the "End Of" processes, or should only be used with the authorization of Command Alkon Support Services personnel.

- Floppy/Removable Media Backup & Restore
- Hard Disk Backup & Restore
- Batch Weights Backup & Restore
- Export Tickets to DOS File
- Export Batch Weights to QC Helper
- Format Disk
- Import Data Files

Disk Utilities Menu



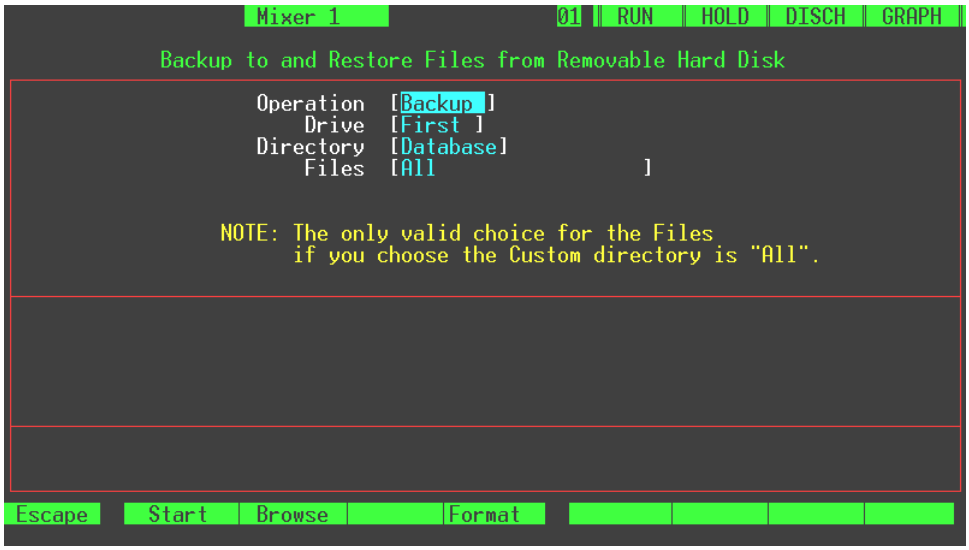
FLOPPY / REMOVABLE MEDIA BACKUP & RESTORE

This option lets you back up the Spectrum database to a floppy disk or USB removable device. It also lets you restore the database from a floppy disk or USB removable device. In addition, you can format a floppy disk or USB removable device.

Note: Before you back up to USB removable device, make sure the device has been set up, formatted, and connected as described in the document "Data Transfer From/To a USB Device".

The operations mentioned above are performed from the following screen, which appears when you select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ FLOPPY / REMOVABLE MEDIA BACKUP & RESTORE**.

Backup & Restore – Floppy/Removable Disk



BACKUPS TO FLOPPY DISK OR USB REMOVABLE DEVICE

While most backups are completed in the "End of" processes, backups done from the **DISK UTILITIES** menu offer additional flexibility in that you can designate which database files to backup. Procedures for backing up to floppy disk and USB removable device are given next.

TO BACK UP TO FLOPPY DISK:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ FLOPPY / REMOVABLE MEDIA BACKUP & RESTORE**.

2. The cursor is on the **Operation** field with ***Backup*** as the default entry. Press **[ENTER]** to accept *Backup* and move the cursor to the **Drive** field.

   CAUTION! You should only use the ***Restore*** operation when directed to do so by Command Alkon Support Services personnel.

3. The default value for the **Drive** field is ***First***. Press **[ENTER]** to select this entry. The cursor moves to the **Directory** field.

   First refers to the standard floppy disk drive on your workstation.
   Second is valid if you have two floppy drives.
   USB can only be used if a USB removable device has been set up and connected to the PC.

4. The default for the **Directory** field is ***Database***. Press **[ENTER]** to accept this value. The cursor moves to the **Files** field.

5. Select one of the following options and press **[ENTER]**:

   - ***All***
   - ***Data Files***
   - ***Customers***
   - ***Mixes/Ingredients***
   - ***Orders***
   - ***Projects***
   - ***Trucks***

6. Press **[F1]** to start the backup process. Follow the on-screen instructions. Another message tells you when backup is complete.

☛ TO BACK UP TO USB REMOVABLE DEVICE:

Note: Before you back up to USB removable device, make sure the device has been set up, formatted, and connected as described in the document "Data Transfer From/To a USB Device".

Procedures for backing up to a USB removable device are the same as those for backing up to floppy disk, except that ***USB*** must be entered in the **Drive** field. One benefit of using a USB removable device is increased storage capacity.

↳ RESTORES FROM FLOPPY DISK OR USB REMOVABLE DEVICE

Note: Before you restore from a USB removable device, make sure the device has been set up, formatted, and connected as described in the document "Data Transfer From/To a USB Device".

The ***Restore*** function is used to restore lost data (usually because of system failure). You can restore data from either a floppy disk or USB removable device.

CAUTION! You should only use the ***Restore*** operation when directed to do so by Command Alkon Support Services personnel.

☛ TO RESTORE FROM FLOPPY DISK:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ FLOPPY / REMOVABLE MEDIA BACKUP & RESTORE**.
2. The cursor is on the **Operation** field with ***Backup*** as the default entry. Select ***Restore*** from the browse list and press **[ENTER]**. ***Restore*** appears in the **Operation** field. Press **[ENTER]** to move the cursor to the **Drive** field.
3. The default value for the **Drive** field is ***First***. Press **[ENTER]** to select this entry. The cursor moves to the **Directory** field.

   First refers to the standard floppy disk drive on your workstation.
   Second is valid if you have two floppy drives.
   USB can only be used if a USB removable device has been set up and connected to the PC.
4. The default for the **Directory** field is ***Database***. Press **[ENTER]** to accept this value. The cursor moves to the **Files** field.
5. From the browse list, select one of the following options and press **[ENTER]**:
   - ***All***
   - ***Data Files***
   - ***Customers***
   - ***Mixes/Ingredients***
   - ***Orders***
   - ***Projects***
   - ***Trucks***
6. Press **[F1]** to start the restore process. Follow the on-screen instructions. When the restore process is complete, the system automatically reboots.

☛ TO RESTORE FROM USB REMOVABLE DEVICE:

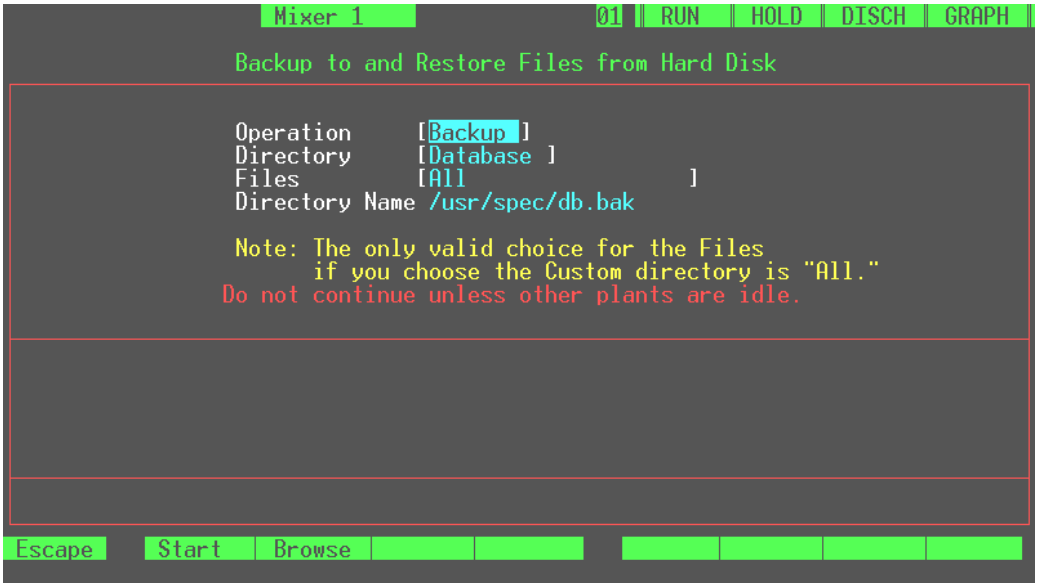
USB removable device restore procedures are the same as those for restoring from floppy disk, except that ***USB*** must be entered in the **Drive** field.

HARD DISK BACKUP & RESTORE

When an End of Day process is run, the entire database can be backed up. However, files cannot be backed up individually and the database cannot be restored through the End of Day process. This is where the ***Hard Disk Backup & Restore*** disk utilities option is useful. Through this option, all or parts of the database can be backed up to or restored from the hard drive.

Hard disk backup and restore functions are performed from the following screen, which appears when you select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ HARD DISK BACKUP & RESTORE**.

Backup & Restore – Hard Drive



TO BACK UP TO HARD DISK:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ HARD DISK BACKUP & RESTORE**. The above screen appears.

CAUTIONS!	• A flashing message on this screen advises you to not continue unless other plants are idle. The reason is that you could corrupt the database and seriously impede batching operations. • You should only use the ***Restore*** operation when directed to do so by Command Alkon Support Services personnel.

2. The cursor is on the **Operation** field with ***Backup*** as the default entry. Press **[ENTER]** to accept *Backup* and move the cursor to the **Directory** field.

3. The default for the **Directory** field is ***Database***. Press **[ENTER]** to accept this value. The cursor moves to the **Files** field.
4. Select one of the following options from the browse list and press **[ENTER]**. The entry appears in the **Files** field.
   - ***All***
   - ***Data Files***
   - ***Customers***
   - ***Mixes/Ingredients***
   - ***Orders***
   - ***Projects***
   - ***Trucks***
5. Press **[ENTER]** if you need to change the path and backup file name (default is **/usr/spec/db.bak**). **Note:** When an End of Day process is run, the database is automatically backed up to /usr/spec/db.bak.
6. Press **[F1]** to start the backup process. On-screen messages tell you when the backup is started and completed.

➧ TO RESTORE FROM HARD DISK:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ HARD DISK BACKUP & RESTORE**.

   CAUTION! You should only use the ***Restore*** operation when directed to do so by Command Alkon Support Services personnel.

2. The cursor is on the **Operation** field with ***Backup*** as the default entry. Select ***Restore*** from the browse list and press **[ENTER]**. Press **[ENTER]** again to move the cursor to the **Directory** field.
3. The default for the **Directory** field is ***Database***. Press **[ENTER]** to use this value. The cursor moves to the **Files** field.

   Or, select ***Custom*** from the browse list and press **[ENTER]**. Press **[ENTER]** again to move to the **Files** field.
4. Select one of the following options from the browse list and press **[ENTER]**. The entry appears in the **Files** field.

   NOTE: If you select ***Custom*** in the **Directory** field, the only thing you can select in the **Files** field is ***All***.

   - ***All***
   - ***Data Files***
   - ***Customers***
   - ***Mixes/Ingredients***

- ***Orders***
- ***Projects***
- ***Trucks***

5. Press **[ENTER]** to move to the **Directory Name** field if you need to change the path and restore file name (default is **/usr/spec/db.bak**).
6. Press **[F1]** to start the restore process. Follow the on-screen instructions. Other messages tell you what is going on (e.g., purging old loads, restore completed, etc.). When the restore process is complete, the system automatically reboots.

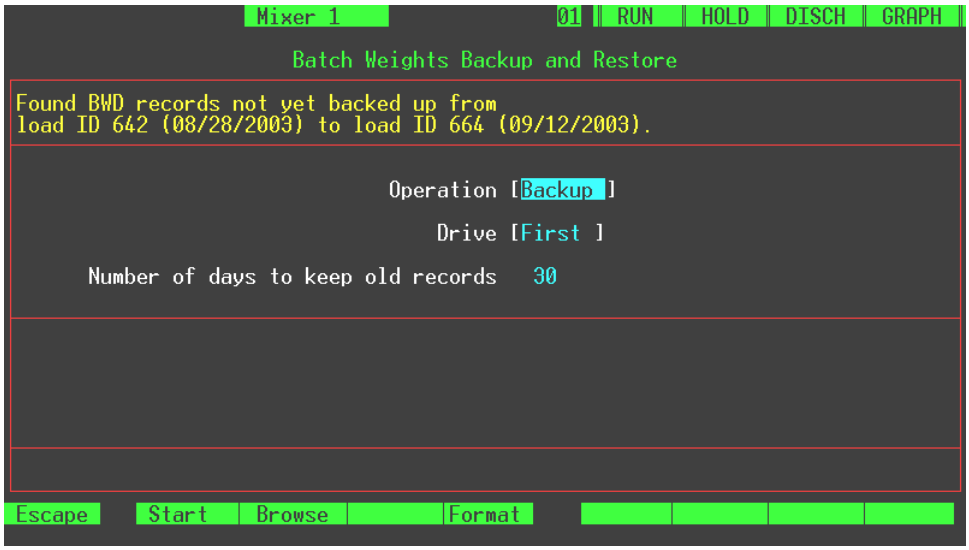
BATCH WEIGHTS BACKUP & RESTORE

Note: Before you back up to or restore from a USB removable device, make sure the device has been set up, formatted, and connected as described in the document "Data Transfer From/To a USB Device".

Batch weights should be backed up at least once every 30 days. Normally, this is done daily when the End of Day process is run. However, you can do this without running an End of Day process. This is accomplished from the screen shown below. Notice that a message at the top of the screen shows the load ID and date range for batch weights not yet backed up.

NOTE: The number of days the system keeps batch weights is specified on the **SYSTEM DEFAULTS** screen. If you have not backed up batch weights 10 days after this default deadline, the system automatically backs them up.

Batch Weights Backup & Restore



TO BACKUP BATCH WEIGHTS:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ BATCH WEIGHTS BACKUP & RESTORE**. The above screen appears.
2. The cursor is on the **Operation** field with ***Backup*** as the default entry. Press **[ENTER]** to accept *Backup* and move the cursor to the **Drive** field.
3. Select the desired backup media in the **Drive** field and press **[ENTER]**. (***First*** is the default.)

First refers to the standard floppy disk drive on your workstation.
Second is valid if you have two floppy drives.
USB can only be used if a USB removable device has been set up and connected to the PC.

4. Press **[F1]** to start the backup process. Follow the on-screen instructions. Another message tells you when backup is complete.

↳ TO RESTORE BATCH WEIGHTS:

Batch weights stored on USB removable device can be viewed directly from the USB removable device. If the USB removable device is not connected, the system reads what is on the hard disk. Batch weights stored on floppy disk, however, must be restored to the hard disk before they can be viewed. To restore batch weights to hard disk:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ BATCH WEIGHTS BACKUP & RESTORE**.
2. The **Operation** field will be selected and *Backup* is the default operation. Select ***Restore*** from the browse list and press **[ENTER]**. Press **[ENTER]** again to move the cursor to the **Drive** field.
3. Select the desired restore media in the **Drive** field and press **[ENTER]**. (***First*** is the default.)

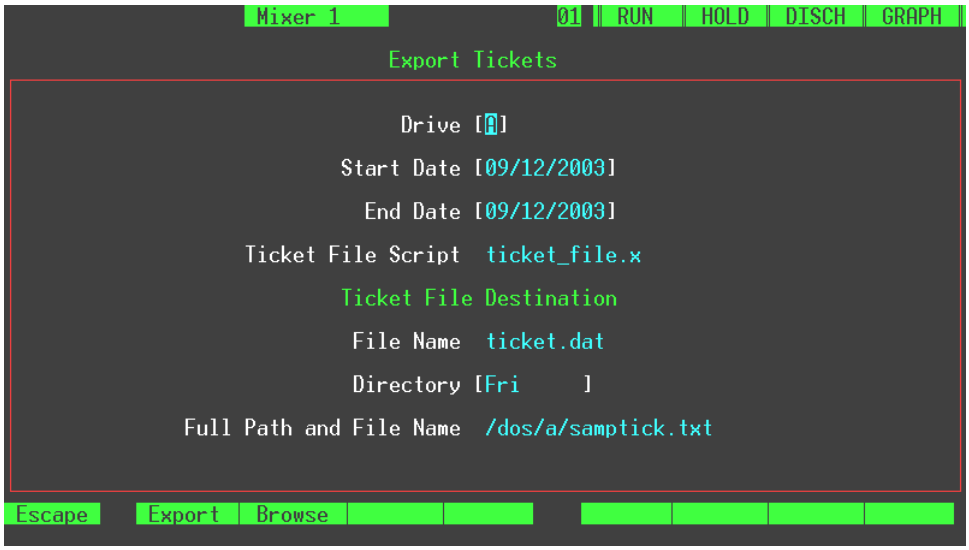
   First refers to the standard floppy disk drive on your workstation.
   Second is valid if you have two floppy drives.
   USB can only be used if a USB removable device has been set up and connected to the PC.
4. Press **[F1]** to start the restore process. Follow the on-screen instructions. A message tells you when restore is complete.

EXPORT TICKETS TO DOS FILE

Note: Before you export to USB removable device, make sure the device has been set up, formatted, and connected as described in the document "Data Transfer From/To a USB Device".

This utility lets you transfer ticket information to a DOS or Windows accounting program, or to a QNX-formatted floppy disk or USB removable device.

Export Tickets



TO EXPORT TICKET DATA:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡EXPORT TICKETS TO DOS FILE**.
2. The **Drive** field is selected with **A** as the default entry. Possible entries (from the browse list) are:

   A First DOS Floppy
   B Second DOS Floppy
   C First DOS Hard Disk
   D Second DOS Hard Disk
   Q QNX Directory
   W Winlink Directory
   E USB Removable Device

   Select the appropriate drive and press **[ENTER]**. The cursor moves to the **Start Date** field.
3. Select the **Start Date**. The default is today's date. You can browse for dates with tickets. Press **[ENTER]**. The cursor moves to the **End Date** field.

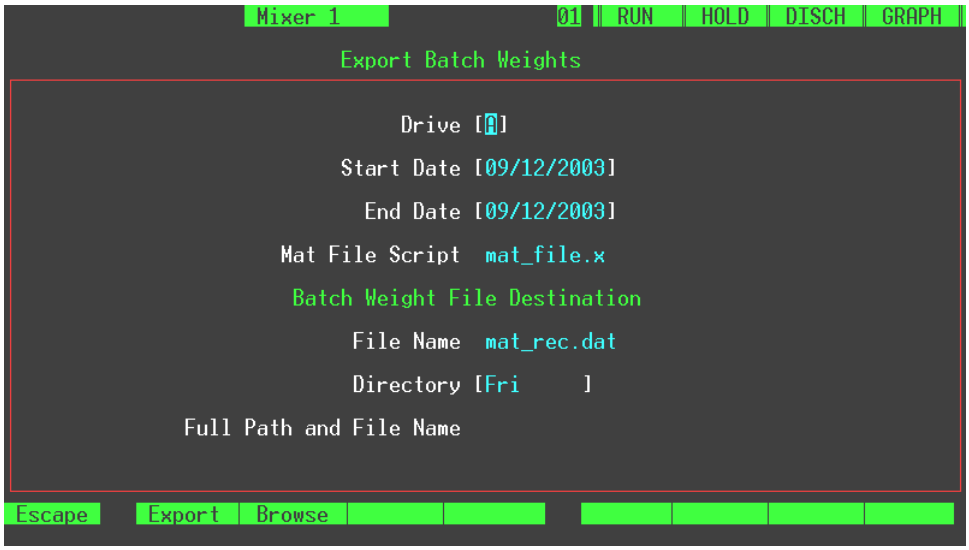
4. Select the **End Date**. The default is today's date. You can browse for dates with tickets. Press **[ENTER]**. The cursor moves to the **Ticket File Script** field.
5. Enter the ticket file script (file where ticket data is stored in Spectrum). The default is ***ticket_file.x***. Press **[ENTER]**. The cursor moves to the **File Name** field.
6. Enter the name of the file to which tickets will be exported. The default is ***ticket.dat***. (Remember: DOS file names can only have 8 characters, a period then a 3-character extension.) Press **[ENTER]**. The cursor moves to the **Directory** field.
7. Enter the directory to which ticket files will be copied. The default is the 3-letter abbreviation for the current day of the week (e.g. Tue). (NOTE: The browse list lets you choose from a list of 3-letter abbreviations for days of the week.) Press **[ENTER]**. The cursor moves to the **Full Path and File Name** field.
8. If you want to use another file path and name besides the ones specified in the **Directory** and **File Name** fields, enter it here.
9. Press **[F1]** to export the tickets.

EXPORT BATCH WEIGHTS TO QC HELPER

Note: Before you transfer data to a USB removable device, make sure the device has been set up, formatted, and connected as described in the document "Data Transfer From/To a USB Device".

This utility lets you transfer batch weight information to Command Alkon's QC Helper, to a Microsoft Windows quality control program, or to a QNX-formatted floppy disk of USB removable device.

Export Batch Weights



TO EXPORT BATCH WEIGHTS:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡EXPORT BATCH WEIGHTS TO QC HELPER.**
2. The Drive field is selected with **A** as the default entry. Possible entries (from the browse list) are:

   A First DOS Floppy
   B Second DOS Floppy
   C First DOS Hard Disk
   D Second DOS Hard Disk
   Q QNX Directory
   W Winlink Directory
   E USB Removable Device

   Select the appropriate drive and press **[ENTER]**. The cursor moves to the **Start Date** field.

3. Select the **Start Date**. The default is today's date. You can browse for dates with batch weights. Press **[ENTER]**. The cursor moves to the **End Date** field.
4. Select the **End Date**. The default is today's date. You can browse for dates with batch weights. Press **[ENTER]**. The cursor moves to the **Mat File Script** field.
5. Enter the material file script (file where batch weights data is stored in the Spectrum). The default is ***mat_file.x***. (To export load-level batch weights, enter ***mat_file_by_load.x***.) Press **[ENTER]**. The cursor moves to the **File Name** field.
6. Enter the name of the file to which batch weights will be exported. The default is ***mat_rec.dat***. Press **[ENTER]**. The cursor moves to the **Directory** field.

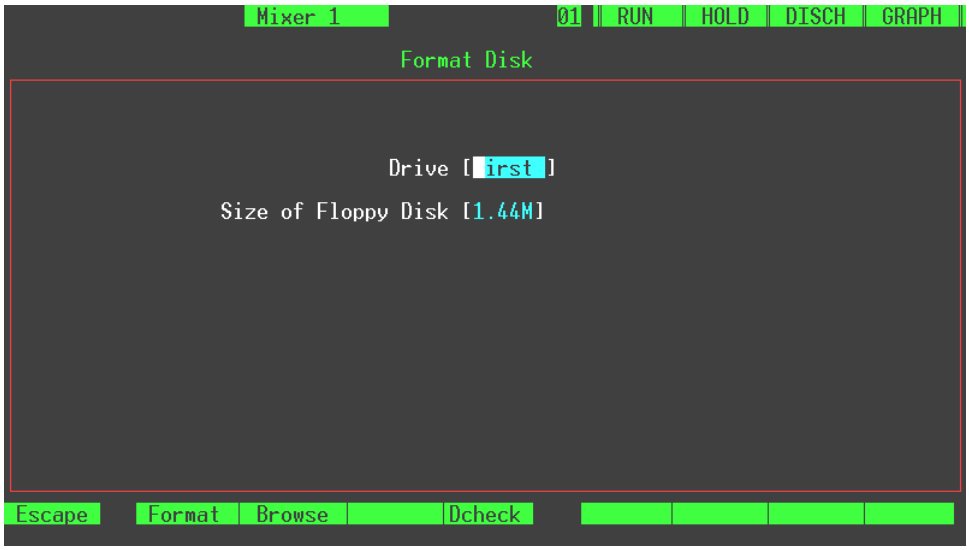
   Remember: DOS file names can only have 8 characters, a period, then a 3-character extension.
7. Enter the directory to which batch weights will be copied. The default is the 3-letter abbreviation for the current day of the week (e.g. Tue). (**Note:** The browse list lets you choose from a list of 3-letter abbreviations for days of the week.) Press **[ENTER]**. The cursor moves to the **Full Path and File Name** field.
8. If you want to use another file path and name besides the ones specified in the **Directory** and **File Name** fields, enter it here.
9. Press **[F1]** to export the batch weights.

FORMAT DISKS

This utility allows you to format a floppy disk or USB removable device on your Spectrum workstation. Spectrum allows you to format disks in QNX or DOS. Floppy disks used for data backups must be formatted in QNX. Floppy disks used for exporting ticket data must be formatted in DOS.

USB removable devices used for both data backups and ticket exports must be formatted, first, in QNX then in DOS. If it is formatted in DOS then QNX, the DOS partition will be wiped out by the QNX formatting.

Format Disk



TO FORMAT A FLOPPY DISK:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ FORMAT DISK**.
2. The **Drive** field is selected with ***First*** as the default entry. Use this if you want to format a floppy disk in the standard floppy drive. In this case, press **[ENTER]** to move to the **Size of Floppy Disk** field.

   If you need to select another drive, press **[F2]** to browse the **Drive** field. Select the appropriate drive and press **[ENTER]**. Press **[ENTER]** again to move to the **Size of Floppy Disk** field.

   The following table shows the type of formatting that can be accomplished with each drive selection.

DRIVE	TYPE OF FORMATTING
First	Formats a disk placed in the first floppy drive in a

	QNX format.
Second	Formats a disk placed in the second floppy drive in a QNX format.
A	Formats a disk placed in the first floppy drive in a DOS format.
B	Formats a disk placed in the second floppy drive in a DOS format.
USB	Formats a USB removable device in a QNX format. (See the instructions below for formatting a USB removable device.)

3. In the **Size of Floppy Disk** field, ***1.44 M*** is the default. (You can select another one from the browse list, then press **[ENTER]** to enter it in this field.)
4. Press **[F1]** to start the formatting process. Follow the on-screen instructions.

FORMATTING A USB REMOVABLE DEVICE FOR QNX

Before you can write to a USB device from Spectrum, it must be formatted for QNX. **Only do this once because all data on the device is erased!**

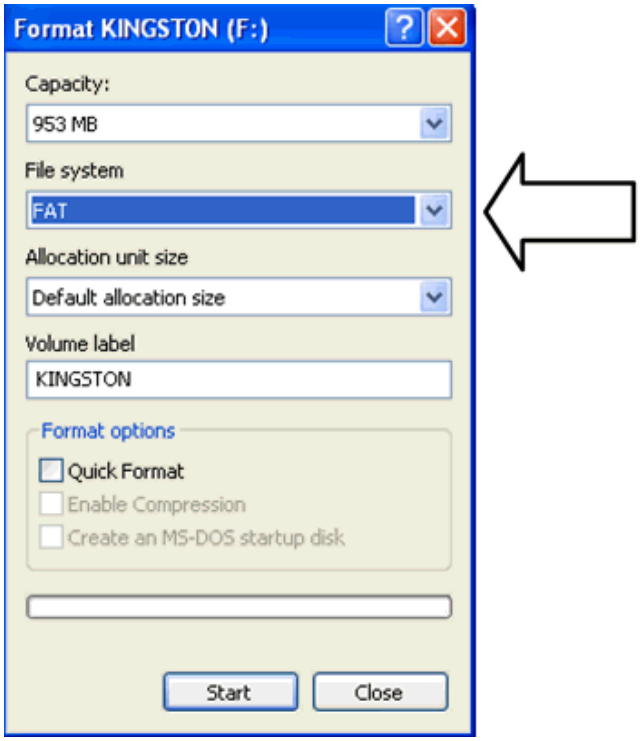
1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ FORMAT DISK**.
2. In the Drive field, select **USB**.
3. Press **[F1]** then follow the on-screen instructions.

FORMATTING A USB REMOVABLE DEVICE FOR DOS

If the USB device will be used to transfer/store data in a DOS/Windows format, you will need to format the device on a Windows PC. (The following example uses a Windows XP SP2 PC.)

1. Connect the USB device to the Windows PC.
2. After Windows recognizes the device, open My Computer and locate the icon/name for the USB device (it might be labeled "Removable Disk").
3. Right Click on the USB device icon/name and select "Format".

The Format window is displayed.



4. Make sure that the File System entry is set to "FAT".

Note: A USB device formatted under Windows must be formatted using the FAT File System to produce a T6 partition type that QNX supports.

5. Click Start.

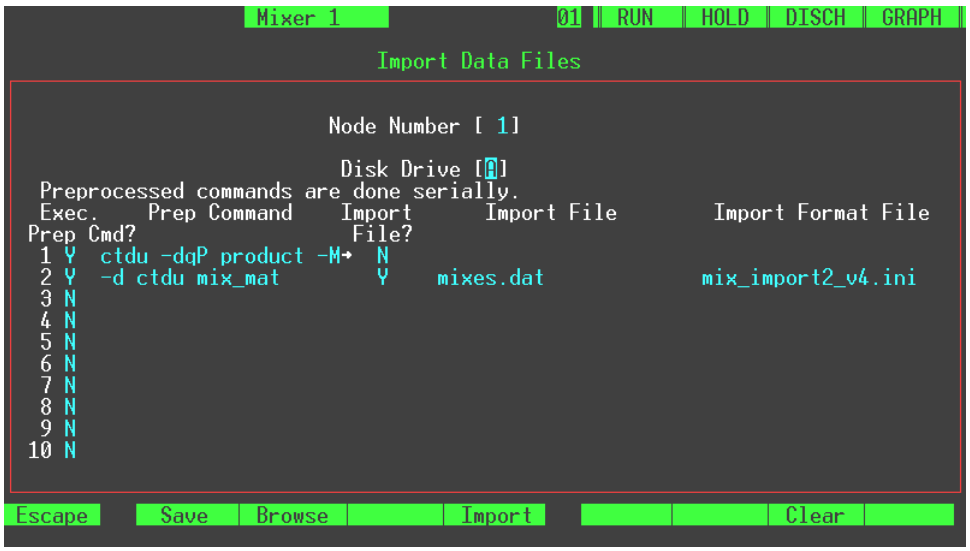
6. When formatting is finished, close and safely remove the USB device.

The USB device now contains a 100 MB DOS partition. The remainder of the storage space on the device is the QNX partition.

IMPORT DATA FILES

This utility lets you import data files from a floppy disk. It is typically used for importing mix designs. Up to ten data files can be imported. For each file, you must enter the name of the file and the name of the Spectrum initialization file (see the sample screen below).

Import Data Files



Note: The ➡ in the first command on the above screen means you have to scroll to the right to see the rest of the command. The complete command is:

ctdu –dqP product –M product_type=M.

TO IMPORT MIX DESIGNS:

1. Select **MAIN MENU➡SYSTEM MAINTENANCE➡DISK UTILITIES➡ IMPORT DATA FILES**.
2. Select the **Node Number** of your Spectrum computer and press **[ENTER]**.
3. Select the **Disk Drive** containing the floppy disk. Choices are:

A	First DOS Floppy
B	Second DOS Floppy
C	First DOS Hard Disk
D	Second DOS Hard Disk
Q	QNX Directory
W	Winlink Directory
E	USB Removable Device

4. Enter the appropriate pre-process commands, mix file name, and import "ini" file. (See the sample screen on the previous page.) Be sure to enter a **Y** for the prep commands and import line.
5. Press **[F4]**. The system deletes mix designs and material records from the Spectrum, and imports mix designs from the floppy. (Slump information is included in our example.)

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