WESTERN SCALE CO. LIMITED

M2000

PRINTING & TICKET EDITING GUIDE

** BASED ON M2000 VERSION 1.45 **
** MARCH 1, 2004 **

M2000 DIGITAL WEIGHT INDICATORS
PRINTING & TICKET EDITING GUIDE
(WITH APPLICATIONS & EXAMPLES)

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THE TICKET EDITOR & GENERAL PRINTING INFORMATION

PRINTING WITH THE M2000

The M2000 is easily configured to provide you with total printing freedom. Create and generate tickets without the need for a PC or data controller.

This Printing Guide provides information for Western Scale customers regarding the M2000 CUSTOM TICKET EDITOR and the accompanying CUSTOM TICKET FORMATTER Software package.

M2000 PRINTING FEATURES

- Print to practically **ANY** printer.
- Easily create customized weight tickets. Multiple tickets (**up to 100)** can be used.
- The M2000 has **4 kilobytes** of memory dedicated to tickets. This memory is referred to as the **TICKET BUFFER**.
- Explore the versatility of the M2000 using tickets to create customized indicator functions.
- Create and edit tickets on-site with the built-in **TICKET EDITOR**. No equipment needed!
- Create and edit tickets faster and easier with the **TICKET FORMATTER** software (PC Required).
- Assign **"HOT KEYS"** to tickets.

THINGS TO REMEMBER:

- Ticket numbers are **assigned by the M2000** when you create a new ticket. Ticket numbers can be anywhere between **200** and **299**.
- The M2000 will not print if the scale is in **MOTION** or **OVERLOADED!**
- If multiple tickets are used, the M2000 recalls the last ticket number printed. For repeat issues of a ticket, only the **[PRINT/SELECT]** key needs to be pressed.

GETTING STARTED

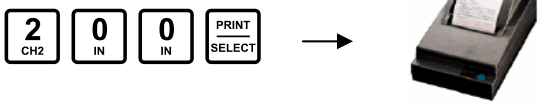
COM PORTS

	COM 1 DEFAULT SETTINGS	COM 2 DEFAULT SETTINGS
Baud Rate	9600	9600
Parity	None	None
Data Bits	8 (fixed)	8
Stop Bits	1	1
String Output	[PRINT/SELECT] KEY	Continuous
Flow Control	None	None

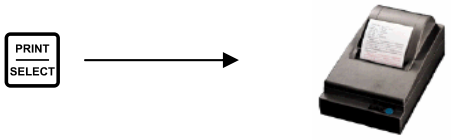
IT IS IMPORTANT TO NOTE THAT, IN ORDER TO PRINT TICKETS, THE COM PORTS ON THE M2000 MAY REQUIRE CONFIGURATION. PLEASE CONSULT THE "SERIAL COMMUNICATIONS" SECTION OF THE M2000 TECHNICAL MANUAL.

PRINT A TICKET

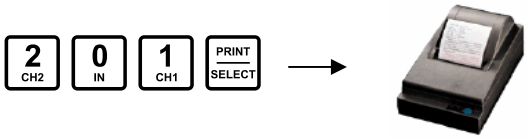
In **Normal Weighing Mode**, tickets are called by number, the same way M2000 functions are selected. Enter the **Ticket number** followed by the **[PRINT/SELECT]** key.



To print this ticket again, just press the **[PRINT/SELECT]** key. The M2000 recalls the last ticket format printed.



To print a different ticket format (Ex. Ticket **200** = Inbound ticket and Ticket **201** = Outbound ticket), enter the new ticket number followed by the **[PRINT/SELECT]** key.



To avoid having to switch the ticket number often, assign different tickets to **HOT KEYS** on the M2000. (See Page **17**)

THE TICKET EDITOR

Tickets are created and edited in the **M2000 TICKET EDITOR MODE**. The technician uses a combination of commands to send text and weight values to the printer. The tickets are stored in the M2000's Ticket Buffer.

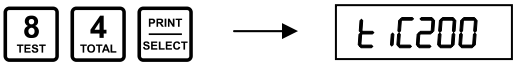
ENTER TICKET EDITOR MODE

Ticket Editor Mode is entered via **Parameter 84** or **Parameter 85** in the M2000's **Calibration Mode**.

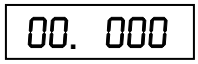
CREATE A NEW TICKET - PARAMETER 84

Description: Adds a new ticket to the end of the ticket buffer. The new ticket's number will be displayed briefly. The M2000 then switches over to **TICKET EDITOR MODE**.

1. With the M2000 in Calibration Mode, enter Parameter 84. The ticket number (200 to 299) will be displayed. **NOTE THIS TICKET NUMBER!**



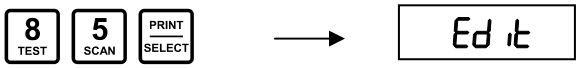
2. The Display will then show the Ticket Editor screen. (See Page **5**)



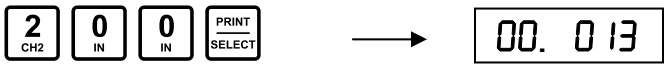
EDIT AN EXISTING TICKET - PARAMETER 85

Description: Allows entry to the **TICKET EDITOR MODE** to alter or edit an existing ticket. The ticket number is entered and the M2000 loads the ticket. The ticket can then be modified.

1. With the M2000 in Calibration Mode, enter Parameter 85. The "EDIT" screen will be displayed.

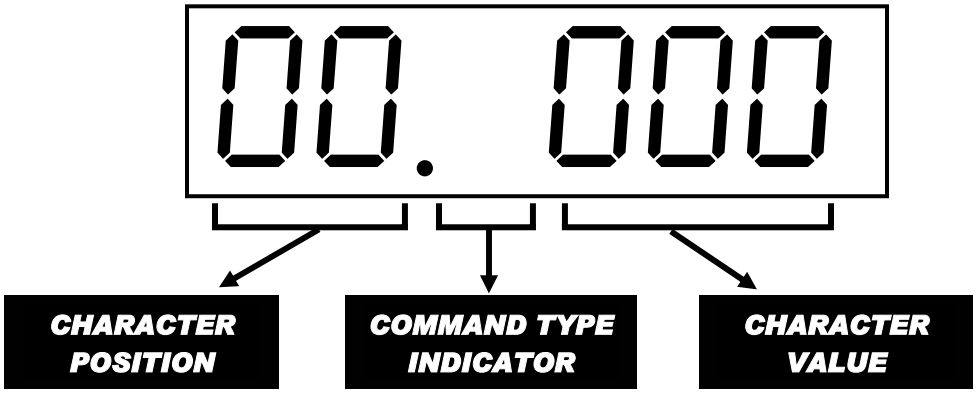


2. Enter the number of the ticket to edit (200 to 299).



3. The Display will then show the Ticket Editor screen at the beginning of the ticket. (See Page **5**)

THE TICKET EDITOR SCREEN



CHARACTER POSITION

First 2 Digits: Represent the position in the ticket string where a character is placed. **0** is the first position. Please Note: If the ticket exceeds 99 characters, the display will roll over to **0**. However, the ticket can be longer than 99 characters.

COMMAND TYPE INDICATOR

3rd Digit: Indicates which Command (Character) Type is being issued to the printer.

VALUE	DESCRIPTION
Blank Space	Represents an *ASCII character. As shown above.*
C	Represents an *indicator specific* **Control Code**.
P	Represents a *printer specific* control code called a **Print Code**.

CHARACTER VALUE

Last 3 Digits: The value displayed represents the actual character. Depending on the Command type, this number will be the ASCII character value, the Control Code number, or the Print Code number.

EXIT THE TICKET EDITOR

To exit the Ticket Editor and return to Calibration mode, use **Control code 99**. To exit without saving changes, use **C98**. Tickets are not permanently saved until Calibration mode is exited. (See Control Codes – Page **9**)

TICKET EDITOR KEY FUNCTIONS

Once the M2000 is in **Ticket Editor Mode**, the Function keys take on a new role.

PRINT / SELECT

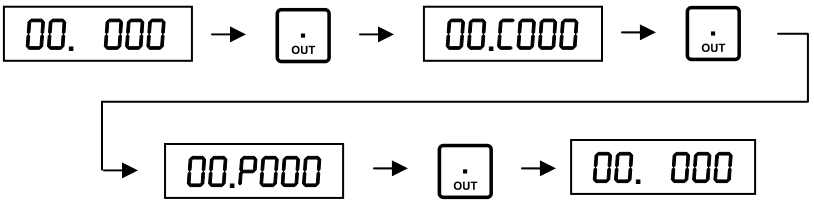
Enters commands like in other M2000 operating modes.

Enter a parameter or command followed by the **[PRINT/SELECT]** key. For example, to select an ASCII Carriage Return (Decimal Value 13):

. OUT

Toggle Command Type (ASCII, CONTROL, or PRINT).

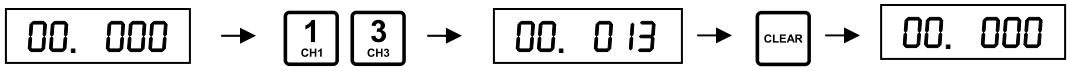
Toggles the Command Type between **ASCII** entry, **Control Code** entry, and **Printer Code** entry modes.



CLEAR

CLEAR COMMAND.

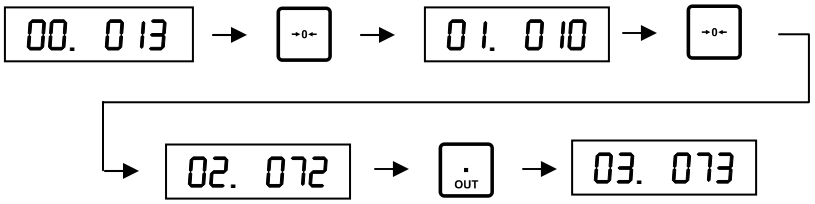
Aborts the command without saving and returns the display to its previous state.



→0←

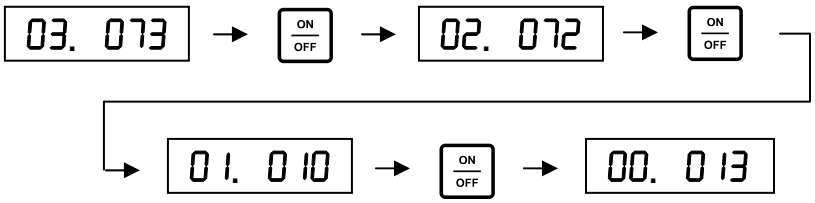
MOVE THE CURSOR TO THE RIGHT IN THE TICKET STRING.

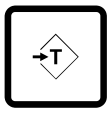
Pressing the **[ZERO]** key scrolls the display one character to the right (towards “END” position).



MOVE THE CURSOR TO THE LEFT IN THE TICKET STRING.

Pressing the **[ON/OFF]** key scrolls the display one character to the left (back towards position “00”).



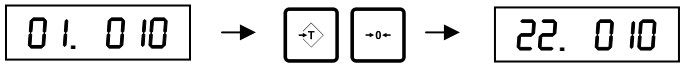


JUMP TO LINE FEED, BEGINNING, OR END OF TICKET.

This key is used in conjunction with the **[ON/OFF]** and **[ZERO]** keys.

ADVANCE TO THE NEXT LINE FEED.

Pressing the **[TARE]** key once followed by the **[ZERO]** key will jump to the next LF character.



GO TO END OF TICKET.

Pressing the **[TARE]** key twice, followed by the **[ZERO]** key, will jump to the end of the ticket.

GO TO START OF TICKET.

Pressing the **[TARE]** key twice, followed by the **[ON/OFF]** key, will jump to the start of the ticket.

ENTERING COMMANDS

There are 3 types of commands used in the M2000 Ticket Editor

ASCII VALUES:

Used to create the unchanging, text portions of a ticket. ASCII characters can be simply defined as any printable character, or characters that can be typed on a computer keyboard.

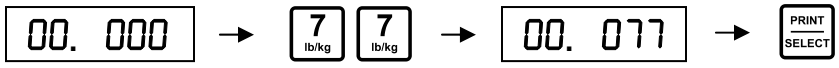
- "**A**" is an ASCII character.
- "**a**" is an ASCII character.
- "**+**", "**$**", and "**?**" are all ASCII characters.

All ASCII characters have a corresponding decimal (number) value used to enter text and other characters in the Ticket Editor. For example, the Capital letter "**A**" has a numeric value of **65**.

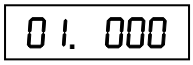
A complete list of ASCII characters and their decimal values can be found at the end of this guide in **APPENDIX A**.

ENTERING AN ASCII CHARACTER (TEXT)

1. Use the **[ON/OFF]** and **[ZERO]** keys to place the cursor at the appropriate position in the ticket string.
2. The Command Type Indicator should be a blank space. Use the **[OUT]** key to toggle the Command Type Indicator (if necessary).
3. Use the ASCII chart to look up the character's decimal value. Example: **M = 77**.
4. Use the numeric keypad to enter this value, followed by the **[PRINT/SELECT]** key.



5. **The Ticket Editor screen will now display the next character position.**



CONTROL CODES:

Control Codes represent a specific M2000 function like **PRINT TIME** or **PRINT GROSS WEIGHT**. The technician enters these numeric codes to quickly and easily get the M2000 to perform specific tasks without having to program the indicator. For example:

- **PRINT TIME** has a Control Code of **20**.
- **PRINT GROSS WEIGHT** has a Control Code of **30** (Scale Channel 1).

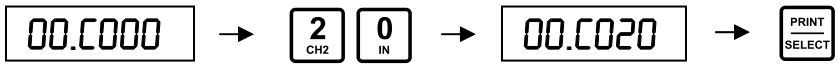
A complete list of Control Codes and their function descriptions can be found at the end of this guide in **APPENDIX B**.

ENTERING A CONTROL CODE

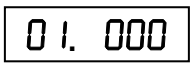
Control Codes are entered in the same fashion as ASCII codes, with one exception.

1. Place the cursor at the appropriate position in the ticket string.
2. Press the **[OUT]** key (once) until the letter "**C**" appears in the Command Type Indicator.

3. Use the numeric keypad to enter the Control Code value, followed by the **[PRINT/SELECT]** key. Example: **PRINT TIME = C20**.



4. **The Ticket Editor screen will now display the next character position.**



PRINTER CODES:

Printer Codes work exactly the same way as Control Codes for indicator specific functions. They are Control Codes for printers. The difference is that the numeric code represents a control function for a specific printer. Examples of Printer Codes are:

- **CHANGE THE FONT SIZE** of the characters.
- **PRINT IN UNDERLINE MODE**.

PRINTER CODES ARE PRINTER SPECIFIC! A PRINTER CODE FOR AN EPSON TM-U295 IS NOT NECESSARILY THE SAME FOR AN OKIDATA ML 320!

A complete list of Printer Codes and their function descriptions can be found at the end of this guide in **APPENDIX C**.

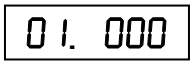
ENTERING A PRINTER CODE

Printer Codes are entered in the same fashion as ASCII and Control Codes, with one exception.

1. Place the cursor at the appropriate position in the ticket string.
2. Press the **[OUT]** key (twice) until the letter "**P**" appears in the Command Type Indicator.

3. Use the numeric keypad to enter the Printer Code value, followed by the **[PRINT/SELECT]** key. Example: **TM-U200, DOUBLE THE PRINTER FONT HEIGHT = P101**.

4. **The Ticket Editor screen will now display the next character position**.



ASCII ESCAPE CODES

Several different Printer Codes are available for a variety of different printers. If a specific Printer Code is not provided for a printer, or printer function, ASCII Escape Codes can be created. An index of Escape Codes is usually found in the back of the printer's manual.

ENTERING AN ESCAPE CODE

EXAMPLE: Reverse the paper feed 5 lines after printing.

Looking at the M2000's Printer Codes for the **TM-U295**, we see that there is a code for feeding the paper a certain number of lines, but not for reverse.

Referring to the **TM-U295 manual**, we find there is an Escape Code for this function.

<ESC>en, where n is the number of lines (**5**).

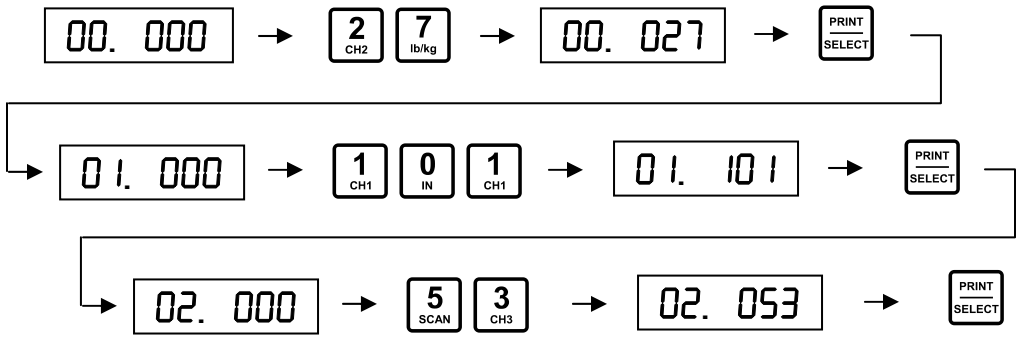
REMEMBER: ESCAPE CODES ARE ASCII COMMANDS!

1. Place the cursor at the appropriate position in the ticket string.

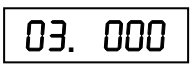
2. The Command Type Indicator should be a blank space. Use the **[OUT]** key to toggle the Command Type Indicator (if necessary).

3. Use the ASCII chart to look up the characters' decimal values. **<ESC> = 27**, **e = 101**, **5 = 53**.

4. Use the numeric keypad to enter these ASCII values, followed by the **[PRINT/SELECT]** key.



5. **The Ticket Editor screen will now display the next character position**.



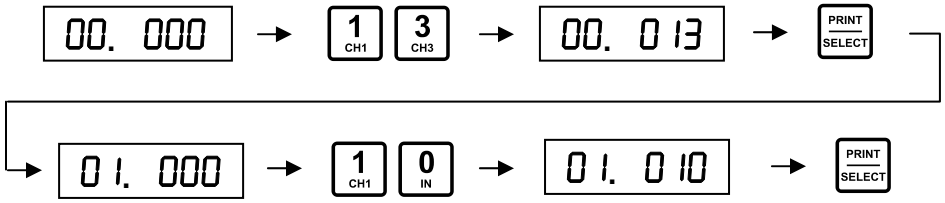
EXAMPLE: CREATE A SIMPLE TICKET

- **Utilize the ASCII, CONTROL, and PRINT codes to print the company name (M2000), current DATE, plus the GROSS weight.**
- **For simplicity, the ticket is laid out on a line by line basis.**

1. Enter Calibration Mode.

2. Enter the Ticket Editor to create a new ticket (**Parameter 84**). If this is the first ticket, it will be assigned the number **200** by the M2000.

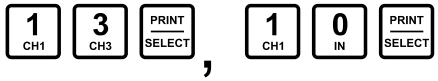
3. Start with a **Carriage Return** and **Line Feed** (Good programming practice). From the ASCII table, **CR = 13**, **LF = 10**.



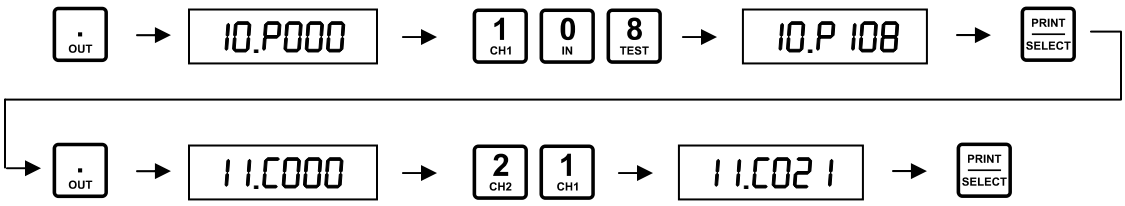
4. Add the Company Name (M2000) to the ticket in a double height font. From the Printer Codes table, **Double height = P101**.

5. **M2000** from the ASCII table, **M = 77, 2 = 50, 0 = 48**.

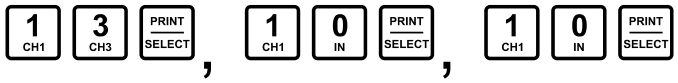
6. Add another **Carriage Return** and **Line Feed** to move down a line.



7. Use the Printer and Control Codes to print the DATE in the normal font size. **Reset to normal character size = P108**. From the Control Codes table, **Print Date = C21**.



8. Add a **Carriage Return** and a few **Line Feeds** to separate the Header from the weight data.



9. Print the text **"GROSS"**. From the ASCII table, **G = 71**, **R = 82**, **O = 79**, **S = 83**.

10. Add a space. **Space = 32**.

11. Print the GROSS weight from the M2000. From the Control Codes table, **Print GROSS weight = C30**.

12. Add a **Carriage Return** and **Line Feed** to end the ticket.

13. Exit the Ticket Editor. **Control Code = 99**.

The Ticket String will look like this:

Position	Command
0	13
1	10
2	P101
3	77
4	50
5	48
6	48
7	48
8	13
9	10

Position	Command
10	P108
11	C21
12	13
13	10
14	10
15	71
16	82
17	79
18	83
19	83

Position	Command
20	32
21	C30
22	13
23	10
24	End

The Ticket itself will look like this:

M2000
24/02/2004

GROSS 2684 kg

EDITING TICKETS

HOW TO INSERT A CHARACTER IN THE EDITOR

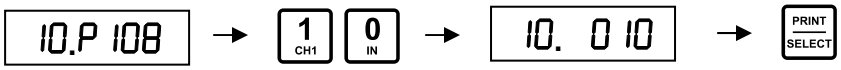
Characters can be inserted at any time. When a character is inserted, the replaced character is pushed forward one position in the ticket string.

EXAMPLE: Add another Line Feed after "M2000" (See **EXAMPLE 1** - Page **12**).

1. Move the cursor to the position where you want to insert the character.

2. ASCII Commands are the default. For Control or Printer code commands, press the **[OUT]** key until the "C" or "P" appears in the Command Type Indicator.

3. Use the numeric keypad to enter the Code value, followed by the **[PRINT/SELECT]** key.



4. **The Ticket Editor screen will now display the next character position**. Note **P108** is pushed forward to position 11 in the ticket string.

Position	Command
0	13
1	10
2	P101
3	77
4	50
5	48
6	48
7	48
8	13
9	10

Position	Command
*10	10
*11	P108
12	C21
13	13
14	10
15	10
16	71
17	82
18	79
19	83

Position	Command
20	83
21	32
22	C30
23	13
24	10
25	End

Think of it this way: You have a ticket with the letters **ABDEF**. To insert the letter **C**, move to the character position where **D** is located. Enter the letter **C**. The ticket will now read **ABCDEF**.

DELETE A CHARACTER IN THE EDITOR

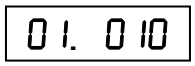
To delete a character entry in the Ticket Editor, use Control Code **C1**.

1. Place the cursor at the appropriate address.

2. Press the **[OUT]** key until the letter "**C**" appears in the Command Type Indicator.

3. Use the numeric keypad to enter the Control Code value, followed by the **[PRINT/SELECT]** key.

4. The remaining characters in the Ticket String shift back to fill the space left by the deleted character. **The Ticket Editor screen will <u>NOT</u> advance**.



OVERWRITE A CHARACTER IN THE EDITOR

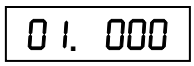
To overwrite a character entry, use Control code **C2**. The Ticket Editor will replace the entry with zeroes. A new value can now be entered.

1. Place the cursor at the appropriate address.

2. Press the **[OUT]** key until the letter "**C**" appears in the Command Type Indicator and enter the Control Code.

3. Use the numeric keypad to enter the new character value, followed by the **[PRINT/SELECT]** key.

4. **The Ticket Editor screen will <u>NOT</u> advance**.



USEFUL TICKET EDITOR PARAMETERS & FUNCTIONS

DISPLAY THE NUMBER OF TICKETS - PARAMETER 86

Description: Displays the number of tickets that are saved in the ticket buffer.

DISPLAY AVAILABLE TICKET BUFFER MEMORY - PARAMETER 87

Description: Displays the amount of memory remaining for storing tickets (4K). The Ticket Buffer can hold up to 4000 characters in total. For most applications, the Ticket Buffer memory will not be a concern.

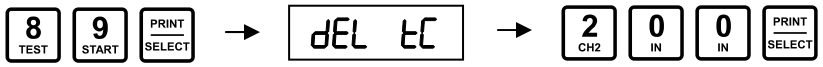
DELETE ALL TICKETS - PARAMETER 88

Description: This parameter will erase **ALL** custom ticket formats in memory. The technician will be prompted for the Password. All ticket formatting data will be lost. Press **[CLEAR]** key to abort.

DELETE SINGLE TICKET - PARAMETER 89

Description: Deletes a single ticket from the Ticket Buffer memory. The technician will be prompted for a ticket number to delete, and the Password. Press the **[CLEAR]** key to abort.

EXAMPLE: Delete Ticket 200.

1. 

2. 

ASSIGN TICKET TO [PRINT/SELECT] KEY - PARAMETER 91

Description: This parameter allows the user to select which ticket will be the default ticket when the indicator powers up. Enter the desired ticket number in this parameter.

The ticket will print when **[PRINT/SELECT]** is pressed.

ASSIGN TICKET TO [IN] KEY - PARAMETER 92

Description: The **[IN]** key on the keypad can be assigned a ticket number. Enter the desired ticket number in this parameter.

When printing, instead of entering the whole ticket number, press the **[IN]** key followed by the **[PRINT/SELECT]** key.

This feature is specifically designed for **Truck-In** sequences.

ASSIGN TICKET TO [OUT] KEY - PARAMETER 93

Description: The **[OUT]** key on the keypad can be assigned a ticket number. Enter the desired ticket number in this parameter.

When printing, instead of entering the whole ticket number, press the **[OUT]** key followed by the **[PRINT/SELECT]** key.

This feature is specifically designed for **Truck-Out** sequences.

ASSIGN TICKET TO BARCODE SCANNER - PARAMETER 95

Description: Assigns a ticket number to be automatically printed when the M2000 receives a barcode scanner string. For more information, please refer to the **M2000 Technical Manual**.

NOTES:

TICKET FORMATTER SOFTWARE

THE TICKET FORMATTER

The Ticket Formatter software creates tickets based on the same principles as the M2000's built-in Ticket Editor. There are, however, some distinct advantages that make ticket creation and editing faster and easier.

- **View the entire ticket string.**
  See your work as you progress through the ticket.

- **No scrolling through character "addresses".**
  Use the mouse or PC keyboard to place the cursor where you want it.

- **Enter text with a PC keyboard.**
  ASCII codes for text are virtually eliminated.

- **Have ASCII, Control, and Printer Code tables right on the screen.**
  No flipping back and forth.

- **Access a library of Ticket examples.**
  Use or alter a pre-produced ticket.

- **Perfect your skills.**
  Faster and easier means more time to experiment and learn.

OPEN THE TICKET FORMATTER

The M2000 Ticket Formatter Software is available from www.westernscale.com or by contacting the Western Scale Co. Ltd. factory. The software comes complete with Help files and all the ticket examples from this guide.

Save the M2000 Ticket Formatter Software to your computers hard drive. An icon is available for creating a shortcut.

Double click on this icon to open the program.

M2000 Ticket Formatter.ico

PLACING PRINTABLE TEXT ON THE TICKET

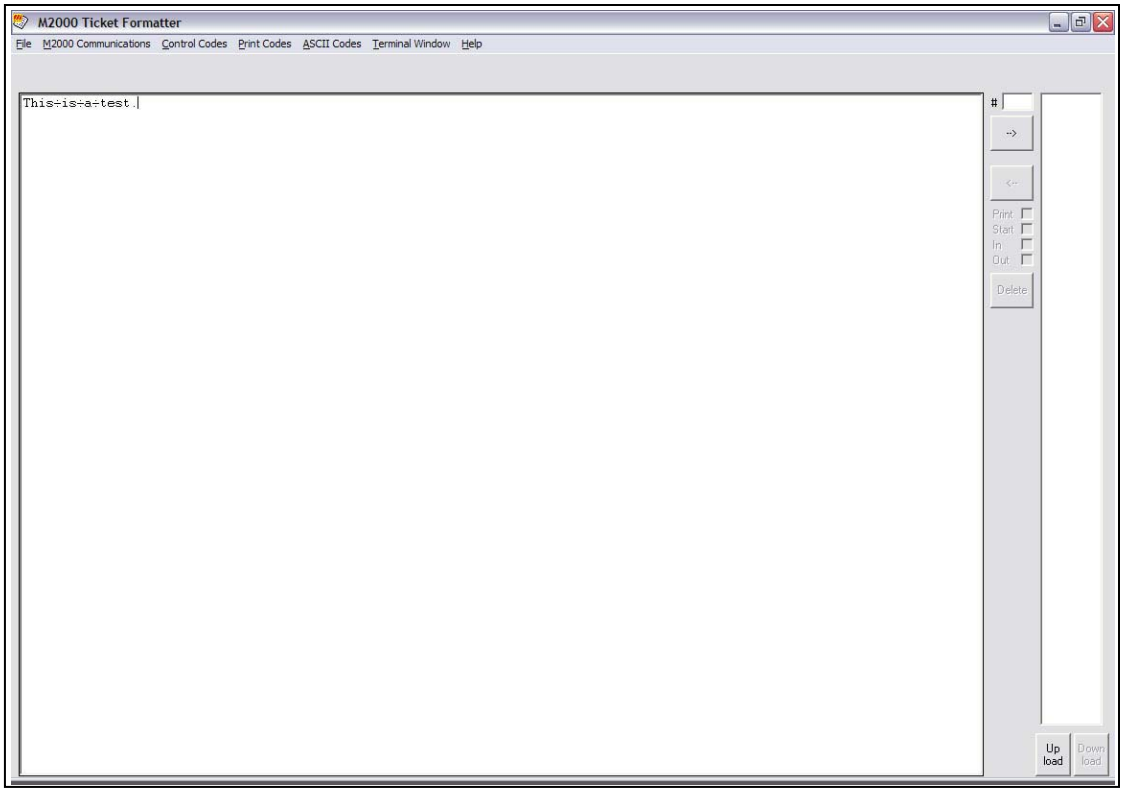
Click anywhere on the Ticket Editor box (*the big white area that occupies most of the program's window*) and simply type the text, as you want it to appear on the ticket. ASCII codes are not necessary.

Printable text will appear **BLACK** in colour.

When the **ENTER** key is pressed, a **"¬"** will appear on the screen.

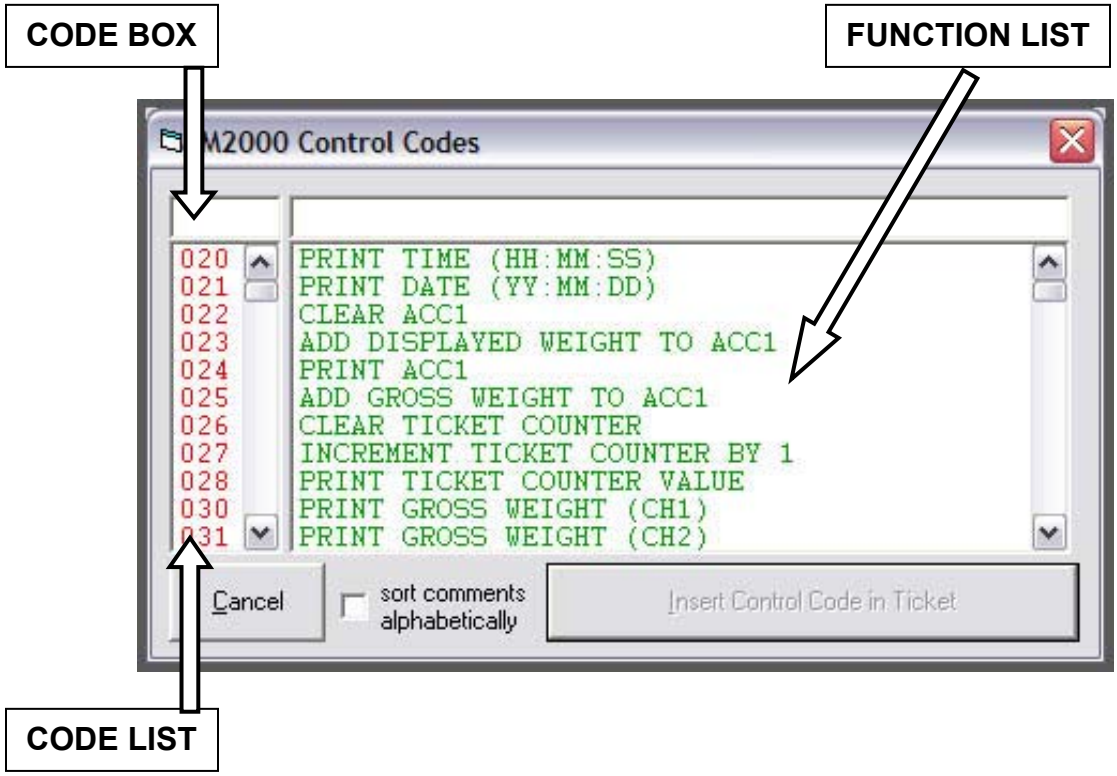
Pressing the **SPACE BAR** will display a **"÷"**.

The printed ticket will not actually show these characters, but they are made visible in the Ticket Editor Box for reference. **ENTER** and **SPACE BAR** will execute a Carriage Return/Line Feed or print a blank space respectively.



PLACING CONTROL CODES (C CODES) IN THE TICKET

On the Menu bar, click **"Control Codes"** or hold down the **'Alt' key** and press **"C"**. The Control Code Window will appear.



METHOD 1: CLICK THE C CODE:

1. If you already know which Control Code you want to use, click the C Code in the **Code List**. The C Code will appear in the **Code Box**, followed by a description of its function.

2. The **"Insert Control Code in Ticket"** Button will be enabled. Click this Button or press **ENTER** to insert the C Code in the ticket.

-OR-

3. To complete the insertion faster, just double click the C Code in the **Code List**.

METHOD 2: TYPE THE C CODE:

1. The code may also be typed into the **Code Box**. If the C Code is valid, the **"Insert Control Code in Ticket"** Button will be enabled.

2. Click this Button or press **ENTER** to insert the C Code in the ticket.

METHOD 3: CLICK THE FUNCTION:

1. If you don't know which C Code to use, scroll through the code functions in the **Function List**.

2. Click on the desired function and the corresponding C Code will appear in the **Code Box**. The **"Insert Control Code in Ticket"** Button will be enabled.

3. Click this Button or press **ENTER** to insert the C Code in the ticket

-OR-

4. To complete the insertion faster, just double click the C Code in the **Code List**.

Function descriptions will help you find a particular code. They do not provide any specifics about that code. For complete explanations on all Control and Print Codes, please refer to **APPENDIX B – Control Codes** & **APPENDIX C – Printer Codes**.

ABOUT CONTROL CODES

- **Valid Control Codes are inserted in the ticket at the current cursor location.**

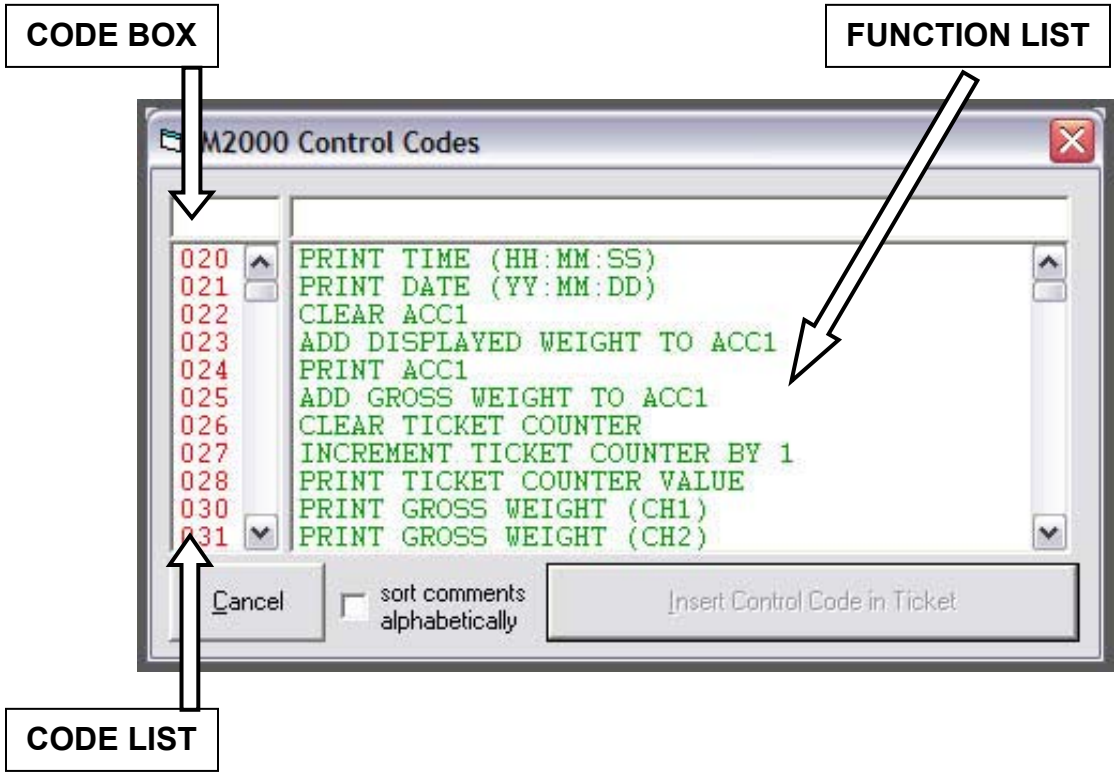
- **In the Ticket Editor Box, Control Codes appear RED in colour with the prefix "C".**

- **Function descriptions are automatically treated as comments and appear in GREEN.**

- **Neither the code nor the description will appear on the actual printed ticket, instead the M2000 will execute the function that is associated with the particular Control Code or Print Code.**

PLACING PRINTER CODES (P CODES) IN THE TICKET

On the Menu bar, click **"Print Codes"** or hold down the **'Alt' key** and press **"P"**. The Print Code Window will appear.



METHOD 1: CLICK THE P CODE:

4. If you already know which Print Code you want to use, click the P Code in the **Code List**. The P Code will appear in the **Code Box**, followed by a description of its function.

5. The **"Insert Print Code in Ticket"** Button will be enabled. Click this Button or press **ENTER** to insert the P Code in the ticket.

-OR-

6. To complete the insertion faster, just double click the P Code in the **Code List**.

METHOD 2: TYPE THE P CODE:

3. The code may also be typed into the **Code Box**. If the P Code is valid, the **"Insert Print Code in Ticket"** Button will be enabled.

4. Click this Button or press **ENTER** to insert the P Code in the ticket.

METHOD 3: CLICK THE FUNCTION:

5. If you don't know which P Code to use, scroll through the code functions in the **Function List**.

6. Click on the desired function and the corresponding P Code will appear in the **Code Box**. The **"Insert Print Code in Ticket"** Button will be enabled.

7. Click this Button or press **ENTER** to insert the P Code in the ticket

-OR-

8. To complete the insertion faster, just double click the P Code in the **Code List**.

Function descriptions will help you find a particular code. They do not provide any specifics about that code. For complete explanations on all Control and Print Codes, please refer to **APPENDIX B – Control Codes** & **APPENDIX C – Printer Codes**.

ABOUT PRINT CODES

- **Valid Print Codes are inserted in the ticket at the current cursor location.**

- **In the Ticket Editor Box, Control Codes appear BLUE in colour with the prefix "P".**

- **Function descriptions are automatically treated as comments and appear in GREEN.**

- **Neither the code nor the description will appear on the actual printed ticket, instead the M2000 will execute the function that is associated with the particular Control Code or Print Code.**

PLACING ASCII CODES ON THE TICKET

On the Menu bar, click **"ASCII Codes"** or hold down the **'Alt' key** and press **"A"**. The ASCII Code Window will appear, showing all ASCII codes from **0** to **31** along with their respective hexadecimal values, binary values, 'Ctrl' characters and code names.

- Insert any of these ASCII codes into the ticket by double-clicking them.

-OR-

- Insert any other ASCII code (32 to 255) by typing the code in the **Code Box** and pressing **ENTER**.

ABOUT ASCII CODES

- **Valid ASCII Codes are inserted in the ticket at the current cursor location.**
- **In the Ticket Editor Box, all non-printable ASCII values (0 to 31 and 127 to 255) appear MAGENTA in colour with the prefix "A".**
- **All printable ASCII values (32 to 126) will be shown as a normal character (BLACK).**
- **Normally, non-printable ASCII values (*or even combinations of non-printable and printable ones*) will not show up on the actual printed ticket. Instead the printer will execute an internal printer specific command (*e.g. cutting the paper*).**

A complete list of ASCII characters and their decimal values can be found at the end of this guide in **APPENDIX A**.

PROGRAMMER COMMENTS

It is possible (and helpful) to include comments in a ticket. However, comments are not transferred to the M2000 when the Ticket Block is downloaded.

To start Comment Mode:

1. Hold down the **'Ctrl'** key and press the **SPACE BAR**.
2. Anything you type after that is considered a comment and will appear **GREEN** in colour.

To get out of Comment Mode and back to typing normal text, either:

A) Press **'Ctrl'** and **'T'** (To continue typing test on the current line).

-OR-

B) Press **ENTER** (To begin typing text on the next line).

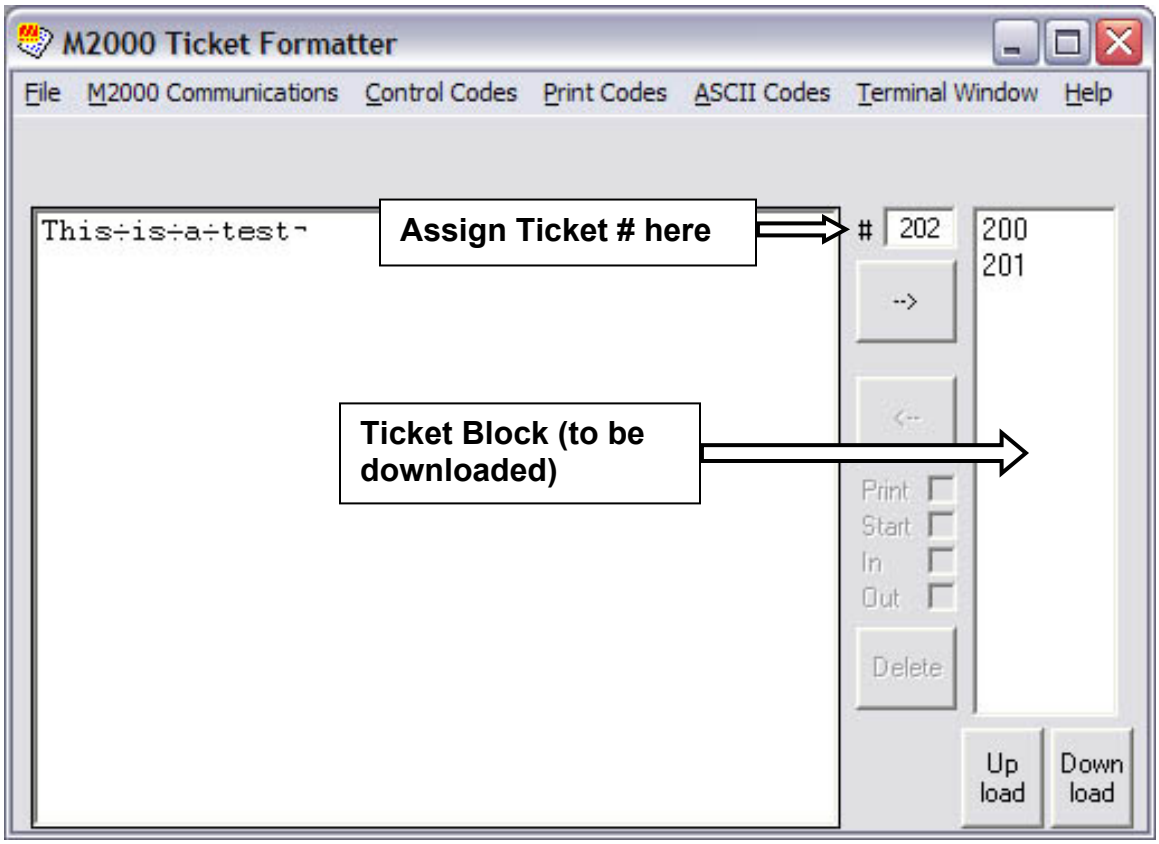
For multi line comments, press 'Ctrl' and ENTER instead of ENTER alone.

When inserting Control Codes, Print Codes or ASCII Codes, the program automatically places comments as text, spaces or line feeds.

COMBINING TICKETS FOR DOWNLOADING

(ADD TICKETS TO THE TICKET BLOCK)

- Tickets cannot be downloaded individually.
- All tickets to be used in the same M2000 must be downloaded together in a **"Ticket Block"**.
- The block of tickets to be downloaded is shown on the right hand side of the Program window.
- The ticket shown in the Ticket Editor box can be moved into the block by first assigning a number to it (200 to 299) and then clicking the **'→'** button.
- To add a saved ticket, go to the File Menu and select "Open Ticket". The ticket will be shown in the Ticket Editor box. Assign a number to it (200-299) and click the **'→'** button.
- **All tickets currently stored in the M2000 will be overwritten!** To avoid deleting tickets, upload them into the Ticket Formatter first, then add them to the Ticket Block.



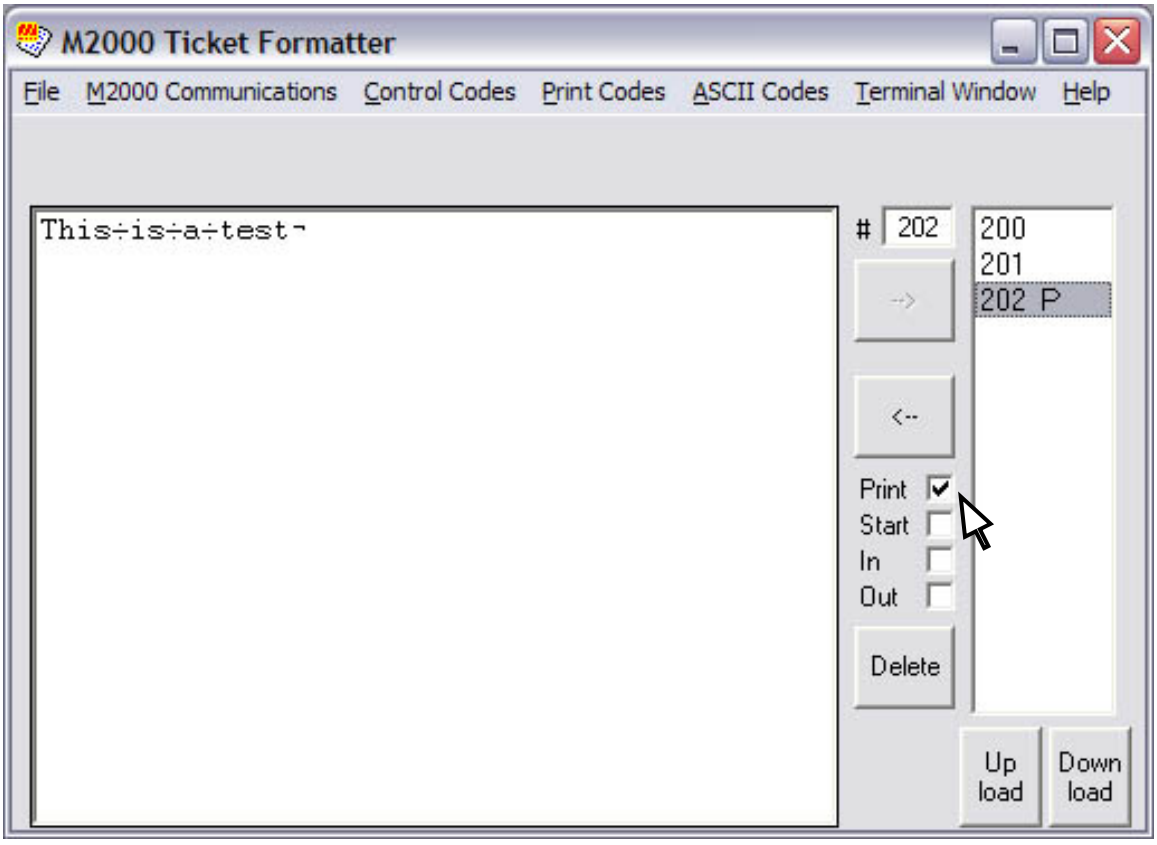
ASSIGNING A TICKET TO A HOT KEY

Tickets may be assigned to any of the M2000's four ticket HOT keys (**[PRINT/SELECT], [START], [IN], [OUT]**).

1. Click the ticket number in the block.

2. Click the checkbox associated with the desired HOT key.

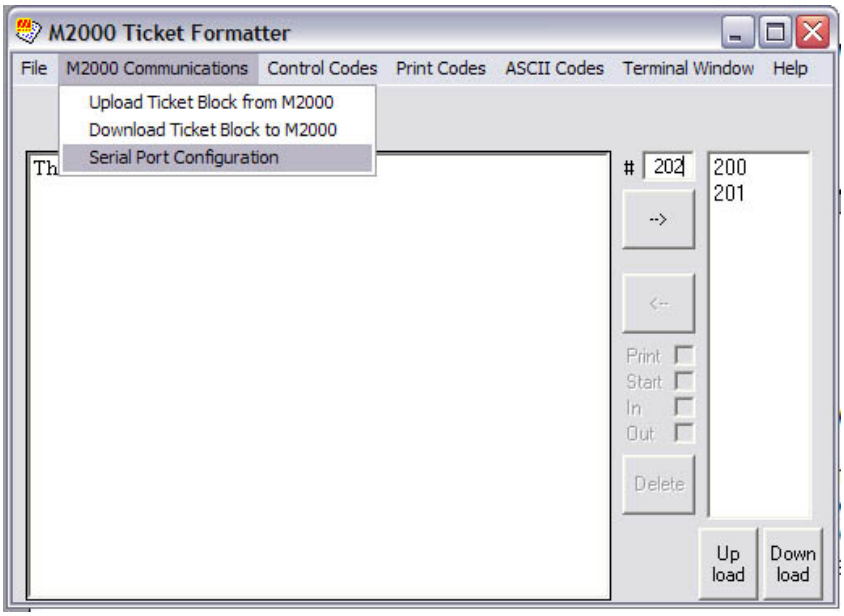
3. The first letter of the HOT key will appear next to the ticket number in the block.



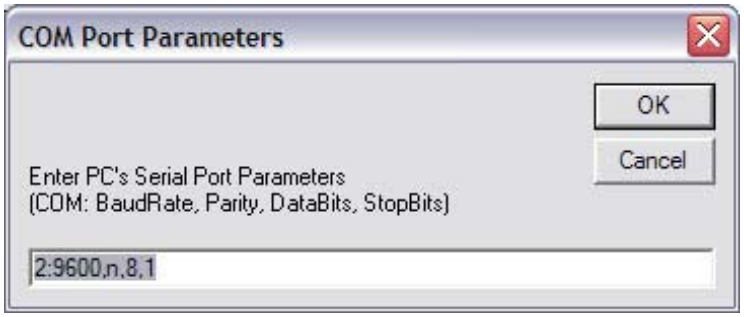
SERIAL PORT CONFIGURATION

Determine which COM Port the PC will use (COM1, COM2, etc.).

Click on **"M2000 Communications"** and select **"Serial Port Configuration"**.



The **"COM Port Parameters"** Window will appear. Using the displayed format, select the appropriate COM Port, Baud Rate, Parity, Data Bits, and Stop Bits.

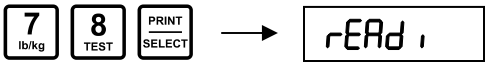


The default M2000 serial configurations are given on Page **3**. Be sure to check the M2000 for its serial configuration.

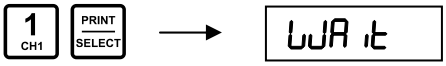
DOWNLOADING TICKETS TO THE M2000

EXAMPLE: TRANSMIT TICKETS TO THE M2000 (COM1).

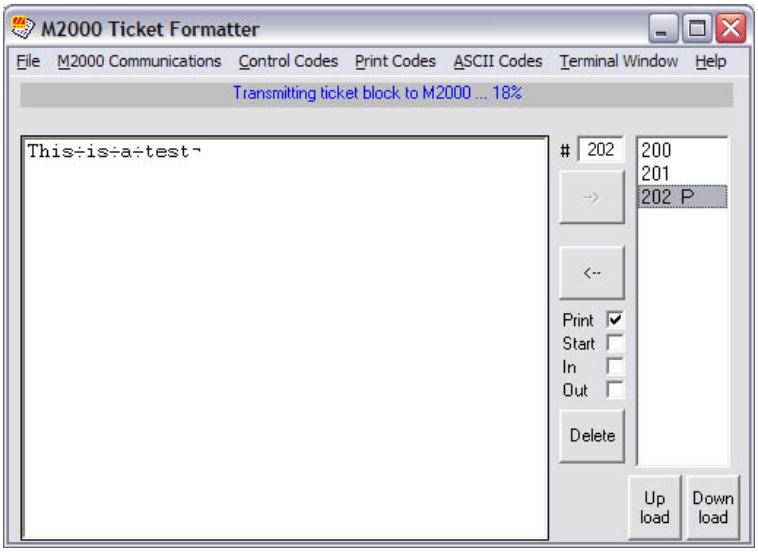
1. Connect the M2000 (**COM1**) to the correct PC serial port.
2. Open the M2000 Ticket Formatter Software on the PC.
3. Enter Calibration Mode on the M2000.
4. Be sure the PC and the M2000 have identical Serial Communications settings. For most cases: **9600-N-8-1**.
5. Place all the tickets required for the M2000 in the Ticket Block.
6. Click **"M2000 Communications→Download Ticket Block to M2000"** or click on the **'Download'** button.
7. The message **"Start TICKET BUFFER CAPTURING in M2000 (parameter 78), then click OK button"** will appear. Do not click **"OK"** yet.
8. On the M2000, enter **Parameter 78**. The display will prompt, "**Ready**".



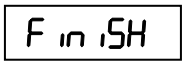
9. Press **1** followed by **[PRINT/SELECT]** to receive tickets through **COM1**.



10. Click the **"OK"** button in the Ticket Formatter.



11. The Ticket Formatter will display a transmitting message in BLUE above the Ticket Editor box. The M2000 will display "**Waiting for data**". When the M2000 has received all the tickets, it will display "**Finished**".



12. Press the **[CLEAR]** key to return to Calibration Mode.

Parameter 34 (COM1) / Parameter 35 (COM2) must be reset after a new Ticket Block is loaded into the M2000. For Ticket Printing Mode, set the applicable Parameter Value to **99**.

RECEIVE TICKET BUFFER INFORMATION - PARAMETER 78

Description: Captures ticket information as an ASCII data dump from the designated serial port. The ASCII string can be captured from any serial terminal program.

PARAMETER VALUE	ACTION
1	Receive Ticket Buffer data through **COM1.**

TESTING A TICKET

The M2000 Ticket Formatter incorporates a Terminal window to allow the user to quickly test a ticket. The Terminal window will show ASCII characters and some Control characters to give a rough idea of what the ticket will look like once printed.

1. Open the Terminal window by clicking **"Terminal Window"** or holding down the **'Alt'** key and pressing **'T'**.

2. Enter the **ticket number** of the ticket to be tested on the M2000 keypad followed by the **[PRINT/SELECT]** key (*make sure the M2000 is out of Calibration Mode and the serial port is set to **99***).

3. The ticket will appear in the terminal window on the PC.

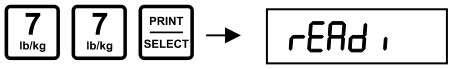
UPLOADING TICKETS FROM THE M2000

EXAMPLE: TRANSMIT TICKETS TO THE PC (VIA COM1).

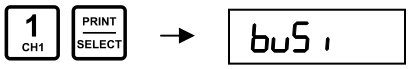
1. Connect the M2000 (**COM1**) to the correct PC serial port.
2. Open the M2000 Ticket Formatter Software on the PC.
3. Enter Calibration Mode on the M2000.
4. Be sure the PC and the M2000 have identical Serial Communications settings. For most cases: **9600-N-8-1**.
5. Remove any tickets from the Ticket Block.
6. Click **"M2000 Communications→Upload Ticket Block from M2000"** or click on the **'Upload'** button.
7. The message **"Start TICKET BUFFER TRANSMISSION in M2000 now! (parameter 77)"** will flash above the Ticket Editor box.

If you want to abort uploading, you may either push the computer's **'Esc'** key or click **"M2000 Communications→Abort Communications with M2000"**.

8. On the M2000, enter **Parameter 77**. The display will prompt, "Ready".



9. Press **1** followed by **[PRINT/SELECT]** to send the tickets via **COM1**.



10. As soon as the upload process is finished, the uploaded ticket numbers will be shown in the Ticket Block box.

PARAMETER 77 - TRANSMIT TICKET BUFFER INFORMATION TO SERIAL PORT

Description: Transmits the M2000's full ticket buffer information as an ASCII string to the designated serial port. The ASCII string can be captured with any serial terminal program.

PARAMETER VALUE	ACTION
1	Output ticket buffer data to COM1
2	Output ticket buffer data to COM2

EXTRACTING A TICKET FROM THE TICKET BLOCK

Once a ticket has been uploaded from the M2000, it can be extracted from the block to the Ticket Editor Box. The ticket can then be edited and returned to the M2000 when complete.

1. Selecting a **Ticket number** from the **Ticket Block** with the mouse.

2. Click the '←' button to extract the tickets and display its contents in the Ticket Editor box.

SAVE YOUR WORK

The M2000 Ticket Formatter Program gives you the option to:

A) Save your tickets individually using the "Save Ticket" and "Save Ticket As…" functions.

-OR-

B) Save an entire Ticket Block using the "Save Ticket Block As…" function.

This function allows you to maintain a program of grouped tickets.

The Ticket Block is saved in a raw format with the ticket numbers and necessary checksums included

HINT: Give tickets logical names and be sure to keep track of the directories they are stored in.

APPLICATIONS & EXAMPLES

APPLICATION #1

M2000 TRUCK IN - TRUCK OUT

The M2000 can support different types of Truck In/Truck Out applications.

- Tare database memory supporting up to 150 trucks stored (non volatile FLASH memory).
- IN/OUT Loop Database memory (battery backed SRAM) supporting up to 150 trucks with the truck data deleted on the outbound loop.
- IN/OUT Loop Database memory supporting up to 150 trucks with the truck not deleted on outbound loop.
- The Tare Database and the Loop Database can be combined to work together.

This guide provides three examples of Ticket Macros used for Truck In-Truck Out applications. Software Version 1.29 is required for these examples.

CHOOSING A DATABASE

The 2 main advantages of the LOOP DATABASE are:

1. Simplicity.
2. The M2000 uses its static SRAM memory, which is faster and causes less wear then using FLASH memory. The LOOP DATABASE memory is backed up by an internal battery in case of power loss.

The LOOP DATABASE is recommended in situations where trucks must WEIGH IN **AND** WEIGHT OUT on a regular basis.

If weighing random vehicles, or vehicles with frequently fluctuating tare weights, the LOOP DATABASE should be used.

The 2 main advantages of the TARE DATABASE are:

1. Non-volatile. FLASH memory is not affected by a power loss of any kind.
2. Saves time. Trucks only need to use the scale once to complete a transaction.

The TARE DATABASE is recommended in situations where the same trucks pass over the scale on a regular basis. Examples include a company's fleet or regular customers.

2 advantages of combining the databases are:

1. Increase the number of tare weights stored to 300.

2. Increase a system's versatility.

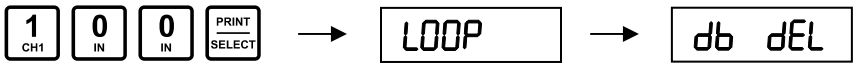
Combine the databases when elements of both systems are desired. Be sure to take note of the database rules to prevent duplicate entries and other problems.

USEFUL PARAMETERS

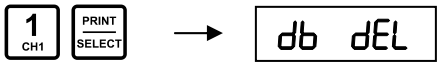
DELETE LOOP DATABASE - PARAMETER 100

Description: Deletes the entire contents of the Loop Database. All Truck ID numbers and tares in the loop will be lost. For use by authorized persons only.

1. From Normal Weighing Mode, select Parameter 100.



2. Press **1** followed by **[PRINT/SELECT]** to confirm.

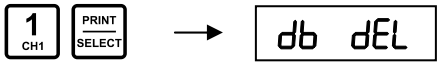


DELETE TARE DATABASE - PARAMETER 101

Description: Deletes the entire contents of the Tare Database. All Truck ID numbers and tares previously stored will be lost. For use by authorized persons only.

1. From Normal Weighing Mode, select Parameter 101.

2. Press **1** followed by **[PRINT/SELECT]** to confirm.



NOTE: Tickets can be created to delete individual Truck IDs and Tares from the Tare Database. See Example – Page **49**.

SIMPLE TRUCK IN/OUT TICKET PROGRAM WITH LOOP DATABASE

FEATURES

- The Loop Database stores 4 digit ID numbers and tare weights in battery backed SRAM memory.
- A Loop Database is ideal for operations where trucks and tare weights change on a regular basis and are typically deleted right after use.
- Up to 150 ID numbers and tare weights can be stored in the Loop Database.
- The Loop Database is completely independent from the other database.
- The Loop Database memory uses an internal battery to preserve the memory when power is lost.
- There is an optional feature to not delete the truck ID and tare weight on the outbound loop.

There are two scenarios for Truck IN/OUT:

1. Trucks weigh in and then weigh out. Once weighed out, the tare weight is **automatically deleted from the LOOP DATABASE**.

2. The operator may want to weigh truck tare weights once a day, or once a week, and **does not want the truck tare weight deleted from the LOOP DATABASE.**

Using the NO DELETE function may improve productivity, as the trucks only have to weigh out. A single **C87** code “NO DELETE” is required to tell the M2000 not to delete the Truck ID number on the outbound loop. C87 should be inserted in the beginning of the inbound and outbound tickets.

This Ticket Program example demonstrates the following:

- The Truck Inbound function
- The Truck Outbound function with the optional “NO DELETE” feature
- Printing all weights and IDs in the loop memory
- How to add an incrementing serial number to the ticket
- Tickets designed for an Epson tape printer. Some Printer Codes in these tickets may need to be modified for other printers.

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Loop Database** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Company Name	→	**Ticket 200**
Inbound Truck	→	**Ticket 201**
Outbound Truck	→	**Ticket 202**
Print Loop Database	→	**Ticket 203**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Inbound Truck	→	
Outbound Truck	→	
Print Loop Database	→	

COMPANY NAME, TIME, DATE & TICKET NUMBER

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → Company.M2T)

Description: Prints the company name, time, date, and ticket number. The ticket is called from the Inbound and Outbound tickets. The ticket number increments every time this ticket is called.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P101	DOUBLE HEIGHT FONT: ON
P104	UNDERLINE MODE: ON
66,111,98,32,74, 111,110,101,115, 32,83,97,110,100, 32,38,32,71,114, 97,118,101,108	"**Bob Jones Sand & Gravel**" (If using the M2000 Ticket Formatter Software, this information would be typed, not entered as ASCII code).
P108	RESET PRINTER FONTS
13	CR
10	LF
P921	PRINT STRING **"Ticket:"**
C28	PRINT TICKET NUMBER
C27	INCREMENT TICKET NUMBER COUNT
13	CR
10	LF
C20	PRINT TIME
32	SPACE
32	SPACE
C21	PRINT DATE
13	CR
10	LF
10	LF

Some P Codes are used to print specific text (Ex. P921 prints "Ticket:"). These P Codes are shown in the manual examples, but may be substituted for typed text in the Example Tickets that come with the M2000 Ticket Formatter Software.

Bob Jones Sand & Gravel
Ticket: 001
11:17:32 24/02/2004

INBOUND TRUCK (LOOP DATABASE)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → LoopIN.M2T)

Description: Prompts the user for an ID and stores the scale weight in the Loop database. Assign this ticket to the **[IN]** key.

CODE	FUNCTION
C103	CALL TICKET: Jump to another ticket and print it.
200	(ASCII) Ticket 200 is called to print the ticket header, time and date.
C87	NO DELETE: The M2000 will not delete the stored info after Weigh Out
C70	CALL TRUCK IN FUNCTION: M2000 prompts operator for Truck ID, then stores weight. If an invalid ID is entered, or if **[CLEAR]** is pressed, the process will abort.
P915	PRINT STRING **"Inbound Truck ID:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF
P101	DOUBLE HEIGHT FONT: ON
P909	PRINT STRING **"Truck Weight"**
C30	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the truck on the scale.
P108	RESET PRINTER FONTS
13	CR
10	LF
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)

Bob Jones Sand & Gravel
Ticket: 002
11:18:59 24/02/2004

Inbound Truck ID: 1234
Truck Weight: 2684 kg

OUTBOUND TRUCK (LOOP DATABASE)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → LoopOUT.M2T)

Description: Prompts for a Truck ID number and recalls the Inbound weight from the Loop Database. Assign this ticket to the **[OUT]** key.

Note the **"NO DELETE"** (C87) function is executed. The M2000 will not delete Inbound Truck data from the Loop Database.

CODE	FUNCTION
C103	CALL TICKET: Jump to another ticket and print it.
200	(ASCII) Ticket 200 is called to print the ticket header, time and date.
C87	NO DELETE: The M2000 will not delete the stored info after WEIGH OUT.
C71	CALL TRUCK OUT FUNCTION: M2000 prompts operator for Truck ID, then recalls weight. If an invalid ID is entered, or if **[CLEAR]** is pressed, the process will abort.
P906	PRINT STRING **"Truck ID:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF
P101	DOUBLE HEIGHT FONT: ON
P901	PRINT STRING **"Gross:"**
C74	PRINT TRUCK GROSS WEIGHT
13	CR
10	LF
P902	PRINT STRING **"Tare:"**
C75	PRINT TRUCK TARE WEIGHT
13	CR
10	LF
P903	PRINT STRING **"Net:"**
C76	PRINT TRUCK NET WEIGHT
13	CR
10	LF
P108	RESET PRINTER FONTS
13	CR
10	LF
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)

Bob Jones Sand & Gravel
Ticket: 003
11:18:59 24/02/2004

Truck ID: 1234
Gross: 6242 kg
Tare: 2684 kg
Net: 3558 kg

PRINT LOOP DATABASE

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → PrintLoop.M2T)

Description: The ticket below prints all the Truck ID numbers in the Loop Database. No other Print or Control Codes may be used in this ticket.

CODE	FUNCTION
C78	PRINT ALL TRUCKS IN LOOP DATABASE

```
IN/OUT DATABASE memory
[   ID   ]   weight
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

[ 1234 ]   2684 kg
[ 1111 ]   10122 kg
[ 9652 ]   3699 kg
[ 1212 ]   8812 kg
[ 9898 ]   6534 kg
[ 3232 ]   14587 kg

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

END
```

ADVANCED TRUCK IN/OUT TICKET PROGRAM WITH TARE DATABASE

FEATURES

- The Tare Database stores 4 digit ID numbers and tare weights in permanent FLASH memory.
- The Tare Database is best suited for tare weights that are recalled on a regular basis and do not change often.
- Up to 150 tare weights can be stored in the Tare Database.
- The Tare Database is completely independent from the other database.
- The Tare Database memory can be preserved up to 10 years without power.
- Tickets can be created to delete individual Truck IDs and tare weights from the database
- Tare weights can be entered via the M2000 keypad by using the built-in Accumulator Registers.

This Ticket Program example demonstrates the following:

- Storing a truck tare to the database
- Recalling a truck tare from the database
- Manually entering a keyboard tare to the database
- Deleting a truck ID from the database
- Printing all Truck IDs and tare weights in the database
- Tickets designed for an Epson tape printer. Some Printer Codes in these tickets may need to be modified for other printers.

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Tare Database** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Company Name	→	**Ticket 200**
Inbound Truck	→	**Ticket 201**
Inbound Truck – Keypad Weight Entry	→	**Ticket 202**
Outbound Truck	→	**Ticket 203**
Delete Truck from Database	→	**Ticket 204**
Print Tare Database	→	**Ticket 205**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Inbound Truck	→	0 IN, PRINT/SELECT
Keypad Weight Entry	→	2 CH2, 0 IN, 2 CH2, PRINT/SELECT
Outbound Truck	→	. OUT, PRINT/SELECT
Delete Truck from Database	→	2 CH2, 0 IN, 4 TOTAL, PRINT/SELECT
Print Tare Database	→	2 CH2, 0 IN, 5 SCAN, PRINT/SELECT

NOTE: The “Company Name” Ticket (Ticket 200) is used from the previous example. The Ticket is called from the Inbound and Outbound tickets. For details on this ticket, please see Page **40**.

INBOUND TRUCK (TARE DATABASE)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → TareIN.M2T)

Description: This ticket is called when the User wants to store a truck tare weight from the scale to the Tare Database. This ticket can be assigned to the **[IN]** key.

CODE	FUNCTION
C103	CALL TICKET: Jump to another ticket and print it.
200	(ASCII) Ticket 200 is called to print the ticket header, time and date.
C72	CALL ADD TARE TO DATABASE FUNCTION: M2000 prompts operator for Truck ID, then stores weight. If an invalid ID is entered, or if **[CLEAR]** is pressed, the process will abort.
P906	PRINT STRING **"Truck ID:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF
P918	PRINT STRING **"Stored Scale Weight:"**
C30	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the truck on the scale
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)

Bob Jones Sand & Gravel
Ticket: 011
12:06:46 24/02/2004

Inbound Truck ID: 8888
Stored Scale Weight: 4186 lb

INBOUND TRUCK - KEYPAD WEIGHT ENTRY (TARE DATABASE)

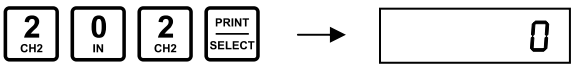
(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → TareKEYIN.M2T)

Description: This Inbound ticket functions the same as the previous ticket except that instead of weighing a truck on the scale, tare weights are entered from the keypad.

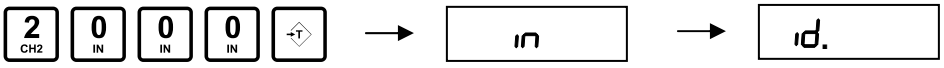
CODE	FUNCTION
C400	KEYBOARD WEIGHT ENTRY TO ACC3. (Enter weight followed by the **[PRINT/SELECT]** key)
C88	STORE WEIGHT IN ACC3 TO THE TARE DATABASE: M2000 prompts operator for Truck ID, then stores weight. If an invalid ID is entered, or if **[CLEAR]** is pressed, the process will abort.
C103	CALL TICKET: Jump to another ticket and print it.
200	(ASCII) Ticket 200 is called to print the ticket header, time and date.
P906	PRINT STRING **"Truck ID:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF
P919	PRINT STRING **"Keyboard Weight:"**
C262	COPY WEIGHT IN ACC3 TO ACC4
C255	PRINT WEIGHT IN ACC4
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)

STEPS

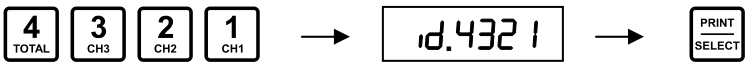
1. Enter the **ticket number** followed by the **[PRINT/SELECT]** key.



2. Enter the weight on the keypad followed by the **[TARE]** key.



3. Enter the Truck ID followed by the **[PRINT/SELECT]** key.



Bob Jones Sand & Gravel
Ticket: 013
12:08:17 24/02/2004

Inbound Truck ID: 4321
Keyboard Weight: 2000 lb

OUTBOUND TRUCK (TARE DATABASE)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → TareOUT.M2T)

Description: The User is prompted for a Truck ID and the M2000 retrieves the stored tare weight for that truck. Gross, Tare and Net weights are printed. This ticket is assigned to the **[OUT]** key.

CODE	FUNCTION
C103	CALL TICKET: Jump to another ticket and print it.
200	(ASCII) Ticket 200 is called to print the ticket header, time and date.
C73	RECALL TRUCK ID & WEIGHT FROM DATABASE: M2000 prompts operator for Truck ID, then recalls weight. If an invalid ID is entered, or if **[CLEAR]** is pressed, the process will abort.
C916	PRINT STRING **"Truck ID:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF
P101	DOUBLE HEIGHT FONT: ON
P901	PRINT STRING **"Gross:"**
C74	PRINT TRUCK GROSS WEIGHT
13	CR
10	LF
P902	PRINT STRING **"Tare:"**
C75	PRINT TRUCK TARE WEIGHT
13	CR
10	LF
P903	PRINT STRING **"Net:"**
C76	PRINT TRUCK NET WEIGHT
13	CR
10	LF
P108	RESET PRINTER FONTS
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)

Bob Jones Sand & Gravel
Ticket: 015
12:18:04 24/02/2004

Truck ID: 4321
Gross: 5242 lb
Tare: 2000 lb
Net: 3242 lb

DELETE TRUCK ID & TARE WEIGHT (TARE DATABASE)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → TareDEL.M2T)

Description: Delete a truck from the Tare Database. A tare weight must be deleted from the database before the ID number can be reused or assigned a new tare weight. This function prints a ticket as a confirmation, but printing is optional.

CODE	FUNCTION
C80	DELETE TRUCK ID FROM DATABASE: M2000 prompts operator for Truck ID, then deletes it. If an invalid ID is entered, or if **[CLEAR]** is pressed, the process will abort.
C103	CALL TICKET: Jump to another ticket and print it.
200	(ASCII) Ticket 200 is called to print the ticket header, time and date.
P920	PRINT STRING **"ID Deleted:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF

Bob Jones Sand & Gravel
Ticket: 016
12:08:17 24/02/2004

ID Deleted: 8888

PRINT TARE DATABASE

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Loop Database → PrintTare.M2T)

Description: The ticket below prints all the Truck ID numbers in the Tare Database. No other Print or Control Codes may be used in this ticket.

CODE	FUNCTION
C84	PRINT ALL TRUCKS IN TARE DATABASE

TARE DATABASE memory
[ID] weight
– – – – – – – – – – – – – – – –

[4321] 2000 lb
[8889] 4143 lb
[5555] 4072 lb
[4444] 4538 lb

– – – – – – – – – – – – – – – –

END

COMBINING THE TARE DATABASE WITH THE LOOP DATABASE

FEATURES

- The Tare Database and Loop Database are independent, but can be setup to work together.
- If the M2000 does not find an ID in the Tare Database, it will proceed to search in the Loop Database.
- Used in applications where customers have permanent truck tares for account customers/fleets but also want in/out weighing for infrequent customer visits (Cash sales).
- Up to 300 tare weights can be stored (150 each).
- The features of the individual databases will apply.

This Ticket Program example demonstrates the following:

- Storing a truck tare to the database
- Manually entering a keyboard tare to the database
- The MERGE DATABASES feature searches both databases for Truck ID numbers
- Deleting a Truck ID from the database
- Printing all Truck IDs and tare weights in both the Loop and Tare databases
- Tickets designed for an Epson tape printer. Some Printer Codes in these tickets may need to be modified for other printers.

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Combined Databases** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Company Name	→	**Ticket 200**
Inbound Truck – Tare Database	→	**Ticket 201**
Inbound Truck – Loop Database	→	**Ticket 202**
Outbound Truck	→	**Ticket 203**
Delete Truck from Database	→	**Ticket 204**
Print Loop & Tare Databases	→	**Ticket 205**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Inbound Truck – Loop Database	→	
Inbound Truck – Tare Database	→	
Outbound Truck	→	
Delete Truck from Database	→	
Print Tare Database	→	

EXAMPLE:

Bob Jones Sand & Gravel has expanded. Along with its own fleet of trucks and some regular account customers, they also accommodate Cash Customers.

The tare weights and Truck IDs for the fleet and regular account trucks are stored in the **TARE DATABASE.** Trucks only have to Weigh Out.

For the cash customers, a temporary ID is issued and the tare is stored in the **LOOP DATABASE**.

NOTE: The "Company Name" Ticket (Ticket 200) is used from the previous example. The Ticket is called from the Inbound and Outbound tickets. For details on this ticket, please see Page **40**.

INBOUND TRUCK (LOOP DATABASE)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Combined Database → TareDEL.M2T)

Description: This ticket functions and prints almost identically to the Inbound ticket in the **LOOP** Database example (See Inbound Truck – Page **41**).

However, please note the one difference. This Ticket **does not** utilize the NO DELETE function (C87).

This ticket would be used to add a short-term tare (Cash Customer) to the database.

INBOUND TRUCK (TARE DATABASE)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Combined Database → TareDEL.M2T)

Description: This ticket functions and prints identically to the Inbound ticket in the **TARE** Database example (See Inbound Truck – Page **41**).

This ticket is used to add account customers and company trucks to the Tare database.

The ID numbers used in the TARE database cannot be the same as in the LOOP database. If there are duplicate ID numbers, the TARE database will take precedence over the LOOP database. Different ID formats (Ex. Use 4 digits ID numbers for account customers & 3 digits ID numbers for cash customers) are helpful in preventing duplicate IDs.

To integrate the two databases, insert **C89** at the beginning of the Outbound ticket for the Tare Database. This command tells the M2000 to search the Loop Database if the Truck ID cannot be found in the Tare Database.

OUTBOUND TRUCK (COMBINED DATABASES)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Combined Database → TareOUT.M2T)

Description: This ticket is assigned to the OUT key. The user is prompted for a truck ID and then the indicator retrieves the stored tare weight for that truck. Gross, Tare and Net is printed.

This ticket has the special C89 code in the beginning of the ticket.

CODE	FUNCTION
C103	CALL TICKET: Jump to another ticket and print it.
200	Ticket 200 is called to print the ticket header, time, and date.
C89	
C73	RECALL TRUCK ID & WEIGHT FROM DATABASE: M2000 prompts operator for Truck ID, then recalls weight. If an invalid ID is entered, or if **[CLEAR]** is pressed, the process will abort.
C916	PRINT STRING **"Truck ID:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF
P101	DOUBLE HEIGHT FONT: ON
P901	PRINT STRING **"Gross:"**
C74	PRINT TRUCK GROSS WEIGHT
13	CR
10	LF
P902	PRINT STRING **"Tare:"**
C75	PRINT TRUCK TARE WEIGHT
13	CR
10	LF
P903	PRINT STRING **"Net:"**
C76	PRINT TRUCK NET WEIGHT
13	CR
10	LF
P108	RESET PRINTER FONTS
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)

DELETE TRUCK ID & TARE WEIGHT (TARE DATABASE)

(See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Combined Database → TareDEL.M2T)

Description: This ticket deletes a single truck from the Tare Database. It is identical to the Delete Truck ID ticket from the **TARE** Database example (See Delete Truck – Page **49**).

PRINT TARE & LOOP DATABASES

See M2000 Ticket Formatter → Example Tickets → Truck In-Out → Combined Database → PrintCombined.M2T)

Description: This ticket is called to print a list of the truck tares in the Tare Database and the Loop Database.

C84 and C78 are the only codes allowed in this ticket.

CODE	FUNCTION
C84	PRINT ALL TRUCKS IN TARE DATABASE
C78	PRINT ALL TRUCKS IN LOOP DATABASE

TICKETS

INBOUND (LOOP)

Bob Jones Sand & Gravel
Ticket: 002
11:18:59 24/02/2004

Inbound Truck ID: 1234
Truck Weight: 2684 kg

INBOUND (TARE)

Bob Jones Sand & Gravel
Ticket: 002
11:18:59 24/02/2004

Inbound Truck ID: 1234
Stored Scale Weight: 12988 lb

PRINT TRUCK & LOOP DATABASES

This ticket is called when you want to print a list of the truck tares in the database and the loop database.

C84 list all tickets in tare database (C84 and C78 are only allowed in this ticket)
C78 list all tickets in loop database

```
TARE DATABASE memory
[ ID ] weight
----------------
[5261] 5960 kg
[5679] 9130 kg
[3762] 9130 kg
[9641] 277770 kg
[1111] 6000 kg
[5673] 55550 kg
[5634] 3580 kg
[5555] 6170 kg
[2584] 3580 kg
[4448] 55550 kg
[1234] 12050 kg
[5620] 2210 kg
[3563] 22220 kg
[5923] 123560 kg
[5623] 123560 kg
[5298] 12630 kg
[9630] 12350 kg
[9318] 55620 kg
[5221] 11110 kg
[5539] 12340 kg
[3338] 810 kg
[2398] 5550 kg
[5418] 2220 kg
----------------
END

IN/OUT DATABASE memory
[ ID ] weight
----------------
[ 567] 18060 kg
[ 552] 17450 kg
[ 555] 11880 kg
[ 569] 9100 kg
[ 123] 6310 kg
----------------
END
```

APPLICATION #2

ACCUMULATING WEIGHTS WITH THE M2000

The M2000 has accumulation features similar to the DF2000:

- Accumulation is done by creating ticket macros.
- Totals can be shown on the M2000 display or printed.
- Text messages can be integrated with the totals on the display.
- Total functions can be assigned to the **[PRINT/SELECT]**, **[IN]** or **[OUT]** key or called from a ticket number.

Software Version 1.40 or greater is required for the examples below.

INTERNAL REGISTERS USED FOR TICKET MACROS

The table below gives a quick overview of the available registers used for creating special ticket applications. Each register can perform unique operations using the C Codes for that register.

The list of operation C Codes follows in **APPENDIX B** and is categorized by functional operation.

REGISTER	FUNCTIONS
ACC 1	Used for Weight Totalizing and capturing weight from the Indicator
ACC 2	Used for Weight Totalizing
ACC 3	General Purpose/Keypad weight entry
ACC 4	Data Movement between registers and printing contents of registers
ACC 5	General Purpose/Addition
ACC 6	General Purpose/Simple Math
ACC 7	General Purpose/Simple Math
ID REGISTER	Holds entered ID number for Weigh IN/Weigh OUT
COUNTER REGISTER	3 Digit Ticket/Axle Counter

EXAMPLE 1: A SIMPLE WEIGHT TOTALIZER (NO PRINTING)

A Processing plant uses scales to weigh containers of product entering the plant. Each scale operator keeps a running total of the product type they are weighing in. The M2000 is used to keep track of the running total and number of containers weighed.

The environment is too hostile for a printer, so the totals must be shown on the M2000's display.

The example below demonstrates the following:

- How to add the display weight to a total weight.
- How to keep a weigh count.
- How to clear the accumulator to zero.
- How to display the running weight total and container count.

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Accumulating Weights** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Add Weight to Total & Count Container	→	**Ticket 200**
Display Total Weight & Container Count	→	**Ticket 201**
Clear Accumulators	→	**Ticket 202**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Clear Accumulators	→	
Add Weight to Total & Count Container	→	
Display Total Weight & Container Count	→	

ADD WEIGHT TO TOTAL & COUNT CONTAINER

(See M2000 Ticket Formatter → Example Tickets → Accumulating Weight → AddWeight.M2T)

Description: Every time the **[PRINT/SELECT]** key is pressed, the scale weight is added to **ACC1** and **ACC4** is incremented to keep track of the tote count.

CODE	FUNCTION
C23	ADD DISPLAYED WEIGHT TO ACC1
C259	INCREMENT ACC 4 BY 1 (Increment Container Count)
C300	SEND TEXT TO DISPLAY (Must be 6 characters)
32, 32, 65, 68, 68, 32	**“ ADD “**
C406	DELAY 0.5 SECONDS
C301	RESET DISPLAY (Note: This C Code must follow C300 at some point)

DISPLAY TOTAL WEIGHT & TOTAL CONTAINER COUNT

(See M2000 Ticket Formatter → Example Tickets → Accumulating Weight → DisplayTotals.M2T)

Description: When the **[OUT] & [PRINT/SELECT]** keys are pressed, the indicator will display the message **“TOTAL”** followed by the total weight. The M2000 will then display **“COUNT”** followed by the total Container count.

CODE	FUNCTION
C300	SEND TEXT TO DISPLAY (Must be 6 characters)
84, 79, 84, 65, 76, 32	**“TOTAL “**
C406	DELAY 0.5 SECONDS
C280	COPY ACC4 TO ACC5 (Save Container Count to another register)
C260	COPY ACC1 TO ACC4 (Send total weight to ACC 4)
C410	DISPLAY ACC4 AS WEIGHT (Total weight)
C405	DELAY 1 SECOND
C405	DELAY 1 SECOND
C300	SEND TEXT TO DISPLAY (Must be 6 characters)
67, 79, 85, 78, 84, 32	**“COUNT “**
C406	DELAY 0.5 SECONDS
C281	COPY ACC5 TO ACC4 (Send Container Count to ACC 4)
C411	DISPLAY ACC 4 AS INTEGER (Total Container Count)
C405	DELAY 1 SECOND
C301	RESET DISPLAY

CLEAR ACCUMULATORS

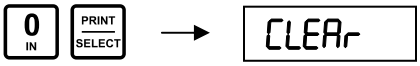
(See M2000 Ticket Formatter → Example Tickets → Accumulating Weight → ClearAccumulators.M2T)

Description: When the **[IN]** key is pressed, the M2000 will display the message **"CLEAR"** and set all the accumulators to zero.

CODE	FUNCTION
C257	CLEAR ACC 4 (Register equals zero)
C270	COPY ACC 4 TO ACC (To set ACC 1 to zero)
C300	SEND TEXT TO DISPLAY (Must be 6 characters)
67, 76, 69, 65, 82, 32	**"CLEAR "**
C405	DELAY 1 SECOND
C301	RESET DISPLAY

HOW IT WORKS

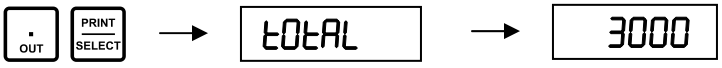
1. User presses the **[IN] & [PRINT/SELECT]** keys to start from zero. Total Weight = 0, Container Count = 0.



2. User places weight on the scale and presses **[PRINT/SELECT]** to add weight to the total and increment the container count.

3. User repeats Step 2 as necessary.

4. The User can press the **[OUT] & [PRINT/SELECT]** keys at any time to view the Total accumulated weight and Total number of containers.



APPLICATION #3

AXLE WEIGHING ON THE M2000

Several different Axle Weighing applications can be easily created for the M2000. Examples included are:

- Accumulating axles (Axle Scale)
- Wheel Weighing (Utilizing 2 Scale Channels)
- Truck In/Truck Out Axle Weighing
- Displaying and printing Axle weights

M2000 version 1.35 or greater is required for these examples.

EXAMPLE 1 (BASIC AXLE SCALE)

This Ticket program is designed for Highway Safety Inspectors checking axle weights on trucks. The program is split over three different tickets.

This example demonstrates:

- Printing axle weights on an Epson Tape Printer
- Implementing an axle counter
- Clearing the accumulator and axle counter to zero
- Printing total axle weights

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Basic Axle Scale** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Start Axle Weighing	→	**Ticket 200**
Print Axle Weights	→	**Ticket 201**
Totalize Axles	→	**Ticket 202**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Start Axle Weighing → 0 IN

Print Axle Weights → PRINT / SELECT

Finish Axle Weighing → . OUT

START AXLE WEIGHING

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Basic Axle Scale → StartAxle.M2T)

Description: This ticket prints the site location, time, date, and clears the accumulators used to total axle weights and axle counts.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P101	DOUBLE HEIGHT FONT: ON
P104	UNDERLINE MODE: ON
80,114,105,110, 103,101,32	“Prince”
71,101,111, 114,103,101, 32,83,111,117, 116,104, 32	“George South”
87,101,105,103, 104,32,83,99, 97,108,101,	“Weigh Scale”
P108	RESET PRINTER FONTS
13	CR
10	LF
C20	PRINT TIME
32	SPACE
32	SPACE
C21	PRINT DATE
C22	CLEAR ACC1 REGISTER (Total Axle Weight)
C257	CLEAR ACC4 REGISTER (Axle Count)
C259	INCREMENT ACC4 BY 1 (Axle Counter to 1)
13	CR
10	LF

PRINT AXLE WEIGHTS

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Basic Axle Scale → PrintAxle.M2T)

Description: When the truck's axle is positioned on the scale, press the **[PRINT/SELECT]** key. The ticket prints the Axle number, Axle Weight, and adds the weight to the accumulator.

This is repeated for each of the truck's axles.

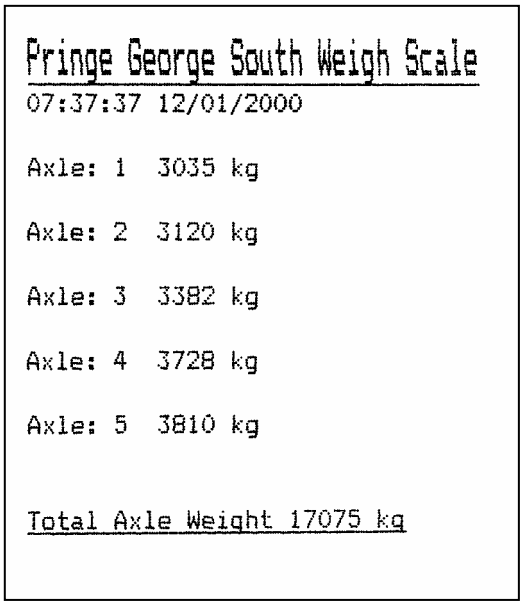
CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P913	PRINT STRING **"Axle:"**
C256	PRINT ACC4 AS INTEGER (Axle Count)
32	SPACE
32	SPACE
C30	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the truck on the scale
C25	ADD GROSS WEIGHT TO ACC1
C259	INCREMENT ACC4 BY 1 (Axle Counter)
13	CR
10	LF

TOTALIZE AXLES

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Basic Axle Scale → TotalAxles.M2T)

Description: Prints the Total Axle Weight, completing the ticket.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P104	UNDERLINE MODE: ON
P914	PRINT STRING **"Total Axle Weight:"**
C24	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the truck on the scale
P108	RESET PRINTER FONTS
13	CR
10	LF
P114	PRINT & FEED **n** lines
9	"**n"**. **n** = number of lines for form feed (9)



EXAMPLE 2 (WHEEL WEIGHING)

Two Wheel Pads are used (left and right wheels) to check proper loading of logging trucks. The Pads are connected to separate Scale Channels (**1** & **2**) on the M2000.

The M2000 runs in TOTAL mode.

This example demonstrates:

- Printing left and right side axle weights on an Epson Tape Printer
- Accumulating axle weights
- Implementing an axle counter
- Clearing the accumulator and axle counter to zero

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Wheel Weighing** folder in the **Ticket Examples** directory.

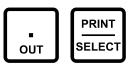
Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Start Wheel Weighing	→	**Ticket 200**
Print Wheel & Axle Weights	→	**Ticket 201**
Finish Wheel Weighing	→	**Ticket 202**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

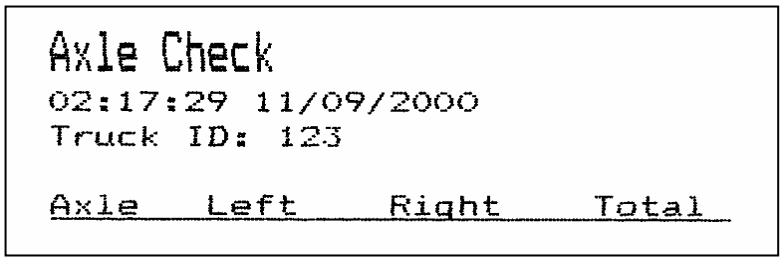
Start Wheel Weighing	→	
Print Wheel & Axle Weights	→	
Finish Wheel Weighing	→	

START WHEEL WEIGHING

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Wheel Weighing → StartWheel.M2T)

Description: When the **[IN] & [PRINT/SELECT]** keys are pressed, the ticket header, time and date are printed. This ticket also prompts the user for a Truck ID number and clears the accumulators.

CODE	FUNCTION
C26	CLEAR TICKET COUNTER REGISTER (0)
C27	INCREMENT TICKET COUNTER BY 1
C22	CLEAR ACC1 REGISTER (Left Axle)
C220	CLEAR ACC2 REGISTER (Right Axle)
C81	PROMPT FOR ID (Sends a prompt to the M2000 display)
13	CR
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P101	DOUBLE HEIGHT FONT: ON
65,120,108,101, 32 ,67,104,101,99,107	“Axle Check“
P108	RESET PRINTER FONTS
13	CR
10	LF
C20	PRINT TIME
32	SPACE
32	SPACE
C21	PRINT DATE
13	CR
10	LF
P906	PRINT STRING **“Truck ID:”**
C79	PRINT TRUCK ID NUMBER
C259	INCREMENT ACC4 by 1 (Axle Counter to 1)
13	CR
10	LF
10	LF
P104	UNDERLINE MODE: ON
P913	PRINT STRING **“Axle:”**
32	SPACE
32	SPACE
P922	PRINT STRING **“Left:”**
32	SPACE
32	SPACE
P923	PRINT STRING **“Right:”**
32	SPACE
32	SPACE
P904	PRINT STRING **“Total:”**
P108	RESET PRINTER FONTS
13	CR
10	LF



PRINT WHEEL & AXLE WEIGHTS

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Wheel Weighing → PrintWheel.M2T)

Description: When the **[PRINT/SELECT]** key is pressed, Axle number, Left-side Axle Weight, Right-Side Axle Weight, and Total Axle Weight are printed

The Total Axle Weight is added to the accumulator, and the internal axle count increases by 1.

This is repeated for each of the truck's axles.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
C288	ACC1 = ACC1 + Channel 1 Gross Weight (**Left Axle**)
C289	ACC2 = ACC2 + Channel 2 Gross Weight (**Right Axle**)
C28	UNDERLINE MODE: ON
32	SPACE
32	SPACE
32	SPACE
C24	PRINT ACC1 REGISTER (Prints left axle weight)
32	SPACE
32	SPACE
C240	PRINT ACC2 REGISTER (Prints right axle weight)
32	SPACE
32	SPACE
C46	PRINT TOTAL GROSS WEIGHT OF ALL ACTIVE SCALE CHANNELS
C27	INCREMENT TICKET COUNTER BY 1 (Used for axle count)
13	CR
10	LF

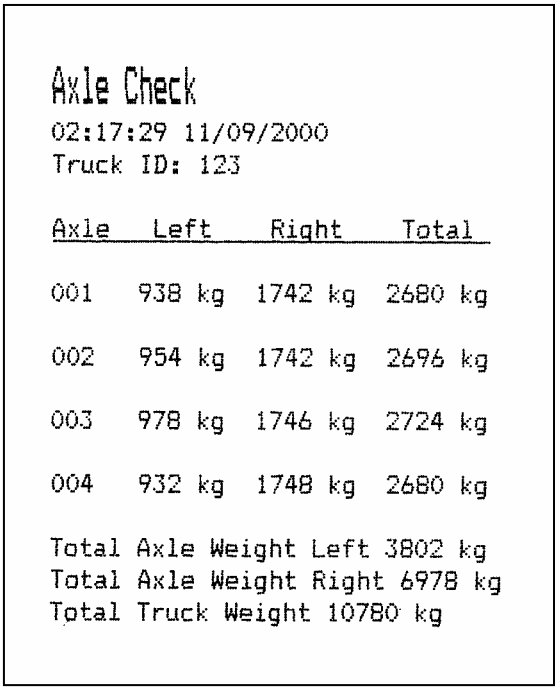
```
001   938 kg  1742 kg  2680 kg

002   954 kg  1742 kg  2696 kg

003   978 kg  1746 kg  2724 kg

004   932 kg  1748 kg  2680 kg
```

FINISH WHEEL WEIGHING

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Wheel Weighing → FinishWheel.M2T)

Description: When the **[OUT] & [PRINT/SELECT]** keys are pressed, the Left and Right side Axle Totals and Total Truck Weight are printed.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P914	PRINT STRING **"Total Axle Weight:"**
P922	PRINT STRING **"Left:"**
C24	PRINT ACC1 REGISTER (Prints left axle weight)
13	CR
10	LF
P914	PRINT STRING **"Total Axle Weight:"**
P923	PRINT STRING **"Right:"**
C240	PRINT ACC2 REGISTER (Prints right axle weight)
13	CR
10	LF
C251	ACC4 = ACC1 + ACC2
P924	PRINT STRING **"Total Truck Weight:"**
C255	PRINT ACC4 REGISTER (Total axle weight)
13	CR
10	LF
10	LF
10	LF



Axle Check
02:17:29 11/09/2000
Truck ID: 123

Axle	Left	Right	Total
001	938 kg	1742 kg	2680 kg
002	954 kg	1742 kg	2696 kg
003	978 kg	1746 kg	2724 kg
004	932 kg	1748 kg	2680 kg

Total Axle Weight Left 3802 kg
Total Axle Weight Right 6978 kg
Total Truck Weight 10780 kg

EXAMPLE 3 (AXLE PAD WEIGHING - NO PRINTER)

Two portable Axle-weigh pads are used. Instead of using a printer to record the results, the total axle weights are shown on the display.

If the M2000 is run in Scan Mode, the operator will have a continuous visual representation of the **left side**, **right side**, and **total axle weights**.

This ticket can easily be adapted to a single axle scale if required.

This example demonstrates:

- An application that does not use a printer
- Sending text messages to the display
- Showing the axle count on the display
- Accumulating axle weights
- Showing truck total on display

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Axle Pad** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Clear Totals	→	**Ticket 200**
Get Axle Weights	→	**Ticket 201**
Total Axle Weights	→	**Ticket 202**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Clear Totals → [0 IN] [PRINT SELECT]

Get Axle Weights → [PRINT SELECT]

Total Axle Weights → [. OUT] [PRINT SELECT]

CLEAR TOTAL

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Axle Pad → Clear.M2T)

Description: When the **[IN] & [PRINT/SELECT]** keys are pressed, this ticket clears the running total to zero. Also, the message "**CLEAR**" is shown on the M2000's display.

CODE	FUNCTION
C300	SEND TEXT TO DISPLAY (Must be 6 characters)
67, 76, 69, 65, 82, 32	**"CLEAR"** (If using the M2000 Ticket Formatter Software, this information would be typed, not entered as ASCII code).
C405	HOLD DISPLAY 1 SECOND
C301	RESET DISPLAY (Back to Normal Weighing Mode)
C26	CLEAR COUNTER REGISTER (Axle count to 0)
C27	INCREMENT COUNTER BY 1 (Add 1 to axle count)
C257	CLEAR ACC4 REGISTER
C280	COPY ACC4 TO ACC5 (ACC5 set to zero)

GET AXLE WEIGHT

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Axle Pad → GetAxleWeight.M2T)

Description: Once the truck's axle is positioned on the scale, the User presses the **[PRINT/SELECT]** key.

The ticket sums the weight values on Scale Channels 1 & 2 and adds them to the Total Axle Weight.

The Axle Count is briefly shown on the display, then incremented.

CODE	FUNCTION
C292	ACC1 = Channel 1 Gross Weight (Left Axle)
C298	ACC2 = Channel 2 Gross Weight (Right Axle)
C251	ACC4 = ACC1 + ACC2 (Sum both axles, left + right)
C284	ACC5 = ACC5 + ACC4 (Add both axles to total axle weight)
C264	COPY COUNTER TO ACC4 (Axle count to ACC4)
C411	SEND ACC4 TO DISPLAY (As integer)
C405	HOLD DISPLAY 1 SECOND
C301	RESET DISPLAY (Back to Normal Weighing Mode)
C27	INCREMENT AXLE COUNT

TOTAL AXLE WEIGHT

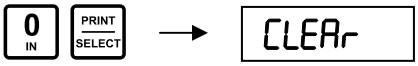
(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Axle Pad → Total.M2T)

Description: This ticket displays the Total Axle Weight of the truck for **3** seconds.

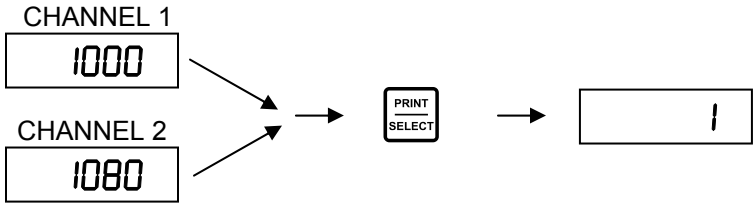
CODE	FUNCTION
C300	SEND TEXT TO DISPLAY (Must be 6 characters)
84, 79, 64, 65, 76, 32	**"TOTAL"** (If using the M2000 Ticket Formatter Software, this information would be typed, not entered as ASCII code).
C405	HOLD DISPLAY 1 SECOND
C281	COPY ACC5 TO ACC4 (Total axle weight to ACC4)
C410	SEND ACC4 TO DISPLAY (As weight – Total axle weight
C405	HOLD DISPLAY 1 SECOND
C405	HOLD DISPLAY 1 SECOND
C405	HOLD DISPLAY 1 SECOND
C301	RESET DISPLAY (Back to Normal Weighing Mode)

HOW IT WORKS

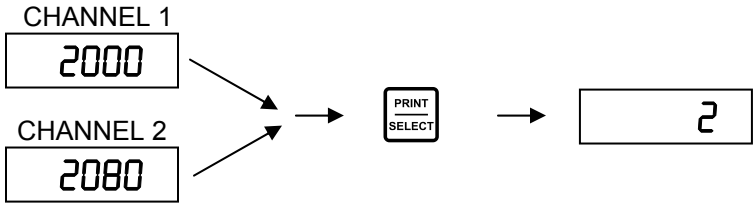
1. User presses the **[IN] & [PRINT/SELECT]** keys to clear the Totals. Total Axle Weight = 0, Axle Count = 0.



2. When a truck axle is positioned properly on the scale, the User presses the **[PRINT/SELECT]** key. The weights from each Axle Pad are added together and the Axle Count is displayed.



3. User repeats Step 2 as necessary (This example uses 2 axles)



4. The User may press the **[OUT] & [PRINT/SELECT]** keys at any time to view the Total Accumulated Axle Weight.

EXAMPLE 4 (AXLE SCALE TRUCK IN - TRUCK OUT)

A facility with an Axle Scale wants to store the total weight using an ID number. The truck is weighed when it enters and leaves the facility. At the end of the transaction, a ticket will be printed showing the Gross, Tare and Net weights.

This application requires some careful thought on the optimal procedure for weighing the axles.

This example demonstrates:

- Combining Axle weighing with Truck In/Out
- Printing axle weights on an Epson Tape Printer
- Implementing an axle counter
- Clearing the accumulator and axle counter to zero
- Printing totals and axle weights
- Storing and recalling truck tare weights
- Print Gross, Tare, Net

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Axle Truck In Out** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Header & Clear Accumulators	→	**Ticket 200**
Print Axle Weights	→	**Ticket 201**
Store Total Inbound Axle Weights	→	**Ticket 202**
Recall Stored Weights & Print	→	**Ticket 203**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Header & Clear Accumulators → 2 CH2, 0 IN, 0 IN, PRINT SELECT

Print Axle Weights → PRINT SELECT

Store Total Inbound Axle Weights → 0 IN, PRINT SELECT

Recall Stored Weights & Print → . OUT, PRINT SELECT

HEADER & CLEAR ACCUMULATORS

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Axle Truck In Out → Header&Clear.M2T)

Description: This ticket prints the time, date and the company name. It also clears the accumulators to zero and prepares the axle weighing procedure. This ticket must be run at the start of an axle weighing process.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P101	DOUBLE HEIGHT FONT: ON
P104	UNDERLINE MODE: ON
87,69,83,84,69,82, 78,32,83,67,65,76, 69,32,67,79,46,32, 76,84,68,46	"**WESTERN SCALE CO. LTD.**" (If using the M2000 Ticket Formatter Software, this information would be typed, not entered as ASCII code).
P108	RESET PRINTER FONTS
13	CR
10	LF
C20	PRINT TIME
32	SPACE
32	SPACE
C21	PRINT DATE
C22	Clear the ACC1 register (Total Axle Weights)
C257	Clear the ACC4 register (Axle Count)
C259	INCREMENT ACC4 by 1 (Axle Counter to 1)
13	CR
10	LF
C100	Assign Print/Select key to ticket 201
210	Ticket 201
13	CR
10	LF

PRINT AXLE WEIGHTS

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Axle Truck In Out → PrintAxle.M2T)

Description: Every time the **[PRINT/SELECT]** key is pressed, an axle weight will be recorded and printed.

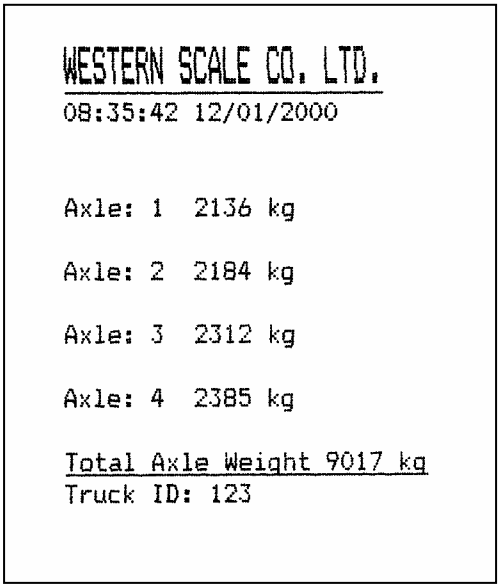
CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P913	PRINT STRING **"Axle:"**
C256	PRINT ACC4 AS INTEGER (Axle Count)
32	SPACE
32	SPACE
C30	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the truck on the scale
C25	ADD GROSS WEIGHT TO ACC1
C259	INCREMENT ACC4 BY 1 (Axle Counter)
13	CR
10	LF

STORE TOTAL INBOUND AXLE WEIGHTS

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Axle Truck In Out → StoreInAxle.M2T)

Description: After all of the Inbound truck's axles have been weighed, the weight can be stored by pressing the **[IN] & [PRINT/SELECT]** keys. The Total Axle Truck Weight and the ID number are printed.

CODE	FUNCTION
C85	STORE ACC1 IN LOOP: The M2000 prompts the operator for a Truck ID, then stores the ID & the value in ACC 1 as the Inbound weight. If an invalid ID is entered, or if [CLEAR] is pressed, the process will abort.
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P104	UNDERLINE MODE: ON
P914	PRINT STRING **"Total Axle Weight:"**
C24	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the truck on the scale
13	CR
10	LF
P108	RESET PRINTER FONTS
C916	PRINT STRING **"Truck ID:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)



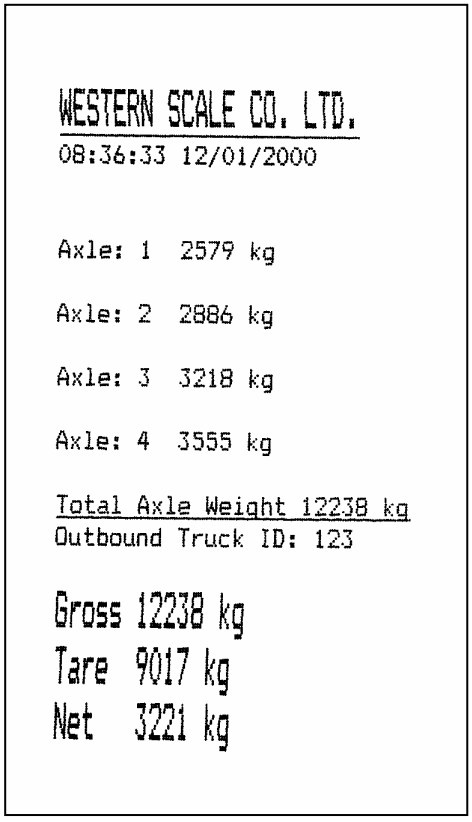
RECALL STORED AXLE WEIGHTS AND PRINT GROSS, TARE AND NET

(See M2000 Ticket Formatter → Example Tickets → Axle Weighing → Axle Truck In Out → RecallAxleGTN.M2T)

Description: After all of the Outbound truck's axles have been weighed, this ticket is called to complete the weighing transaction. The ticket totalizes the outbound axle weights and retrieves the stored inbound weight. Gross, Tare and Net weights are printed.

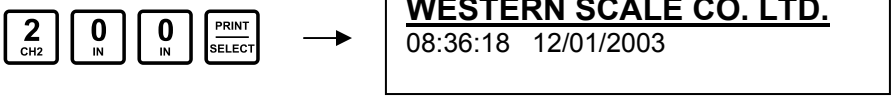
This Ticket is assigned to the **[OUT]** key.

CODE	FUNCTION
C86	RECALL INBOUND WEIGHT FROM LOOP: The M2000 prompts the operator for a Truck ID, then recalls the stored Inbound weight. If the ID number is not found, or if [CLEAR] is pressed, the process will abort.
13	CR
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P104	UNDERLINE MODE: ON
P914	PRINT STRING **"Total Axle Weight:"**
C24	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the truck on the scale
13	CR
10	LF
P108	RESET PRINTER FONTS
C916	PRINT STRING **"Outbound ID:"**
C79	PRINT TRUCK ID NUMBER
13	CR
10	LF
P101	DOUBLE HEIGHT FONT: ON
P901	PRINT STRING **"Gross:"**
C74	PRINT TRUCK GROSS WEIGHT
13	CR
10	LF
P902	PRINT STRING **"Tare:"**
C75	PRINT TRUCK TARE WEIGHT
13	CR
10	LF
P903	PRINT STRING **"Net:"**
C76	PRINT TRUCK NET WEIGHT
13	CR
10	LF
P108	RESET PRINTER FONTS
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)

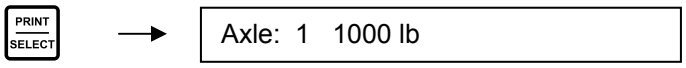


HOW IT WORKS

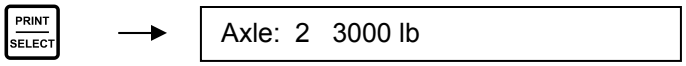
1. User calls the Header & Clear ticket to print the ticket header and clear the Totals.



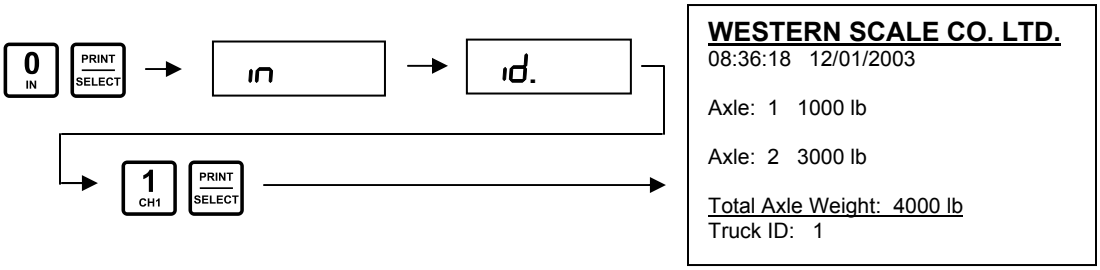
2. When an **Inbound** truck axle is positioned properly on the scale, the User presses the **[PRINT/SELECT]** key. The axle weights are printed and added together.



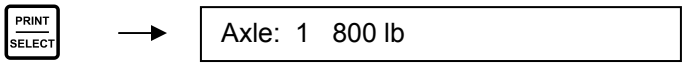
3. User repeats Step 2 as necessary (This example uses 2 axles)



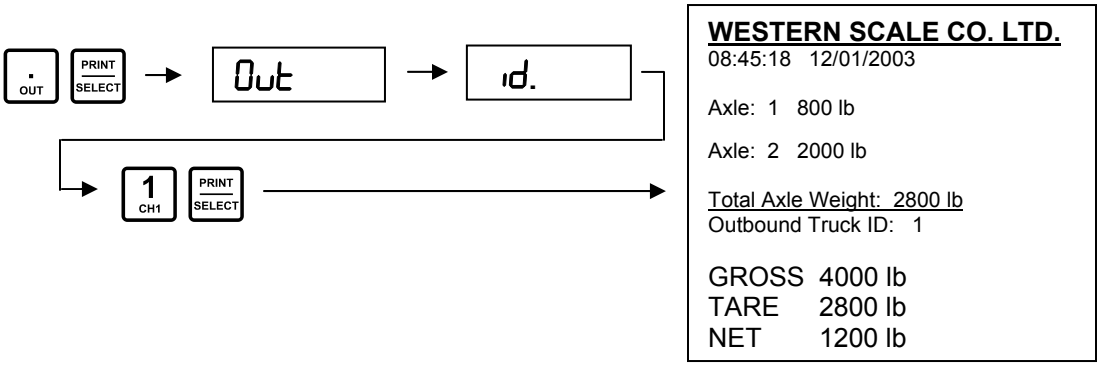
4. The User presses the **[IN] & [PRINT/SELECT]** keys after the truck leaves the scale. The M2000 prompts for a Truck ID.



5. When an **Outbound** truck axle is positioned properly on the scale, the User presses the **[PRINT/SELECT]** key. The axle weights are printed and added together. The User repeats this step for all axles.



6. After the last axle is weighed, the User presses **[OUT], [PRINT/SELECT]**, and enters the Truck ID. The Outbound ticket is completed and printed.



APPLICATION NOTE #4

LIVESTOCK WEIGHING

The examples discuss the following:

- Accumulating drafts
- Printing running totals and draft count
- Totalizing cattle head count
- Calculating Average Cattle head weight
- Calculating and printing shrinkage weights
- Digital filter settings for animal weighing

M2000 software version 1.36 or higher is required.

EXAMPLE 1 (SIMPLE DRAFT WEIGHING)

Cattle are herded onto a scale, simultaneously weighed, and a ticket is printed. The M2000 keeps a running total of the drafts.

This example demonstrates:

- Accumulating weights
- Implementing a draft counter
- Clearing accumulator and draft counter to zero
- Printing totals and draft counts on an Epson tape printer

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Livestock Weighing** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Start Cattle Weighing	→	**Ticket 200**
Print Draft	→	**Ticket 201**
Print Totals	→	**Ticket 202**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Start Cattle Weighing → [2 CH2] [0 IN] [0 IN] [PRINT SELECT]

Print Draft → [0 IN] [PRINT SELECT]

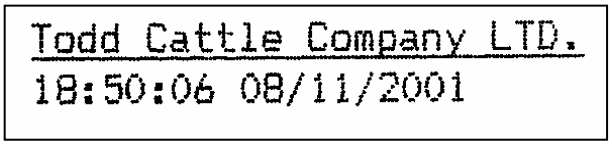
Print Totals → [. OUT] [PRINT SELECT]

START CATTLE WEIGHING

(See M2000 Ticket Formatter → Example Tickets → Livestock Weighing → Simple Draft Weighing → StartCattle.M2T)

Description: This ticket is used at the start of every weighing. It prints the customer's name, time and date. Most importantly, this ticket clears the total accumulator and draft count to zero.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P104	UNDERLINE MODE: ON
84,111,100,100, 32 67,97,116,116,108,101, 32, 67,111,109,112,97, 110,121,32,76,84,68,46	**"Todd Cattle Company LTD."**
P108	RESET PRINTER FONTS
13	CR
10	LF
C20	PRINT TIME
32	SPACE
C21	PRINT DATE
13	CR
10	LF
C220	CLEAR ACC2 REGISTER (Total Weight = 0)
C257	CLEAR ACC4 REGISTER (Draft Count = 0)
13	CR
10	LF



PRINT DRAFT

(See M2000 Ticket Formatter → Example Tickets → Livestock Weighing → Simple Draft Weighing → PrintDraft.M2T)

Description: This ticket prints the Draft number and the weight of the cattle on the scale. The cattle weight is stored for later use and the Draft number is incremented. This ticket is assigned to the **[IN]** key.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P912	PRINT STRING **"Weigh Draft:"**
C259	INCREMENT ACC4 BY 1 (Draft Counter)
C256	PRINT ACC4 AS INTEGER (Draft Counter)
32	SPACE
32	SPACE
13	CR
10	LF
P909	PRINT STRING **"Scale Weight:"**
C30	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the livestock on the scale
C250	ADD GROSS WEIGHT TO ACC2 (Total Weight)
13	CR
10	LF

```
Weigh Draft 1
Scale Weight 10005 kg
```

PRINT TOTALS

(See M2000 Ticket Formatter → Example Tickets → Livestock Weighing → Simple Draft Weighing → PrintTotal.M2T)

Description: This ticket is assigned to the **[OUT]** key. The total weight of all drafts is printed.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P101	DOUBLE HEIGHT FONT: ON
P904	PRINT STRING **"Total:"**
C240	PRINT ACC2 REGISTER (Prints Total Weight)
P108	RESET PRINTER FONTS
P114	PRINT & FEED **n** lines
9	"**n**". **n** = number of lines for form feed (9)

Total 52023 kg

The ticket below shows an example of weighing 5 drafts of cattle:

EXAMPLE 2 (ADVANCED CATTLE PROGRAM)

This example supports counting cattle head, calculating average head weight, and animal shrinkage (in percent).

For each draft, the M2000 prints the draft count, time stamp, scale weight, head count and average head weight.

When the user has finished weighing cattle, they can print the Total Weight along with the Shrinkage Weight and Head Count.

The Shrinkage Percent can be changed via a separate ticket.

This example demonstrates:

- Sending text prompts to the M2000 display
- Keypad parameter entry
- Sounding a beep
- Keeping track of head count
- Calculating average weight (division)
- Calculating shrinkage (percent)

Find these examples:

Examples of this Ticket Block are included with the M2000 Ticket Formatter Software.

Please see the **Advanced Cattle Weighing** folder in the **Ticket Examples** directory.

Ticket Numbers:

For the purposes of this example, when the Ticket Block is loaded, assign ticket numbers as follows:

Header & Clear	→	**Ticket 200**
Print Cattle Draft	→	**Ticket 201**
Print Total & Average	→	**Ticket 202**
Print Total & Shrinkage	→	**Ticket 203**
Set Shrinkage	→	**Ticket 204**

Suggested Key Assignments:

Tickets may be assigned to HOT keys (See Pages **17** & **29** of this Guide):

Header & Clear	→	2 CH2, 0 IN, 0 IN, PRINT SELECT
Print Cattle Draft	→	0 IN, PRINT SELECT
Print Average Weight	→	2 CH2, 0 IN, 2 CH2, PRINT SELECT
Print Total & Shrinkage	→	. OUT, PRINT SELECT
Set Shrinkage	→	2 CH2, 0 IN, 4 TOTAL, PRINT SELECT

PRINT HEADER AND CLEAR TOTALS

(See M2000 Ticket Formatter → Example Tickets → Livestock Weighing → Advanced Cattle → Header&Clear.M2T)

Description: This ticket must be called only at the beginning of weighing a herd of cattle. It prints the company name and zeros the running totals and draft count.

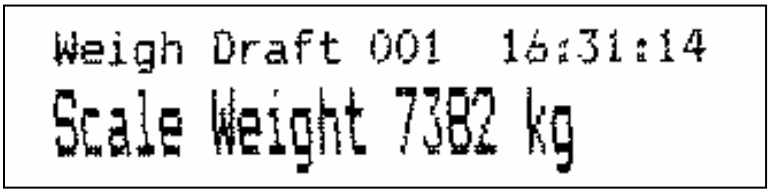
CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
P100	EMPHASIZED MODE: ON (Darker letters)
P101	DOUBLE HEIGHT FONT: ON
P104	UNDERLINE MODE: ON
87,101,115,116,101, 114,110,32,67,97,116, 116,108,101,32,67,111, 109,112,97,110,121, 32,76,84,68,46	**"Western Cattle Company LTD."**
P108	RESET PRINTER FONTS
13	CR
10	LF
C20	PRINT TIME
32	SPACE
C21	PRINT DATE
13	CR
10	LF
C257	CLEAR ACC4 REGISTER (Draft Count = 0)
C280	COPY ACC4 TO ACC5 (Head Count = 0)
C26	CLEAR COUNTER REGISTER (Drafts = 0)
C220	CLEAR ACC2 REGISTER (Total Weight = 0)
13	CR
10	LF

PRINT CATTLE DRAFT

(See M2000 Ticket Formatter → Example Tickets → Livestock Weighing → Advanced Cattle → CattleDraft.M2T)

Description: Cattle are herded on to the scale. When the ticket is called, the weight on the scale is captured and stored for later use. The ticket also prints the time of the draft and updates the running weight total and the draft count.

CODE	FUNCTION
13	CR (Send a Carriage Return and Line Feed to the printer to start with)
10	LF
C27	INCREMENT COUNTER BY 1 (Add 1 to Draft Count)
P912	PRINT STRING **"Weigh Draft:"**
C28	PRINT COUNTER REGISTER (Draft Count)
32	SPACE
32	SPACE
C20	PRINT TIME
13	CR
10	LF
C201	COPY DISPLAYED GROSS WEIGHT TO ACC1 (Current Draft)
C250	ADD GROSS WEIGHT TO ACC2 (Running Total)
P101	DOUBLE HEIGHT FONT: ON
P909	PRINT STRING **"Scale Weight:"**
C30	PRINT GROSS WEIGHT (Ch. 1): Prints the gross weight of the livestock on the scale
P108	RESET PRINTER FONTS
13	CR
10	LF

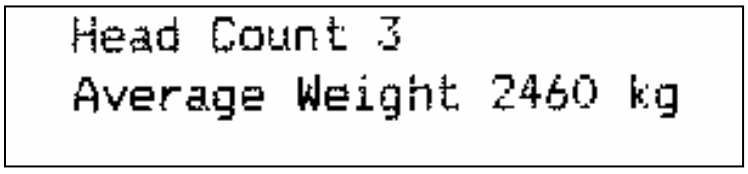


PRINT AVERAGE WEIGHT

(See M2000 Ticket Formatter → Example Tickets → Livestock Weighing → Advanced Cattle → Average.M2T)

Description: This ticket prompts the user to enter the number of cattle head on the scale. The message "HEAD" will be shown on the display. The user enters the head count, which is then printed along with the average head weight.

CODE	FUNCTION
C300	SEND TEXT TO DISPLAY (Must be 6 characters)
32, 72, 69, 65, 68, 32	**"HEAD"**
C403	SOUND A BEEP
C401	KEYPAD INTEGER ENTRY TO ACC3 (Enter Shrinkage Value)
P910	PRINT STRING **"Head Count:"**
C262	COPY ACC3 TO ACC4 (Draft Head Count)
C284	ACC5 = ACC5 + ACC4 (Total Head Count in ACC5)
C256	PRINT ACC4 AS INTEGER (Head Count)
13	CR
10	LF
P911	PRINT STRING **"Average Weight:"**
C253	ACC4 = ACC1 / ACC3 (Total Weight divided by # of cattle)
C255	PRINT ACC4 REGISTER (Average cattle weight)
13	CR
10	LF



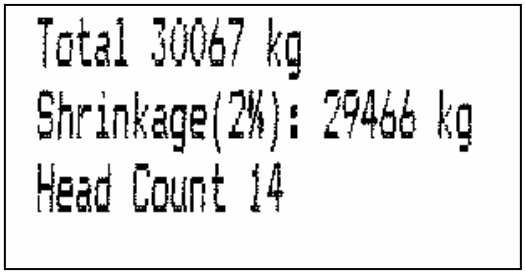
PRINT TOTAL & SHRINKAGE

(See M2000 Ticket Formatter → Example Tickets → Livestock Weighing → Advanced Cattle → Total&Shrinkage.M2T)

Description: This ticket prints the Total Accumulated Weight, Shrinkage Weight, and Head Count. The user may "Total Out" often, as this ticket does not clear any of the accumulators.

The user must call this ticket by the ticket number.

CODE	FUNCTION
P100	EMPHASIZED MODE: ON (Darker letters)
P101	DOUBLE HEIGHT FONT: ON
C261	COPY ACC2 TO ACC4 (Running Total)
C270	COPY ACC4 TO ACC1
P904	PRINT STRING **"Total:"**
C240	PRINT ACC2 REGISTER (Prints Running Total)
13	CR
10	LF
83,104,114,105,110, 107,97,103,101,40	**"Shrinkage(**
C267	COPY ACC6 TO ACC4 (ACC6 holds the percentage)
C256	PRINT ACC4 AS INTEGER (Shrinkage Percentage)
37,41,58,32	**"%): "**
C279	SEND PERCENTAGE OF ACC1 TO ACC3 (Uses Percentage Value in ACC6)
C254	ACC4 = ACC1 – ACC3 (Calculates Final Shrinkage Weight)
C255	PRINT ACC4 REGISTER (Shrinkage weight)
13	CR
10	LF
P910	PRINT STRING **"Head Count:"**
C281	COPY ACC5 TO ACC4
C256	PRINT ACC4 AS INTEGER (Total Head Count)
P108	RESET PRINTER FONTS
13	CR
10	LF



SET SHRINKAGE VALUE

(See M2000 Ticket Formatter → Example Tickets → Livestock Weighing → Advanced Cattle → SetShrinkage.M2T)

Description: This short ticket is used to enter a Shrinkage value in percent. Nothing is printed.

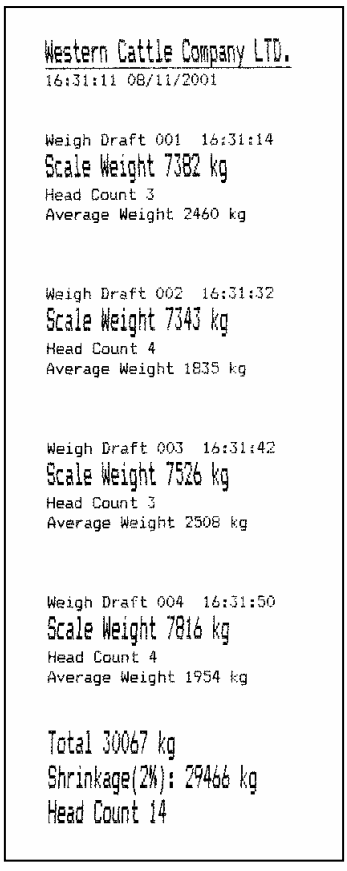
The ticket prompts the user for a Shrinkage value (%).

The keypad entry is stored in ACC3. Since the M2000 uses ACC6 to calculate percent, ACC3 must be copied to ACC6. This ticket only needs to be called when changing the Shrinkage Value.

CODE	FUNCTION
C300	SEND TEXT TO DISPLAY (Must be 6 characters)
83, 72, 82, 73, 78, 67	**"Shrinc"**
C403	SOUND A BEEP
C401	KEYPAD INTEGER ENTRY TO ACC3 (Enter Shrinkage Value)
C262	COPY ACC3 TO ACC4
C274	COPY ACC4 TO ACC6 (Move keypad entry to ACC6)
C301	RESET DISPLAY (Back to Normal Weighing Mode)

SAMPLE PRINTOUT:

A complete weighing transaction consisting of 4 drafts.



DIGITAL FILTER SETTINGS FOR ANIMAL WEIGHING

The M2000 is an extremely fast indicator. Animal weighing with the default filter setting may result in unstable weight readings. Use the following information to set up the M2000 filter system for cattle weighing.

For more information on understanding the Filter parameters, see the **M2000 Technical Manual.**

The M2000 switches between the Main and Faststep filters depending on the level of scale activity. This switching is roughly outlined below:

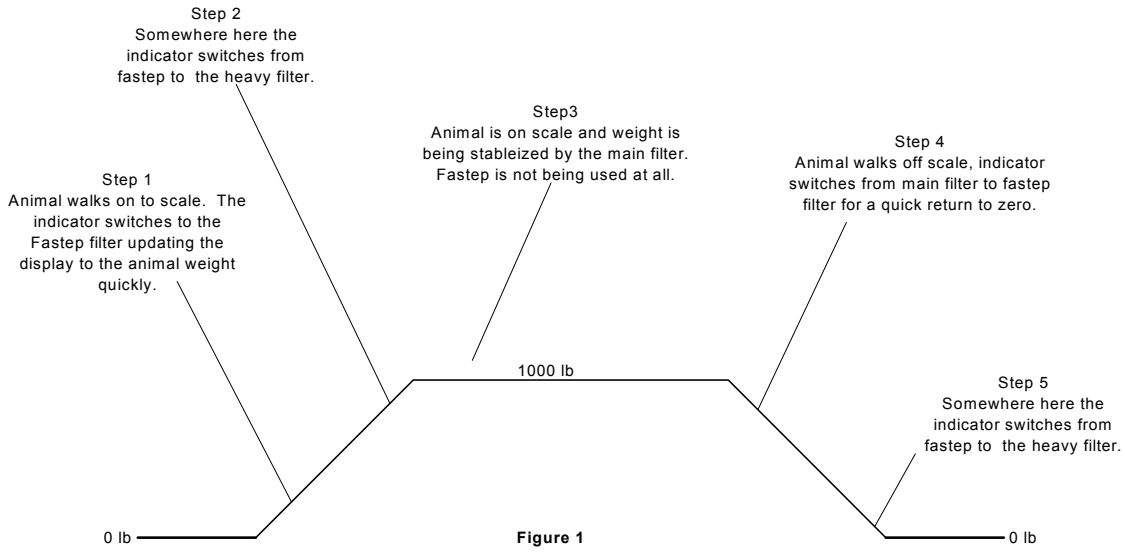


Figure 1

SUGGESTED SETTINGS

Optimal filter settings are a function of the type of scale and animal movement. It is recommended that scales be setup with live animals. Below are two filter settings to start with.

Medium Heavy Filtering: Most single and multi animal scales

Parameter 41 = 100

Parameter 42 = 12

Parameter 43 = 8

Parameter 19 = 1

Heavy Filtering: More demanding multi animal scales

Parameter 41 = 200

Parameter 42 = 30

Parameter 43 = 11

Parameter 19 = 2

Recommendations

1. Start with the above settings.
2. If, after the cattle are completely on the scale, the weight is not settling, increase the value of **Parameter 41**.
3. If the scale is very erratic, increase the value of **Parameter 42** as animal movement is triggering the Faststep filter.

If **Parameter 42** is set too high, the scale becomes sluggish and less responsive to weight change.

Display Update Rate

Parameter 19 allows the user to control how often the display updates with a new weight. It is important to understand that this has nothing to do with the filter settings discussed above.

Slowing down the display update rate simply changes how often a new weight is displayed, giving the appearance of stability. The M2000 is still calculating weight at its fastest internal rate.

Parameter 19 inserts a delay in between each display update in 0.25sec intervals.

NOTES:

APPENDICES

APPENDIX A - TABLE OF ASCII CHARACTERS

The table below shows the decimal values for ASCII characters. These values are used for entering characters in the Ticket Editor. For example the capital letter **'A'** would be entered as the numeric value **65**.

ASCII	Decimal Value
Space	32
!	33
"	34
#	35
$	36
%	37
&	38
'	39
(	40
)	41
*	42
+	43
,	44
-	45
.	46
/	47
0	48
1	49
2	50
3	51
4	52
5	53
6	54
7	55
8	56
9	57
:	58
;	59
<	60
=	61
>	62
?	63

ASCII	Decimal Value
@	64
A	65
B	66
C	67
D	68
E	69
F	70
G	71
H	72
I	73
J	74
K	75
L	76
M	77
N	78
O	79
P	80
Q	81
R	82
S	83
T	84
U	85
V	86
W	87
X	88
Y	89
Z	90
[	91
\	92
]	93
^	94
_	95

ASCII	Decimal Value
‘	96
a	97
b	98
c	99
d	100
e	101
f	102
g	103
h	104
i	105
j	106
k	107
l	108
m	109
n	110
o	111
p	112
q	113
r	114
s	115
t	116
u	117
v	118
w	119
x	120
y	121
z	122
{	123
|	124
}	125
~	126

Special ASCII characters

Carriage Return =13
Line Feed =10

APPENDIX B - CONTROL CODES

TICKET EDITOR

CONTROL CODE	FUNCTION	DESCRIPTION
1	Delete a character	
2	Overwrite a charcater	
98	Exit Ticket Editor Without Saving	
99	Exit Ticket Editor & Save Ticket	

TIME & DATE

CONTROL CODE	FUNCTION	DESCRIPTION
20	Print TIME	hh:mm:ss
21	Print DATE	dd:mm:yy
421	Print DATE (other format)	mm:dd:yy

ASSIGN - ALL TICKETS

CONTROL CODE	FUNCTION	DESCRIPTION
100	Assign Ticket to [PRINT/SELECT] Key	Enter C100 followed by the ASCII code for Ticket # you want to call.
101	Assign Ticket to [IN] Key	Enter C101 followed by the ASCII code for Ticket # you want to call.
102	Assign Ticket to [OUT] Key	Enter C102 followed by the ASCII code for Ticket # you want to call.
103	Call Another Ticket from Current Ticket	Calls and runs another ticket from within a ticket. Enter C103, followed by the ASCII code for Ticket # you want to call.

MISC.

CONTROL CODE	FUNCTION	DESCRIPTION
305	Send String Register to Printer	For use with Barcode Scanners. Combines Products scanned with weights.

PRINTING WEIGHTS FROM THE M2000

CONTROL CODE	FUNCTION	DESCRIPTION
30	Print GROSS Weight (CH. 1)	
33	Print TARE Weight (CH. 1)	
36	Print NET Weight (CH. 1)	
31	Print GROSS Weight (CH. 2)	
34	Print TARE Weight (CH. 2)	
37	Print NET Weight (CH. 2)	
32	Print GROSS Weight (CH. 3)	
35	Print TARE Weight (CH. 3)	
38	Print NET Weight (CH. 3)	
39	Print DISPLAYED Weight	Prints whatever weight value is currently on the M2000 display.
43	Print GROSS Weight of Active Channel	
44	Print TARE Weight of Active Channel	
45	Print NET Weight of Active Channel	
46	Print TOTAL Gross Weight of All Active Channels	
47	Print TOTAL Tare Weight of All Active Channels	
48	Print TOTAL Net Weight of All Active Channels	
50	Turn UNIT printing OFF	No measurement units will be printed.
51	Turn UNIT printing ON (default)	When a weight is printed, the measurement units (lbs or kgs) will follow.
69	Print Active Scale Channel	**1** = Channel 1, **2** = Channel 2, **3** = Channel 3, **1+2** = Total Mode Channels 1 & 2, **1+3** = Total Mode Channels 1 & 3, **1+2+3** = Total Mode All Channels
98	Print Current Units	KG or LB

TRUCK IN - OUT

CONTROL CODE	FUNCTION	DESCRIPTION
70	Truck In Loop	The M2000 prompts the operator for a Truck ID, then stores the Inbound weight & ID number. If an invalid ID is entered, or if [CLEAR] is pressed, the process will abort.
71	Truck Out Loop	The M2000 prompts the operator for a Truck ID, then recalls the stored Inbound weight. If the ID number is not found, or if **[CLEAR]** is pressed, the process will abort. The Inbound and Outbound weights are compared to determine Gross, Tare, & Net. The Truck is then deleted from the Loop.
72	Add Truck to Tare Database	The M2000 prompts the operator for a Truck ID, then stores the weight & ID number in permanent FLASH memory. If an invalid ID is entered, or if [CLEAR] is pressed, the process will abort.
73	Recall Truck from Tare Database	The M2000 prompts the operator for a Truck ID, then recalls the stored weight. If the ID number is not found, or if **[CLEAR]** is pressed, the process will abort. The stored weight is compared to the weight on the display to determine Gross, Tare, & Net.
74	Print Truck Gross Weight	Used after an Outbound Truck Function (C71, C73) is called. Prints the truck's gross weight.
75	Print Truck Tare Weight	Used after an Outbound Truck Function (C71, C73) is called. Prints the truck's tare weight.
76	Print Truck Net Weight	Used after an Outbound Truck Function (C71, C73) is called. Prints the truck's net weight.
77	Print Inbound Time & Date	Prints the Inbound time & date, which are always stored by the M2000 when an Inbound Truck Function is called (C70, C72).
78	Print Loop Database	Prints the contents of the Truck IN/OUT Loop database. IDs and Inbound weights are printed. This must be the only function called in the ticket.
79	Print ID Register	The ID register always contains the last ID entered.
84	Print Tare Database	Prints the contents of the Truck IN/OUT Tare database. IDs and Inbound weights are printed. This must be the only function called in the ticket.
80	Delete a Truck from the Tare Database	The M2000 prompts the operator for a Truck ID, then deletes the weight & ID number from permanent FLASH memory. If an invalid ID is entered, or if [CLEAR] is pressed, the process will abort.

TRUCK IN - OUT CONTINUED

CONTROL CODE	FUNCTION	DESCRIPTION
82	Delete all Trucks from the Loop Database	Removes all saved Truck ID numbers and Inbound weights from the Loop database. Initializes the database.
83	Delete all Trucks from the Tare Database	Removes all saved Truck ID numbers and Inbound weights from the Tare database. Initializes the database.
87	No Delete (Loop Database)	Prevents M2000 from deleting Trucks when they have completed the Outbound Loop. Truck IDs & Inbound weights remain in memory. Used after C71 to prevent the Truck from being deleted from the Loop Database.
89	Merge Databases	Allows the Tare & Loop databases to be used together. If the ID cannot be found in the Tare database, the M2000 will then search the Loop database.

AXLE WEIGHING TRUCK IN - OUT

CONTROL CODE	FUNCTION	DESCRIPTION
85	Store ACC 1 as Inbound Weight in Loop Database	The M2000 prompts the operator for a Truck ID, then stores the ID & the value in ACC 1 as the Inbound weight. If an invalid ID is entered, or if [CLEAR] is pressed, the process will abort.
86	Retrieve Accumulated Weight from Loop Database	The M2000 prompts the operator for a Truck ID, then recalls the stored Inbound weight. If the ID number is not found, or if **[CLEAR]** is pressed, the process will abort. The Inbound and Outbound weights are compared to determine Gross, Tare, & Net. The Truck is then deleted from the Loop.

THE COUNTER REGISTER

CONTROL CODE	FUNCTION	DESCRIPTION
26	Clear Counter Register	Sets the Counter value to 0.
27	Add 1 to Counter Register	Adds 1 to the value in the Counter register. The Counter Register counts from 0 to 999, then rolls over to 0 again.
28	Print Counter Register	Print the 3 digit value in the Counter register.

ACC 1

CONTROL CODE	FUNCTION	DESCRIPTION
22	Clear ACC 1 Register	Sets the ACC 1 value to 0.
23	Add Displayed Weight to ACC 1	Adds the displayed weight to the ACC 1 register. Note: This can be GROSS or NET weight.
24	Print ACC 1 Register	Print the value in ACC 1.
25	Add Gross Weight to ACC 1 Register	Adds the GROSS weight to the ACC 1 register even if the M2000 is in NET mode.
200	Copy Displayed Weight to ACC 1 Register	Sets the ACC 1 value to the displayed weight. Any previous value in ACC 1 will be lost.
201	Copy Displayed Gross Weight to ACC 1 Register	Sets the ACC 1 value to the displayed GROSS weight, even if the M2000 is in NET mode. Any previous value in ACC 1 will be lost.
292	Copy Channel 1 Weight to ACC 1	Sets the ACC 1 value to the displayed weight on Channel 1, even if the display is set to another Channel.
293	Copy Channel 2 Weight to ACC 1	Sets the ACC 1 value to the displayed weight on Channel 2, even if the display is set to another Channel.
294	Copy Channel 3 Weight to ACC 1	Sets the ACC 1 value to the displayed weight on Channel 3, even if the display is set to another Channel.

ACC 2

CONTROL CODE	FUNCTION	DESCRIPTION
220	Clear ACC 2 Register	Sets the ACC 2 value to 0.
230	Add Displayed Weight to ACC 2	Adds the displayed weight to the ACC 2 register. Note: This can be GROSS or NET weight.
240	Print ACC 2 Register	Print the value in ACC 2.
250	Add Gross Weight to ACC 2 Register	Adds the GROSS weight to the ACC 2 register even if the M2000 is in NET mode.
298	Copy Channel 2 Weight to ACC 2	Sets the ACC 2 value to the displayed weight on Channel 2, even if the display is set to another Channel.

ACC 3

CONTROL CODE	FUNCTION	DESCRIPTION
299	Copy Channel 3 Weight to ACC 3	Sets the ACC 3 value to the displayed weight on Channel 3, even if the display is set to another Channel.
400	Keyboard Weight Entry to ACC 3	Enter a weight value into ACC 3 via the keypad followed by the [PRINT/SELECT] key. Press [CLEAR] to abort.
401	Keyboard Integer Entry to ACC 3	Enter an integer value (IDs and other numbers - not weights) into ACC 3 via the keypad followed by the [PRINT/SELECT] key. Press [CLEAR] to abort.
402	Keyboard Entry to ID Register	

ACC 4

CONTROL CODE	FUNCTION	DESCRIPTION
255	Print ACC 4 Register as a Weight	Prints the value of ACC 4 and the current displayed units.
256	Print ACC 4 Register as an Integer	Prints the value of ACC 4 as a long integer (number).
257	Clear ACC 4 Register	
258	Subtract 1 from ACC 4	
259	Add 1 to ACC 4	
265	Copy Inbound Weight to ACC 4	
266	Copy Outbound Weight to ACC 4	
275	Set Value of ACC 4 (0-999)	
276	Set Value of ACC 4 (999+)	

MOVING REGISTERS

CONTROL CODE	FUNCTION	DESCRIPTION
260	Copy ACC 1 to ACC 4	
270	Copy ACC 4 to ACC 1	
261	Copy ACC 2 to ACC 4	
271	Copy ACC 4 to ACC 2	
262	Copy ACC 3 to ACC 4	
272	Copy ACC 4 to ACC 3	
280	Copy ACC 4 to ACC 5	
281	Copy ACC 5 to ACC 4	
267	Copy ACC 6 to ACC 4	
274	Copy ACC 4 to ACC 6	
287	Copy ACC 7 to ACC 4	
285	Copy ACC 4 to ACC 7	
263	Copy ID Register to ACC 4	
264	Copy Counter Register to ACC 4	
273	Copy ACC 4 to ID Register	

DISPLAY, ETC.

CONTROL CODE	FUNCTION	DESCRIPTION
81	Prompt for ID	Uses the M2000 display to prompt the operator for an ID number.
300	Send Text to Display	
301	Reset Display	
403	Sound a Single Beep	
404	Sound a Double Beep	
405	Pause Display for 1 Second	
406	Pause Display for 0.5 Seconds	
410	Display ACC 4 as Weight	
411	Display ACC 4 as Integer	

MATH OPERATIONS

CONTROL CODE	FUNCTION	DESCRIPTION
Accumulator Addition		
251	ACC 4 = ACC 1 + ACC 2	
282	ACC 5 = ACC 1 + ACC 5	
283	ACC 5 = ACC 2 + ACC 5	
284	ACC 5 = ACC 4 + ACC 5	
286	ACC 7 = ACC 4 + ACC 5	
288	ACC 1 = CH.1 + ACC 1	
289	ACC 2 = CH.2 + ACC 2	
290	ACC 3 = CH.3 + ACC 3	
Accumulator Multiplication		
252	ACC 4 = ACC 1 * ACC 3	
Accumulator Subtraction		
254	ACC 4 = ACC 1 - ACC 3	
Accumulator Division		
253	ACC 4 = ACC 1 / ACC 3	
Percentages		
277	Display difference between ACC 1 & ACC 2 as a %	Calculates the difference between the two weights and displays it as a percentage.
279	Send percentage of ACC 1 to ACC 3	Assign ACC 6 a percentage (Ex. 50). If the value of ACC 1 is 1000, 50% of ACC 1 will be stored in ACC 3 (500). The value is rounded to the nearest graduation. ACC 6 is valid from 1 to 99.

APPENDIX C - PRINTER CODES

PRINTER CODE	FUNCTION
EPSON TMU-200	
P100	Emphasized mode ON
P101	Double Height ON
P102	Double Width ON
P103	QUAD ON
P104	Underline ON
P105	Underline OFF
P106	Set to 9x9 font
P107	Set to 7x9 font
P108	Reset to NORMAL character mode
P109	Set Line Spacing to 1/6inch default
P110	Set Line Spacing to n/144 of an inch. n is entered as an ASCII value following the control code.
P111	Double Strike mode ON
P112	Double Strike mode OFF
P113	Set justification n. n is entered as an ASCII value following the control code.
P114	Print and feed n lines. n is entered as an ASCII value following the control code.
P115	Turn upside down printing ON
P116	Turn upside down printing OFF

EPSON TMU-295	
P201	Double Height ON
P202	Double Width ON
P203	QUAD ON
P204	Underline ON
P205	Underline OFF
P206	Set to 5x7 Font size
P207	Set to 7x7 Font size
P208	Return to Normal character mode
P214	Print and Feed n lines. n is entered as an ASCII value following the control code.
P215	Turn upside down mode printing ON
P216	Turn upside down mode printing OFF
P217	Paper Release

PRINTER CODE	FUNCTION
EPSON LINE PRINTER	
P300	Emphasized mode ON
P301	Emphasized mode OFF
P302	Double Strike mode ON
P303	Double Strike mode OFF
P304	Underline ON
P305	Underline OFF
P306	Expanded Print ON
P307	Expanded Print OFF
P308	Italics ON
P309	Italics OFF
P310	1/8" Line Spacing
P311	7/72" Line Spacing
P312	1/16" Line Spacing
P313	n/72" Line Spacing
P314	n/216" Line Spacing
P315	Set Form Length IN LINES
P316	Set Form Length IN INCHES
P317	Set Right Margin n
P318	Set Left Margin n
P319	Letter Quality ON
P320	Letter Quality OFF

IBM PROPRINTER	
P400	Emphasized mode ON
P401	Emphasized mode OFF
P402	Double Strike mode ON
P403	Double Strike mode OFF
P404	Underline ON
P405	Underline OFF
P406	Expanded Print ON
P407	Expanded Print OFF
P410	1/8" Line Spacing
P411	7/72" Line Spacing
P412	1/16" Line Spacing
P413	n/72" Line Spacing
P414	n/216" Line Spacing
P415	Set Form Length IN LINES
P416	Set Form Length IN INCHES
P418	Set Left Margin n
P419	Letter Quality ON
P420	Letter Quality OFF

PRINTER CODE	FUNCTION
ELTRON	
P500	Initialize ELTRON Printer Support
P501	Horizontal (x) Start Position
P502	Vertical (y) Start Position
P503	Rotation of Printing
P504	Font Selection
P506	Set Print Density
P507	Print Graphic Logo
P508	Draw a Line
P509	Draw a Box
P511	Set Line Thickness
P512	Set Form Width
P514	Set Form Length
P515	Disable Human Readable Code
P516	Set Narrow Width
P517	Set Wide Width
P518	Set Bar Height
P519	Print Barcode
P520	Execute Print

PRE-DEFINED STRINGS	
P901	“Gross “
P902	“Tare “
P903	“Net “
P904	“Total “
P905	“Customer Number “
P906	“Truck ID: “
P907	“Inbound Weight ”
P908	“Outbound Weight ”
P909	“Scale Weight ”
P910	“Head Count ”
P911	“Average Weight “
P912	“Weigh Draft “
P913	“Axle “
P914	“Total Axle Weight “
P915	“Inbound Truck ID: ”
P916	“Outbound Truck ID: ”
P917	“Stored Tare Weight:”
P918	“Stored Scale Weight:”
P919	“Manual Weight: “
P920	“ID deleted: “
P921	“Ticket: “
P922	“Left “
P923	“Right”
P924	“Total Truck Weight”