DC-150

Calibration & Service Manual

DIGI®

When Accuracy Counts

RICE LAKE WEIGHING SYSTEMS

Industrial Solutions on a Global Scale®

ISO 9001 REGISTERED

73345

DC-150 CAPACITY RESOLUTION GUIDE

All Weights in Pounds

| MODEL | Capacity | Resolutions | | Platform |
		Wgt.	Counting	Dimensions
151L	0.5	0.0001	0.000001	6" x 8"
	1.0	0.0001	0.000002	6" x 8"
	2.5	0.0002	0.000005	7" x 10"
	5.0	0.0005	0.00001	12" x 14"
	10.0	0.001	0.00002	6" x 14"
	25.0	0.002	0.00005	12" x 14"
	50.0	0.005	0.0001	12" x 14"
	100.0	0.01	0.0002	12" x 14"
REMOTE PLATFORM				
152L	250.0	0.02	0.0005	17" x 21"
	500.0	0.05	0.001	17" x 21"
	1000.0	0.1	0.002	24" x 28"
	2500.0	0.2	0.005	36" x 36"
	5000.0	0.5	0.01	48" x 48"
	10000.	1.0	0.02	60" x 60"
	25000.	2.0	0.05	48" x 72"
	50000.	5.0	0.1	60" x 84"

| | Capacity | | | Sample | Bulk |
	Scale 1	Scale 2		Platform	Platform
152D	0.5	5.0		4" x 6"	9" x 12"
	1.0	5.0		4" x 6"	9" x 12"
	1.0	10.0		4" x 6"	9" x 12"
	1.0	25.0		4" x 6"	9" x 12"
	2.5	50.0		4" x 6"	9" x 12"
	2.5	10.0		4" x 6"	9" x 12"
	2.5	25.0		4" x 6"	9" x 12"
	2.5	50.0		4" x 6"	9" x 12"

1. LOAD CELL LOCKING SCREW REMOVAL

The load cell is locked with socket screw and nut during transportation. Please remove the locking screw, nut and the metal plate during set up as shown in the following drawing.

SCALE TYPE

1.1. When setting up, release the load cell
a. Loosen the lock nut.
b. Remove socket screw.
c. Remove 4 screws and the metal plate.

1.2. Before transportation, mount load cell lock.
a. Set metal plate with 4 screws.
b. Set the socket screw until it touches the load cell and tighten up one revolution.
c. Tighten the lock nut.

NOTE : ✍ When Shipping DC-150 Be Sure To Lock Scale As Shown Or Permanent Damage May Occur To Load Cell That Would Require Non-Warranty Replacement.

NOTE : ✍ When calibration cannot be performed correctly, please check to see whether all the screws have been removed.

Built-In Single Scale (500g, 1Kg)

Fixing Backet

Upper Housing

Built-In Single Scale (2.5kg, 5kg, 10kg)

Fixing Bracket

Upper Housing

Built-In Double Scale

Fixing Braket

Upper Housing
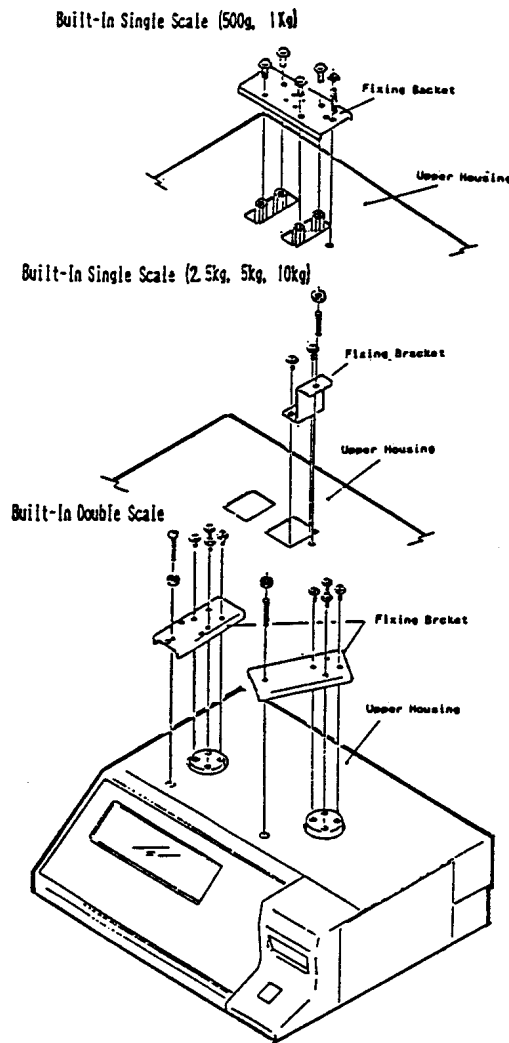
2. POWER ON

Attach the AC plug to 115 VAC power source and turn on power switch.
Power switch is located on the left side near rear.

Display shows Software Version Number and then goes automatically through <u>Display Segment Check</u> for about 60 seconds and Setting Weight for each channel. If a channel is activated and NO platform or dummy plug is attached, the display will not come out of reset automatically and you may damage the pre-amp. Always have connector or platform attached to avoid damage. Press ADVANCE **[➞]** Key to exit reset. Then display will be in normal operation mode as shown below.

```
┌─── WEIGHT ───┐ ┌─ UNIT WEIGHT ─┐ ┌─ QUANTITY ─┐
┌──────────────────────────────────────────────────┐
│        0 . 0 0             0 .            0       │
│ ▽ ▽       ▽        ▽                              │
└──────────────────────────────────────────────────┘
 ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●
 ZERO  TARE   1   2   3   RECO    IN OUT 1  2   3   4   5   6   7   8
              SCALE                         JOB MODULE
  STABLE   KG          INSUFF  MEMORY
```
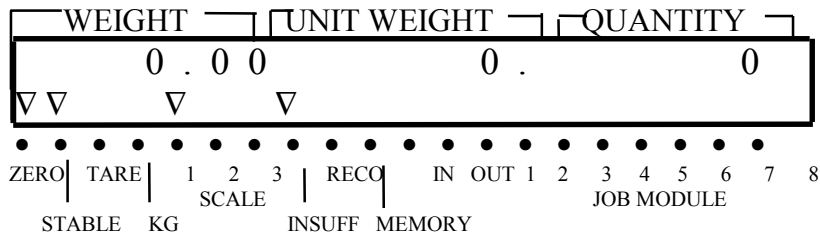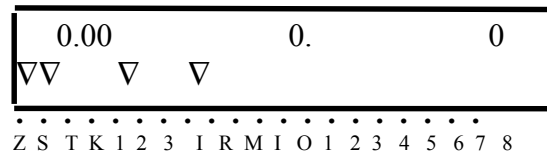
3. ID CODE MEMORY INITIALIZE

1. Turn on the main switch.

```
┌──────────────────────────────────────────┐
│   0.00              0.           0        │
│ ▽▽      ▽      ▽                          │
└──────────────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2 3  I R M I O 1  2 3 4 5 6 7 8
```

2. Press **[MODE]** key four times.
   Press **[∗ENTER]** Key

```
┌──────────────────────────────────────────┐
│      MAINTENANCE     MODE                 │
└──────────────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2  3 I R M I O 1  2 3 4 5  6 7  8
```

3. Press **[UNIT WEIGHT→]** key.

```
┌──────────────────────────────────────────┐
│ MTN: DELETE MEMORY                        │
└──────────────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2  3 I R M I O 1  2 3 4 5  6 7  8
```

4. Press **[∗ENTER]** key.

```
┌──────────────────────────────────────────┐
│ DEL = ALL  ITEM  MEMORY                   │
└──────────────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2  3 I R M I O 1  2 3 4 5  6 7  8
```

5. Press **[∗ENTER]** key.

```
┌──────────────────────────────────────────┐
│ ALL ITEM DEL ?          Y / N             │
└──────────────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2  3 I R M I O 1  2 3 4 5  6 7  8
```

NOTE 1) ALL ITEMS PREVIOUSELY STORED IN MEMORY ARE ERASED. USE CAUTION BEFORE CLEARING ENTIRE MEMORY

4. CALIBRATION

Calibration is done by Auto-Span function.

To calibrate DC-150, first set "NOV-RAM switch" to enable. (Refer to APPENDIX page 15)

1. After setting NOV-RAM switch enable, turn on the main switch. ∗**See Note Below**

CHECK TO SPAN SWITCH

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

2. Press **[CLEAR]** key.

MAINTENANCE MODE

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

3. Enter **[1] [4] [2]** while pressing **[RE-ZERO]** key then release.

MTN: WEIGHT PROGRAM

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

4. Press **[∗ENTER]** key.

W & M SPECS

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

5. Press **[UNIT WEIGHT→]** key.

WGT = SPAN ADJUSTMENT

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

6. Press **[∗ENTER]** key.

S1 = SC.   0., C.   0
♦ ♦

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

NOTE 1) S1 means Scale One
      SC means Scale Capacity
      C   means Calibrated Known Weight

* NOV-RAM switch is DISABLED as standard setting.
  Enter Maintenance mode press and hold rezero while entering 1,4,2, then type "OFF" . . .
  Display briefly " NO CHECK SPAN SWITCH".   Type "ON" to ENABLE NOV-RAM Switch.
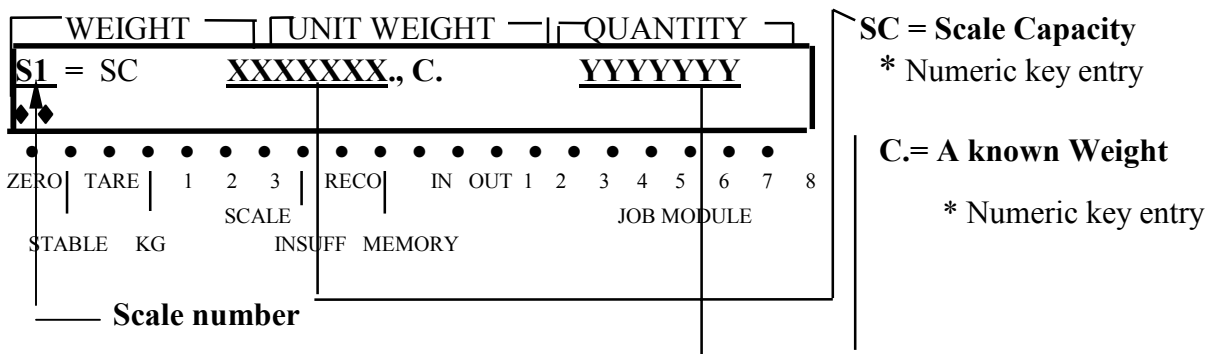
4.1 SCALE CAPACITY ENTRY

Select SCALE NUMBER to calibrate with *[+] , [-]* keys. After selecting scale, press **[UINT WEIGHT→]** key. The blinking cursor moves to right under ***XXXXXX*** in this example. Enter the SCALE CAPACITY with the decimal and the EXACT number of digits. (i.e. 5.00 not 5 or 5.0)
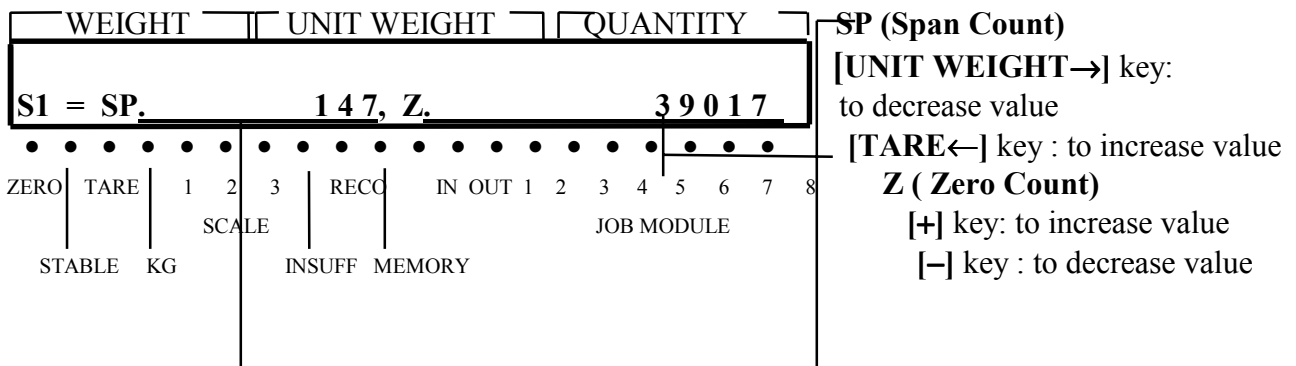
Press **[UNIT WEIHT→]** key again. The cursor moves to right under **YYYYYYY** in this example.
Enter value of KNOWN CERTIFIED TEST WEIGHT, which will be used in calibration.
Any size weight may be used but it is recommended that the weight be as close to full scale capacity as possible. Press **[∗ENTER]** key to advance to the next procedure for SPAN ADJUSTMENT.

Press **[TARE←]** key to go back , move the cursor left.

```
 ┌──WEIGHT──┐ ┌─UNIT WEIGHT ─┐│┌QUANTITY ┐        SC = Scale Capacity
 S1 = SC    XXXXXXX., C.      YYYYYYY               * Numeric key entry
   ▲
  ♦♦
 • • • • • • • • • • • • • • • • • • • •           C.= A known Weight
 ZERO| TARE |  1   2   3 |RECO|   IN OUT 1  2   3   4   5 | 6  7  8
             SCALE        INSUFF           JOB MODULE        * Numeric key entry
 STABLE   KG      INSUFF  MEMORY
      ──── Scale number
```

4.2 SPAN ADJUSTMENT

```
 ┌──WEIGHT──┐┌ UNIT WEIGHT ─┐ ┌QUANTITY ─┐       SP (Span Count)
                                                  [UNIT WEIGHT→] key:
 S1 = SP.        1 4 7, Z.        3 9 0 1 7         to decrease value
 • • • • • • • • • • • • • • • • • • • •            [TARE←] key : to increase value
 ZERO| TARE |  1   2   3 |RECO|   IN OUT 1  2   3   4   5  6  7  8    Z ( Zero Count)
              SCALE       |    |           JOB MODULE                  [+] key: to increase value
 STABLE   KG      INSUFF  MEMORY                                        [−] key : to decrease value
```

Press **[CODEʀᴇᴛʀʏ]** key to adjust zero count to **30,000** ± 10,000. Zero count is automatically adjusted to around 30,000 counts. If Zero counts are out of range, press **[+]** and **[–]** key to change.
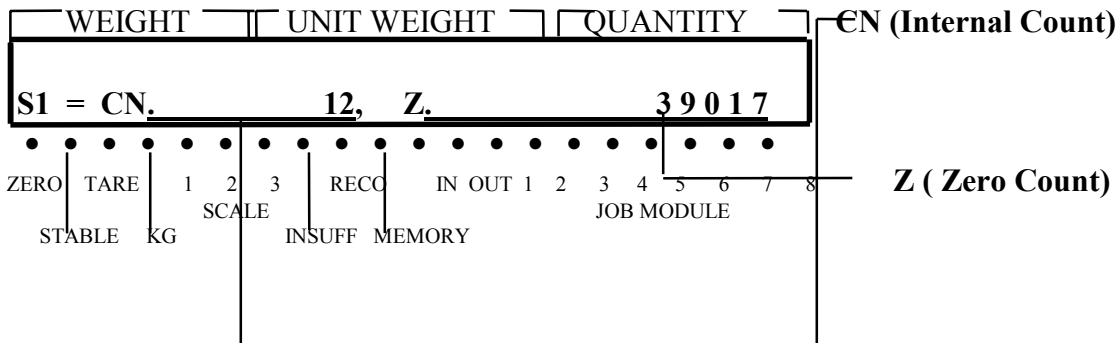Press **[RE-ZERO]** key to set SPAN count to "0" starting point.
Place a KNOWN CERTIFIED TEST WEIGHT on platform. SPAN count will appear.
If SPAN COUNT is not within the range of **100 ~ 120 %** of the certified test weight applied, press **[UNIT WEIGHT→]** or **[TARE←]** keys to adjust. Remove the certified weight from platter and, adjust zero count again with **[+]** and **[–]** keys, then press **[RE-ZERO]** key.
 Place the certified weight on platform again, and If the SPAN count is within the range of 100 ~ 120% of the certified test weight applied, press **[∗ENTER]** key to set the span count.

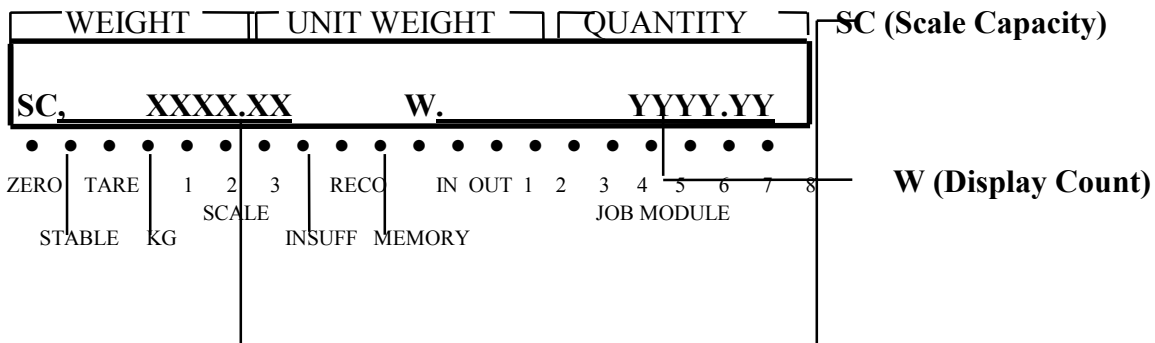*The display of internal count appears automatically.*

4.3 **INTERNAL COUNT**

```
┌─ WEIGHT ─┐┌ UNIT WEIGHT ┐┌ QUANTITY ─┐┌─ CN (Internal Count)
│                                           │
│ S1 = CN.        12,  Z.         3 9 0 1 7 │
│ • • • • • • • • • • • • • • • • • • • • • │
ZERO  TARE   1  2  3   RECO    IN OUT 1 2  3  4  5  6  7  8 ── Z ( Zero Count)
        STABLE  KG  SCALE  INSUFF  MEMORY        JOB MODULE
```

Press **[RE-ZERO]** key to set internal count at "0". Then place the KNOWN CERTIFIED TEST WEIGHT on the platform to check the internal count. The information as shown above will be displayed but cannot be altered.

Press **[∗ENTER]** key to display count screen.

4.4 **DISPLAY COUNT**

```
┌─ WEIGHT ─┐┌ UNIT WEIGHT ┐┌ QUANTITY ─┐┌─ SC (Scale Capacity)
│                                           │
│ SC,    XXXX.XX        W.        YYYY.YY   │
│ • • • • • • • • • • • • • • • • • • • • • │
ZERO  TARE   1  2  3   RECO    IN OUT 1 2  3  4  5  6  7  8 ── W (Display Count)
        STABLE  KG  SCALE  INSUFF  MEMORY        JOB MODULE
```

Press [AUTO/MANUAL] key to exit mode.

5. REMOTE SCALE SET-UP

DC-150 has the capability of connecting with external load cell platforms and a force balance. When you use the external platforms, you are to assign it a scale number that is referenced in operation mode as scale 1, 2 or 3. DC-150 can be connected to up to total 3 platforms. When you use an external scale or force balance, the scale numbers for all the scales (internal load cell and external load cell and force balance scales) are to be assigned before calibration proceedures are done. Set the decimal point and minimum display resolution for each channel in the WEIGHT SPECs.

5.1 <u>SCALE NUMBER SET-UP</u>

The preamp of DC-150 has 3 channels for load cell input, depending on the machine configuration. The wiring of internal load cell or external load cell I/F are different ,as show in the following table. Assign the scale number for each channel and force balance in your application.

<u>The scale numbers can be programmed in SPEC 31, (A/D board no.1), SPEC 32 (A/D board no.2), SPEC 33(A/D board no.3), and SPEC 34 (force balance) in WEIGHT PROGRAM.</u>

Note 1) When using a force balance, the scale number for force balance I/F should be no.1 because it is the smallest capacity.

Note 2) Set "NO USE" for the channels which are not used.

WIRING WITH A/D BOARD AND SCALES

	DC-153 Console Only	DC-153 L type	DC-153 D type
A/D board channel 1	external load cell I/F 1	Internal load cell	Internal load cell 1
A/D board channel 2	external load cell I/F 2	external load cell I/F 1	Internal load cell 2
A/D board channel 3	--------------------------	external load cell I/F 2	external load cell 1
Force balance channel	RS-232C I/F	RS-232C I/F	RS-232C I/F

ie: **DC-153 L Type**

VII
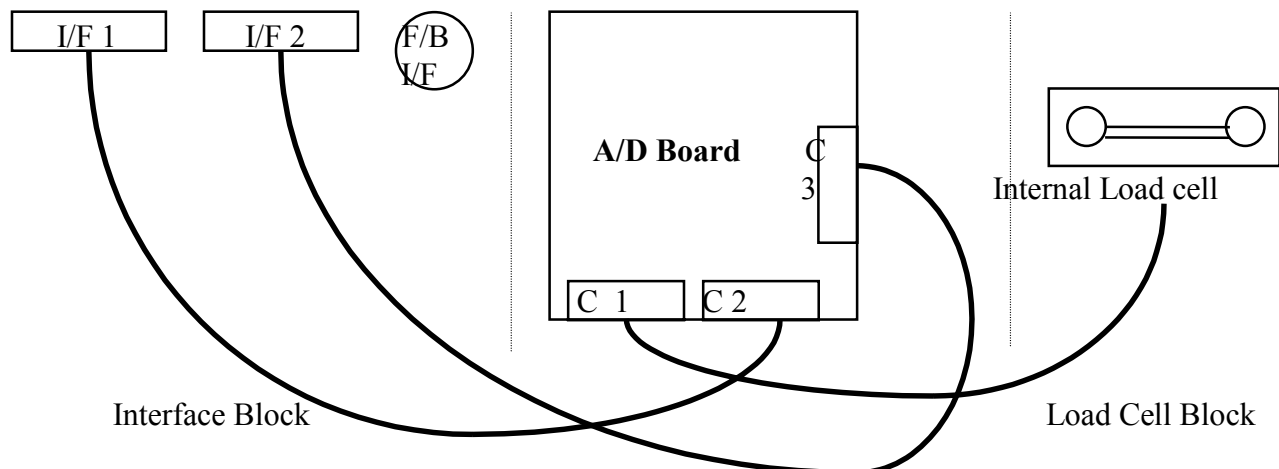
5.2   WEIGHT SPECS FOR REMOTE SCALES

After you set-up the scale numbers select the following weight SPECs 00 ~ 06 in WEIGHT PROGRAM, for each scales before calibration.

Due to the capacity of load cell and display resolution, the combinations available for decimal and minimum display could be changed. If the combination is incorrect, span adjustment cannot be executed.

5.3   PROGRAMMING WEIGHT - SPEC SCREEN

1. After setting NOV-RAM switch enable, turn on the main switch.

CHECK TO SPAN SWITCH

· · · · · · · · · · · · · · · · · · · ·
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

2. Press **[CLEAR]** key.

MAINTENANCE MODE

· · · · · · · · · · · · · · · · · · · ·
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

2. Enter **[1] [4] [2]** while pressing **[RE-ZERO]** key.

MTN: WEIGHT PROGRAM

· · · · · · · · · · · · · · · · · · · ·
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

3. Press **[∗ ENTER]** key.

W & M SPECS

· · · · · · · · · · · · · · · · · · · ·
Z S T K 1 2   3 I R M I O 1 2 3 4 5 6 7 8

4. Press **[∗ ENTER]** key.

00: MINIMUM DISPLAY S1 =   2

· · · · · · · · · · · · · · · · · · · ·
Z S T K 1 2   3 I R M I O 1 2 3 4 5 6 7 8

5.4   WEIGHT SPEC SCREEN

```
┌─ WEIGHT ──┬─ UNIT WEIGHT ─┬─ QUANTITY ──┬─ SPEC NO.
│                                         │  [+] Key: to increase no.
│ XX :      XXXXXXXXXXXXXXXXXXXXXXXX = ZZ │    [–] Key : to decrease no.
│ • • • • • • • • • • • • • • • • • • • • •
  ZERO  TARE   1  2  3   RECO    IN OUT 1  2   3  4  5  6  7  8 ── SPEC CLAUSE
            SCALE              JOB MODULE
    STABLE  KG      INSUFF MEMORY
                                             SELECTED SPEC
                                             [+] , [–] Keys : to select.
```
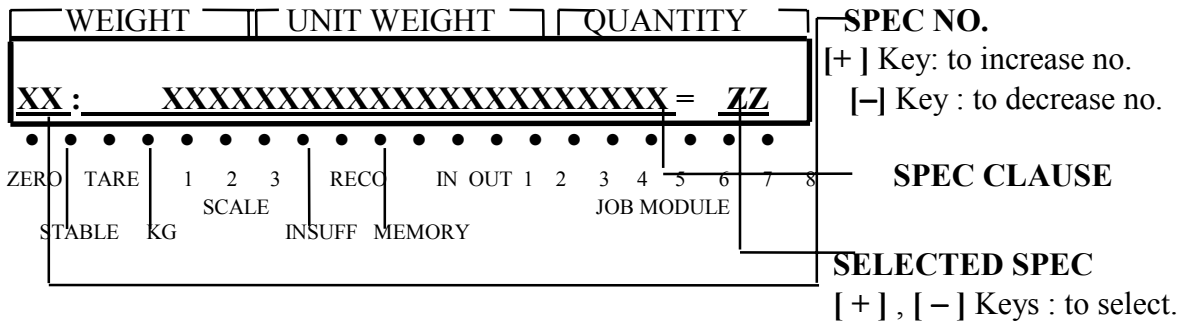
NOTE)   **[TARE←]** and **[UNIT WEIGHT→]** keys move the cursor RIGHT OR LEFT

When the blinking cursor is under **XX** (SPEC NO.), you can change the SPEC number by pressing
the **[+]** and **[–]** keys. After you change the SPEC no., press **[UNIT WEIGHT→]** key to move the cursor to right under **ZZ.** You can select from choices by pressing **[+]** and **[–]** keys. After you select choice, press [ENTER] key to store the data into memory and advance automatically to the next SPEC NO.

To escape from WEIGHT SPEC SCREEN, press **[AUTO/MANUAL]** key.

6. SELF CHECK MODE

Check the following electronic segments for contamination.

KEY BOARD   ITEM MEMORY
        INTERFACE I/O   INTERNAL PRINTER
            DISPLAY

6.1 <u>KEY BOARD CHECK</u>

1. After setting NOV-RAM switch enable, turn on the main switch.

CHECK TO SPAN SWITCH

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

2. Press **[CLEAR]** key.

MAINTENANCE MODE

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

3. Enter **[2] [7] [1] [0]** while pressing **[RE-ZERO]** key.

SELF CHECK MODE

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

4. Press **[∗ ENTER]** key.

SEL = KEY BOARD

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

5. Press **[∗ ENTER]** key.

KEY [0] PRESS KEY

Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

                        CHECK WINDOW

6. Press each KEY in CHECK WINDOW.

The key in CHECK WINDOW changes to the next keys after the displayed key is pressed.
       (0~ 9), (A-Z), etc.

After last enntry **[∗]** key check, the display is back to the initial screen for key board check.

Note) **[AUTO/MANUAL]** key is used to be back to the initial screen of key board check.

6.2 MEMORY CHECK

Caution ! !   MEMORY WILL BE DELETED

1. After setting NOV-RAM switch enable, turn on the main switch.

```
┌─────────────────────────────────────┐
│ CHECK TO SPAN SWITCH                 │
│                                      │
└─────────────────────────────────────┘
 . . . . . . . . . . . . . . . . . . .
 Z S T K 1 2 3  I R M I O 1 2 3 4 5 6 7 8
```

2. Press **[CLEAR]** key.

```
┌─────────────────────────────────────┐
│  MAINTENANCE  MODE                   │
│                                      │
└─────────────────────────────────────┘
 . . . . . . . . . . . . . . . . . . .
 Z S T K 1 2 3  I R M I O 1 2 3 4 5 6 7 8
```

3. Enter **[2] [7] [1] [0]** while pressing **[RE-ZERO]** key.

```
┌─────────────────────────────────────┐
│ SELF  CHECK   MODE                   │
│                                      │
└─────────────────────────────────────┘
 . . . . . . . . . . . . . . . . . . .
 Z S T K 1 2 3  I R M I O 1 2 3 4 5 6 7 8
```

4. Press **[∗ ENTER]** key.

```
┌─────────────────────────────────────┐
│ SEL = KEY  BOARD                     │
└─────────────────────────────────────┘
 . . . . . . . . . . . . . . . . . . .
 Z S T K 1 2  3 I R M I O 1 2 3 4 5  6 7  8
```

5. Press **[UNIT WEIGHT→]** key.

```
┌─────────────────────────────────────┐
│ SEL = MEMORY                         │
└─────────────────────────────────────┘
 . . . . . . . . . . . . . . . . . . .
 Z S T K 1 2  3 I R M I O 1 2 3 4 5  6 7  8
```

6. Press **[∗ ENTER]** key.

```
┌─────────────────────────────────────┐
│ MEMORY CHECK ON . . .                │
└─────────────────────────────────────┘
 . . . . . . . . . . . . . . . . . . .
 Z S T K 1 2  3 I R M I O 1 2 3 4 5  6 7  8
```

AFTER MEMORY CHECK IS EXECUTED, THE MEMORY FILES ARE AUTOMATICALLY DELETED. BACK-UP DATA BEFORE CHECKING MEMORY - CONSULT FACTORY FOR FILE TRANSFER AND RESTORE P/C PROGRAM AND CABLE SPECIFICATIONS.

6.3 INTERFACE CHECK

1. After setting NOV-RAM switch enable, turn on
   the main switch.

```
CHECK TO SPAN SWITCH
```
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

2. Press **[CLEAR]** key.

```
 MAINTENANCE  MODE
```
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

3. Enter **[2] [7] [1] [0]** while pressing
   [RE-ZERO] key.

```
SELF  CHECK  MODE
```
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

4. Press **[∗ENTER]** key.

```
SEL = KEY  BOARD
```
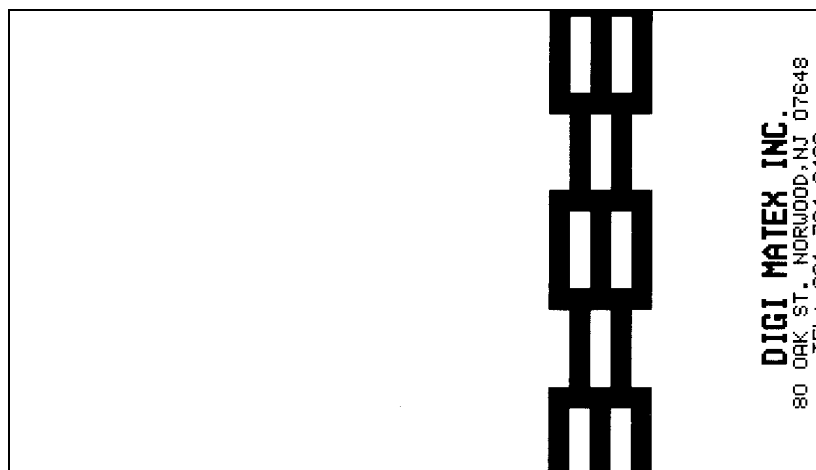Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

5. Press **[UNIT WEIGHT→]** key twice.

```
SEL = INTERFACE  ( I/O )
```
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

6. Press **[∗ ENTER]** key.

   Press enter again to verify connectivity

```
I / O = RS232C
```
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

7. Select I/O to check by pressing **[TARE←]** or
   [UNIT WEIGHT→] key.

   Press enter again to verify connectivity

```
I / O = BARCODE
```
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

8. Select I/O to check by pressing **[TARE←]** or
   [UNIT WEIGHT→] key.

   Press enter again to verify connectivity

```
I / O =SCALE-HG
```
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

9. Select I/O to check by pressing **[TARE←]** or
   [UNIT WEIGHT→] key.

   Press enter again to verify connectivity

```
┌─────────────────────────────────┐
│  I / O =SET POINT               │
└─────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · ·
 Z S T K 1 2  3 I R M I O 1 2 3 4 5  6 7  8
```

10 Select I/O to check by pressing **[TARE←]** or
   [UNIT WEIGHT→] key.

   Press enter again to verify connectivity

```
┌─────────────────────────────────┐
│  I / O = ALL I/O PORT           │
└─────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · ·
 Z S T K 1 2  3 I R M I O 1 2 3 4 5  6 7  8
```

NOTE: Press **[∗ ENTER]** key after each item

```
┌─────────────────────────────────┐
│  CONNECTED ... OR ... NOT       │
└─────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · ·
 Z S T K 1 2  3 I R M I O 1 2 3 4 5  6 7  8
```

DISPLAY GOES BACK TO THE PREVIOUS SCREEN AUTOMATICALLY
AFTER VERIFICATION CHECK IS COMPLETED. WAIT AFTER PRESSING
ENTER KEY.

6.4 PRINTER CHECK

1. After setting NOV-RAM switch enable, turn on the main switch.

```
┌─────────────────────────────────┐
│ CHECK TO SPAN SWITCH            │
│                                 │
└─────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2 3  I R M I O 1 2 3 4 5 6 7 8
```

2. Press **[CLEAR]** key.

```
┌─────────────────────────────────┐
│ MAINTENANCE  MODE              │
│                                 │
└─────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2 3  I R M I O 1 2 3 4 5 6 7 8
```

3. Enter **[2] [7] [1] [0]** while pressing **[RE-ZERO]** key.

```
┌─────────────────────────────────┐
│ SELF  CHECK   MODE             │
│                                 │
└─────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2 3  I R M I O 1 2 3 4 5 6 7 8
```

4. Press **[∗ ENTER]** key.

```
┌─────────────────────────────────┐
│                                 │
│ SEL = KEY  BOARD               │
└─────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2  3 I  RM  I O 1 2 3 4 5  6 7  8
```

5. Press **[UNIT WEIGHT→]** key.

```
┌─────────────────────────────────┐
│                                 │
│ SEL = INTERNAL PRINT           │
└─────────────────────────────────┘
 · · · · · · · · · · · · · · · · · · · · ·
 Z S  T K 1 2  3 I  RM  I O 1 2 3 4 5  6 7  8
```

6. Press **[∗ENTER]** key to print test.

SAMPLE TEST PRINT PATTERN:

6.5 DISPLAY CHECK

1. After setting NOV-RAM switch enable, turn on
   the main switch.

CHECK TO SPAN SWITCH

· ·
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

2. Press **[CLEAR]** key.

MAINTENANCE MODE

· ·
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

3. Enter **[2] [7] [1] [0]** while pressing
   [RE-ZERO] key.

SELF   CHECK   MODE

· ·
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

4. Press **[∗ ENTER]** key.

SEL = KEY BOARD

· ·
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

5. Press **[UNIT WEIGHT→]** key.

SEL = DISPLAY

· ·
Z S T K 1 2 3 I R M I O 1 2 3 4 5 6 7 8

PRESS **[∗ENTER]**   THE DISPLAY SEGMENT TESTING STARTS.

TURN **OFF** MAIN POWER SWITCH TO TERMINATE DISPLAY CHECK TESTING !

__APPENDIX__

To calibrate the DC-150 or enter Self Check Mode, first set the NOV-RAM switch
in the correct position. The switch is located inside machine under the key panel.
If you remove the front panel, you can find the switch in the left lower corner.

SEE SPECIAL NOTE FOR ALTERNATE PROCEEDURE.
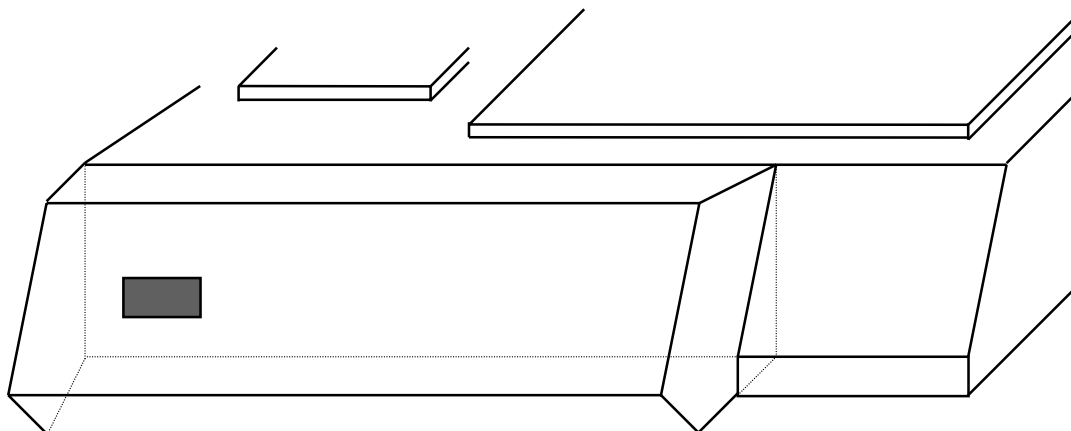
After setting the NOV=RAM switch to enable, turn the main switch ON.

The following display appear.

```
 ┌── WEIGHT ──┐  ┌ UNIT WEIGHT ┐  ┌ QUANTITY ┐
┌─────────────────────────────────────────────┐
│ CHECK TO SPAN SWITCH                         │
│                                              │
└─────────────────────────────────────────────┘
 ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●  ●
ZERO  TARE   1   2   3   RECO     IN  OUT 1  2   3   4   5   6   7   8
            SCALE                         JOB MODULE
STABLE  KG        INSUFF  MEMORY
```
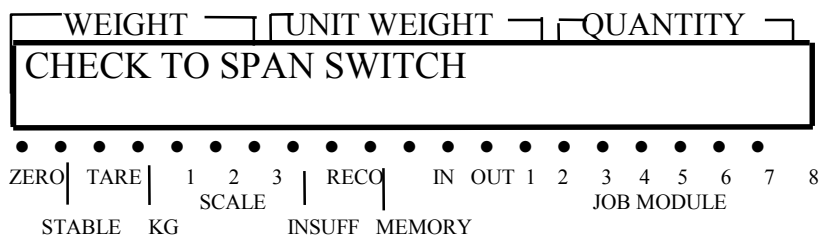
**SPECIAL NOTES: THE NOV-RAM SWITCH IS TURNED " OFF" AT THE FACTORY
AS THE DEFAULT POSITION FOR ALL DC-150 SYSTEMS**

TO ENABLE THE NOV-RAM SWITCH TO LOCK OUT CALIBRATION AND CHANGES IN
THE WEIGHT & MEASUREMENT SPECS, FOLLOW THESE STEPS:

1. Enter Maintenence Mode, Press Mode Key.
2. Press "REZERO 1 - 4 - 2" Access Code
3. Display = "MTN : WEIGHT PROGRAM"
4. Just Type   "ON" Display Will Show
5. "CHECK SPAN SWITCH" Meaning Nov-Ram Switch **Enabled** And Prevents Any Change
    To Calibration Or Other Weight & Measurement Specs.
6. To Reverse The Control Type "OFF" To **Disable** Nov-Ram Switch And Allow Changes.
7. Toggle Back And Forth To Change Control.

LOCK-OUT PROTECTION

`CHECK MODE`

`PROGRAMMING MODE`

`MAINTENANCE MODE`

USE THE FOLLOWING PROCEDURE TO DISABLE THESE MODES.

1. ENTER MAINTENANCE MODE, PRESS **[MODE]** KEY

2. PRESS **[*ENTER]** KEY, 2 TIMES TO "DISPLAY SPECS"

3. PRESS **[UNIT WEIGHT→]** KEY, 4 TIMES TO "MISC. SPECS"

4. PRESS **[*ENTER]**

5. PRESS # **[8]** KEY , THEN **[*ENTER]** KEY, FOR CHECK MODE

6. PRESS # **[9]** KEY , THEN **[*ENTER]** KEY, FOR PROGRAM MODE

7. PRESS # **[1] [0]** KEY, THEN **[*ENTER]** KEY, FOR MAINTENANCE MODE

8. MOVE CURSOR TO RIGHT WITH **[UNIT WEIGHT→]** KEY

9. PRESS **[+]** KEY FOR "Y" (mode on) OR "N" (mode off), PRESS **[*ENTER]**

NOTE: If Mode Control Functions Are OFF, Access Them As Follows:

Press & Hold Rezero Key, Enter 1 - 4 - 1 Access Code, Then Release.
Maintenance Mode Is Displayed Follow Above Steps 2 Thru 9

SPEC SETTING FOR WEIGHT

In order to set SPECs for Weight & Measurement, you first enter weight program.

WEIGHT PROGRAM MODE

PROCEDURE	Display
Change the mode to Maintenance Mode.	MAINTENANCE MODE
Turn on Span Switch.	MAINTENANCE MODE
While pressing **[RE-ZERO]** key, enter **[1] [4] [2]**	MEN:WEIGHT PROGRAM

DC-150 PROGRAM NAME CHANGES

INITIAL VERSION	**D1.40 & ABOVE**
MTP = DISPLAY	DISPLAY SPECS
MTP = REPORT	REPORT SPECS
MTP = PRINT	PRINT SPECS
MTP = OTHERS	MISC PARAMETERS
OUTSIDE APPARATUS	PERIPHERAL SPECS
OUT = SCANNER	SCANNER PARAMETERS
OUT = FORCE BALANCE	BALANCE PARAMETERS
OUT = RS232C	RS232C PARAMETERS
OUT = MODEM	MODEM PARAMETERS
OUT = OTHER	MISC SPECS
WGT = METHOD PROGRAM	W & M SPECS

QUICK SPEC GUIDE

OPERATIONAL PROCEDURE	DISPLAY	REMARK
Enter Weight program- code	MTN:WEIGHT PROGRAM	Refer to previous page.
Press [ENTER] key.	W & M = SPECS	
Press [ENTER] key. Enter [3]. Press [ENTER] key. <EX.> Adress 3 is chosen.	00:MIN.DISPLAY S1=2 03:DECIMAL P. S2= NO	Blinking cursor at SPEC number side, you can choose the [+] key = Increment [-] key = Decrement SPEC number plus [ENTER] key = Skip
Press [®] key. Press [+] key twice. <EX.> "2L" is chosen for weight decimal point po sition of 2nd scale	03:DECIMAL P. S2= NO 03:DECIMAL P. S2=2L.	Cursor is moved to data side Blinking cursor at data side, you can choose the data. [+] or [-] key = To choose data
Press [ENTER] key.	04:MIN.DISPLAY S3= 1	New data is saved in memory.
Press [¬] key.	04:MIN.DISPALY S3= 1	Cursor is moved to SPEC number side.
For other SPEC's data, repeat the step from the choice of SPEC.		
Press [AUTO/MANUAL] three times.	MAINTENANCE MODE	[AUTO/MANUAL] key = To return to parent mode.
(NOTE) To save the changed memory, make sure to return to initial screen of Maintenance mode.		
Turn off Span switch.	MAINTENANCE MODE	

SPECIFICATIONS

SPEC00:Minimum display for weight on the scale 1

    2:2   5:5

    1:1   10:10

SPEC01:Decimal point position for weight on the scale 1

    NO:No   (0)   3L:3 Line (0.000)

    1L:1 Line (0.0)   4L:4 Line (0.0000)

    2L:2 Line (0.00)   5L:5 Line (0.00000)

SPEC02:Minimum display for weight on the scale 2

    2:2   5:5

    1:1   10:10

SPEC03:Decimal point position for weight on the scale 2

    NO:No   (0)   3L:3 Line (0.000)

    1L:1 Line (0.0)   4L:4 Line (0.0000)

    2L:2 Line (0.00)   5L:5 Line (0.00000)

SPEC04:Minimum display for weight on the scale 3

    2:2   5:5

    1:1   10:10

SPEC05:Decimal point position for weight on the scale 3

    NO:No   (0)   3L:3 Line (0.000)

    1L:1 Line (0.0)   4L:4 Line (0.0000)

    2L:2 Line (0.00)   5L:5 Line (0.00000)

SPEC06:Weight display resolution
　　　 1/10000:1/10000
　　　 1/5000 :1/5000
　　　 1/2500 :1/2500

SPEC07:Selection of weight unit
　　　 G :G
　　　 KG:KG
　　　 LB:LB

SPEC08:Selection of zero lamp lighting
　　　 GROSS:Light on within gross $0 \pm 1/4$ digit
　　　 NET :Light on within net $0 \pm 1/4$ digit

SPEC09:Selection of scale manual start
　　　 Y:Allow
　　　 N:Inhibit

SPEC10:Scale start range
　　　 NO :No limit
　　　 FS$\pm$2:$\pm$2% of capacity weight

SPEC11:Minus weight display
　　　 MINUS:Minus
　　　 MASK :Mask

SPEC12:Minus weight masking range
　　　 GROSS:Less than gross 0
　　　 NET :Less than net 0

SPEC13:Gross display Prohibit
    Y:Allow
    N:Inhibit

SPEC14:Renewing unit weight memory
    Y:Allow
    N:Inhibit

SPEC15:Weight display accuracy
    Y:Allow
    N:Inhibit

SPEC16:Calling tare of item memory
    Y:Allow
    N:Inhibit

SPEC17:Tare reduction
    Y:Allow
    N:Inhibit

SPEC18:Tare accumulate
    Y:Allow
    N:Inhibit

SPEC19:Rezero in Tare
    Y:Allow
    N:Inhibit

SPEC20:Digital tare
    Y:Allow
    N:Inhibit

SPEC21:Transaction of digital tare
ENT.:Entered value
DISP:Displayed value

SPEC22:Weight range of tare subtraction
100%:100% of capacity weight
50% :Less than 50% of capacity weight
5% :Less than 5% of capacity weight

SPEC23:Auto recomputing counting
Y:Allow
N:Inhibit

SPEC24:Light on recomputing lamp
AFTER:After calculating
BEFOR:Before calculating

SPEC25:Negative weight calculation
Y:Allow
N:Inhibit

SPEC26:Recomputing accuracy
Y:Allow
N:Inhibit

SPEC27:Insufficiency point
0.0%:0.0%   0.4%:0.4%
0.1%:0.1%   0.5%:0.5%
0.2%:0.2%   0.6%:0.6%
0.3%:0.3%   0.7%:0.7%

SPEC28: KG/LB lanp

(Available only when "LB" is chosen at SPEC07.)

Y:Allow

N:Inhibit

SPEC29:Calculating unit weight

FAST:New method

NORM:Old method

SPEC30:Zero tracking in Tare

Y:Allow

N:Inhibit

SPEC31:Selection for connection(No.1) on the A/D board

NO USE:No use   SCALE2:Scale 2

SCALE1:Scale 1   SCALE3:Scale 3

SPEC32:Selection for connection(No.2) on the A/D board

NO USE:No use   SCALE2:Scale 2

SCALE1:Scale 1   SCALE3:Scale 3

SPEC33:Selection for connection(No.3) on the A/D board

NO USE:No use   SCALE2:Scale 2

SCALE1:Scale 1   SCALE3:Scale 3

SPEC34:Selection of force balance

NO USE:No use   SCALE2:Scale 2

SCALE1:Scale 1   SCALE3:Scale 3

SPEC35:Vibration for the scale 1

    NORM:Normal   MID.:Middle

    MIN :Minimum   MAX :Maximum

SPEC36:Vibration for the scale 2

    NORM:Normal   MID.:Middle

    MIN :Minimum   MAX :Maximum

SPEC37:Vibration for the scale 3

    NORM:Normal   MID.:Middle

    MIN :Minimum   MAX :Maximum

DC-150 Keysheet

per 1000 pcs

WEIGHT   lb.   UNIT WEIGHT   QUANTITY   DC-150

ZERO | NET | 1 2 3 |RECOMP| IN | 1 2 3 4 5 6 7 8 ▽

STABLE   kg   SCALE INSUFF MEMORY   OUT 9 10 11 12 13 14 15 16 ▽

————— JOB MODULE —————

RE-ZERO   TARE   UNIT WEIGHT   PIECES

SCALE   +   −

| A PART NO. | B P.NAME | C LOCATION | D INVENT | E TH'HOLD | F SETPOINT | G SCALE | H IN | I OUT | J NON-ADD | → | MODE | 7 8 9 | CODE RETRY |

| K DAY-IN | L DAY-OUT | M NET/GROS | N ADDRESS | O | P | Q | R | S | T | AUTO/MANUAL | LOT NO. | 4 5 6 |

| U | V | W | X | Y | Z | + | − | / | SPACE lb/kg | SHIFT UP | SHIFT DOWN | 1 2 3 | * ENTER |

0   IN/OUT   CLEAR

DIGI CABLE SPECIFICATION SHEET

PART NO.   Remote Platform Cable

CABLE TYPE
NO.OF CONDUCTORS
WIRE GAUGE
NO. OF TWISTED PAIRS
SHIELD TYPE
OVERALL LENGTH   FT.

CONNECTS FROM   Remote Platform   TO   Digi Scale

CONNECTOR TYPE   J Box / Scale   CONNECTOR TYPE   14 pin amphenol
CONNECTOR PART NO   CONNECTOR PART NO   57-30140 (male)

PIN	COLOR	FUNCTION	PIN
		+ sense	pin 1
		- sense	pin 2
		+ excitation	pin 3
		- excitation	pin 4
		ground	pin 5
		+ signal	pin 6
		- signal	pin 7

```
        7  5  3  1
         6  4  2
        .......
        .......
       | | | | | | |
       14  10  8
          12

      CONNECTOR
     (WIRING SIDE)
```

NOTES:

NOTES:

DC-150 Limited Warranty

Rice Lake Weighing Systems (RLWS) warrants that all RLWS equipment and systems properly installed by a Distributor or Original Equipment Manufacturer (OEM) will operate per written specifications as confirmed by the Distributor/OEM and accepted by RLWS. All systems and components are warranted against defects in materials and workmanship for one year.

RLWS warrants that the equipment sold hereunder will conform to the current written specifications authorized by RLWS. RLWS warrants the equipment against faulty workmanship and defective materials. If any equipment fails to conform to these warranties, RLWS will, at its option, repair or replace such goods returned within the warranty period subject to the following conditions:

- Upon discovery by Buyer of such nonconformity, RLWS will be given prompt written notice with a detailed explanation of the alleged deficiencies.

- Individual electronic components returned to RLWS for warranty purposes must be packaged to prevent electrostatic discharge (ESD) damage in shipment. Packaging requirements are listed in a publication, "Protecting Your Components From Static Damage in Shipment," available from RLWS Equipment Return Department.

- Examination of such equipment by RLWS confirms that the nonconformity actually exists, and was not caused by accident, misuse, neglect, alteration, improper installation, improper repair or improper testing; RLWS shall be the sole judge of all alleged non-conformities.

- Such equipment has not been modified, altered, or changed by any person other than RLWS or its duly authorized repair agents.

- RLWS will have a reasonable time to repair or replace the defective equipment. Buyer is responsible for shipping charges both ways.

- In no event will RLWS be responsible for travel time or on-location repairs, including assembly or disassembly of equipment, nor will RLWS be liable for the cost of any repairs made by others.

THESE WARRANTIES EXCLUDE ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. NEITHER RLWS NOR DISTRIBUTOR WILL, IN ANY EVENT, BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

RLWS AND BUYER AGREE THAT RLWS'S SOLE AND EXCLUSIVE LIABILITY HEREUNDER IS LIMITED TO REPAIR OR REPLACEMENT OF SUCH GOODS. IN ACCEPTING THIS WARRANTY, THE BUYER WAIVES ANY AND ALL OTHER CLAIMS TO WARRANTY.

SHOULD THE SELLER BE OTHER THAN RLWS, THE BUYER AGREES TO LOOK ONLY TO THE SELLER FOR WARRANTY CLAIMS.

No terms, conditions, understanding, or agreements purporting to modify the terms of this warranty shall have any legal effect unless made in writing and signed by a corporate officer of RLWS and the Buyer.

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