Avery Weigh-Tronix

Scales for Agribusiness

Model 640 Series Indicators

Model 640XL

Model 640

Model 640M

User Instructions

43108-0019
Issue AH

Table of Contents

1 Quick Start Guide

This Quick Start Guide chapter includes simple weighing and calibration details. Refer to other sections in this manual for details on other operations or installation.

1.1 Numeric Entry Procedure

Anytime you need to enter numeric values, use the keys as described below. The note icon below will appear though out the manual to give you key tips and reminders of how to use the 640 series indicator..

Numeric Entry Procedure

Press this key to enter a value on the screen and increment the value being entered.

Press this key to decrement the numeric value being entered.

Press this key to move the numeric entry cursor one position to the right.

EXAMPLE: To enter the number 5230:

1. At the data entry screen, press the **RM** key several times until.

   5 is displayed

2. Press the **HOLD/MENU** key.

   5_ is displayed

3. Press the **RM** key several times until ***52*** is displayed.

4. Repeat process until ***5230*** is shown.

1.2 Simple Weighing

The gross weight parameter represents the total live weight on the scale since the last time a zero reference was established by pressing **ZERO**. The gross weight is calculated internally and its value cannot be changed by any other means.

Gross

The gross weight parameter represents the total live weight on the scale since the last time a zero reference was established by pressing **ZERO**. The gross weight is calculated internally and its value cannot be changed by any other means.

Net

The net weight parameter represents the difference between gross and tare:

NET = GROSS - TARE

The net weight can be used to determine the weight of product in a container if the tare weight of the container has been established. The net weight is also used for multiple ingredient filling applications where a new tare weight is established prior to each fill. Thus each ingredient can fill from a net weight of zero to the desired target net weight. The net weight is calculated internally and its value can only be changed indirectly by specifying a new tare weight.

Tare

The tare weight parameter represents a deduction from gross weight made to allow for the weight of a container or other such weight not to be considered as part of the resulting net weight.

How to Weigh with the 640

1. Press **ON/OFF** to turn the indicator on.
2. Press the **G/N** key on the screen to select the gross mode.
3. Remove all materials from the scale.
4. Press the **ZERO** key on the screen.
5. Place weight on the scale.

1.3 How to Verify the Scale is Weighing Properly

In most cases your Avery Weigh-Tronix Model 640 arrives from your dealer or distributor preprogrammed with a Configuration Code Number (CCN) that sets the Model 640 to work and weigh properly with the appropriate scale system, whether it is a TMR mixer, grain cart, livestock scale, weigh cart, platform scale, bin scale, or all other applications.

Before beginning to use the new Model 640 scale system, please verify the system has been programmed correctly and is weighing properly and it is configured for the proper unit of measure.

1. Zero the indicator by pressing the **ZERO/CLEAR** key from the gross mode.
2. Stand on the scale system and note the scale reading.

   If the weight reading is correct, your system is working properly and you can continue with operation of the system.

   If the weight reading is not correct, read through this chapter to learn how to access the SETUP menu to change the Configuration Code Number (CCN). This should get your system up and running properly. If problems persist, call your local dealer or Avery Weigh-Tronix.

1.3.1 To Access the Setup Menu (640)

Follow these steps to access the Setup menu.

1. From the G/N mode, press and hold the **HOLD/MENU** key for three beeps (3 seconds), then release.

   SET.PAS is displayed.

2. Use the numeric entry procedure to enter the password ***640***. Press **PRINT/ SELECT** to accept it.

   640 is shown with all annunciators on

3. Press **PRINT/SELECT** once more.

   CONFIG is displayed. Continue with the next section for instructions on finding and entering the correct Configuration Code Number (CCN) for your indicator.

1.4 Calibrate the 640 with a Standard Configuration Number

This section covers the standard calibration process for the scale system using pre-calibrated Avery Weigh-Tronix weigh cells. If using other brands of weigh cells or configurations of AWTX weigh cells not mentioned below you will need to use Custom Configuration. Refer to section 1.5 for an example of Custom Configuration and Custom Configuration table.

1.4.1 Determine the Configuration Number

This section shows you how to find and enter a configuration number that sets up the indicator for the following: type of Weigh Bar, capacity, increment, and units.

The following are instructions for how to determine what number needs to be entered into the calibration configuration number menu.

Example:

2 1/8 calibration, 20,000 (capacity limit) x 5 (increments the scale counts in), Print GTN with time/date, unit = kg with Auto-Loc off and Auto-Acc on.

Configuration code = 05235

1. The first two digits are the calibration size. In our example the calibration size is **2 1/8**. The corresponding number is found in Table 1.1 on page 10. Find the desired calibration size. In this example, **05** are the first two digits.

1st & 2nd Digits	CALIBRATION SIZE	CAPACITY X INCREMENT SIZE					
03	1-7/8	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
04	2	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
05	2-1/8	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
06	2-1/4	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50

Figure 1.1 1st and 2nd Digit (Calibration Size)

2. The third digit is the capacity and increment size within the calibration size. In this example **20,000 x 5** is being used. The corresponding number is also found in Table 1.1. Follow the row of the chosen calibration size (i.e. 05) until you find the desired capacity and increment size. Follow the column down to the bottom row. The third digit is located on the bottom row. For this example, **2** is the number.

1st & 2nd Digits	CALIBRATION SIZE	CAPACITY X INCREMENT SIZE					
03	1-7/8	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
04	2	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
05	2-1/8	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
06	2-1/4	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
	3rd DIGIT	0	1	2	3	4	5

Figure 1.2 3rd Digit (Capacity and Increment Size)

3. The fourth digit is for the print format. The value is in Table 1.2. In the example we used **3** for Gross, Tare, Net with Time and Date. Refer to section 5.9 for available print formats.

4. The fifth digit is used for the calibration unit (lb or kg) along with auto-loc and auto-acc. Refer to Table 1.3 for the settings. For this example, **5** is used.

1.4.2 Configuration Codes

The following tables show how to establish a Configuration Code Number (CCN) to configure the 640 indicator. Table 1.1 applies to all 3 Weigh Bar junction box systems and 4 Weigh Bar junction box systems.

- The only exception is the Calibration Size 2 1/4D-P, which can be used with 8 Weigh Bars that are 2 1/4 D cal size.
- If you use any other number of Weigh Bars, use custom settings 97, 98, or 99 and refer to section 1.5 to find your configuration numbers based on reading of .4mV/V.

Table 1.1 1st/2nd (Weigh Bar Size) and 3rd CCN Digits (Capacity and Increment)

1st and 2nd Digit	CALIBRATION SIZE	CAPACITY x INCREMENT SIZE					
00	5/8	200 x 0.01	200 x 0.02	200 x 0.05	2K x 0.1	2K x 0.2	2K x 0.5
01	1	2K x 0.1	2K x 0.2	2K x 0.5	20K x 1	20K x 2	20K x 5
02	1-1/4	2K x 0.1	2K x 0.2	2K x 0.5	20K x 1	20K x 2	20K x 5
03	1-7/8	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
04	2	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
05	2-1/8	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
06	2-1/4	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
07	2-1/4D	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
08	2-1/4D-P	200K x 10	200K x 20	200K x 50	200K x 100	200K x 200	200K x 500
09	2-1/2	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
10	3-1/8	200K x 10	200K x 20	200K x 50	200K x 100	200K x 200	200K x 500
11	4	200K x 10	200K x 20	200K x 50	200K x 100	200K x 200	200K x 500
12	CC20/CC30	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
13	Alley Weigh	2K x 0.1	2K x 0.2	2K x 0.5	20K x 1	20K x 2	20K x 5
14	CC30-3	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
15	Chute Weigh	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
16	CC-50	200K x 10	200K x 20	200K x 50	200K x 100	200K x 200	200K x 500
18	SPARE	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
20	1-digi	2K x 0.1	2K x 0.2	2K x 0.5	20K x 1	20K x 2	20K x 5
21	1 POLY(DIGI)	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
22	1-7/8,2(DIGI)	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
23	2-1/8,2-1/2,2-7/8,3-3/4 (DIGI)	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
97	Custom Setting	200 x 0.01	200 x 0.02	200 x 0.05	2K x 0.1	2K x 0.2	2K x 0.5
98	Custom Setting	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
99	Custom Setting	200K x 100	200K x 200	200K x 500	-	-	-
	3rd DIGIT	**0**	**1**	**2**	**3**	**4**	**5**

The fourth digit of the Configuration Code Number (CCN) is found in Table 1.2. The 640 has ten choices for print outs. Refer to section 5.9 for printout examples.

Table 1.2 4th CCN Digit (Print Format)

4th Digit	Print Formats
0	G
1	GTN
2	G w/ TD
3	GTN w/TD (STD)
4	CSV-G
5	CSV-GTN
6	CSV-G w/TD
7	CSV-GTN w/TD
8	Displayed Wt.
9	Displayed Wt. w/TD

The fifth digit is used for the calibration unit (lb or kg) along with auto-loc and auto-acc (refer to section 5.8.1 for details on auto-loc and section 5.5.3 for details on auto-acc). Refer to Table 1.3 for the settings. For this example, **5** is used.

Table 1.3 5th CCN Digit (Calibration Unit, Auto-Loc, Auto-Acc)

5th Digit	Units	Auto-Loc	Auto-Acc
0	lb	OFF	OFF
1	lb	OFF	ON
2	lb	ON	OFF
3	lb	ON	ON
4	kg	OFF	OFF
5	kg	OFF	ON
6	kg	ON	OFF
7	kg	ON	ON

1.4.3 Enter the Configuration Code Number Parameter (CONFIG)

1. Access the Setup Menu (refer to section 1.3.1).
2. From ***CONFIG***, press **PRINT/SELECT**.

   The current code number will be displayed
3. Enter the calibration number (refer to the Numeric Entry Procedure section on page 5) and press the **PRINT/SELECT** key.

   CONFIG will be displayed
4. Press the **G/N** key. The indicator will return to the G/N weighing mode.

If attempting to enter an invalid number display will show CAN't and return to CONFIG.

1.4.4 Configuration Code Numbers for Common Applications:

TMR MIXERS:

2 1/8 inch calibration weigh bar	20,000 x 5 lb	(5230)
2 ½ inch calibration weigh bar	200,000 x 10	(9330)
2 1/4D calibration weigh bar	200,000 x 10 lb	(7330)
CC-30 Compression Cell	200,000 x 10 lb	(14330)

GRAIN CARTS:

2 1/4D calibration weigh bar	200,000 x 20 lb	(7430)
CC-30 Compression Cell	200,000 x 20 lb	(14430)

LIVESTOCK:

2 1/8 inch calibration weigh bar	20,000 x 1 lb	(5030)
Chute Weigh System	20,000 x 1 lb	(15030)
Alley Weigh System	2,000 x 1 lb	(13330)

If it is impossible to know exactly which weigh bars are on the scale system, try one of the recommended Configuration Code Numbers and keep entering code numbers until the scale appears to be weighing properly. (See section below entitled: Entering A New Configuration Code Number)

After several attempts at a code number, if the scale still does not weigh properly please consider the following:

- Contact your dealer or distributor where the scale was purchased.
- Access the Avery Weigh-Tronix website at www.agscales.com for more debugging tips.
- Contact the Avery Weigh-Tronix service department at 1-800-458-7062 for assistance.

1.5 Custom Configuration Number for AWTX Weigh Bars

For use with all AWTX Ag Weigh Bars.

1.5.1 Determine Configuration Number

The following are instructions for how to determine what number needs to be entered into the calibration configuration number menu.

Example:

6 2 1/2 calibration, 200,000 (capacity limit) x 20 (increments the scale counts in), Print GTN with time/date, unit = kg with Auto-Loc off and Auto-Acc on.

Configuration code = 98435

1. In our example, 6 weigh bars are being used so the custom number must be matched up with the Capacity and Increment Size. The Capacity and Increment Size is **200K x 20**. Find the custom setting number by following the row of the desired Capacity and Increment Size. The corresponding number is found in Table 1.1 on page 10. In this example, **98** are the first two digits.

1st & 2nd Digits	CALIBRATION SIZE	CAPACITY X INCREMENT SIZE					
97	Custom Setting	200 x 0.0 1	200 x0.0 2	200 x 0.05	2K x 0.1	2K x 0.2	2K x 0.5
98	Custom Setting	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
99	Custom Setting	200K x 1	200K x 2	200K x 5	-	-	-
	3rd DIGIT	0	1	2	3	4	5

Figure 1.3 1st and 2nd Digit (Custom Setting)

2. The third digit is the Capacity and Increment Size within the custom setting. In this example **200,000 x 20** is being used. The corresponding number is also found in Table 1.1. Follow the column down to the bottom row. The third digit is located on the bottom row. For this example, **4** is the number.

1st & 2nd Digits	CALIBRATION SIZE	CAPACITY X INCREMENT SIZE					
97	Custom Setting	200 x 0.0 1	200 x0.0 2	200 x 0.05	2K x 0.1	2K x 0.2	2K x 0.5
98	Custom Setting	20K x 1	20K x 2	20K x 5	200K x 10	200K x 20	200K x 50
99	Custom Setting	200K x 1	200K x 2	200K x 5	-	-	-
	3rd DIGIT	0	1	2	3	4	5

Figure 1.4 3rd Digit (Capacity and Increment Size)

3. The fourth digit is for the print format. The value is in Table 1.2. In the example we used **3** for Gross, Tare, Net with Time and Date. Refer to section 5.9 for available print formats.

4. The fifth digit is used for the calibration unit (lb or kg) along with auto-loc and auto-acc (refer to section 5.8.1 for details on auto-loc and section 5.5.3 for details on auto-acc). Refer to Table 1.3 for the settings. For this example, **5** is used.

1.5.2 Determine Custom Calibration Number

This number will be entered in the ***CUSTOM*** parameter. Refer to section 1.5.4 on page 18. Refer to Table 1.4 on page 15 for Custom Number codes.

Example for Custom Configuration:

6 2 1/2 cal size weigh bars, 200,000 x 20 kg = 17490

1. First you go down left hand column (Cal Size) in Table 1.4 and find **2 1/2**.
2. Next, in the 2nd column find **6** for 6 weigh bars.
3. The fourth column (kg) **17490** is the custom number.

Cal Size	No. of bars	CUSTOM # (lb/kg)
2 1/2	5	32133
2 1/2	6	38559
2 1/2	7	44986

Figure 1.5 Custom Configuration Number

1.5.3 Custom Number Table

Table 1.4 Custom Number Table

Cal Size	Number of Bars	Custom # (lb) @.4mV/V	Custom # (kg) @.4mV/V
5/8	1	92.3	41.8
5/8	2	184.5	83.7
5/8	3	276.8	125.5
5/8	4	369	167.4
5/8	5	461.3	209.2
5/8	6	553.6	251.1
5/8	7	645.8	292.9
5/8	8	738.1	334.8
1	1	375.3	170.2
1	2	750.6	340.5
1	3	1126	510.7
1	4	1501.3	681
1	5	1876.6	851.2
1	6	2251.9	1021.5
1	7	2627.2	1191.7
1	8	3002.6	1361.9
1 1/4	1	893	405
1 1/4	2	1785.9	810.1
1 1/4	3	2678.9	1215.1
1 1/4	4	3571.9	1620.2
1 1/4	5	4464.9	2025.2
1 1/4	6	5357.8	2430.3
1 1/4	7	6250.8	2835.3
1 1/4	8	7143.8	3240.4
1 7/8	1	2630	1193
1 7/8	2	5261	2386
1 7/8	3	7891	3579
1 7/8	4	10522	4773
1 7/8	5	13152	5966
1 7/8	6	15782	7159
1 7/8	7	18413	8352
1 7/8	8	21043	9545
2	1	3270	1483
2	2	6540	2967
2	3	9810	4450
2	4	13080	5933
2	5	16350	7416

Cal Size	Number of Bars	Custom # (lb) @.4mV/V	Custom # (kg) @.4mV/V
2	6	19620	8900
2	7	22890	10383
2	8	26160	11866
2 1/8	1	3753	1702
2 1/8	2	7506	3405
2 1/8	3	11260	5107
2 1/8	4	15013	6810
2 1/8	5	18766	8512
2 1/8	6	22519	10215
2 1/8	7	26272	11917
2 1/8	8	30026	13619
2 1/4	1	4613	2092
2 1/4	2	9226	4185
2 1/4	3	13839	6277
2 1/4	4	18452	8370
2 1/4	5	23065	10462
2 1/4	6	27678	12554
2 1/4	7	32291	14647
2 1/4	8	36904	16739
2 1/4Dual	1	9226	4185
2 1/4Dual	2	18452	8370
2 1/4Dual	3	27678	12554
2 1/4Dual	4	36904	16739
2 1/4Dual	5	46130	20924
2 1/4Dual	6	55356	25109
2 1/4Dual	7	64582	29294
2 1/4Dual	8	73808	33479
2 1/2	1	6427	2915
2 1/2	2	12853	5830
2 1/2	3	19280	8745
2 1/2	4	25706	11660
2 1/2	5	32133	14575
2 1/2	6	38559	17490
2 1/2	7	44986	20405
2 1/2	8	51412	23320
3 1/8	1	12955	5876
3 1/8	2	25910	11752
3 1/8	3	38864	17629
3 1/8	4	51819	23505
3 1/8	5	64774	29381

Cal Size	Number of Bars	Custom # (lb) @.4mV/V	Custom # (kg) @.4mV/V
3 1/8	6	77729	35257
3 1/8	7	90684	41133
3 1/8	8	103638	47010
4	1	26523	12031
4	2	53046	24061
4	3	79569	36092
4	4	106092	48122
4	5	132615	60153
4	6	159137	72184
4	7	185660	84214
4	8	212183	96245
Alley Weigh bar	1	389	176
Alley Weigh bar	2	778	353
Alley Weigh bar	3	1167	529
Alley Weigh bar	4	1556	706
Alley Weigh bar	5	1946	882
Alley Weigh bar	6	2335	1059
Alley Weigh bar	7	2724	1235
Alley Weigh bar	8	3113	1412
Chute Weigh bar	1	2630	1193
Chute Weigh bar	2	5261	2386
Chute Weigh bar	3	7891	3579
Chute Weigh bar	4	10522	4773
Chute Weigh bar	5	13152	5966
Chute Weigh bar	6	15782	7159
Chute Weigh bar	7	18413	8352
Chute Weigh bar	8	21043	9545
CC-20/CC-30	1	5634	2555
CC-20/CC-30	2	11268	5111
CC-20/CC-30	3	16901	7666
CC-20/CC-30	4	22535	10222
CC-20/CC-30	5	28169	12777
CC-20/CC-30	6	33803	15333
CC-20/CC-30	7	39437	17888
CC-20/CC-30	8	45070	20444
CC-30-3	1	4000	1814
CC-30-3	2	8000	3629
CC-30-3	3	12000	5443
CC-30-3	4	16000	7257
CC-30-3	5	20000	9072

Cal Size	Number of Bars	Custom # (lb) @.4mV/V	Custom # (kg) @.4mV/V
CC-30-3	6	24000	10886
CC-30-3	7	28000	12701
CC-30-3	8	32000	14515
CC-50	1	8000	3629
CC-50	2	16000	7257
CC-50	3	24000	10886
CC-50	4	32000	14515
CC-50	5	40000	18144
CC-50	6	48000	21772
CC-50	7	56000	25401
CC-50	8	64000	29030

1.5.4 Access the Configuration Code Number Parameter (CONFIG)

Follow these steps to access the Setup menu.

1. From the G/N mode, press and hold the **HOLD/MENU** key for three beeps (3 seconds), then release.

   SET.PAS is displayed.

2. Use the numeric entry procedure to enter the password ***640***. Press **PRINT/SELECT** to accept it.

   640 is shown

3. Press **PRINT/SELECT** once more.

   CONFIG is displayed.

1.5.5 Enter Configuration Code Number (CONFIG)

4. From ***CONFIG***, press **PRINT/SELECT**.

   The current code number will be displayed

5. Enter the calibration number (refer to the Numeric Entry Procedure section on page 5) and press the **PRINT/SELECT** key.

   CONFIG will be displayed

1.5.6 Enter Custom Configuration Number (CUSTOM)

6. From the ***CONFIG*** menu, press **HOLD/MENU** once. If you press **HOLD/MENU** and the 640 does not have a CONFIG# starting with 97, 98, or 99, the display will show ***CAN'T***.

7. Press the **SELECT** key.

8. Enter the Custom number (refer to the Numeric Entry Procedure section on page 5).

9. Press the **PRINT/SELECT** key.

   CUSTOM is display

10. Press the **G/N** key. Indicator returns to the G/N weighing mode.

1.5.7 Custom Configuration Number Calibration

When using Custom Configuration you must use test weights or verify a load on another scale. Refer to section 1.5.5 on page 18 for instructions on entering the custom number into the calibration menu.

Example:

If the load was 18,400 kg according to the 640 scale and when the load was verified on another scale that was calibrated is was 18,800. We know we are reading 400 kgs (18,800-18,400) to low or about 2% (400/18,400). We know we need to raise the custom number by 2%. Take 38559 times 1.02 to get the new customer number 39330.18 which we will round to 39330. Enter in 39330 in place of 38559 and check another load. If the next load is within 1% you have calibrated the scale. If the load is above 1% you can repeat the procedure to get greater accuracy.

1.6 Configuring the 640 for Other Brand Weigh Bars and Loadcells

The 640 will work with any brand of strain gage based weigh bar or load cell. Once the system is installed, the 640 will then need to be calibrated. This can be accomplished by placing a known weight on the scale and then calculating the sensitivity output based on information from the weigh bar or load cell that can be directly entered into the indicator.

In the case of other brands other than Avery Weigh-Tronix, two configuration code numbers must be entered into the 640. Refer to *Enter Configuration Code Number (CONFIG) on page 18*.

- Configuration Code Number (***CONFIG***)
- Custom Calibration Number (***CUSTOM***)

1.6.1 Determine Configuration Code Number

The Configuration Code Number for a custom setting can be derived by referencing Tables 1.1 through 1.3 to determine the Configuration Code Number and using codes 97XXX through 99XXX, then a CUSTOM CALIBRATION number will need to be calculated. Enter the Configuration number that comes closest to how the scale needs to be configured.

1.6.2 Determine Custom Calibration Number

Now a Custom Calibration Number needs to be calculated. This can be derived by two methods; either get the information from the weigh bars that are being use as shown here:

Example 1:

Need to calibrate to 4 weigh bars with the following information:

1 weigh bar 2.0 mv/V = 5,000 lb

Therefore 4 weigh bars would be 2.0 mv/V = 20,000 lb for the system.

5000lb (weigh bar capacity) x 4 (number of weigh bars) = **20,000**

Next is to figure out the custom number per 0.4 mv/V

2.0 mv/V (mv/V of weigh bar) / 0.4 mv/V (custom number mv/V) = **5 mv/V**

20,000 (total capacity of weigh bars) / 5 (mv/V answer from above) = **4000**

The custom number would be the weight value at 0.4 mv/v or as in this example 4000 lb.

OR

The other method is to first enter in the Configuration Code Number (refer to section 1.5.1 for details on how to determine the Configuration Code Number) and then place a known weight on the scale. Record that weight and then figure the scale factor difference from the known weight and the displayed weight. Then this factor needs to be multiplied by the current Custom Number to calculate the new Custom Number.

Example 2:

Current Custom configuration Code = 4000
Known Weight Applied 15,000
640 Displayed Weight 10,000

15,000 (Known Weight Applied) / 10,000 (640 Displayed Weight) = **1.5**

(Current CUSTOM #) x (Calibration Factor) = (New CUSTOM #)

4000 x 1.5 = **6000**

Therefore go to the Custom Calibration setting in the SETUP menu and change as needed. Refer to section 1.5.4 on page 18 for instructions on entering the values.

1.6.3 Custom Configuration Number Calibration

When using Custom Configuration you must use test weights or verify a load on another scale. Refer to section 1.5.6 on page 18 for instructions on entering the custom number into the calibration menu.

Example:

If the load was 18,400 kg according to the 640 scale and when the load was verified on another scale that was calibrated is was 18,800. We know we are reading 400 kgs (18,800-18,400) to low or about 2% (400/18,400). We know we need to raise the custom number by 2%. Take 38559 times 1.02 to get the new customer number 39330.18 which we will round to 39330. Enter in 39330 in place of 38559 and check another load. If the next load is within 1% you have calibrated the scale. If the load is above 1% you can repeat the procedure to get greater accuracy.

1.7 How to Configure Filtering

If you need to adjust the filtering on your Model 640 to counteract excessive movement or vibration on the scale system, follow these steps to access the FILTER menu item of the Setup menu and make needed changes.

1. Access the Setup menu from the G/N mode. To do so, press and hold the **HOLD/MENU** key for three beeps (3 seconds), then release.

   SET.PAS is displayed

2. Use the numeric entry procedure, see note below, to enter the password ***640***. Press **PRINT/SELECT** to accept it.

   640 is shown

3. Press **PRINT/SELECT** once more.

   CONFIG is displayed

4. Repeatedly press the **HOLD/MENU** key until.

   FILTER is displayed. There are two parts to filtering; Constant and Window. How to set these is explained below. How they affect weighing is explained in the *Filtering* note below.

Filtering:
Default settings; CONST=2, WINDOW=0

If the value for the constant (CONST) = OFF, the filtering is disabled. If a value for CONST is entered, filtering is ON and you must also enter a WINDOW value. Set the CONST number small for small vibration problems and higher for more dampening effect.

The WINDOW threshold parameter defines a weight window that enables the filtering. The recommended value of 0 is the default, which means the filtering is engaged all the time.

Example: A WINDOW setting of 10 means a weight change over 10 pounds occurring during the display update time will disable the filter until the weight change during the sample time remains within 10 lbs.

5. Press the **PRINT/SELECT** key twice.

   The current CONSTANT value is shown. Press the **HOLD/MENU** key to increase the value. Increasing this value causes the indicator to ignore increasing amounts of weight change on the scale. This means small changes can be ignored at a relatively small Constant value. To filter larger changes out, choose a larger Constant value. (Choices are OFF to 10, Default=2)

6. When the value you want to try is displayed, press the **PRINT/SELECT** key.

   Your choice is selected and ***CONST*** is displayed.

7. Press the **HOLD/MENU** key.

   WINDOW is displayed. This is where you will set the threshold window of the filter parameter. You can enter 0 to full capacity.

8. Press the **PRINT/SELECT** key.

   Current setting for the threshold window is displayed.

9. Use the numeric entry procedure to enter a new value. Press the **PRINT/SELECT** key to accept it.

   WINDOW is displayed

10. Repeatedly press the **G/N** key until you return to the gross weighing mode.

11. Check the function of the indicator. If the weight display does not act in a manner to your liking, repeat steps 1 through 9 until the indicator functions as desired.

2 General Information and Warnings

2.1 About this Manual

This manual is divided into chapters by the chapter number and the large text at the top of a page. Subsections are labeled as shown by the 1 and 1.1 headings shown above. The names of the chapter and the next subsection level appear at the top of alternating pages of the manual to remind you of where you are in the manual. The manual name and page numbers appear at the bottom of the pages.

Text conventions

Key names are shown in **bold** and reflect the case of the key being described. This applies to hard keys and onscreen or soft keys.

Displayed messages appear in ***bold italic*** type and reflect the case of the displayed message.

Special messages

There are five types of special text messages, NOTE, CAUTION, WARNING, DANGER, and ELECTRICAL HAZARD. Each will appear as illustrated below:

NOTE: This contains extra information on a concept or process.

CAUTION: This may cause damage to the product or data loss.

WARNING: This could result in injury or death

DANGER: THIS WILL RESULT IN INJURY OR DEATH

ELECTRICAL DANGER: THIS WILL RESULT IN INJURY OR DEATH.

2.2 Installation

DANGER: RISK OF ELECTRICAL SHOCK. NO USER SERVICEABLE PARTS. REFER TO QUALIFIED SERVICE PERSONNEL FOR SERVICE.

2.2.1 Safe Handling of Equipment with Batteries

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

ATTENTION: Il y a danger d'explosion s'il y a remplacement incorrect de la batterie, remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

2.3 Routine Maintenance

IMPORTANT: This equipment must be routinely checked for proper operation and calibration.
Application and usage will determine the frequency of calibration required for safe operation.

Always turn off the machine and isolate from the power supply before starting any routine maintenance to avoid the possibility of electric shock.

Make sure that it is placed securely on a flat and level surface.

2.4 Cleaning the Machine

Table 2.1 Cleaning DOs and DON'Ts

DO	DO NOT
Wipe down the outside of standard products with a clean cloth, moistened with water and a small amount of mild detergent	Attempt to clean the inside of the machine
	Use harsh abrasives, solvents, scouring cleaners or alkaline cleaning solutions
Spray the cloth when using a proprietary cleaning fluid	Spray any liquid directly on to the display windows

2.5 Training

Do not attempt to operate or complete any procedure on a machine unless you have received the appropriate training or read the instruction books.

To avoid the risk of RSI (Repetitive Strain Injury), place the machine on a surface which is ergonomically satisfactory to the user. Take frequent breaks during prolonged usage.

2.6 Sharp Objects

Do not use sharp objects such as screwdrivers or long fingernails to operate the keys.

2.7 FCC and EMC Declarations of Compliance

United States

Table 2.2

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canada

Table 2.3

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.
Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Classe A prescrites dans le Règlement sur le brouillage radioélectrique edicté par le ministère des Communications du Canada.

European Countries

Table 2.4

WARNING: This is a Class A product. In a domestic environment, this product may cause radio interference in which the user may be required to take adequate measures.

Avery Weigh-Tronix

Avery Weigh-Tronix,
Foundry Lane, Smethwick, West Midlands B66 2LP, England.

CE

Declaration of Conformity | **Konformitätserklärung**
Verklaring van overeenstemming | **Dichiarazione di Conformità**
Déclaration de Conformité | **Declaración de Conformidad**

Manufacturer	Avery Weigh-Tronix
Type	640/640M/640XL RD40/RD40XL/ RD40RF
corresponds to the requirements of the following EC directives:	
EMC Directive	89/336/EEC
Low Voltage Directive	73/23/EEC
The applicable harmonised standards are:	
EN 60950-1:2002 EN 61000-6-1:2001 EN 61000-6-3:2001	

Avery Weigh-Tronix, LLC
Reg. Office: Foundry Lane, Smethwick, West Midlands B66 2LP, England.
Registered in England No: 595129

Fabrikant	Avery Weigh-Tronix
Type	640/640M/640XL RD40/RD40XL/ RD40RF
is in overeenstemming met de voorschriften van de volgende EG richtlijnen:	
EMC Richtlijn	89/336/EEG
Laagspanningsrichtlijn	73/23/EEG
Toegepaste geharmoniseerde normen:	
EN 60950-1:2002 EN 61000-6-1:2001 EN 61000-6-3:2001	

Avery Weigh-Tronix, LLC
Vestigingsadres: Foundry Lane, Smethwick, West Midlands B66 2LP, England.
Geregistreerd in Engeland nr: 595129

Fabricant	Avery Weigh-Tronix
Type	640/640M/640XL RD40/RD40XL/ RD40RF
correspond aux exigences des directives CE suivantes :	
Directive CEM	89/336/CEE
Directive Basse Tension	73/23/CEE
Les normes harmonisées applicables sont :	
EN 60950-1:2002 EN 61000-6-1:2001 EN 61000-6-3:2001	

Avery Weigh-Tronix, LLC
Siège social : Foundry Lane, Smethwick, West Midlands B66 2LP, England.
Société immatriculée en Angleterre sous le No : 595129

Hersteller	Avery Weigh-Tronix
Typ	640/640M/640XL RD40/RD40XL/ RD40RF
entspricht den Anforderungen folgender EG-Richtlinien:	
EMV-Richtlinie	89/336/EWG
Niederspannungs-Richtlinie	73/23/EWG
Die angewendeten harmonisierten Normen sind:	
EN 60950-1:2002 EN 61000-6-1:2001 EN 61000-6-3:2001	

Avery Weigh-Tronix, LLC
Geschäftssitz: Foundry Lane, Smethwick, West Midlands B66 2LP, England
Eingetragen in England unter Nr. 595129

Produttore	Avery Weigh-Tronix
Modello	640/640M/640XL RD40/RD40XL/ RD40RF
è conforme alle caratteristiche previste dalle seguenti direttive CE:	
Normativa EMC	89/336/CEE
Normativa per la bassa tensione	73/23/CEE
Le norme standard armonizzate e nazionali applicate sono:	
EN 60950-1:2002 EN 61000-6-1:2001 EN 61000-6-3:2001	

Avery Weigh-Tronix, LLC
Sede legale: Foundry Lane, Smethwick, West Midlands B66 2LP, England.
Depositata in Gran Bretagna al numero di registro: 595129

Fabricante	Avery Weigh-Tronix
Tipo	640/640M/640XL RD40/RD40XL/ RD40RF
conforme a las exigencias de las siguientes directivas CE:	
Directiva CME	89/336/CEE
Directiva de baja tensión	73/23/CEE
Las normas armonizadas en vigor son:	
EN 60950-1:2002 EN 61000-6-1:2001 EN 61000-6-3:2001	

Avery Weigh-Tronix, LLC
Oficina de matriculación: Foundry Lane, Smethwick, West Midlands B66 2LP, England.
Registrada en Inglaterra No: 595129

Signature/Name	R Cann	Authorised signatory for Avery Weigh-Tronix	Date
Handtekening/Naam		Namens van Avery Weigh-Tronix	Datum
Signature/Nom		Signataire autorisé d'Avery Weigh-Tronix	Date
Unterschrift/Name		Unterschriftsberechtigter für Avery Weigh-Tronix	Datum
Firma/Nome		Firmatario autorizzato per Avery Weigh-Tronix	Data
Firma/Nombre	Director of R&D Worldwide	Firmante autorizado para Avery Weigh-Tronix	19.05.06 Fecha

76501-253

3 Introduction

This manual covers the information you need to operate your Avery Weigh-Tronix Model 640 indicator and remote display products.

Included in this manual are the Model 640, 640XL, 640M indicators and the RD40XL, RD40, and RD40RF remote displays.

3.1 Front Panel

The Model 640 indicator face is shown in Figure 3.1.

Figure 3.1 Front Panel

3.1.1 Key Descriptions

Key names will appear as bold, upper case words in this manual. Examples: **TARE**, **G/N**, *etc.*

Annunciators will appear as italic words. Examples: G/N, Lb, etc.

Displayed messages will appear as bold, italic words. Examples: ***HELLO***, ***LO-BAT***, *etc.*

There are a total of 8 keys. All keys except the **ON/OFF** will have audible feedback with low, medium, or high volume settings.

Key	Description
ON/OFF	Press to turn the unit On/Off
TARE	Press to tare the weight on the scale
ZERO/CLEAR	Press to zero G/N weight. It also is used to clear memory channels.
G/N	Press to toggle between gross and net weight
HOLD/MENU	Press this key to hold a displayed weight. Press again to release the hold mode. The weight is retained in memory in case the unit is turned off. When powered up again the weight reading will still be displayed. This key is also used to move to the right in the menu structure. Use this key to also move the numeric entry cursor one space to the right. This will be explained in the *User Menu* *on page 39* of this manual.
PRINT/SELECT	Press this key to send data to an attached data collection device, printer, TDM or computer. This key is also used to move down in the menu structure.
RM	Press this key to access a memory channel, so the indicator is ready for accumulations into that channel. Also, use this key to increment numbers during the numeric entry procedure.
M+	Press this key to accumulate weights. Also, use this key to decrement numbers during the numeric entry procedure.
SERVICE	Press this key if you need contact information for your scale dealer. A key sticker will be placed in the location shown in Figure 3.1 if contact information was programmed by the dealer.

3.1.2 Annunciators

The Model 640 uses six triangle annunciators for Lb, kg, G/N, Net, Auto and Motion.

Annunciator	Description
G/N	Indicates the unit is in the gross/net weighing mode.
NET	Indicates the unit is in the net weighing mode.
MOTION	Displayed when there is scale motion. This is based off the stability window parameters. See the *Service Manual*.
Lb	Indicates the unit is weighing in pounds.
AUTO	Displayed if the unit is programmed for AUTO-LOC. AUTO-LOC is used in animal weighing applications. Reference *Animal Weighing Using AUTO-LOC Feature* *on page 57*.
Kg	Indicates the unit is weighing in kilograms.

3.2 Display Messages

Following are the messages that may appear on the display and what they mean:

Message	Meaning
HELLO	Message displayed on power-up sequence for 3 seconds
- - - - - -	UPPER DASHES, Indicator is in a state of overcapacity, or analog input is too high.
- - - - - -	LOWER DASHES, Indicator is in a state of under capacity, or analog input is too low.
- - - - - -	MIDDLE DASHES, This means the 640 is setup in Remote Mode. Call support to change setup to perform as a scale.
NO TARE	Displayed when you press the **G/N** key and there is no tare weight established.
PRINT	Indicator is transmitting data. Appears after pressing the print key for a second.
LO-BAT	Alternates on the display between current mode and LO-BAT when input voltage is between 9-10 volts.
HOLD	Used when moving a portable system.
L XXXX	***XXXX* = weigh value** Displayed when the indicator is in AUTO-LOC mode and has locked on a weight.
+RANGE	Displayed when weight input exceeds 8 mV/V.
-RANGE	Displayed when weight input exceeds -8 mV/V.
SHTDWN	Is shown on the display prior to shutting the indicator off after the sleep timer has expired, or when you press the **ON/OFF** key. (10 seconds before sleep timer shutdown the alarm beeps several times).
CAN'T	Displayed when attempting to access too large of a numeric entry OR memory channel number greater than 100 OR if trying to zero in net mode.
MAINT	Maintenance required. A timer was set by the dealer as a reminder to perform maintenance.

3.3 Numeric Entry Procedure

Anytime you need to enter numeric values, use the keys as described below. The note below will appear throughout areas of the manual to remind you of the key presses needed to enter numbers.

Numeric Entry Procedure

Press this key to enter a value on the screen and increment the value being entered.

Press this key to decrement the numeric value being entered.

Press this key to move the numeric entry cursor one position to the right.

EXAMPLE: To enter the number 5230:

1. At the data entry screen, press the **RM** key several times until…

   5 is displayed

2. Press the **HOLD/MENU** key and…

   5_ is displayed

3. Press the **RM** key several times until…

   52 is displayed.

4. Repeat process until…

   5230 is shown.

3.4 Getting Started

Before using your new Model 640 indicator:

- Please verify that everything has been properly connected. Reference *Cable Connections* *on page 33*
- If you are mounting the indicator, see the next section: *Mounting the Model 640*.
- Check the scale system to ensure proper units are set (lb, kg)
- Verify the system is weighing properly. Do this by following these steps:

1. In the gross weighing mode, zero the indicator by pressing the **ZERO/CLEAR** key

2. Stand on the scale and note the scale reading.

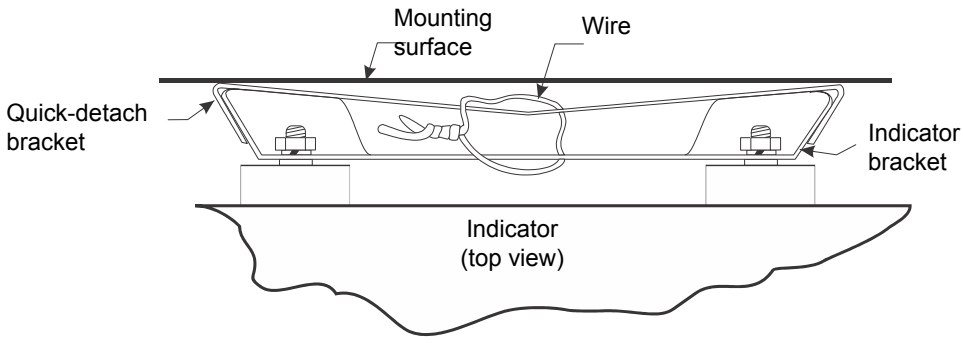
   If the weight reading is correct, your system is working properly and you can continue with operation of the system.

   If the weight reading is not correct, refer to the *Quick Start Guide* *on page 5*. This will tell you how to access the SETUP menu to change the Configuration Code Number (CCN). This should get your system up and running properly. If you have further problems, call your local dealer or Avery Weigh-Tronix.

3.5 Mounting the Model 640

The Model 640 mounts on a quick-detach bracket. Weld or bolt the quick-detach bracket into place, as follows:

1. Choose a mounting location that is
   - convenient for operation of the indicator, and
   - protected from moving parts or from other moving machinery.
2. Hold the indicator at the proposed mounting location, and verify that the display is legible and the controls accessible.
3. Positioning the quick-detach bracket with the wider end at the top, mark the desired mounting location. If bolting, use the quick-detach bracket as a template and mark and drill holes.
4. Weld or bolt the quick-detach bracket at the appropriate location. If bolting, use double nuts or self-locking nuts to protect both indicator and machinery.
5. Insert the indicator bracket into the quick-detach bracket and push it down into place.
6. For mobile applications, wrap and twist a strong wire around the indicator bracket and the quick-detach bracket, through the slotted hole provided, to stabilize the mounting. See the illustration below.

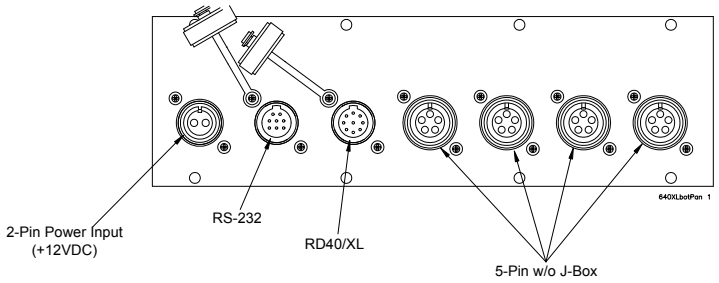


3.6 Cable Connections

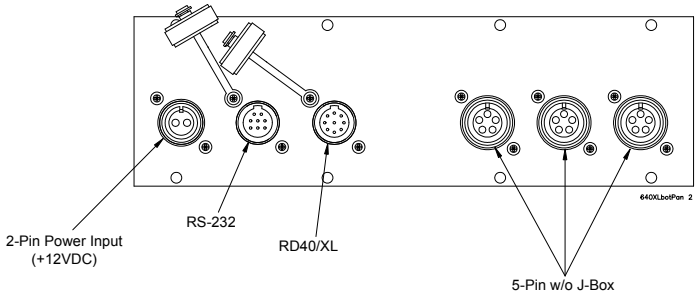
Below are illustrations to help you make the proper connections to the different versions of the Model 640.

3.6.1 Model 640 and 640XL Bottom Panels

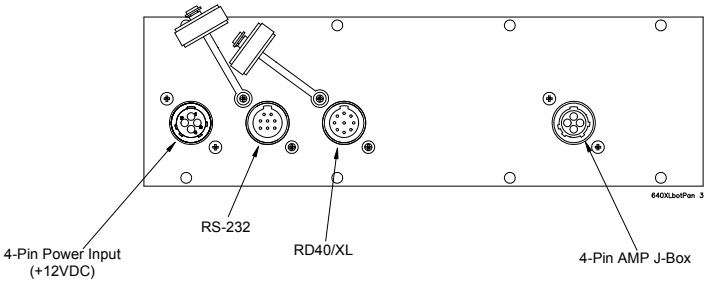
640/XL INDICATOR
4-W/B 5-Pin, w/RS232 & RD40/XL



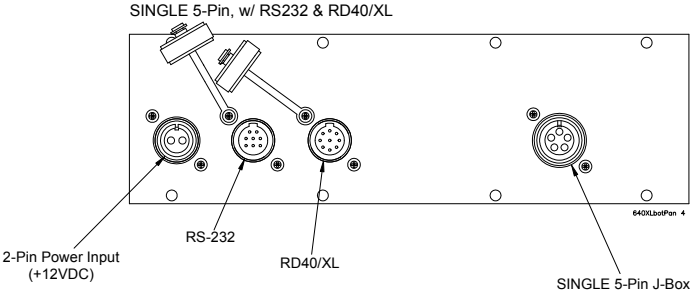
640/XL INDICATOR
3-W/B 5-Pin, w/RS232 & RD40/XL



640/XL INDICATOR
AMP 4-Pin, w/ RS232 & RD40/XL

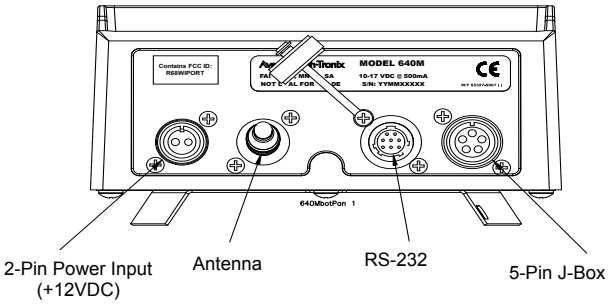


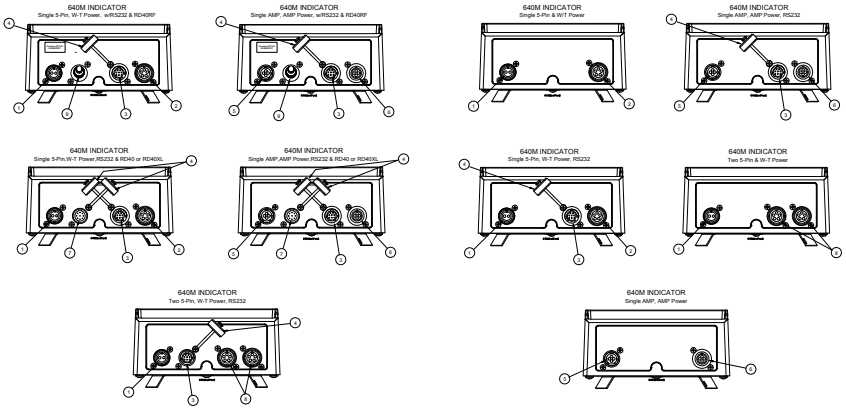
640/XL INDICATOR
SINGLE 5-Pin, w/ RS232 & RD40/XL



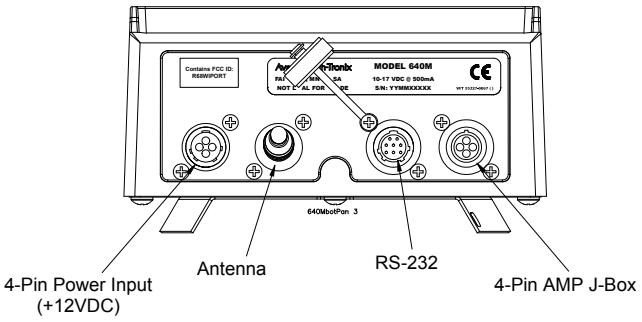
3.6.2 Model 640M Lower Connector Options

640M INDICATOR
Single 5-Pin, w/RS232 & RD40RF

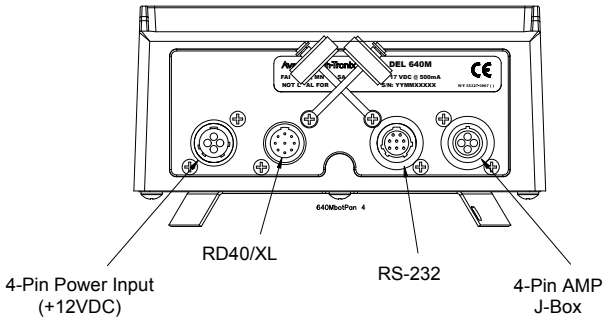




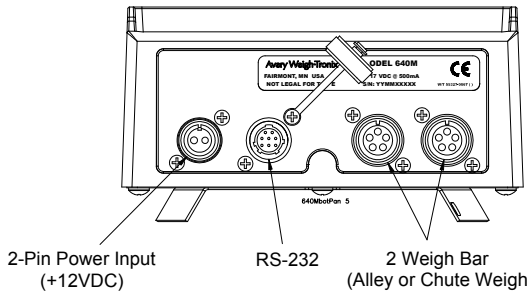
640M INDICATOR
AMP 4-Pin, w/RS232 & RD40RF



640M INDICATOR
AMP 4-Pin, w/RS232 & RD40RF or RD40XL

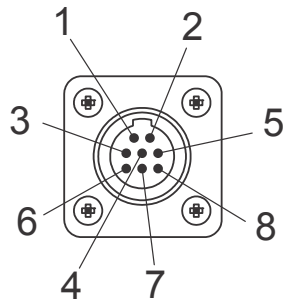


640M INDICATOR
2 W/B 5-Pin, w/RS232



3.6.3 Connector Pin Descriptions

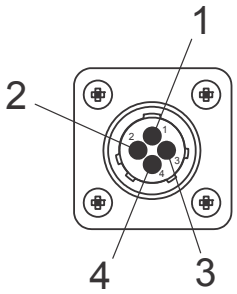
RS-232 Port



Outside view
(Male)

Pin	Description
1	N/C
2	**XMT**
3	N/C
4	**RXD**
5	GND
6	GND
7	+5V
8	+12V

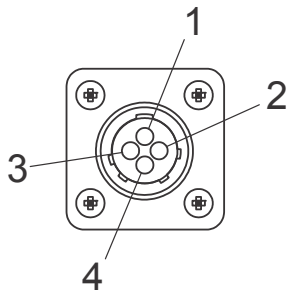
4-Pin power input



Outside view
(Male)

Pin	Description
1	+12V Input
2	GND
3	N/C
4	N/C

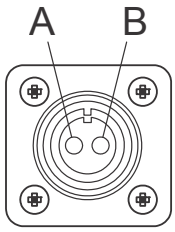
4-Pin Amp J-Box Interface



Outside view
(Female)

Pin	Description
1	+ Excitation
2	- Bridge
3	+ Bridge
4	- Excitation

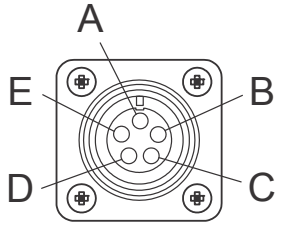
2-Pin power input



Outside view
(Female)

Pin	Description
A	+12V Input
B	GND

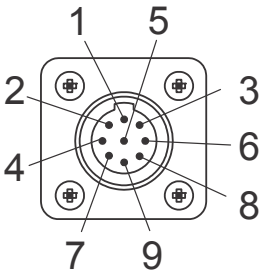
5-Pin Weigh Bar input



Outside view
(Female)

Pin	Description
A	- Bridge
B	+ Excitation
C	+ Bridge
D	- Excitation
E	Shield

RD40/XL input



Outside view
(Male)

Pin	Description
1	+12V
2	+5V
3	GND
4	Remote-2
5	N/C
6	Data In
7	Clock
8	N/C
9	Remote-1

3.7 Connecting to a Convenience Outlet

If the equipment you are using has an Auxiliary Power Outlet Strip it is preferred to supply power to the indicator from the outlet strip rather than the battery.

Most power strip outlets have spades that provide constant power (unswitched power) or key-switched power. Decide which one works best for your application and identify which spades provide this power type.

If you have a tinned lead power supply and want to connect to the auxiliary power you need to add a spade to each wire.

- Connect the white wire to the key-switched or unswitched power spade.
- Connect the black wire to the ground spade.

3.8 Wiring 640 Indicator to Equipment Power Systems

In all cases it is advised that you consult the equipment manufacturer or authorized agents for advice before installing a weighing system. These are configurations that you may find on different equipment manufacturers models.

Note that the electrical connection to the metal work of the equipment is shown by the following symbol:

ENSURE THAT YOU DO NOT SHORT CIRCUIT THE BATTERY; SPARKS AND ARCING FROM A BATTERY SHORT CIRCUIT CAN CAUSE SEVERE BURNS.

- Always connect to the supply battery terminal last.
- Complete the wiring to the weighing indicator before connecting to the indicator. Check with a resistance meter to insure there is no connection between the supply wire and chassis ground.
- Verify battery system you are connecting to has negative ground.
- When you are satisfied with the above connect to the battery supply.

Figure 3.2 640 and XLR Power Connection Diagram

3.8.1 12 Volt Power Systems (one and two 12 V batteries)

Single Battery

12 V Battery negative terminal ground connection +12V power supply. **DO NOT REVERSE THE POLARITY!**

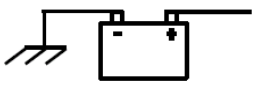


Figure 3.3 Single Battery Connection

Two 12 Volt Batteries Wired in Series

Center ground connection +12V power supply

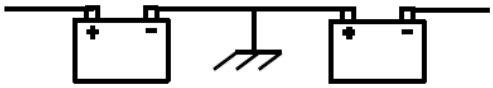


Figure 3.4 Two 12 Volt Battery Connection

3.8.2 24 Volt Power Systems

The negative terminal connection of the first battery connected to ground, +ve connection wired to the negative terminal of the second battery, the +ve is the +24V power supply. **DO NOT REVERSE THE POLORITY!**

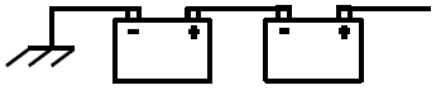


Figure 3.5 24 Volt Battery Connection

3.8.3 Grounded Power Systems

Ground battery connection means that one terminal of the battery is connected to the equipment metal chassis. The current returns to the battery through the metal work of the equipment chassis.

If the power system used is not connected to the chassis ground and is electrically isolated from other equipment then this should not cause any problems with weighing indicators. Normally the indicator is connected to the equipment power supply using one of the grounded power systems described above.

Problems Using Chassis Ground

If the mating parts of the chassis are corroded then the resistance can be high which depending on the current flow may reduce the voltage available to drive accessories.

There may be high power devices such as lights or motors which when switched on or off because they share the current path could cause the voltage available to drive accessories to be electrically noisy. In the case of motors then they can cause very high voltage spikes which could damage accessories.

Grounding Weight Indicators

For weighing indicators it is advised that the one of the power supply inputs is connected to the equipment ground battery terminal through a separate insulated wire.

The separate return wire reduces the risk of chassis corrosion problems and over voltage caused by other equipment electrical systems.

The ground connection ensures that the current flow in the indicator power wires is always in the same direction, so that the built in circuit protection is effective.

If the system described in section 3.8.2 is used then there is available a 12V power connection between 12V and 24 V. If this is used as a 12V power supply connection the following problems could occur;

- On some indicators the metal housing of the indicator is connected to one of the power connections the 12V from the ground connection. If there is an accidental connection from the indicator housing to the equipment metal work then there will be a large fault current which will cause the power cable 0V wire to heat up.
- The internal power surge protection in the indicator which protects it, the weigh bars and other components such as external displays will not be effective against over voltages with respect to the ground. This could lead to damage of the weigh bars which are connected by their load connections to the ground although internally electrically isolated. Other accessories such as the external displays, which have metal housings, may also be damaged if there is a high voltage between the power supply and housing.

3.8.4 Installing FLP100 to Regulate Voltage Spikes from DC Power Supply

If installing the 640 and/or XLR series remote displays on machinery that is prone to “dirty” electrical supply that creates spikes in voltage it is recommended to install the FLP 100 AWT05-500946 power conditioner. The FLP 100 power conditioner sends out a “clean” consistent voltage eliminating the voltage spikes that can damage electrical equipment.

Refer to Figure 3.6 below.

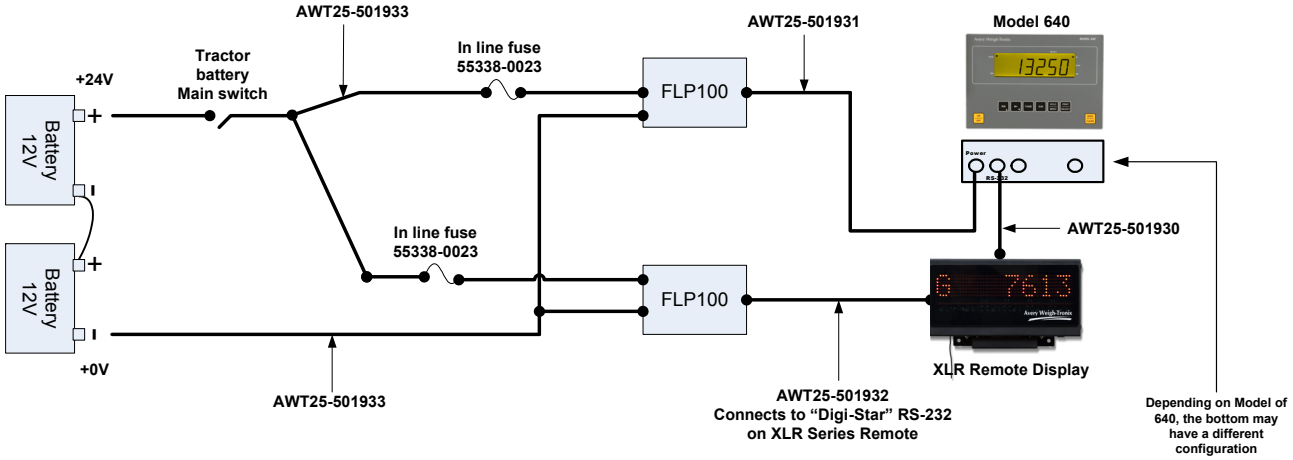


Figure 3.6 640 and XLR Connection Diagram

4 User Menu

This section takes you through the User menu. You will use this menu to set many of the scale functions.

Access this menu from the G/N mode by pressing the **HOLD/MENU** key for two beeps. See Figure 4.1.

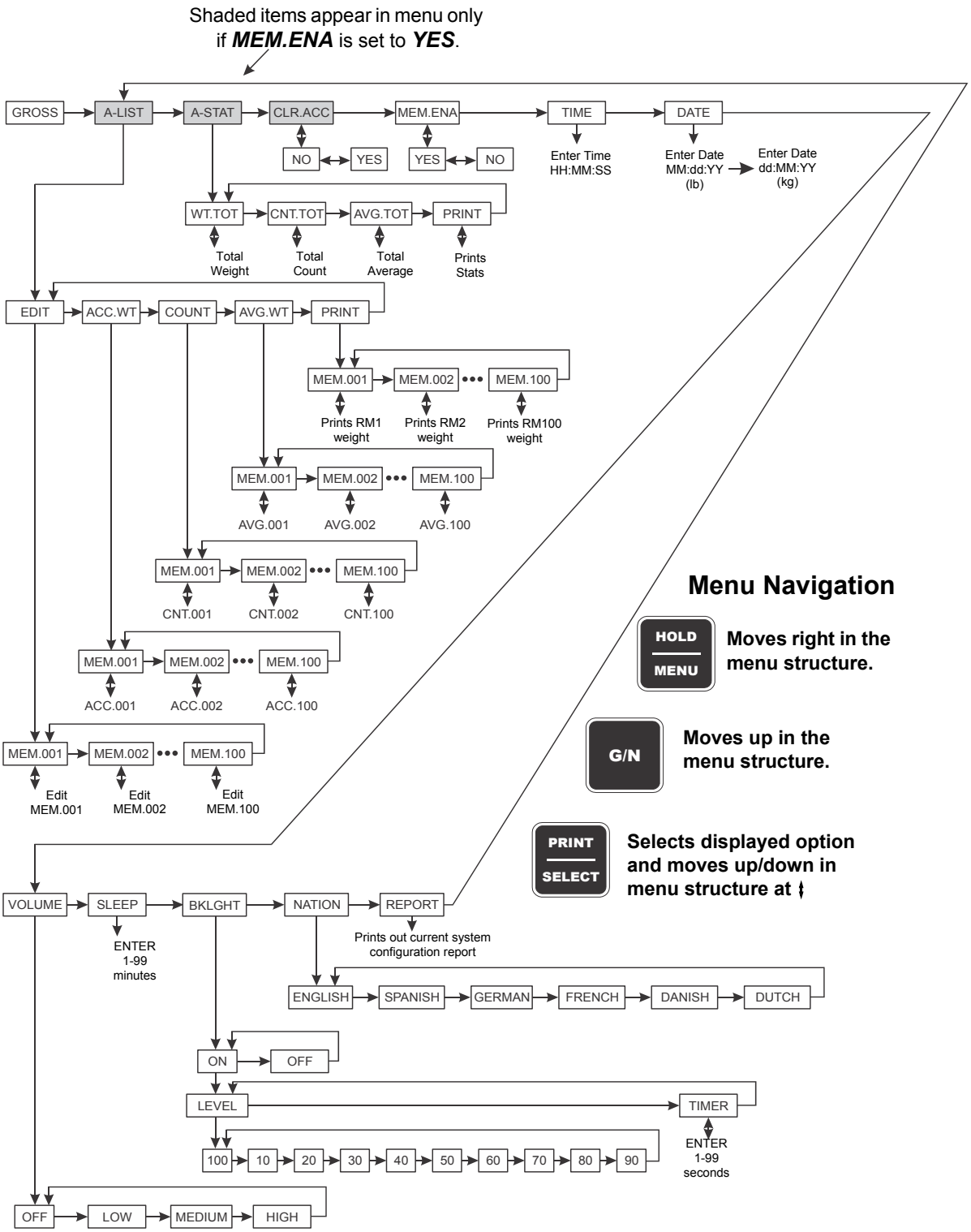


Figure 4.1 User Menu

Below is a summary of the items in this menu, followed by a comprehensive explanation of each item:

A-LIST Used to edit the memory accumulator descriptions

A-STAT Used to access statistics of the memory accumulator channels

CLR.ACC Use this to clear accumulator channels

MEM.ENA Use this to disable or enable memory channel functions. If enabled, **A-LIST**, **A-STAT** and **CLR.ACC** do not appear in the user menu.

TIME Use to set the time

DATE Use to set the date

VOLUME Use to set the volume of the audible key buzzer.

SLEEP Use to set the amount of inactive time before the indicator turns itself off.

BKLGHT Use to set the backlight brightness.

NATION Use to set the spelling of messages in the following: English, Spanish, French, German, Dutch and Danish

REPORT Use to print out indicator ‘system configuration settings’.

4.1 Editing The A-LIST

The A-LIST item is only active if the MEM.ENA menu item is set to YES.

Menu Navigation

Moves right in the menu structure.

Moves up in the menu structure.

Selects displayed option and moves up/down in menu structure at ↕

If the application requires alphanumeric channel names, go through the memory channel list and edit their descriptions accordingly. For example, if you want to record grain cart loads from five different fields, then create a list of FIELD1, FIELD2, …FIELD5. Now the custom names of the memory channels can be used, otherwise all memory channels will be the default descriptions of MEM.001, MEM.002, etc.

1. From the G/N mode, press **HOLD/MENU** for 2 beeps.

   A-LIST is shown on the display. (Only appears if **MEM.ENA** is enabled)

2. Press the **PRINT/SELECT** key.

   EdiT is displayed

3. Press **PRINT/SELECT** again and ***MEM.001*** is displayed, or the last memory channel accessed.

4a. Use the **MENU** key to scroll to the channel you want to edit.

OR

4b. Use the **RM^** and **MENU** keys to enter in the position on the list of the memory channel name to edit.

   EXAMPLE: To edit MEM.025, press **RM^** three times to enter the ‘2’. Press **MENU** to move the cursor. Enter the ‘5’ by pressing **RM^** six times and press **ENTER**. This procedure takes you directly to the 25th channel in the list.

5. When the desired channel name is found, press **SELECT** and you are now in Edit mode. The annunciators should be flashing when in this mode.

6. Using the RM^ key, start entering the new channel name. Press **MENU** to move the cursor. To move the cursor back one character, press the **TARE** key.

7. Press **SELECT** when the desired name has been entered. The display will now show the channel name list. Repeat steps 3 - 7 to edit more channel names.

8. Press **G/N** three times to return to G/N weighing mode.

4.2 Accessing the Accumulator Statistics

This item is only active if the MEM.ENA menu item is set to YES.

This section allows you to access the accumulator statistics.

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release.

   A-LIST is displayed.

2. Press the **HOLD/MENU** key once.

   A-STAT is displayed. This stands for accumulator statistics.

3. Press the **PRINT/SELECT** key.

   WT.TOT is displayed.

4. Press the **PRINT/SELECT** key.

   Total weight accumulated in all the accumulators is displayed.

5. Press the **PRINT/SELECT** key.

   WT.TOT is displayed.

6. Press the **HOLD/MENU** key once.

   CNT.TOT is displayed.

7. Press the **PRINT/SELECT** key.

   The total number or count of accumulations performed is shown.

8. Press the **PRINT/SELECT** key.

   CNT.TOT is displayed.

9. Press the **HOLD/MENU** key.

   AVG.TOT is displayed.

10. Press the **PRINT/SELECT** key.

    The average weight of all accumulations is displayed.

11. Press the **PRINT/SELECT** key.

    AVG.TOT is displayed.

12. Press the **HOLD/MENU** key.

    PRINT is displayed.

13. Press the **PRINT/SELECT** key.

    The statistics printout is transferred to the TDM or printer device. A sample is shown below:

```
04-25-2006
14:20:26
TOTAL WEIGHT: 1938370 lb
AVG.  WEIGHT:  44050 lb
TOTAL COUNT: 44
```

14. Press the **G/N** key to return to ***A-STAT***. Press **G/N** key again to return to G/N weighing mode.

4.3 Clearing Accumulators

This item is only active if the MEM.ENA menu item is set to YES.

Menu Navigation

Moves right in the menu structure.

Moves up in the menu structure.

Selects displayed option and moves up/down in menu structure at ▲▼

This section allows you to clear the accumulators.

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release.

   A-LIST is displayed.

2. Press the **HOLD/MENU** key repeatedly until.

   CLR.ACC is displayed.

3. Press the **PRINT/SELECT** key.

   NO is displayed.

4. Press the **HOLD/MENU** key.

   YES is displayed.

5. Press the **PRINT/SELECT** key.

   WAIT is displayed while clearing, then ***MEM.CLR*** is briefly displayed, then unit returns to the G/N weighing mode.

4.4 Viewing or Changing the Time

The Model 640 has standard battery backed time and date features. The time can be configured for 24 hour or 12 hour clock for printouts in the 640 menu, but must always be entered first as 24 hr entry:

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release.

   A-LIST is displayed.

2. Press the **HOLD/MENU** key repeatedly until ***TIME*** is displayed.

3. Press **PRINT/SELECT** and Current time is shown ticking.

4a. Press **PRINT/SELECT** to accept displayed time.

   TIME is displayed.

OR

4b. To change time, use the numeric entry procedure to enter HHMMSS and press **PRINT/SELECT** to accept.

   TIME is displayed.

5. Press the **G/N** key.

   Returns to the G/N mode.

Numeric Entry Procedure

Press this key to enter a value on the screen and increment the value being entered.

Press this key to decrement the numeric value being entered.

Press this key to move the numeric entry cursor one position to the right.

4.5 Viewing or Changing the Date

The indicator has battery backed time and date standard. The date can be entered as follows:

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release.

   A-LIST is displayed.

2. Press the **HOLD/MENU** key repeatedly until ***dATE*** is shown.

3. Press the **PRINT/SELECT** key

   MMddYY (lb)

   or

   ddMMYY(kg) is displayed momentarily, then current date setting is shown.

4. Use the numeric entry procedure to enter the date.

   (lb) enter MMddYY

   (kg) enter ddMMYY

5. Press the **PRINT/SELECT** key to accept the displayed date.

   dATE is shown.

6. Press the **G/N** key.

   Indicator returns to the G/N mode.

4.6 Entering / Viewing the Audible Keypad Setting

The Model 640 keys have audible feedback that can be configured for off, low, medium, or high. (Default is high)

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release.

   A-LIST is displayed.

2. Press the **HOLD/MENU** key repeatedly until ***VOLUME*** is displayed.

3. Press the **PRINT/SELECT** key.

   Current setting is shown.

4. Press **HOLD/MENU** repeatedly until appropriate setting is shown, then press **PRINT/SELECT**.

   VOLUME is displayed.

5. Press the **G/N** key.

   Returns to the G/N weighing mode.

4.7 Entering / Viewing the Sleep Parameter

The Model 640 has a sleep mode that can shut the unit off if the following conditions occur:

- The indicator doesn't see any keys being pressed, or
- The weight hasn't changed by more than 1% over the number of minutes that was entered for the sleep setting.

Setting the Sleep setting (DEFAULT = 0, for off)

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release.

   A-LIST is displayed.

2. Press the **HOLD/MENU** repeatedly until ***SLEEP*** is displayed.

3. Press the **PRINT/SELECT** key.

   Current setting is displayed.

*When the unit goes to sleep, the unit will first activate the audible alarm, and user has 10 seconds to press a key to reset the SLEEP timer. If a key hasn't been pressed within these 10 seconds the display shows **SHTDWN**, and the unit shuts off.*

4. Use the numeric entry procedure and enter in the sleep shutoff setting from 0-99 minutes.

   Entered value is displayed.

5. Press the **PRINT/SELECT** key.

   SLEEP is displayed.

6. Press the **G/N** key.

   Returns to the G/N mode.

4.8 Setting the Backlight Operation

The Model 640 has a backlight you can configure. Follow these steps to configure backlight operation.

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release.

   A-LIST is displayed.

2. Press the **HOLD/MENU** key repeatedly until ***BKLGHT*** is displayed.

3. Press the **PRINT/SELECT** key.

   Current setting is displayed. (***ON*** or ***OFF***)

4. Press the **HOLD/MENU** key to toggle between the two settings. Press **PRINT/SELECT** when your choice is displayed. If you choose ***ON, LEVEL*** is displayed. Use this to set the illumination level of the backlight (10% to 100%).

5. Press the **PRINT/SELECT** key to access the level.

   Current setting is displayed. (100% is default value)

6. Scroll through the choices by repeatedly pressing the **HOLD/MENU** key. Press **PRINT/SELECT** when your choice is displayed.

   LEVEL is displayed.

7. Press the **HOLD/MENU**.

   TIMER is displayed. Use this to set the amount of time which must pass with no scale or indicator activity before the unit shuts down the backlight for power saving.

8. Press the **PRINT/SELECT** key to access the timer function.

   Current setting is displayed.

9. Use the numeric entry procedure to enter a choice in seconds (0-99). Press **PRINT/SELECT** to accept your choice.

   TIMER is displayed.

10. Press **G/N** key twice.

    BKLGHT is displayed.

11. Press the **G/N** key.

    Indicator returns to the G/N mode.

4.9 Entering / Viewing the Language Selection (Not currently functioning)

The Model 640 has a selectable language for the displayed messages and reports.

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release…

   A-LIST is displayed.

2. Press the **HOLD/MENU** key repeatedly until ***NATION*** is displayed.

3. Press the **PRINT/SELECT** key.

   Current setting is displayed.

4. Use the **HOLD/MENU** keys and scroll to the proper language selection.

   Proper selection is shown.

5. Press the **PRINT/SELECT** key to accept displayed choice.

   NATION is displayed.

6. Press the **G/N** key.

   Returns to the G/N mode.

4.10 Printing a Configuration Report

1. From the G/N mode, press and hold the **HOLD/MENU** key for two beeps (2 sec), then release.

   A-LIST is displayed.

2. Press the **HOLD/MENU** key repeatedly until ***REPORT*** is displayed.

3. Press the **PRINT/SELECT** key.

   A configuration report on the current status of your indicator is output through the RS-232 port to your connected device.

4. Press the **G/N** key.

   Returns to the G/N mode.

A sample report is shown below:

```
-----------------------------
System Configuration Settings
04-25-2006    11:29:00
-----------------------------
PART  :         60259-0026
REV   :         1.9.0

User's Menu
-----------
VOLUME:         HIGH
SLEEP  TIMER :  OFF
BKLGHT:         ON
   LEVEL :      100%
NATION:         ENGLSH
MEM.ENA:        ON

640 Setup Menu
--------------

MODE  :         640
CONFIG:         S130
1.0 mV/V:        37470 lb
O-CAP :         200000 lb
DIV   :             10 lb
PRINT FORMAT:   G-T-N w/ Date-Time
CLOCK :         24 HR
DATE  :         MM-DD-YY
AUT.LOC:        OFF

AUT.ACC:        OFF

INPUT1:         STD
INPUT2:         STD
UPDATE:         5 Hz
AVERGE:         30
FILTER:         ON
   CONST :      2
   WINDOW:      0 lb
AZT   :         OFF
STABLE:         1 DIV
STABLE:         1.0 SEC
RS232 :
   BAUD  :      9600
   DATA  :      8
   PARITY:      NONE
   HAND  :      NONE
   LAYOUT:      STD
   ENQR  :      5
   AUTO  :      OFF
   ACC.PRN:     OFF
   CH.NAME:     OFF
Factory Menu
------------
FAC.SPN:        99779
FAC.ZERO:       76370
```

5 Weighing Procedures

This section covers the procedures for different weighing processes.

5.1 Simple Weighing

The gross weight parameter represents the total live weight on the scale since the last time a zero reference was established by pressing **ZERO**. The gross weight is calculated internally and its value cannot be changed by any other means.

How to Weigh with the 640

1. Press **ON/OFF** to turn the indicator on.
2. Press the **G/N** key on the screen to select the gross mode.
3. Remove all materials from the scale.
4. Press the **ZERO** key on the screen.
5. Place weight on the scale..

Establishing zero here is the same as doing the calibration zero.

If unit is in AUTO-LOC mode and L is displayed, to zero the scale, press and hold the ZERO/CLEAR key for two seconds.

5.2 Gross/Tare/Net (GTN) Weighing (single tare example)

For GTN weighing (weighing net amounts), follow these steps:

1. Press **ON**.

   Display shows ***HELLO*** then the current weight value is displayed.

2. Press **G/N** to access the gross mode.

   Live scale weight is displayed in the G/N weighing mode.

3. Remove all material from the scale and press **ZERO/CLEAR**

   0 is displayed, and the system is zeroed.

The zero point established at this point is the same as calibration zero. If a system is set at 20000 lb, and a user tares at 18000, then the system can only allow another 2000 lb before displaying (- - - - -) upper dash lines for overcapacity.

*If no tare weight has been established, push **G/N** key to show **NO TARE**.*

4. Place material to be tared on the scale.

   Weight of material is displayed.

5. Press the **TARE** key to tare the weight from the display.

   0 weight is displayed and the *Net* annunciator lights to indicate there is an active tare weight.

6. Place the material to be weighed on the scale.

   Net weight is displayed.

7. Remove the weighed material from the scale (leaving the tared item).

8. Repeat steps 6 through 7 for each weighment using the same tare weight.

9. To remove the tare weight, press the **G/N** key to return to gross weigh mode, then press the **ZERO/CLEAR** key.

   The tare weight is removed and you can repeat this process to weigh more material with a different tare.

5.3 Loading or Unloading Consecutive Net Amounts

This procedure allows the user to load/unload a series of net amounts. This procedure is ideal for TMR mixers, weigh carts, grain carts, etc. for viewing and recording net amounts of material loaded and unloaded.

1. In gross mode, press the **ZERO/CLEAR** key to zero the indicator when the mixer or scale system is empty.

2. After initial amount is placed on the scale, press the **TARE** key.

   Weight is tared off and goes into net mode, showing 0 weight.

3. Load or Unload material as needed.

   Shows **+** when loading and a **–** value when unloading.

4. When the display reaches the proper amount, stop loading or unloading material.

5. Repeat steps 2 through 4 until complete.

5.4 Loading/Unloading Net Amounts (XM64 Transmitter)

This procedure allows the user to load/unload a series of ingredient/unload amounts by using the XM64 transmitter/receiver. This procedure implies that the end user knows the net amounts that must be loaded or unloaded. The XM64 gives the user the ability to tare or zero each ingredient and view the net amount as loading or unloading. It also can be used to indicate the G/N amount between ingredients and can return the indicator to the G/N mode when done loading by holding down on the XM64 for three or more seconds.

1. In gross mode, press the **ZERO/CLEAR** key to zero the indicator when the mixer or scale system is empty.

2. After material is placed on the scale, press the XM64 key.

   Weight is tared off and goes into net mode, showing 0 weight.

3. Load or Unload material as needed.

   Shows **+** when loading and a **–** value when unloading.

4. When the display reaches the proper amount, stop loading or unloading material.

5. Repeat steps 2 through 4 until complete.

You may now view the G/N weight by pressing and holding the XM64 button, once. Releasing the button if within three seconds unit returns to the net mode showing zero.

If you are done loading and now want to return to the G/N mode for unloading, press and hold the XM64 for more than three seconds.

5.5 Using Memory Channels to Accumulate

The Model 640 has 100 memory channels available for accumulating weights. This can be helpful in accumulating loads of feed on a mixer, grain cart or weigh cart yields, or setting up groups of livestock. Each channel will also have the total number of accumulations obtained, total weight and the average weight of all weights accumulated, both total and for each individual channels.

5.5.1 Editing Memory Channel List

If the application requires alphanumeric channel names, go through the memory channel list and edit their descriptions accordingly. For example, if you want to record grain cart loads from five different fields, then create a list of FIELD1, FIELD2, …FIELD3. Now the custom names of the memory channels can be used, otherwise all memory channels will be the default descriptions of MEM.001, MEM.002, etc.

1. From the G/N mode, press **HOLD/MENU** for 2 beeps.

   A-LIST is shown on the display. (Only appears if **MEM.ENA** is enabled)

2. Press the **PRINT/SELECT** key.

   EdiT is displayed

3. Press **PRINT/SELECT** again and ***MEM.001*** is displayed, or the last memory channel accessed.

4a. Use the **MENU** key to scroll to the channel you want to edit.

OR

4b. Use the **RM^** and **MENU** keys to enter in the position on the list of the memory channel name to edit.

   EXAMPLE: To edit MEM.025, press **RM^** three times to enter the ‘2’. Press **MENU** to move the cursor. Enter the ‘5’ by pressing **RM^** six times and press **ENTER**. This procedure takes you directly to the 25th channel in the list.

5. When the desired channel name is found, press **SELECT** and you are snow in Edit mode. The annunciators should be flashing when in this mode.

6. Using the RM^ key, start entering the new channel name. Press **MENU** to move the cursor. To move the cursor back one character, press the **TARE** key.

7. Press **SELECT** when the desired name has been entered. The display will now show the channel name list. Repeat steps 3 - 7 to edit more channel names.

8. Press **G/N** three times to return to G/N weighing mode.

5.5.2 Accessing Memory Channels

1. From the G/N mode, press the **RM^** key.

   MEM.001 is shown or the last accessed channel.

   This will now access the MEM.001 channel. If you want any other channel either use the **HOLD/MENU** key to scroll to the proper channel, or use the **RM^** and the **HOLD/MENU** key to access directly to channel ***XX***, then press **PRINT/SELECT**.

2. Press **HOLD/MENU** twice, and ***MEM.003*** is shown

3. Either press the **G/N** key to return to gross weighing, or wait 3 seconds and it will automatically return to the gross weighing mode.

5.5.3 Using Memory Channels to Accumulate

1. Press **M+** and the following is displayed:

   Active memory channel is shown

   M+

   TOTAL

   Actual Accumulated total is shown

2. If accumulated in error, press and hold **M+** until the second beep and the following is displayed:

   Active memory channel is shown

   DELETE

   TOTAL

   New Actual Accumulated total is shown

5.5.4 Clearing the Accumulators

1. From the G/N mode, press and hold on the **HOLD/MENU** key for two beeps (2 sec) and release.

   A-LIST is shown.

2. Press **HOLD/MENU** twice.

   CLR.ACC is shown

3. Press **PRINT/SELECT**.

   NO is displayed.

4. Press **HOLD/MENU**.

   YES is displayed.

5. Press **PRINT/SELECT**.

   WAIT is displayed, then ***MEM.CLR***. Once the unit is done clearing accumulators ***CLR.ACC*** is displayed again.

6. After the accumulators are cleared press **G/N** to return to the G/N weighing mode.

5.5.5 To Clear a Specific Memory Channel

1. Access the proper memory channel.
2. From the G/N mode, press and hold **ZERO/CLEAR** key until the second beep…

   MEM.XXX is displayed then ***MEM.CLR*** is displayed. MEM.XXX is now cleared.

5.5.6 To Print an Individual Memory Channel

1. From the G/N mode, press the **RM** key.

   MEM.001 is displayed or the last accessed memory channels.

   This will now access the MEM.001 channel. If you want any other channel either use the **HOLD/MENU** key to scroll to the proper channel, or use the **RM** and the **HOLD/MENU** key to access directly to channel ***XX***, then press **PRINT/SELECT**.

Accumulators can go as far as 99,000,000.

2. Once the proper channel is displayed, press **PRINT/SELECT** and the following report will be printed to the printer or TDM module.

   Before printing ***PR-RM*** is shown on the display…

```
09-11-2007
11:12:17
CHANNEL:            1
NAME:               MEM.001

ACCUM. WEIGHT:      1000000 lb
ACCUM. COUNT:       20
ACCUM. AVERAGE:     50000 lb
```

3. The indicator automatically returns to the gross weighing mode.

5.5.7 To Print All Memory Channels

1. Press ***RM^***…

   Latest memory channel is displayed.

2. Press **PRINT/SELECT** for 2 secs.

   PR-ALL is momentarily displayed and information is transmitted.

The indicator will only print out memory channels that have accumulated weight amounts.

3. Indicator returns to gross weighing mode.

   Mem channel printout

```
04-25-2006
14:17:19

MEM CH   COUNT    AVG WT       TOTAL

FIELD1    18     29980 lb    539550 lb
FIELD2    14     51390 lb    719390 lb
CUSTOM    12     56620 lb    679430 lb

 TOTAL    44     44050 lb   1938370 lb
```

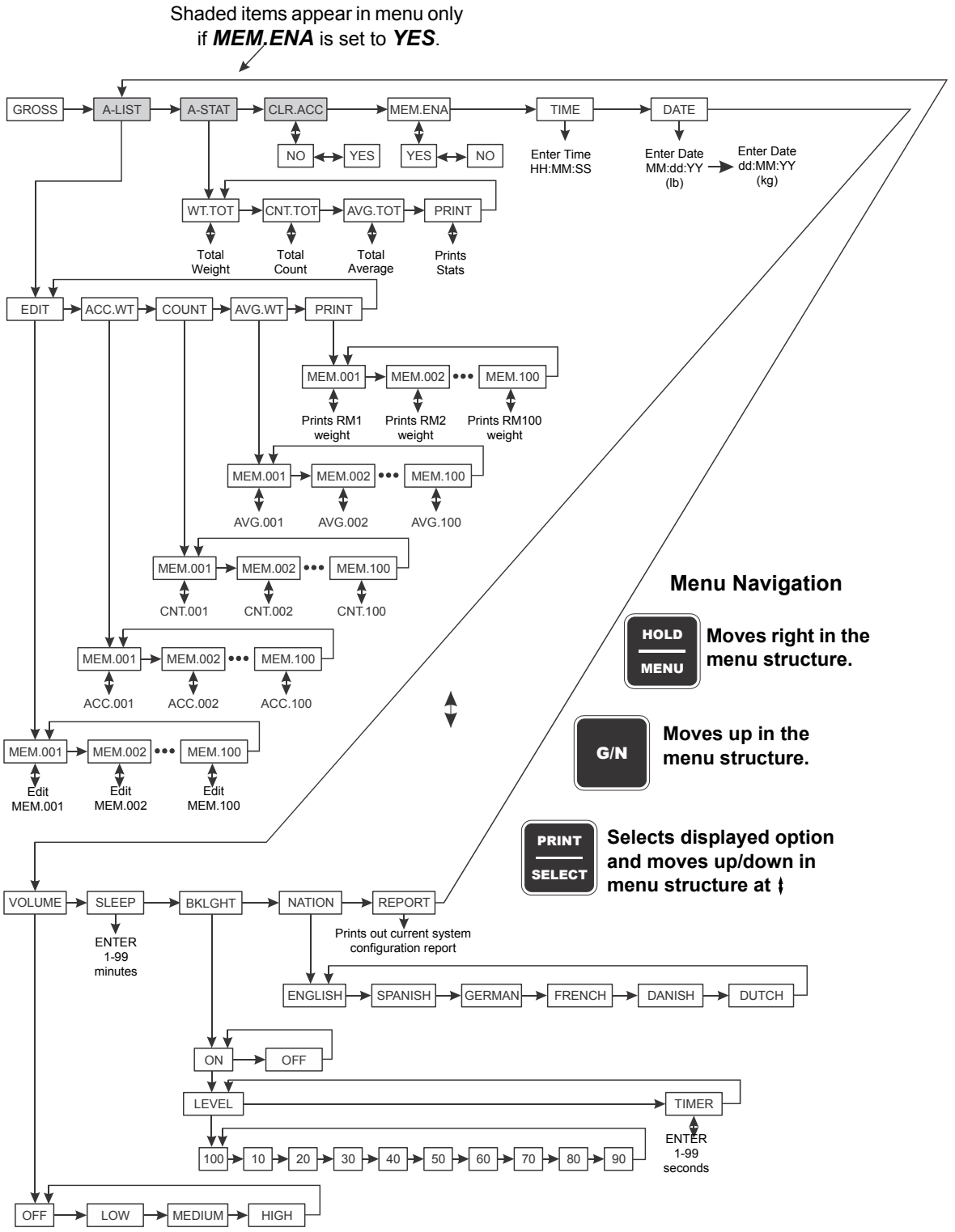


Figure 5.1 Menu

5.6 Manual Hold for Mobile Systems

The Model 640 has a manual hold using the **HOLD/MENU** key to prevent a zero shift from occurring on any portable scale system (i.e. mixer, weigh cart, grain cart, etc.). To use the **HOLD/MENU** key to prevent any small zero shifts from occurring while moving a system over rough farm terrain, follow these steps.

When using the hold mode, user must be sure hold mode has been deactivated when loading or unloading to the mixer.

1. In the G/N Mode, before moving the mixer system press **HOLD/MENU**.

   HOLD will be displayed.

2. Now move the system and when reaching the new loading or unloading point, press either the **HOLD/MENU** or **G/N** key.

   G/N weight will be displayed.

5.7 Using Hold Mode for Maintaining Weight Overnight

The Model 640 has a **HOLD/MENU** key to prevent minimal scale weight shifts due to temperature changes.

1. In the gross weighing mode, when you are finished with the scale for the day, but material is left on the scale, press the **HOLD/MENU** key.

   HOLD is displayed.

2. Turn the system off for the night.

3. The following day turn the unit on by pressing the **ON/OFF** key.

   HOLD is displayed.

4. Press **G/N** key and exact weight from the previous day is displayed.

5.8 Animal Weighing Using AUTO-LOC Feature

The Model 640 has a feature called AUTO-LOC. It is specifically designed for use in weighing livestock. Once the indicator has determined the animal's weight, the indicator display automatically locks on that weight. The weight reading will not change as long as the animal is on the scale. This makes the weight easy to record since the numbers are not rapidly changing as the animal moves on the scale.

AUTO accumulate feature can be turned on or off to work with AUTO-LOC. Refer to Table 1.3 for 5th CCN Digit on page 55 to choose a 5th digit of the CCN which will turn on the accumulator.

There are two modes in the Auto–LOC feature:

Standard LOC Mode

In standard mode, an animal's weight is locked on the display until the animal leaves the scale.

Advanced LOC Mode

In advanced mode, an animal's weight is locked on the display until the next animal comes onto the scale.

5.8.1 How to Set Up AUTO-LOC

Follow these steps to set up the AUTO-LOC feature:

1. Access the Setup menu from the G/N mode. Press and hold the **HOLD/MENU** key for three beeps (3 seconds), then release.

   SET.PAS is displayed.

2. Use the numeric entry procedure, described below, to enter the password ***640***. Press **PRINT/SELECT** to accept it.

   640 is shown.

Numeric Entry Procedure

Press this key to enter a value on the screen and increment the value being entered.

Press this key to decrement the numeric value being entered.

Press this key to move the numeric entry cursor one position to the right.

3. Press **PRINT/SELECT** once more.

   CONFIG is displayed. Change your current configuration code number to one that turns AUTO-LOC on. Refer to *Table 1.3 5th CCN Digit (Calibration Unit, Auto-Loc, Auto-Acc)* *on page 11*. Once you have your five digit number, enter it as follows:

4. From ***CONFIG***, press **PRINT/SELECT**.

   Current code number is shown.

5. If attempting to enter an invalid number display will show CAN't and return to CONFIG.

6. Use the numeric entry procedure to enter the new number and press the **PRINT/SELECT** key when finished.

   CONFIG is shown.

7. Press the **HOLD/MENU** key several times until ***AUT.LOC*** appears.

   The ***AUTO-LOC*** menu selection only shows up when a configuration code number turns on this feature.

   This menu item is where you choose standard or advanced LOCK, minimum weight (***MIN.WT***), and release tolerance (***REL.TOL***) appropriate for the livestock application.

8. Press the **PRINT/SELECT** key.

   MODE is displayed.

9. Press the **PRINT/SELECT** key.

   STD.LOC is displayed. This is the standard LOCK. Toggle between this and the ***ADV.LOC*** by pressing the **HOLD/MENU** key.

10. When your choice is displayed, press the **PRINT/SELECT** key.

    Your choice is selected and ***MODE*** is displayed.

11. Press the **HOLD/MENU** key.

    MIN.WT is displayed. This is where you set the minimum weight that must be on the scale to activate the AUTO-LOC feature. This prevents smaller weights from locking on the display. See the example below.

EXAMPLE*: If you are weighing 1200 pound cattle, you may set the minimum weight at 800 pounds and a release tolerance of 25%. Anything thing that goes on the scale that weighs less than 800 pounds will not cause the weight to lock. When an animal steps off the scale and the weight drops by at least 300 pounds (25% of 1,200 pounds), the system will reset to lock on the next weight above 800 pounds.*

12. To set the minimum weight, press the **PRINT/SELECT** key.

    Use the numeric entry procedure to enter the minimum weight value.

13. When the value is entered, press the **PRINT/SELECT** key to accept it and ***MIN.WT*** is displayed.

14. Press the **HOLD/MENU** key.

    REL.TOL is displayed. This is the release tolerance. This is set in steps 12 and 13 which must be removed from the scale before the AUTO-LOC resets.

15. Press the **PRINT/SELECT** key.

    Use the numeric entry procedure to enter the release tolerance in percentage of the minimum weight.

16. When the value is entered, press the **PRINT/SELECT** key to accept it and ***REL.TOL*** is displayed.

You can exit the menu and return to normal weighing mode by repeatedly pressing the **G/N** key. If, during operation the AUTO-LOC feature seems very slow, this can be due to excessive weight fluctuations. In this case you can access the Setup menu and increase the FILTER-CONSTANT parameter until it works properly. Reference *How to Configure Filtering* *on page 21* for instructions on adjusting the filtering.

5.8.2 Weighing Individual Animals with Standard Mode AUTO-LOC

The following describes how a Model 640 can be used for weighing and recording an animal's weight automatically on a single animal livestock scale with standard mode AUTO-LOC. Unit must be setup for AUTO-LOC and set for standard (STD.LOC) mode.

1. Turn indicator on, press the **G/N** key to access the gross mode and press the **ZERO** key.

   0 is displayed.

2. Move animal onto the scale.

   L WWWW is shown

   WWWW = animals auto-locked weight

   If a false locked weight occurred, press **ZERO/CLEAR** to recheck the animals weight. This will also delete from the accumulators the last locked-on weight and replace it with the new locked-on weight.

   If auto-accumulate is on, once the weight is locked-on, the Model 640 will automatically accumulate to the last selected memory channel.

   Weight stays locked until the weight on the scale drops by the programmed release tolerance. (Example: weighing a 2000 lb animal with a 25% release tolerance, means the lock will release when weight drops below 1500 lb).

   If the animal is released and the weight falls below the tolerance it may be possible to lock on another weighment. We recommend putting in a high release tolerance like 75% to insure reliable operation.

   Also to prevent an inadvertent AUTO-LOC if someone leans/steps on the scale, we recommend putting in a large amount for the MIN.WT parameter to prevent this from occurring. (EX: 300 lb)

3. Remove the animal from the scale.

   Scale returns to live weighing mode

4. Repeat steps 2 and 3.

5.8.3 Weighing Individual Animals with Advanced Mode AUTO-LOC

The following describes how a Model 640 can be used for weighing and recording animal's weight automatically on a single animal livestock scale using the advanced AUTO-LOC mode. The indicator must be setup for AUTO-LOC and set for advanced (ADV.LOC) mode. In addition, the auto-accumulate feature can be turned on or off.

The M640 will lock on an animals weight and stay locked even after the animal is off the scale. A new AUTO-LOC weight will only be retriggered upon placing the next animal on the scale.

1. Turn indicator on use the G/N key to access the gross mode, and press the **ZERO CLEAR** key.

   Display shows 0

2. Move animal onto the scale.

   L WWWW is shown. ***WWWW*** = animals auto-locked weight

   If a false locked weight occurred, press **ZERO/CLEAR** to recheck the animals weight. This will also delete from the accumulators the last locked-on weight and replace it with the new locked-on weight.

   If auto-accumulate is on, once the weight is locked-on, the Model 640 will automatically accumulate to the last selected memory channel.

   Weight stays locked until the next animal is on the scale.

   Also to prevent an inadvertent AUTO-LOC if someone leans/steps on the scale, we recommend putting in a large amount for the MIN.WT parameter to prevent this from occurring. (EX: 300 lb)

3. Remove the animal.

   L WWWW is shown

4. Repeat steps 2 and 3.

   After weight starts rising and goes beyond the MIN.WT the scale will briefly show actual weight before triggering a new auto-locked weight.

5.9 Printing

Press the **PRINT** key from G/N mode to print the currently configured print format 0-9 formats.

The default print format is #3. To use any of the other nine formats, see the *Service Manual* on how to select formats, by changing the configuration code number (CCN).

If the CHNAME parameter is set to ON, the current memory channel name will be added to the start of each print format. To enable this, reference the Service Manual or call your dealer for support.

EXAMPLES:

```
MEM.001
G:  32010  lb
```

OR

```
MEM.001
04-26-2006
03:02:47
G:  32010  lb
```

Format 0

```
G:  32010  lb
```

Format 1

```
G:  32010  lb
T:  16010  lb
N:  16000  lb
```

Format 2

```
04-26-2006
03:02:47
G:  32010  lb
```

Format 3 (default)

```
04-26-2006
03:02:47
G:  32010  lb
T:  16010  lb
N:  16000  lb
```

Format 4

```
32010  lb
```

Format 5

```
32010 lb, 16010 lb, 16000 lb
```

Format 6

```
04-26-2006,03:02:47, 32010 lb
```

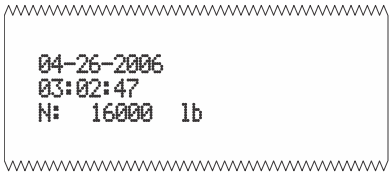
Format 7

```
04-26-2006,03:02:47, 32010 lb,
16010 lb, 1600 lb
```

Format 8

```
N:  16000  lb
```

Format 9



6 Test Menu

6.1 Test Menu Summary

The test menu, shown in Figure 6.1,allows you to test the functions of the indicator shown below.

VOLTS Monitor the input voltage of the indicator

LCD Do a LCD display test.

KEYPAD Do a keypad test

A / D Do an Analog to Digital Test (A/D)

SERIAL Check the serial ports (Port 1).

INPUTS Check the inputs.

SOFT Verify the software version of the indicator.

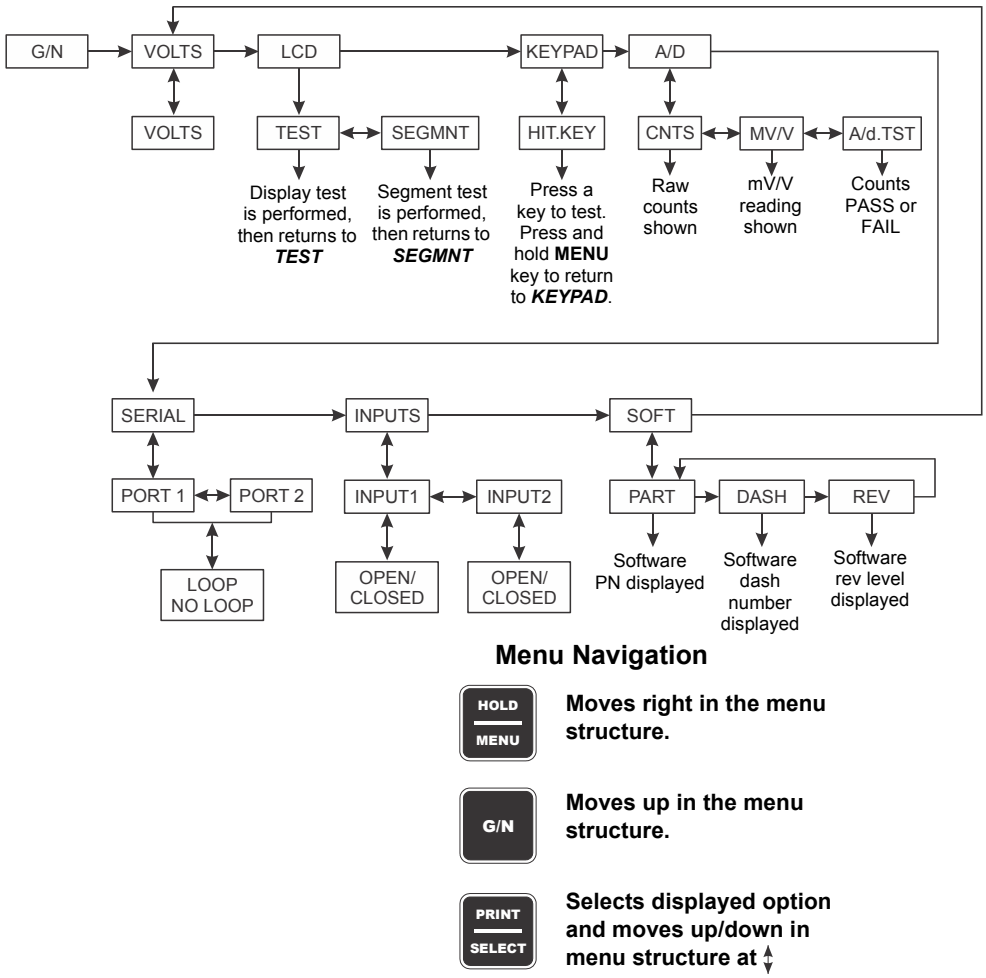


Figure 6.1 Test menu

6.2 Access the Test Menu

To access the Test menu, follow these steps:

1. From the G/N mode, press and hold the **HOLD/MENU** key for three beeps (3 seconds), then release.

   SET.PAS is displayed.

2. Use the numeric entry procedure, shown below, and enter the password 111.

   111 is displayed.

Numeric Entry Procedure

Press this key to enter a value on the screen and increment the value being entered.

Press this key to decrement the numeric value being entered.

Press this key to move the numeric entry cursor one position to the right.

3. Press the **PRINT/SELECT** key.

   VOLTS, the first menu item, is displayed.

6.3 Test Menu Items

6.3.1 VOLTS (Input voltage)

This allows a user to check the voltage coming into the indicator.

1. Access the test menu.

   VOLTS is displayed.

2. Press the **PRINT/SELECT** key, and current voltage is displayed.

3. Press the **G/N** key to return to the G/N weighing mode.

6.3.2 LCD (LCD Display test)

Use this to perform a self test on the LCD, either a complete display test or a segment test.

1. From ***VOLTS*** press menu.

   LCd is displayed.

2. Press the **PRINT/SELECT** key.

   TEST is shown.

3. Press the **PRINT/SELECT** key.

   Display performs a test (15 sec).

4. When test is completed.

   TEST is shown.

5. Press **HOLD/MENU**.

   SEGMNT is displayed.

6. Press the **PRINT/SELECT** key.

   Display performs a segment test.

7. When test is completed.

   SEGMNT is displayed.

8. Press **G/N** key to.

   Return to ***LCd*** display.

9. Press **G/N** key to return to the G/N weighing mode.

6.3.3 KEYPAD (Keypad test)

This test allows testing of all active keys.

1. From ***VOLTS***, press **HOLD/MENU**.

   LCd is displayed.

2. Press the **HOLD/MENU** key repeatedly until.

   KEYPAd is shown.

3. Press the **PRINT/SELECT** key.

   HIT.KEY is displayed briefly, then ***NO KEY*** is shown if a key isn't being pressed. Test the key by pressing it. If it is working the corresponding key name will be displayed. See table below:

Press the **G/N** key	***G/N*** is displayed.
Press the **HOLD/MENU** key	***HOLD*** is displayed.
Press the **ZERO/CLEAR** key	***ZERO*** is displayed.
Press the **PRINT/SELECT** key	***PRINT*** is displayed.
Press the **RM** key	***RM*** is displayed.
Press the **M+** key	***M+*** is displayed.

4. Press and hold the **HOLD/MENU** key to return to ***KEYPAD***.

6.3.4 A/D (View /Test A to D counts)

1. From ***VOLTS***, press menu.

   LCd is displayed.

2. Press **HOLD/MENU** repeatedly until ***A/d*** is shown.

3. Press the **PRINT/SELECT** key.

   CNTS is shown.

4. Press the **PRINT/SELECT** key.

   A/D raw counts are shown.

5. Press the **PRINT/SELECT** key.

   CNTS is shown.

6. Press the **HOLD/MENU** key.

   mV/V is shown.

7. Press **PRINT/SELECT** key.

   The mV/V value is shown.

8. Press **PRINT/SELECT** key.

   mV/V is shown.

9. Press **HOLD/MENU** key.

   A/d.TST is shown.

10. Press **PRINT/SELECT** key.

    Counts PASS or ***FAIL*** is shown.

11. Press **PRINT/SELECT** key.

    A/d.TST is shown.

12. Press the **G/N** key two times.

    Returns to the G/N weighing mode.

6.3.5 SERIAL (Testing Serial Ports)

1. From **VOLTS**, press menu.

   LCd is displayed.

2. Press **HOLD/MENU** repeatedly until ***SERIAL*** is shown.

3. Press the **PRINT/SELECT** key and ***NOLOOP*** is displayed.

4. Short the XMT to RCV and ***LOOP*** will be displayed.

5. Press **PRINT/SELECT** and ***SERIAL*** is displayed.

6. Press the **G/N** key.

   Returns to the G/N weighing mode.

6.3.6 INPUT (Testing the Input)

1. From ***VOLTS***, press menu.

   LCd is displayed.

2. Press **HOLD/MENU** repeatedly until ***INPUT*** is shown.
3. Press the **PRINT/SELECT** key and ***INPUT*** is displayed.
4. Press the **PRINT/SELECT** key and ***OPEN*** or ***CLOSED*** is displayed.
5. Press the **PRINT/SELECT** key.

   INPUT is displayed

Press **G/N** to return to G/N weighing mode.

6.3.7 SOFT (Software PN, version and revision)

1. From ***VOLTS***, press menu.

   LCd is displayed.

2. Press **HOLD/MENU** repeatedly until ***SOFT*** is shown.
3. Press **PRINT/SELECT** and ***PART*** is displayed. This stands for the part number for the software.
4. Press **PRINT/SELECT** and ***60259*** is displayed. This is the software part number.
5. Press the **GN** or **PRINT/SELECT** key.

   PART is displayed.

6. Press **HOLD/MENU** and ***DASH*** is displayed.
7. Press **PRINT/SELECT** and ***-0010*** is displayed. This is the software dash number.
8. Press the **GN** or **PRINT/SELECT** key.

   DASH is displayed.

9. Press **HOLD/MENU** and ***REV*** is displayed. This is the software revision number.
10. Press **PRINT/SELECT** and ***Rev A*** is displayed, for example. This is the software revision level.
11. Press the **GN** or **PRINT/SELECT** key.

    REV is displayed.

12. Press **GN** key twice to return to the G/N weighing mode.

7 Remote Displays & XM64 Remote Transmitter

7.1 Remote Displays

The RD40/XL/RF are remote displays that are compatible with the Model 640 indicators. See the photos below. An RD40 output option is required on the Model 640 for interfacing. The interface cable plugs directly into the bottom of the Model 640. Any data displayed on the Model 640 is also displayed on the RD40.

Figure 7.1 RD40XL remote display (XM64 optional)

Figure 7.2 RD40 remote display (mirror mount)

The RD40RF is a wireless remote display which allows full control of the Model 640 from the seven keys on the RD40RF. This is ideal for feed rooms and front end loaders.

Figure 7.3 RD40RF remote display (wireless)

7.2 XM64 Wireless Remote Transmitter

An optional radio remote transmitter (XM64) and receiver can be installed in either the Model 640/XL or the RD40XL.

This option lets the user tare and access net amounts from a remote location, usually a front-end loader. Reference *Loading/Unloading Net Amounts (XM64 Transmitter)* *on page 51*.

The XM64 can also be configured to simulate any of the seven active keys. See the Service Manual for instructions.

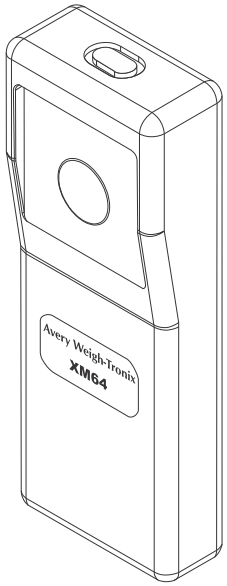


Figure 7.4 XM64

8 Specifications

Power	10 - 17 VDC 55mA @ four weigh bar load, backlight off 270 mA @ four weigh bar load, backlight **Optional:** 115VAC/12VDC converter
Enclosure	Water and dust resistant, Structural Polycarbonate 8.7” H x 10.5”W x 6.0”D
Display	6 digit, 14 segment, alpha-numeric LED green-yellow backlight, Ten adjustable brightness levels Model 640 - 1.1 inch (28mm) Model 640XL - 2.0 inch (50.8 mm)
Display Rate	Selectable 1, 2, or 5 times/second
Unit of Measure	lb or kg
Excitation	5 volts, drives ten 350 – ohm weigh bars
Analog Range	-0.5 mv/v to 10 mv/v
Annunciators	lb, kg, Auto, Motion, Gross and Net
Operational Keys	ON/OFF, RM, M+, TARE, G/N, HOLD/MENU, PRINT/ SELECT, ZERO/CLEAR (audible key feedback), (Optional: Dealer Service key)
Capacity Range	999,999 lb/kg with decimal down to 2 places
Increment Sizes	Multiples and sub-multiples of 1,2,5 (.01 up to 500)
Internal Resolution	32,212,260 counts per mv/v per second
A/D Conversion Rate	60 times/second
Zero Tracking	Off, 0.5, 1, 2, 3, 5, 10 divisions
Time and Date	Battery backed up real time clock
RS-232 port	Optional bidirectional RS-232 port AMP 8 pin circular connector Response to ASCII character inputs Baud rates (1200 – 115200) Xon/Xoff; Parity selectable, 7/8 data bits Broadcast rate: 1, 2, 5, 10 Hz
RD40/XL Port	Proprietary RD40/XL protocol, required to Interface to RD40 or RD40XL. (9 pin AMP circular connector)
RF Port	802.11G 2.4 GHz WIPORT (required to interface to the wireless RD40RF)
TTL Inputs	XM64 transmitter, programmable inputs Option on 640 or from RD40XL (RM, M+,TARE, G/N, HOLD, PRINT or ZERO/CLEAR)
Environment	-20 to 140 degrees F -29 to 60 degrees C

Weight	5.2 lb / 2.4 kg 7.2 lb / 3.3 kg shipping weight
Agencies	FCC Class A CE marked

9 Troubleshooting

If problems are encountered in the operation of the Model 640 scale system, read through these troubleshooting steps and perform those that are appropriate. This information will assist in correcting any of the following situations:

9.1 Power ON Problems

If after applying power to the indicator it does not power on, check the following items and then try to power on after each step.

1. **Check Input Voltage:** Required voltage into the indicator is 10-17 volts negative ground. If the voltage is between 9-10 volts the indicator will alternate between ***LOW.BAT*** and appropriate mode. The indicator will automatically turn off if the voltage drops below 9 volts for more than five seconds. Make sure to check the connections for corrosion, and or bent pins and reconnect the power source. Also inspect the power cable for possible damage Again the unit can be powered directly from a 12VDC battery or a 120/240 VAC power transformer.

WARNING: You must disconnect power from indicator before charging or jump starting a battery.

If using a standard Avery Weigh-Tronix battery power cable, connect the BLACK wire to Ground and the WHITE wire to +12VDC.

Always disconnect all cables connecting to the indicator before welding on any OEM equipment. If not damage from high currents may cause internal damage.

2. **Internal Fuse:** A 3.15 Amp fuse is internal on the PC board, replace with Avery Weigh-Tronix style fuse or equivalent (AWT P/N 48561-0190). Make sure the new fuse is the proper size. Using a fuse with too high of a current rating can cause costly damage to the indicator and will void your warranty. The fuse is soldered directly to the main board and should be replaced by a certified scale technician.

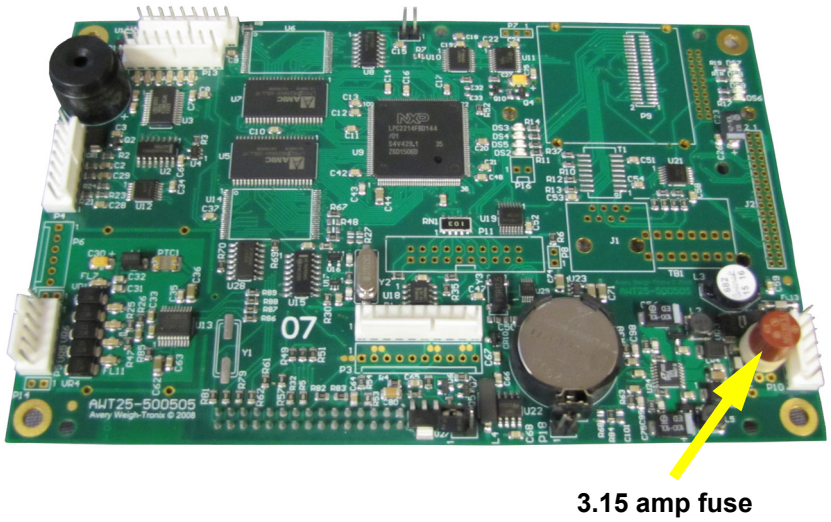


Figure 9.1 Fuse installed

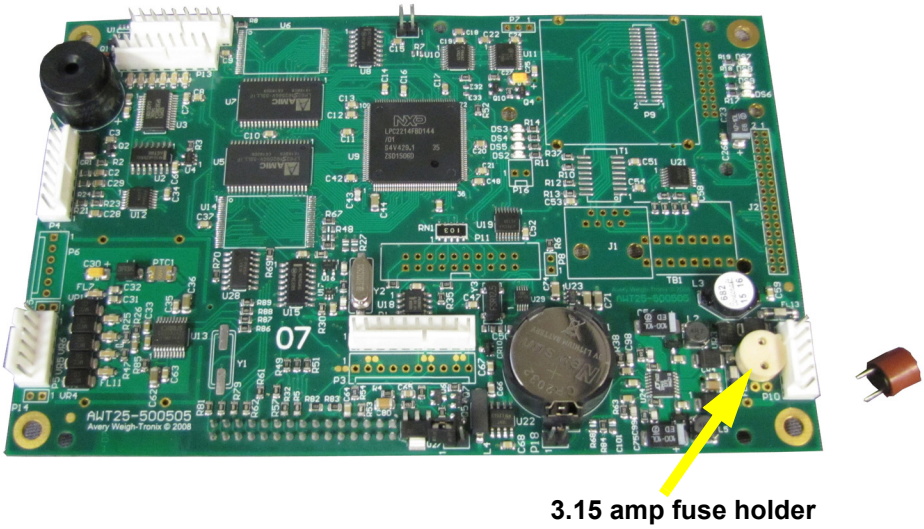


Figure 9.2 Fuse removed

3. **Internal 3 volt coin cell battery:** The Model 640 has an internal coin cell battery which provides backup power for retention of the time and date, and the 100 memory channel accumulator data. During normal operation, when power is turned off all this information is saved. After 4-5 years the coin cell battery will be drained. When this happens and the unit is turned off, the information will be lost and the indicator will no longer turn on. When this occurs, you must replace the coin cell battery to resume normal indicator function.

   To access the battery, remove the front screws on the 640/XL or the back screws on a 640M and replace the coin cell battery (B1) on the main electronic board. See location in Figure 9.3.

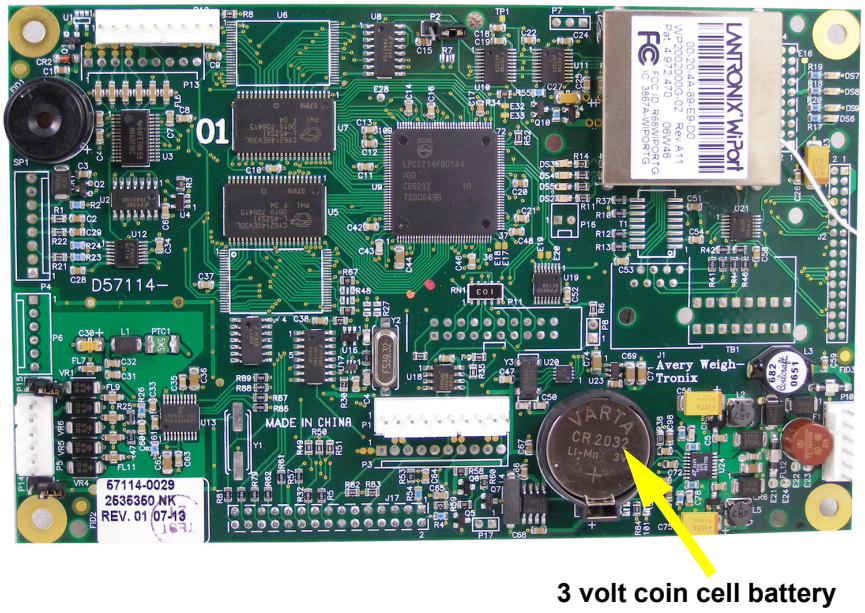


Figure 9.3 Coin cell battery location on the main board

Be sure to replace the battery(b1) with the same or equivalent type recommended by the manufacturer. Avery Weigh-Tronix PN of the battery is 60207-0013.

4. **Check All Incoming Cables:** Now try pressing the **ON/OFF** key and see if the M640 will turn on. If not disconnect all incoming cables and try one last time, if it still will not turn on there is a definite problem with the M640. Please send it to a certified service center or return to Avery Weigh-Tronix.

9.2 Indicator +/- RANGE Problem

An over Ranged Indicator is represented by either ***+/- RANGE*** on the display, and is typical until weigh bars or load cells are actually plugged into the unit. Once a weight sensor is plugged in, actual readings will be displayed and the indicator can be zeroed. The +/- RANGE represents more than +/- 8 mv/v input.

9.3 Indicator Over or Under Capacity Problem

This situation occurs when the input from the weigh bars or load sensors exceed the capacity of the Model 640.

1. If indicator shows either upper or lower dashes on the display, press **ZERO/ CLEAR** when the scale is empty to establish a zero weight readings.
2. If the unit still does not zero, then it is most likely a problem with a weigh bar. Plug one weigh bar in at a time and press the **ZERO/CLEAR** key, and when a weigh bar is found that will not zero from the under or overcapacity screen then it is probably a defective weigh bar. Check for cable damage and fix or replace weigh bar or sensor as needed or repair immediately.

9.4 Inaccurate Weight Readings

1. Please check and reference Appendix X Quick Programming Guide and see if the Configuration Code Number (CCN)) is properly entered for the scale application. If not known please consult dealer or distributor of final OEM product for assistance.
2. If Configuration Code Number (CCN) is entered properly do a visual inspection of the scale system and check for:
   - Cable Damage to Weigh Bar cables or junction box cable
   - Make sure the supporting structure and weighing structure do not touch at any other point except at the weigh bars.
3. Next if the scale is still not weighing properly, check for faulty weigh bars as follows:
   - Position a person or heavy object on the scale system above each weigh bar, one weigh bar at a time, and compare the weight readings.
   - All the readings should be nearly identical to each other. One reading that is significantly different from the others is probably defective. Replace as necessary.

9.5 Drifting Weight Readings

1. If weight readings drift, disconnect weigh bars and plug one bar in at a time until the bar that is plugged in makes the readings drift around considerably. The last weigh bar plugged in that makes this happen is probably the defective weigh bar. Again if all bars are unplugged the indicator will show ***+/- RANGE***.
2. If weigh bars are plugged into a J-box and none of the weigh bars will stabilize the indicator then either the indicator is faulty or the junction box interface cable is faulty.

9.6 Loss of Data: Time & Date or Memory channels

The Model 640 has an internal coin cell battery which provides backup power for retention of the time and date, and the 100 memory channel accumulator data. During normal operation, when power is turned off all this information is saved. After 4-5 years the coin cell battery will be drained. When this happens and the unit is turned off, the information will be lost and the indicator will no longer turn on. When this occurs, you must replace the coin cell battery to resume normal indicator function.

To access the battery, remove the front screws on the 640/XL or the back screws on a 640M and replace the coin cell battery (B1) on the main electronic board. See location in Figure 9.3.

Be sure to replace the battery(b1) with the same or equivalent type recommended by the manufacturer. Avery Weigh-Tronix PN of the battery is 60207-0013.

9.7 How to Get Service Repairs

If the indicator is defective or needs service, contact your supplier, or send the equipment prepaid to:

Service Department
Avery Weigh-Tronix
1000 Armstrong Drive
Fairmont, MN 56031
PHONE #:1-800-458-7062 M-F 8:00 AM – 5:00 PM (CST)

Please include:

Name and address
Supplier name and address
Date of Purchase
An informal note explaining the problem

If possible, include the make and model number of the OEM equipment the Model 640 is used on.

Avery Weigh-Tronix

Scales for Agribusiness

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Fax:507-238-4195
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Email: info@awtxglobal.com
www.averyweigh-tronix.com

To access manuals on