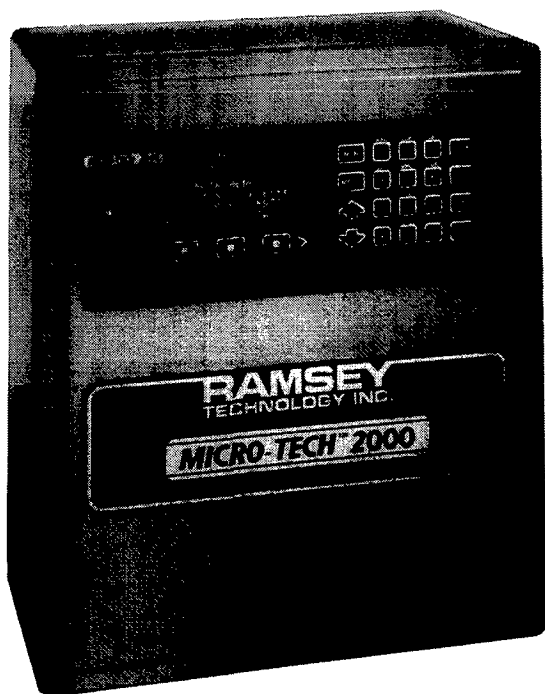


# MICRO-TECH™ 2000 INTEGRATOR

## USER'S QUICK REFERENCE GUIDE



P00063

**RAMSEY**  
TECHNOLOGY INC.  
A ThermoSentron Company

REC 3914 REV E 1/99  
Part No. 049771

## REVISION HISTORY

REVISION A	SEPTEMBER 1995
REVISION B	JANUARY 1996
REVISION C	FEBRUARY 1997
REVISION D	FEBRUARY 1998
REVISION E	JANUARY 1999

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**PLEASE READ AND OBSERVE THE FOLLOWING SAFETY  
PRECAUTIONS FOUND THROUGHOUT THIS MANUAL.**

### **DANGER**

FAILURE TO OBSERVE WILL CAUSE VERY SERIOUS  
PERSONAL INJURY OR DEATH.

### **WARNING**

FAILURE TO OBSERVE COULD CAUSE SERIOUS  
PERSONAL INJURY.

### **CAUTION**

FAILURE TO OBSERVE MAY CAUSE MINOR OR MODERATE  
PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT.

## WHAT THIS GUIDE CONTAINS

This Quick Reference guide contains information for setting up the Micro-Tech™ 2000 Integrator and calibrating it to your belt scale. It is intended as a supplement to the operating manual provided with your belt scale system. Information presented here assumes your belt scale system has been set up in accordance to the installation data presented in your Ramsey system manual. The manual contains more detailed information on the Micro-Tech™ 2000 and we encourage you to read it in its entirety.

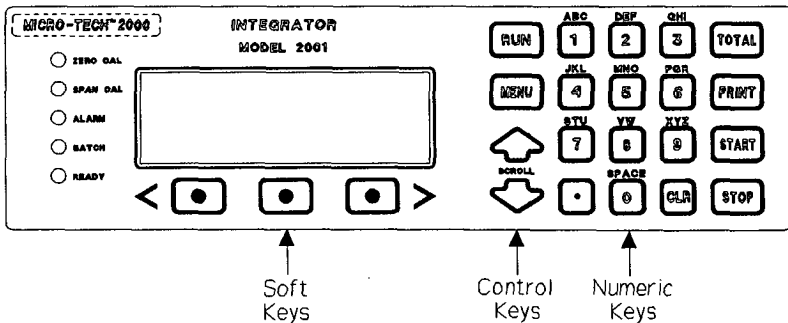
## KEY DESCRIPTIONS

Three types of keys are used to change the Integrator's displays:

**Soft Keys:** The three keys located directly below the display window are known as "soft" keys. These keys have two types of functions which are determined by the control keys.

**Control Keys:** The four control keys located on the right side of the display are used to run the Integrator, scroll up or down to adjacent menus, or permit entry into menu access modes.

**Numeric Keys:** The numeric keys, which include a decimal point and clear key, enter numeric data or remove wrong entries. All numeric entries have internal minimum and maximum limits.



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## PROGRAMMING THE MICRO-TECH™ 2000 INTEGRATOR

When power is first applied to the Integrator, the system steps the operator through menus and options that bring the system to a weighing state. The soft keys, numeric keys and the scroll control keys are used to select choices. The **RUN** and **MENU** control keys are inactive during this procedure.

1. Turn the belt scale conveyor belt on. Run the conveyor empty during setup and calibration.
2. Inside the Integrator's front panel are two AC voltage selection slide switches. SW1 and SW2 are located on the right center of the mother board.

	AC INPUT VOLTAGE	FUSE F1 (SB)	SW1 SETTING	SW2 SETTING
Default	110	0.5A	110	110/220
	120	0.5A	110	120/240
	220	0.25A	220	110/220
	240	0.25A	220	120/240

First, set SW1 for nominal 110 VAC or 220 VAC. Next, set SW2 close to the actual input voltage.

Example: Input Voltage = 117 VAC  
SW1 = 110  
SW2 = 120/240

3. The programming mode begins with the following instructional screens:

```
- MEMORY ERASED -  
Choose the language  
key to continue to  
ESP                USA
```

Press the language key.

*Initial scale setup  
and calibration.  
Press down SCROLL.*

Press the down scroll key.

*Press key under HELP  
for more information*

*HELP*

*"HELP" is  
flashing*

Press the HELP soft key.

*Key with dot (soft  
key) performs action  
of word above it.  
MORE RETURN*

When RETURN is pressed, the user is returned to the previous screen. Pressing MORE advances the system to the next screen.

*Use down SCROLL key  
to advance through  
the menus.  
MORE RETURN*

Pressing MORE or RETURN will revert the screen back to previous screens in this series. By pressing the down scroll key, you will enable the system to proceed through the menus needed for system setup.

NOTE:

Menus appearing during initial setup may operate differently in normal operation.

4. This setup screen gives the operator the choice of displaying English, Metric or mixed units of weights and measures. The defaulted (selected) value is English.

```
- DISPLAY SCROLL 1 -  
Units:  
English Selected  
CHOICES ENTER HELP
```

Press the **ENTER** soft key for measurements expressed in English, or **CHOICES** soft key to select the Metric standard of measurement or mixed (a combination of both). Scroll down.

5. Dependent upon the type of measurement programmed in Display Scroll 1, units of weight can now be entered: Tons, Long Tons, Pounds or Tonnes, Kilograms. The English default value is tons; the Metric value is tonnes.

```
- DISPLAY SCROLL 2 -  
Totalization Units  
> Tons <  
CHOICES ENTER
```

Press the **ENTER** soft key to accept the selected value, or **CHOICES** soft key to select other units. Scroll down.

6. Units used for parameters expressed in length are selected here. Selections are only available if mixed units are in US.

```
- DISPLAY SCROLL 3 -  
Length Units  
> Feet <  
CHOICES ENTER
```

Press **ENTER** soft key to accept the default unit, or **CHOICES** soft key to scroll selections. Press **ENTER** to confirm your selection. Scroll down.

7. The rate will be displayed according to the units selected here.

```
- DISPLAY SCROLL 4 -  
Rate Units  
> Tph <  
CHOICES ENTER
```

Press **ENTER** soft key to accept the default unit, or **CHOICES** soft key to scroll selections. Press **ENTER** to confirm your selection. Scroll down.

8. The units used for entering the load cell capacity are specified here. In this particular case, the use of English or Metric units is always allowed, even if **MIXED** is not specified.

```
- DISPLAY SCROLL 5 -  
Load Cell Units  
> Pounds <  
CHOICES ENTER
```

Press the **ENTER** soft key to accept the default unit, or **CHOICES** soft key to scroll selections. Press **ENTER** to confirm your selection. Scroll down.

9. The next value to be entered is the scale capacity using a decimal in units of tenths. Refer to the System Data Sheet under "Conveyor Data - Capacity" in the front of your system manual for your scale capacity. Use the numeric keys to enter the maximum scale capacity. Press **ENTER** to confirm. Scroll down.

```
- SC DATA SCROLL 1 -  
Max. scale capacity  
500.0 Tph  
ENTER
```

10. The decimal point location (scale division size) may be changed if required.

```
- SC DATA SCROLL 2 -  
Scale divisions  
> 0.1 <  
CHOICES ENTER
```

Press the **ENTER** soft key to accept the default divisions, or the **CHOICES** soft key to scroll selections. Press **ENTER** to confirm your selection. Scroll down.

11. By entering the code number of your Ramsey scale on the next screen, the Integrator will automatically calculate parameters of the system such as number of load cells and number of weigh idlers. This entry will also be used for internal calibration calculations. The default code number is 1, which corresponds to the belt scale model 10-20-1. Refer to System Data Sheet in the front of your system manual for your belt scale code number.

```
- SC DATA SCROLL 3 -  
Belt scale code #  
> 1 <  
ENTER          DETAIL
```

Press **ENTER** to accept the displayed selection or enter your belt scale code and press **ENTER**. If **ENTER** is pressed, scrolls 3A to 3M are not displayed. Scroll down to accept the carriage parameter defaults.

Press **DETAIL** to force the following scrolls 3A to 3M even if **ENTER** was pressed. Scroll down to accept the default or enter the actual parameter through the numeric keys and press **ENTER**. Scroll down.

Enter "0" if you want to define the carriage. This should only be done for carriages other than Ramsey's.

12. The following screens 3A through 3M are only displayed if **OTHER** or **DETAIL** were pressed.

Refer to Appendix A/1, Weighbridge/Carriage Parameters, in your manual. All dimensions should be measured to within 0.032 (1/32)" (1 mm).

- a. Parameter LA: pivot to load cell distance. For carriages which do not have a pivot, enter zero.

Enter the distance.

```
- SC DATA SCROLL 3A-  
Pivot to load cell  
distance: 000.00 In  
ENTER
```

Press ENTER and scroll down.

- b. Enter the number of weigh idlers on your system.

```
- SC DATA SCROLL 3B-  
# of weigh idlers  
1  
ENTER
```

Press ENTER and scroll down.

- c. Parameter LB: pivot to first idler distance.

Enter the distance.

```
- SC DATA SCROLL 3C-  
Pivot to 1st idler  
distance: 000.00 In  
ENTER
```

Press ENTER and scroll down.

**NOTE:**

Screens 3D through 3H appear if the number of weigh idlers entered in Step b above was more than one. Maximum number is six.

- d. Parameter LE: pivot centerline to test weight height. For carriages which do not have a pivot, enter zero.

Enter the distance and sign.

```
- SC DATA SCROLL 3I-  
Pivot to test-weight  
height 000.00 In  
ENTER +/-
```

Press ENTER and scroll down.

- e. Parameter LC: pivot centerline to test weight length. For carriages which do not have a pivot, enter zero.

Enter the distance.

```
- SC DATA SCROLL 3L-  
Pivot to test-weight  
length 000.00 In  
ENTER
```

Press ENTER and scroll down.

- f. Parameter LF: pivot centerline to carriage height. For carriages which do not have a pivot, enter zero.

Enter the distance.

```
- SC DATA SCROLL 3M-  
Pivot to carriage  
height 000.00 In  
ENTER
```

Press ENTER and scroll down.

- g. Parameter LG: weigh idler carry roll centerline to carriage height. For carriages which do not have a pivot, enter zero.

Enter the distance.

```
- SC DATA SCROLL 3N-  
Roll to carriage  
height 000.00 In  
ENTER
```

Press **ENTER** and scroll down.

- h. Enter the number of load cells in your carriage.

Enter the number.

```
- SC DATA SCROLL 30-  
# of load cells  
0  
ENTER
```

Press **ENTER** and scroll down.

13. Using the numeric keys, enter the spacing recorded in "Determining Installation Parameters" in your manual and press **ENTER**. Only a single value may be entered from a minimum of 1" (20mm) to 120" (2500mm). The default value is 36" (1000mm).

```
- SC DATA SCROLL 4 -  
Idler spacing:  
36.00 In  
ENTER HELP
```

Press **ENTER** and scroll down.

14. Enter the angle of incline recorded in "Determining Installation Parameters" in your manual using the numeric keys. Degree field is 0 to +/-25 with 0 being the default value.

```
- SC DATA SCROLL 5 -  
Conveyor's angle:  
0.0 Degrees  
ENTER +/-
```

Press **ENTER** and scroll down.

15. The units of measure for this entry were determined in Step 8. Under some conditions, the operator may need to convert units to accommodate new load cell specifics. The range of input permitted is 10 to 15,000 pounds or 5 to 5000 kilograms. Default value is 250 pounds (113,4Kg). See the System Data Sheet in your manual for the size of load cell.

```
- SC DATA SCROLL 6 -  
Load cell size:  
250.0 Lbs  
ENTER HELP
```

Press **ENTER** and scroll down.

16. This menu is used to set the degree of load cell sensitivity that will be used in any future R-Cal calibrations which calculate a span number. The minimum range is 0.5; maximum is 3.5. Default value is based on scale type selected. Press the numerical keys to change the value.

```
- SC DATA SCROLL 7 -  
Load cell sens.:  
3.000 mV/V  
ENTER HELP
```

Press **ENTER** and scroll down.

17. Load cell resistance is entered on this screen. The resistance for each load cell has been recorded on the System Data Sheet of your manual. (It is also stamped on the load cell cable.) Enter the ohms for each load cell; press the down scroll key to enter ohms for two,

three, or four load cells. The system default is 350.000 ohms with a range of 10 to 1000 ohms.

```
- SC DATA SCROLL 8A-  
Load cell 1  
Res.: 350.000 Ohms  
ENTER HELP
```

Press **ENTER** and scroll down.

18. The speed input screen allows the operator to select either the single speed sensor input (default value), the dual speed sensor input (requires two speed sensors to provide extra safety against speed sensor failure) or a simulated value using an internal timer. Simulation allows operation without a speed sensor. When simulated speed is selected, a conveyor running input is required (refer to the field wiring diagram).

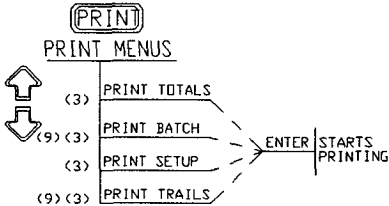
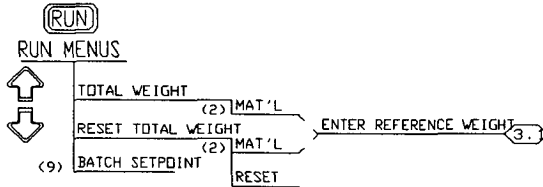
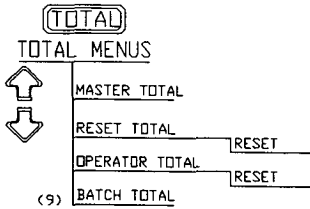
```
- SC DATA SCROLL 9 -  
Speed input  
> single <  
CHOICE ENTER
```

Scroll down after entering the speed input.

19. When the display options and scale data have been set up, the operator must enter the conveyor's belt length and establish test duration for all simulated calibrations. The "Acquire" test function calibrates the belt to the system. Zeroing and spanning are the most accurate when done over complete passes of the belt. The system also calculates a new speed prescale value.

```
-CAL DATA SCROLL 11-  
Establish test  
duration  
ACQUIRE MANUAL
```

ACQUIRE is the recommended selection.



**(START)**

START LOADOUT

(9)

**(STOP)**

STOP LOADOUT

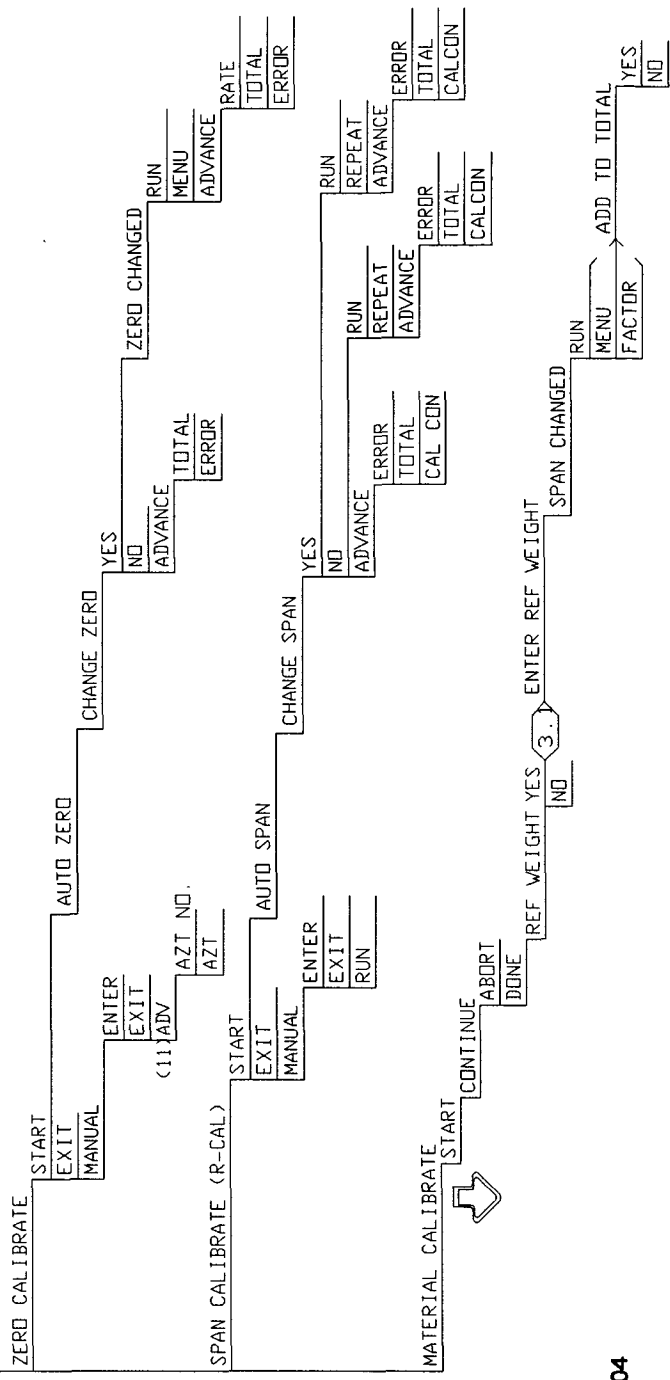
(9)

- (1) CHOICES ARE SET BY UNITS TYPE MENU.
- (2) ONLY PRESENT IF MATERIAL CAL NOT COMPLETED.
- (3) ONLY AVAILABLE IF COMMUNICATIONS OPTION INSTALLED.
- (4) ONLY AVAILABLE IF SCALE MODEL MENU IS SET TO OTHER.
- (5) ONLY AVAILABLE IF CALIBRATION MODE IS SET TO APPROPRIATE SETTINGS.
- (6) ONLY AVAILABLE IF OPTION IS ENABLED.
- (7) MEMBER OF INITIAL SETUP LIST.
- (8) AVAILABILITY SET BY SCALE MODEL MENU.
- (9) ONLY AVAILABLE IF OPTIONAL HARDWARE INSTALLED.
- (10) MODEL 2201 & 2301 ONLY.
- (11) ONLY IF AUTO ZERO TRUCK IS ENABLED

**A00703**

**MENU**

MAIN MENU 1



A00704

(MENU)

MAIN MENU 2

DISPLAY OPTIONS

SCALE DATA



- (7) MAX. SCALE CAPACITY
- (7) SCALE DIVISIONS
- (7) SCALE CODE
- (7X8) PIVOT TO LOADCELL
- (7X8) # OF WEIGH IDLERS
- (7X8) PIVOT TO 1ST IDLER
- (7X8) PIVOT TO 2ND IDLER
- (7X8) PIVOT TO 3RD IDLER
- (7X8) PIVOT TO 4TH IDLER
- (7X8) PIVOT TO 5TH IDLER
- (7X8) PIVOT TO 6TH IDLER
- (7X8) PIVOT TO TEST WEIGHT
- (7X8) PIVOT TO TEST WEIGHT
- (7X8) PIVOT TO CARRIAGE
- (7X8) ROLL TO CARRIAGE
- (7X4) # OF LOAD CELLS
- (7) IDLER SPACING
- (7) CONVEYOR'S ANGLE
- (7) LOAD CELL CAPACITY
- (7) LOAD CELL SENSITIVITY
- (7) LOAD CELL #1 RESOLUTION

CALIBRATION DATA



- CALIBRATION MODE | R-CAL CHAIN WEIGHT
- (5) R-CAL RESISTANCE
- (5) R-CAL CONSTANT
- (5) CHAIN WEIGHT
- (5) CHAIN CONSTANT
- (5) TEST WEIGHT
- (5) WEIGHT CONSTANT
- (3) CALIBRATION INTERVAL
- (3) CALIBRATION DATE
- MATERIAL FACTORS

TEST DURATION

ACQUIRE

MANUAL

FULL

PARTIAL

ABORT

CONTINUE

AUTO ZERO TRACKING

BELT LENGTH

BELT REVOLUTIONS

(6) AZT RANGE

(6) AZT MAX. DEVIATION

MAX. SPEED CAPACITY

ENTER ACQUIRE

A00705

## NOTES

## ORDERING MANUALS

Other Micro-Tech 2000 manuals are available from Ramsey. For fast service and price information, please fax or telephone:

Fax: (612)783-2525

Telephone: (612)783-2775 - Customers A through I  
(612)783-2773 - Customers J through Z

If YES is pressed, the following screen is displayed:

```
SPAN # CHANGED
New span # 000000
Old span # 000000
RUN REPEAT ADV
```

ADV changes from Error % to Accumulated Weight, Calcon, Old Span, Material factor (only if not INVALID).

Pressing REPEAT restarts auto spanning.

Record readings for future reference after final span change.

Press RUN for normal operation.

## 2. Manual Span

This menu allows direct entry of a span value. Minimum entry is 500000, maximum is 9000000.

```
- MANUAL SPAN -
Rate 000.0 Tph
Span # 0000000
MENU ENTER RUN
```

Press ENTER to confirm your entry.

Pressing MENU returns the screen to Main Menu 1.

Pressing RUN returns to normal operation.

\*\*\*\*\*

**See your system manual for complete information on Micro-Tech™ 2000 Integrator installation, operation, maintenance, and parts ordering.**

\*\*\*\*\*

stabilize. The operator must insure the belt is running empty before pressing start.

By pressing the EXIT key, the system returns to Main Menu 1.

When START is pressed, the following screen appears:

```
AUTO SPANNING
Time remaining 0000
Rate 000.0 Tph
Tot 000000 Tons
```

During Auto Span, the resolution of the total is ten times higher than during normal work. The time remaining shown in line two is calculated upon the current speed, and it is based on the test duration.

If the belt is not running at the moment the test is started, or it is stopped during the test, a message is displayed, indicating the procedure has been aborted.

```
WARNING Belt stopped
Calibration aborted

EXIT
```

Pressing EXIT returns to the beginning of the test. When zero time is reached, the system automatically displays the following screen:

```
AUTO SPAN COMPLETE
Error ±00.00 %
Change span ?
YES NO ADV
```

"COMPLETE" is flashing

Pressing ADV advances the screen to Accumulated Weight, Cal Con, Material Factor and back to Error %. If the Material Factor is INVALID (never acquired before), it is not displayed; if displayed, see Main Menu 1 in your instruction manual. Pressing NO returns the screen to Main Menu 1.

Press the MENU soft key to return to Main Menu 1 or press RUN for normal operation.

## 2. Manual Zero

This menu allows the operator to directly enter a zero level. The current running rate is displayed to the operator. Performing any AUTO ZERO functions overwrites values entered here. The allowable range is 0 to 120000. The default is set by the system.

-	MANUAL ZERO	-	Password:
Rate	<u>000.0</u>	Tph	OPERATOR
Zero #	<u>00000</u>		
ENTER	EXIT	ADV	

Press ENTER to confirm the new zero number. The ADV only appears if Auto Zero Track has been selected in the "CALIB DATA" scroll. See Main Menu 1 in your instruction manual for operation. Press EXIT to return to Main Menu 1 or press RUN for normal operation.

## SPAN CALIBRATE

This function is implemented as a machine directed procedure. Press the MENU soft key until Main Menu 1 appears. Press the SPAN CAL soft key. Pressing RUN returns the integrator to the Run mode.

### 1. Auto Span

The text displayed in the following screens depend on which method of simulated calibration was selected in Main Menu 2, "CALIB DATA" scroll.

-	AUTO SPAN R Cal	-	Password:
Run belt empty, then			OPERATOR
press START.			
START	EXIT	MANUAL	

Pressing MANUAL advances to Step 2, Manual Span.

After START is pressed, there is no totalization, the R-Cal relay is energized and a three second delay is used for the weight to

```
AUTO ZEROING
Time remaining 0000
Rate 000.0 Tph
Tot 000000 Tons
```

During Auto Zero, resolution of the total is ten times higher than normal. The number of seconds in line 2 is calculated based on the current speed, and corresponds to the time remaining for completing the test. If the belt is not running at the moment the test is started, or it is stopped during the test, a message is displayed, indicating the procedure has been aborted.

```
WARNING Belt stopped
Calibration aborted
```

EXIT

Pressing EXIT returns to the beginning of the test. When zero is reached, the system automatically displays the following screen:

```
AUTO ZERO COMPLETE
Error ±000.00 %
Change zero ?
YES NO ADV
```

"COMPLETE" is  
flashing

The soft key ADV changes from Error % to Accumulated Weight. The percentage of error is related to the scale capacity.

Pressing NO returns the screen to Main Menu 1. If YES is pressed, the zero number is changed. The screen displays the new and old zeroing numbers.

```
ZERO # CHANGED
New zero # 00000
Old zero # 00000
RUN MENU ADV
```

ADV changes from Old Zero to Rate, to Accumulated Weight and to Error %. Record readings for future reference.

*SCALE NOT CALIBRATED  
Press RUN to start,  
or MENU for scrolls.*

The field data entered during this procedure enabled the Micro-Tech 2000 to perform an unassisted zero balance and span calibration. Assuming no mistakes were made, the scale is calibrated and is ready for use at this time.

#### NOTE

The span number was calibrated from the data that was entered during this initial calibration setup procedure. This span number is based on a perfect mechanical alignment of the scale and its adjacent idlers. Therefore, verify this by performing a material calibration or by performing a span calibration procedure.

## ZERO CALIBRATE

The zeroing process is implemented as a machine directed procedure. Press the **MENU** soft key until Main Menu 1 appears. Press the **ZERO CAL** soft key. Pressing **RUN** at any time returns the integrator to the Run mode.

### 1. Auto Zero

*- ZERO CAL -  
Run belt empty, then  
press START.  
START EXIT MANUAL*

*Password:  
OPERATOR*

Pressing **MANUAL** advances to Step 2, Manual Zero.

The belt must be running during Auto Zero, since a complete zeroing procedure requires at least one full revolution of the belt to be averaged.

Pressing **EXIT** returns the screen to Main Menu 1.

When **START** is pressed, the following screen is displayed:



MENU

MAIN MENU 8

DIAGNOSTICS

PROTECTION

TESTS

LAMP TEST

INTERVAL TEST

TEST DIGITAL INPUTS

TEST DIGITAL OUTPUTS

TEST CURRENT OUTPUTS

TEST CURRENT INPUTS

TEST COM A

TEST COM C

TEST BCD INPUT

TEST BCD OUTPUT

TEST CPU SERIAL LINE

TEST KEYS AND SWITCHES

START

TESTING ROM

TESTING RAM

TESTING EPROM

PROTECTION LEVEL

NONE, LIMITED, PROTECTED

A/D GROSS NET

WEIGHT ON LOADCELL

WEIGHT ON LOADCELL

ENTER SERVICE PASSWORD

ENTER LIMITED PASSWORD

SOFTWARE VERSION

SETUP DATE

SETUP TIME

BOARD TYPE SLOT #1

BOARD TYPE SLOT #2

BOARD TYPE SLOT #3

BOARD TYPE SLOT #4

BOARD TYPE SLOT #5

BOARD TYPE SLOT #6

LC OUTPUT ZERO

LC OUTPUT SPAN

TEST DURATION

TOTAL PULSES

TEST DURATION

TOTAL LENGTH



CALIB



CALIB

(3)

(3)



MAIN MENU 4

I/O DEFINE

ALARMS DEFINE

(9) LOAD OUT



PRESET WEIGHT	
PREACT CORRECTION	MANUAL, AUTO
PREACT VALUE	AUTO LEARN
PREACT RANGE	
PREACT LENGTH	
START DELAY	
COASTING TIME	
BATCH DEVIATION	
PRINT BATCH	
POSITION BATCH NUM	
POSITION BATCH QUANT	
POSITION BATCH TOTAL	



RATE ALARM	YES	NO
LOW RATE		
HIGH RATE		
LOAD ALARM		YES, NO
LOW LOAD		
HIGH LOAD		
SPEED ALARM		YES, NO
LOW SPEED		
HIGH SPEED		
BELT SLIP		
ALARM DEFINITION		

NEXT\_SCROLL\_ALL\_ALARMS



CURRENT OUTPUT	OFF, RATE
CURRENT OUT RANGE	LOAD, SPEED
CURRENT OUT DELAY	0-20, 4-20
CURRENT OUT DAMPING	20-0, 20-4
ANALOG INPUT #1	
ANALOG INPUT #2	
MOISTURE CALIBRATION	(6)
INCLINE CALIBRATION	(6)
DIGITAL INPUTS	
DIGITAL OUTPUTS	
REMOTE COUNTER DIVIDER	
REMOTE COUNTER PULSE	
BCD OUTPUT VARIABLE	(9)
BCD OUTPUT POLARITY	(9)
BCD OUTPUT POLARITY	(9)
BCD INPUT VARIABLE	(9)
BCD INPUT POLARITY	(9)
BCD INPUT POLARITY	(9)
CLIP DETECTOR MODE	(6)
CLIP DETECTOR LENGTH	(6)

OFF, RATE  
LOAD, SPEED  
0-20, 4-20  
20-0, 20-4

OFF, RATE  
LOAD, SPEED  
POSITIVE  
NEGATIVE  
YES, NO  
OFF, SET-POINT  
CUT-OFF  
POSITIVE  
NEGATIVE  
MANUAL  
AUTO

MENU

MAIN MENU 5

(3) COMM A  
 (9) AB RTD DR PROFIBUS DP  
 (6) (3) PRINT

HANDSHAKING NONE CTS, XON-XOFF  
 END OF LINE CR LF, CR+LF  
 DELAY END OF LINE  
 FORM FEED YES NO  
 PRINT INTERVAL  
 PRINT TIME 1  
 NEXT  
 PRINT ALARMS YES NO  
 DEFAULT 1  
 DEFAULT 2  
 USER DEFINED

BAUD RATE 1 110,150,300,600,1200,2400,  
 EVEN, ODD  
 NONE  
 1, 2  
 PARITY 1  
 STOP BITS 1  
 WORD LENGTH 1 7, 8  
 (6) PROTOCOL 1 PC-MASTER, SIEMENS,  
 ALLEN BRADLEY, MODBUS, PRINTER  
 ENABLED  
 DISABLED  
 (6) CTS 1  
 (6) ADDRESS 1  
 (6) ACCESS 1 NONE, LIMITED  
 PROTECTED  
 (6) BAUD RATE 2 110,150,300,600,1200,2400,  
 EVEN, ODD  
 NONE  
 1, 2  
 (6) PARITY 2  
 (6) STOP BITS 2  
 (6) WORD LENGTH 2 7, 8  
 (6) PROTOCOL 2 PC-MASTER, SIEMENS,  
 ALLEN BRADLEY, MODBUS, PRINTER  
 ENABLED  
 DISABLED  
 (6) CTS 2  
 (6) ADDRESS 2  
 (6) ACCESS 2 NONE, LIMITED  
 PROTECTED

AB RTD  
 PROFIBUS DP  
 ADDRESS  
 READ BUFFER DIM  
 WRITE BUFFER DIM

BAUD RATE 57.6  
 115.2  
 230.4  
 SLAVE ADDRESS RACK  
 QUARTER  
 RESET

(6) NUMBER OF STRINGS  
 (6) CONTENTS STRING 1  
 (6) POSITION STRING 1  
 (6) CONTENTS STRING 2  
 (6) POSITION STRING 2  
 (6) CONTENTS STRING 3  
 (6) POSITION STRING 3  
 (6) POSITION OPERATOR TOTAL  
 (6) POSITION RESET TOTAL  
 (6) POSITION DATE  
 (6) POSITION TIME  
 (6) POSITION RATE  
 (6) POSITION AVG RATE  
 (6) POSITION RUNNING TM



- a. Select the method of belt length measurement. PARTIAL is selected when the belt is hard to measure, but may be less accurate than selecting FULL. When selecting FULL, use a 100 foot tape to measure belt length to the nearest .1 foot. Reference a fixed point (an idler) on the conveyor when counting belt revolutions. See "Determining Installation Parameters" in your manual for the recorded conveyor belt length.

```
ACQUIRE TEST DUR
Choose belt length
measurement method.
FULL PARTIAL HELP
```

FULL is the recommended selection.

- b. If FULL has been selected, the following screen appears. If PARTIAL is selected, proceed to Step 19 c.

```
Enter length of one
belt revolution.
length: 1000.0 Ft
ABORT ENTER HELP
```

There is a minimum length of 1.0 feet (0.5 m) and maximum of 10,000.0 feet (3000 m) allowed. Enter the length recorded in "Determining Installation Parameters" in your manual using the numeric keys. Press ENTER. The default value is 1,000 feet (200.0 m). Pressing ABORT returns the screen to CAL DATA SCROLL 4. When measuring the total conveyor belt length, mark the belt so it is at full speed when it passes the fixed point.

- c. The PARTIAL (belt length measurement) selection enables the operator to acquire test duration without the entire belt length measurement.

#### CAUTION

**THIS OPTION SHOULD ONLY BE USED WHEN BELT LENGTHS EXCEED 1000 FEET.**

By using two marks on the belt which are a known distance apart (minimum 200 feet or 60 meters) and determining the number of speed sensor pulses within that distance, the leading mark can be used to determine the actual length of the belt.

```
Enter length between
two marks on belt.
Length: 200.0 Ft
ABORT  ENTER  HELP
```

There is a minimum length of 1.0 feet (0.5 m) and maximum length of 1000 feet (3000 m) allowed. The default value is 200 feet (50 m). Pressing **ABORT** returns the screen to CAL DATA SCROLL 11.

20. After the length of one revolution of belt has been entered in the Step 19 b menu, the system automatically moves to the following screen which prompts the operator to press **START** when the mark passes the reference point.

The belt must be running at its maximum speed before executing this function. If not, the speed prescale will be improperly calculated.

```
Start belt. Press
START when 1st mark
passes reference.
ABORT  START  HELP
```

21. When **START** is pressed above, the system automatically moves to the next instructional screen. The operator presses **COUNT** each time the mark passes the reference point until both of the following conditions are met: 3 revolutions of the belt or more than 6 minutes. When the last revolution passes the mark, the operator must press **COUNT** followed by pressing **DONE**.

When **START** is pressed above, the zero cal LED illuminates and an unassisted zero calibration starts and continues until **DONE** is pressed.

*Press COUNT each  
time a mark passes.  
00000 secs 000 revs  
ABORT COUNT DONE*

22. When test duration test is finished, the new values for length of belt and time are displayed.

*TEST DURATION  
Length = 0000.0 Ft  
Time = 000 sec  
CONTINUE*

New values for test duration and speed prescale have been installed.

Press CONTINUE.

23. After test duration has been determined, and the scale has been zeroed, the integrator performs a calibration of the scale. The scale is calibrated using the parameters just entered. After this, the R-CAL (electronic calibration resistor) is used to check the integrity of the load cell. During this time, the following screen is displayed:

*CALIBRATION  
IN  
PROGRESS*

When the calibration procedure is completed, the following message is displayed:

*SCALE CALIBRATED  
Press RUN to start,  
or MENU for scrolls.*

In case the load cell is not connected or a failure is detected, the following message appears.

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