Cardinal/DETECTO

Scale

OPERATION MANUAL

DOMINATOR™ 738

Digital Weight Display

8530-M172-O1
Operation Manual

Cardinal Scale Manufacturing Company
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REV: 10/90
Printed In USA
A1203

738 Digital Weight Display

SPEED - ACCURACY - VERSATILITY

We thank you for purchasing the 738 Digital Weight Display. This instrument has been designed and manufactured in the U.S.A. with quality and reliability.

The 738 incorporates the newest developments in technology and is designed to work in conjunction with any industrial scale, either independently or with printers or other displays. Mechanical scales work also with the 738 through simple installation of manufacturer supplied load cell.

The 738 is constructed of cast and extruded aluminum with mar-resistant color-coordinated front panel/keypad, and a heavy duty adjustable stand to permit desk, wall, or ceiling mount. Optional enclosures such as rack or panel mount and stainless steel NEMA-4 are available. The 738's display features 1/2 inch high blue vacuum fluorescent numerals and a full selection of annunciators for easy interpretation.

Front-panel controls permit weighing operations such as lb/kg conversion, pushbutton or keypad-entered tare, and when connected to a printer or other information handling systems, can provide for transmission of numeric identification (10 digits), time, date, gross, tare, net weight and consecutive transaction number. The 738 is equipped with two serial outputs to permit additional capabilities of connection to printers, remote displays, or computer; and On Demand Output for on-call transmission of data to information handling systems such as computers and process controllers.

Optional features include: Weight Storage for truck weighing operations; Analog Output for connection to process control and event recorders; Preset Weight Comparators for cut-offs in batching; Special Application Memory Board for factory specials; Rack or Panel Mount Enclosures for use in integrating weight display into control panels; NEMA-4 Stainless Steel Enclosures for hostile environments.

SERIAL NUMBER_____
DATE OF PURCHASE_____
PURCHASED FROM_____

_____

_____

RETAIN THIS INFORMATION FOR FUTURE USE

FCC COMPLIANCE STATEMENT

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

All rights reserved. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. While every precaution has been taken in the preparation of this book, we assume no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of the information contained herein.
All instructions and diagrams have been checked for accuracy and ease of application; however, success and safety in working with tools depend to a great extent upon the individual accuracy, skill, and caution. For this reason, we are not able to guarantee the result of any procedure contained herein. Nor can they assume responsibility for any damage to property or injury to persons occasioned from the procedures. Persons engaging the procedures do so entirely at their own risk.

TABLE OF CONTENTS

PRECAUTIONS

1. Before using this instrument, carefully read this manual and pay special attention to all "WARNING" symbols:

IMPORTANT

ELECTRICAL WARNING

2. Keys must be activated only by your finger. DO NOT use a sharp object.

INSTALLATION

1. UNPACK

Carefully unpack indicator noting any discrepancies in it's condition. Keep carton and packing for return shipment of instrument if necessary.

It is the responsibility of the purchaser to file all claims for any damages or loss in transit incurred, unless this responsibility has been accepted by the Seller in its

2. PLACEMENT

Place indicator on a stable, vibration-free location, either surface or wall mounted. Be certain all cords and cables are out of normal traffic. See Figs. 1 and 2 below for mounting information.

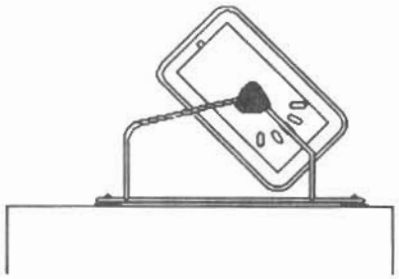


Figure 1 - Surface mount indicator on a table or shelf using rubber footpads provided. Adjust angle of indicator as desired by loosening pivot knobs.

It is the responsibility of the customer to provide adequate mounting hardware appropriate to mounting wall conditions assuring safety to both the operator and the instrument.

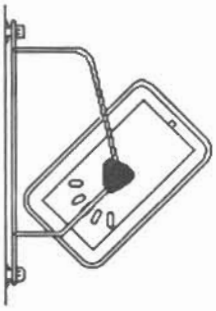


Figure 2 - Wall mount indicator by removing rubber footpads and securing to wall with adequate fasteners.

Refer to INSTALLATION PRECAUTIONS for additional information.

3. POWER SUPPLY (See Fig. 3)

Plug power cord from indicator into a fully grounded, 3-pronged wall receptacle that supplies 115 VAC power. If an extension cord must be used, it should be a 3-wire, fully grounded type.

If a 2-pronged wall receptacle is encountered, **it is the responsibility of the customer** to contact a qualified electrician to replace the 2-pronged receptacle with a properly grounded 3-pronged wall receptacle or have a grounding adapter properly installed in the 2-pronged receptacle.

CAUTION!!! - To avoid electrical hazard, DO NOT under any circumstances, cut, remove, alter, or in any way bypass the power cord grounding prong.

On Models requiring 230 VAC power, **it is the responsibility of the customer** to have a qualified electrician install the proper power cord plug which conforms to national electrical codes and local codes and ordinances.

CAUTION!!! - If it becomes necessary to replace a fuse, use only fuses of type 3AG 1/2 ASB for 115 VAC operation, and 3AG 1/4 ASB for 230 VAC operation. ALWAYS UNPLUG THE POWER CORD BEFORE CHANGING THE FUSE.

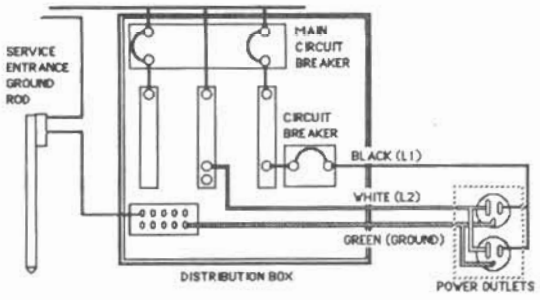
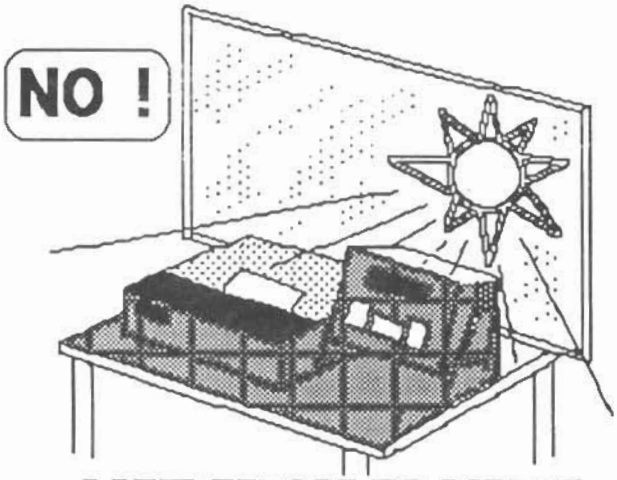
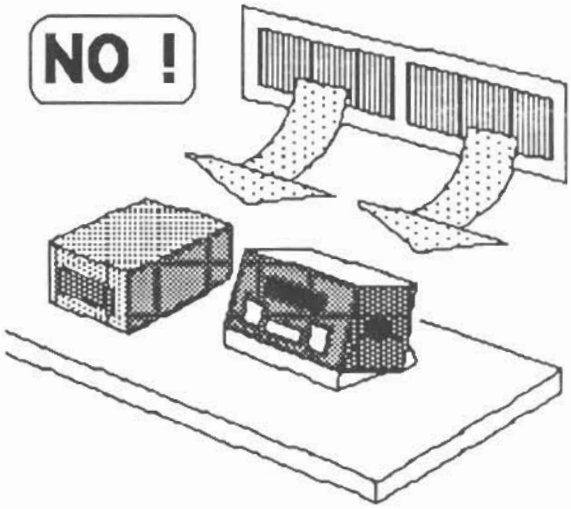


Figure 3 - Illustration of typical 115 VAC wiring from the DISTRIBUTION BOX to the power receptacles. To insure optimum performance of the instrument, make certain the power supply is clean (no other high power consuming devices on same circuit) and that voltage is nominal (measuring supply voltage and electrical resistance of the wiring if necessary).

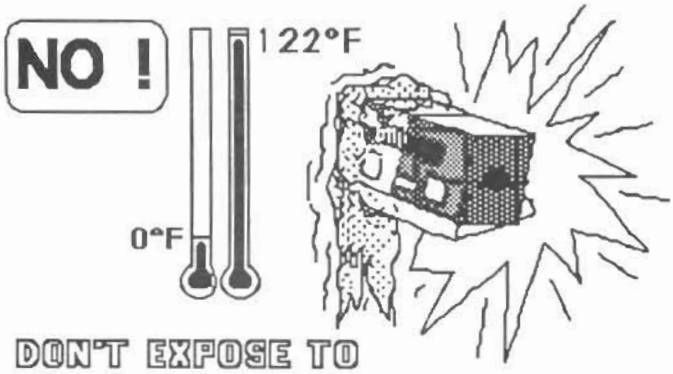
INSTALLATION PRECAUTIONS



DON'T EXPOSE TO DIRECT SUNLIGHT

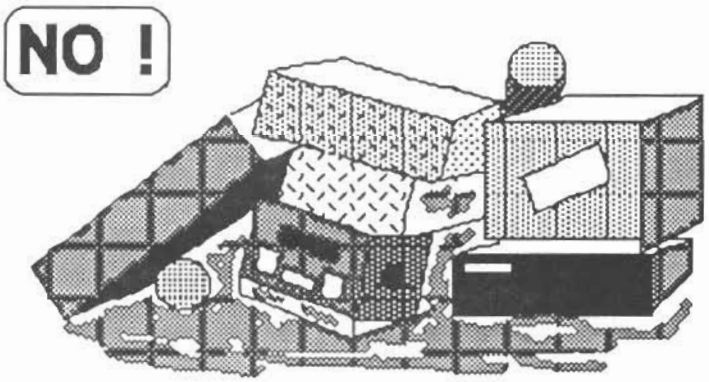


DON'T PLACE IN FRONT OF HEATING/COOLING VENTS

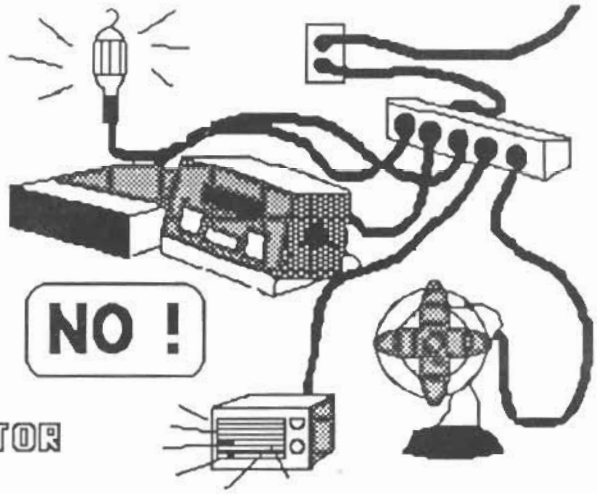


DON'T EXPOSE TO TEMPERATURE EXTREMES

PROVIDE ADEQUATE PROTECTION TO AVOID LIGHTNING DAMAGE

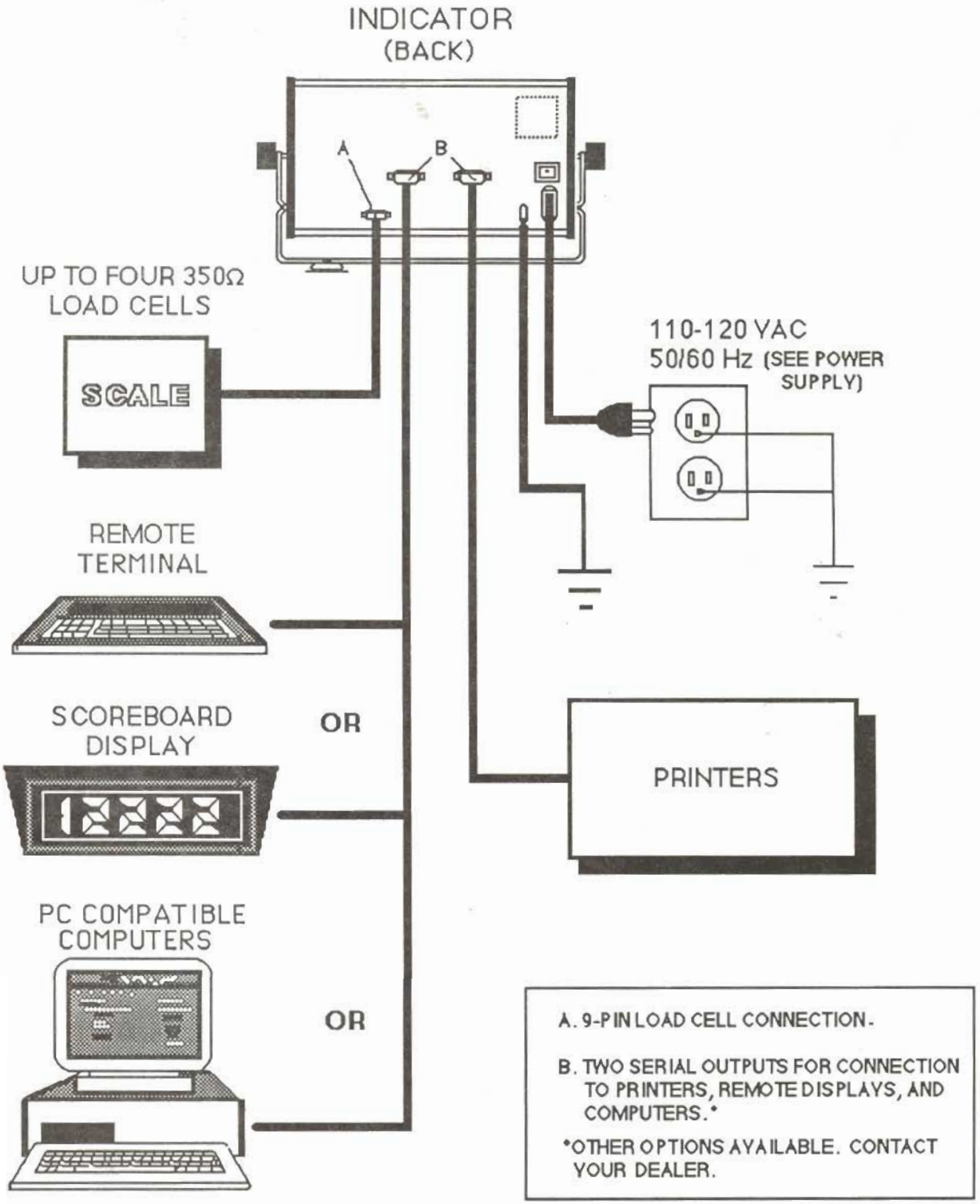


KEEP THE AREA AROUND THE INDICATOR CLEAR TO PROVIDE ADEQUATE AIR CIRCULATION



PROVIDE GOOD, SAFE GROUND AND CLEAN AC POWER

INTERCONNECTIONS

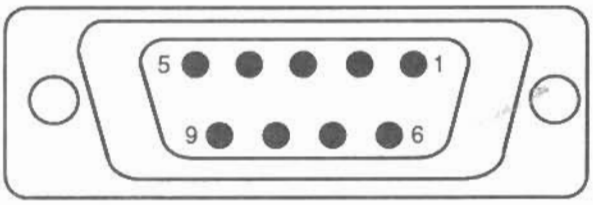


A. 9-PIN LOAD CELL CONNECTION.

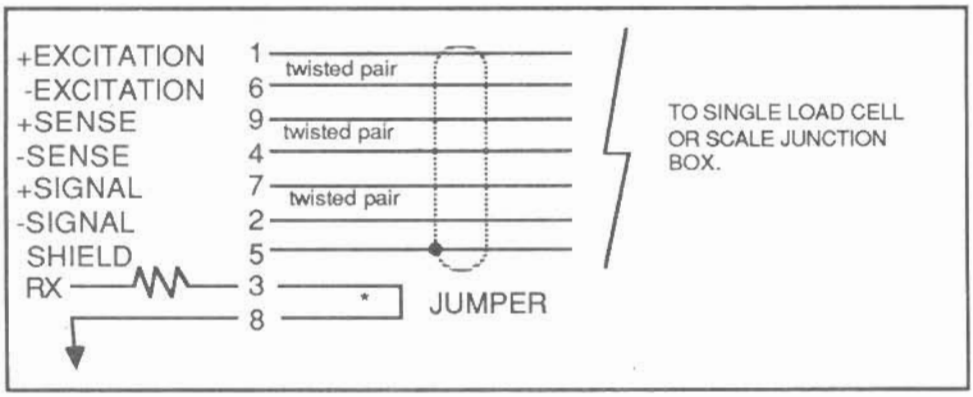
B. TWO SERIAL OUTPUTS FOR CONNECTION TO PRINTERS, REMOTE DISPLAYS, AND COMPUTERS.*

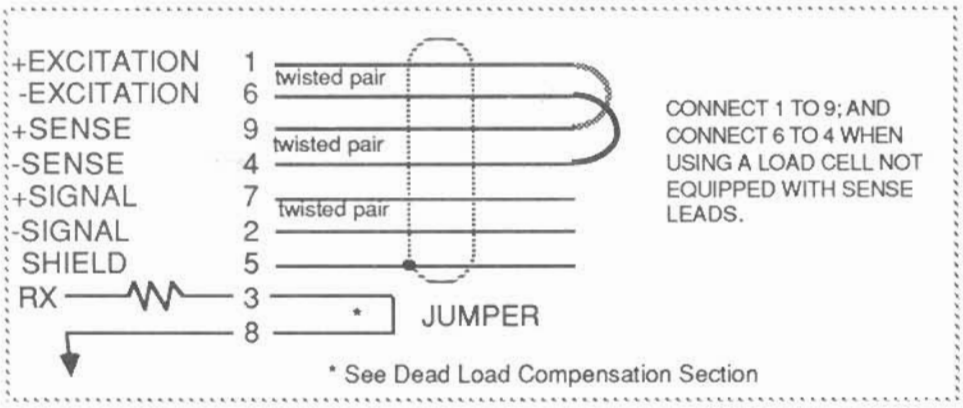
*OTHER OPTIONS AVAILABLE. CONTACT YOUR DEALER.

LOAD CELL CONNECTION WIRING DIAGRAM (Standard enclosure only)



PIN LOCATION AS VIEWED FROM CABLE ATTACHMENT SIDE.





Green Blk.

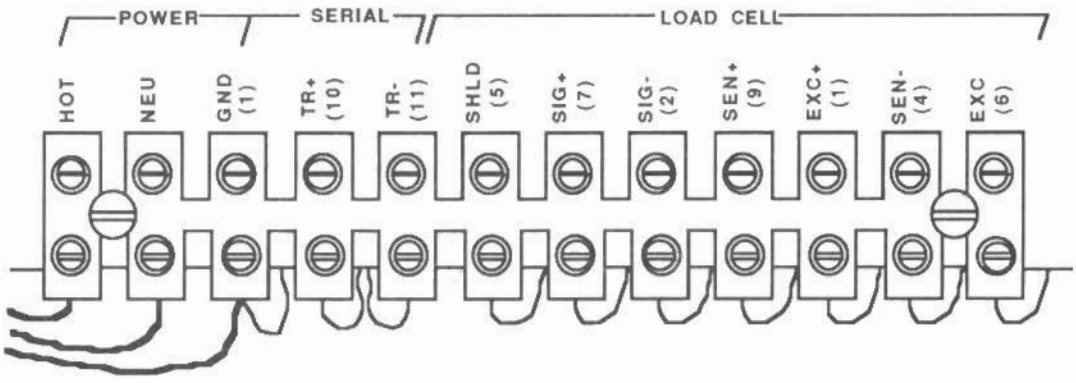
Red. w/ Yr

MATING CONNECTOR:

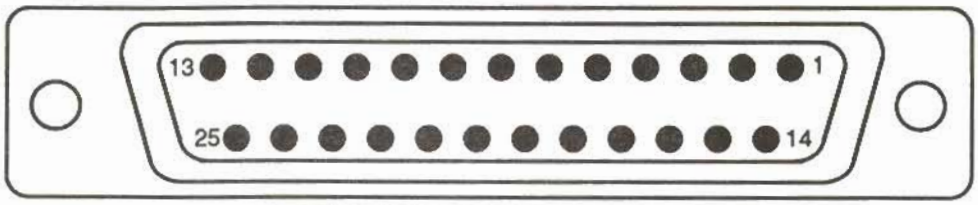
PART No.	***VENDOR PART No.***
6610-2379	DE-9P CONNECTOR
6610-2378	DE-24657 SHELL
6610-2377	D-20419 SCREW LOCK (2)

LOAD CELL and SERIAL OUTPUT CONNECTION WIRING DIAGRAM

(Stainless Steel Enclosure Only)



DATA OUTPUT CABLE CONNECTOR WIRING DIAGRAMS



PIN LOCATION AS VIEWED FROM CABLE ATTACHMENT SIDE.

STANDARD "PRINTER" OR SERIAL
PORT #1 CONNECTOR
RS-232C PIN DEFINITIONS

$\overline{TXD}$	2	→
$\overline{RXD}$	3	←
SIG GND	7	⏚

SERIAL PORT #2 CONNECTOR
RS-232C PIN DEFINITIONS*

$\overline{TXD}$	2	→
$\overline{RXD}$*	3	←
SIG GND	7	⏚
DTR	2Ø	→
RTS	4	→
DCD*	8	←
DSR*	6	←
CTS*	5	←
+5V*	16	

* Input lines that are not used must be connected to +5V pin 16.

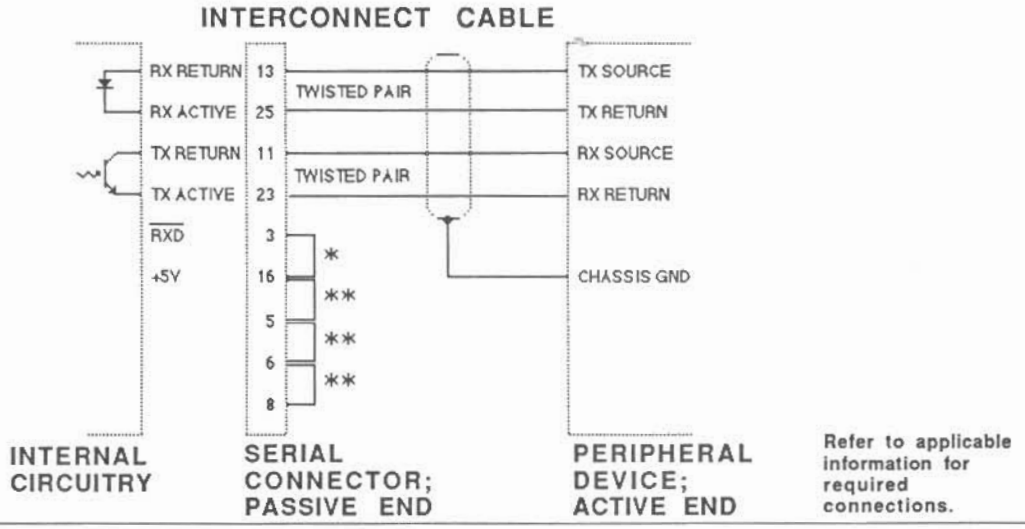
MATING CONNECTOR:

PART No. VENDOR PART No.

6610-2047 DB-25P CONNECTOR
6610-2218 206478-3 SHELL
6610-2377 D-20419 SCREW LOCK (2)

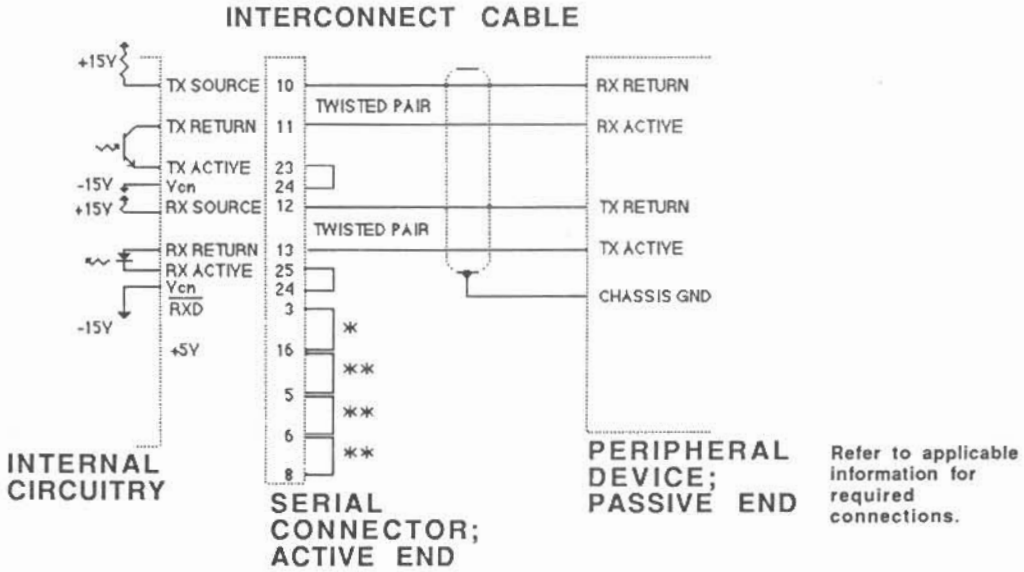
CONNECTION DIAGRAM for 20mA CURRENT LOOP OPERATION

Peripheral Device has ***ACTIVE END*** of Current Loop. **(Standard enclosure only.)**



CONNECTION DIAGRAM for 20mA CURRENT LOOP OPERATION

Peripheral Device has ***PASSIVE END*** of Current Loop. **(Standard enclosure only.)**

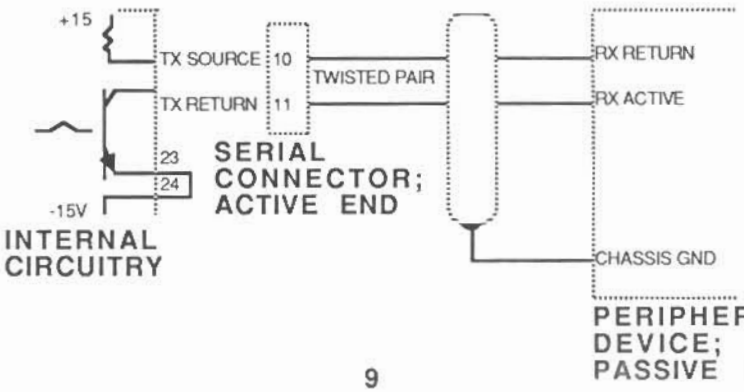


*** Delete connection if peripheral TX is not connected and active with Indicator RX.**

**** Connections required on Serial Port #2 connector only.**

CONNECTION DIAGRAM for 20mA CURRENT LOOP OPERATION

Peripheral Device has ***PASSIVE END*** of Current Loop **(Stainless Steel enclosure only)**



CALIBRATION & SET-UP PROCEDURES

Indicators are factory calibrated during inspection, but must be re-calibrated for use with each customer's specific applications. Before proceeding with calibration, your scale must meet the minimum dead load requirements of this instrument (.75 MV input with zero weight on the scale). If it does not, refer to the Dead Load Compensation Section of this manual.

1. With **POWER OFF** and right panel (as viewed from indicator front) removed as outlined in DISASSEMBLY PROCEDURES, page 25; refer to Figure 1 and place switch in the calibration position (Detail C), then **POWER UP** the indicator.

Note: On earlier models without switch, J2 is operate position and J3 is calibrate position.

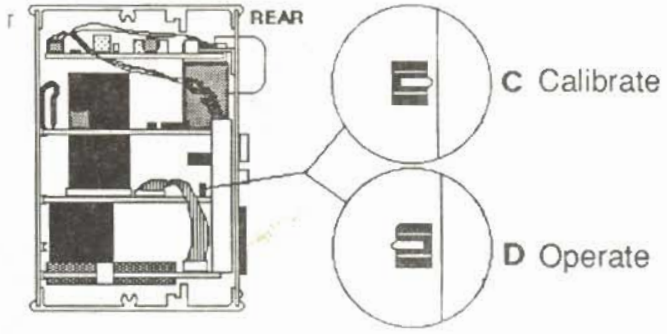


Figure 1 - Right-end view of Indicator showing detail of calibration switch positions.

NOTE: On each of the following displays, press the ENTER key alone if the displayed value is acceptable.

2. Indicator will go through a brief display test sequence then display:
'CAP=' CAPACITY

A. 'XXXXXX' blanks if instrument has never been calibrated or 'XXXXXX' will display current scale capacity. (Capacity Max. 950,000)

B. Key in up to 6 digit scale capacity value then press **ENTER** key.

3. Display shows: 'din=' DIVISION VALUE

A. 'XXXXXX' are blanks if instrument has never been calibrated or 'XXXXXX' will display current scale division value.

B. Allowable division values are 1 through 9 with trailing (3 Max.) zeros and decimal point in any desired position.
EX: .001, .2, 1, 7, 20, etc.

C. Key in up to 6 digit division value then press **ENTER** key.

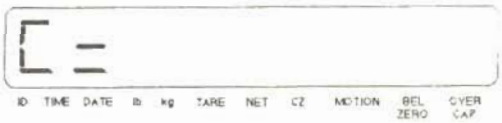
4. Display shows: 'unitS=' WEIGHT UNITS

A. 'X'=1,2,3,4, or 5.

1= LB ONLY
2= KG ONLY
3= LB/KG (Power up in LB. Is switchable to KG via **LB/KG** key.)
4= KG/LB (Power up in KG. Is switchable to LB via **LB/KG** key).
5= TONS ONLY. (Apply keypad overlay).

B. Key in desired unit and press **ENTER** key.

5. Display shows: 'C=' CALIBRATION No.



A. To calibrate without test weights, enter the 'C' (calibration) number from the previous calibration (See step 17). This number should be recorded onto a label attached to the indicator. Press ENTER key and proceed to step 7.

B. To calibrate using test weights, or to bypass Calibration altogether, press **ENTER** key and proceed to Step 6

6. Display shows: 'LoAd'

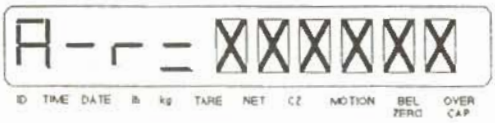
A. Place known accurate test weight on scale, key-in the equivalent weight up to 6 digits and press the **ENTER** key; or press **ENTER** key alone to bypass calibration and proceed to Step 8.

7. Display shows: 'unLoAd'

NOTE: If the display shows "HELP A", see Appendix A, Dead Load Compensation Section.

A. Remove weight, then press **ENTER** key.

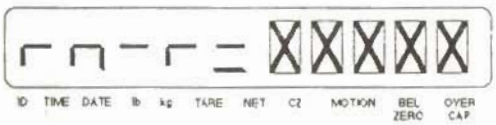
8. Display shows: 'A-r=' AUTO-ZERO RANGE



A. Key-in Auto-Zero Range in number of divisions:
- Bench, counter, livestock 0.6
- Axle, vehicle, railway 3.0
- All other scales 1.0
- Non-Commercial ..... User Specify

B. *Then press* **ENTER** key.

9. Display shows: 'm-r=' MOTION RANGE



A. Key-in desired Motion Range in number of divisions:
- Axle, vehicle, railway, livestock 3.0
- All other scales 1.0
- Non-Commercial .....User Specify

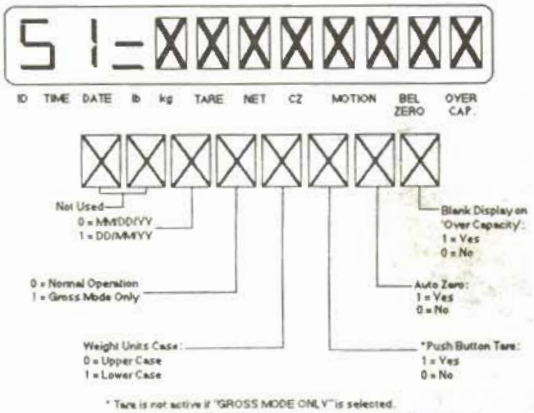
B. Then press **ENTER** key.

10. Display shows: 'S rAtE=' SAMPLE RATE

A. Key-in Sample Rate from 0.5 to 10 samples per second, then press **ENTER** key.

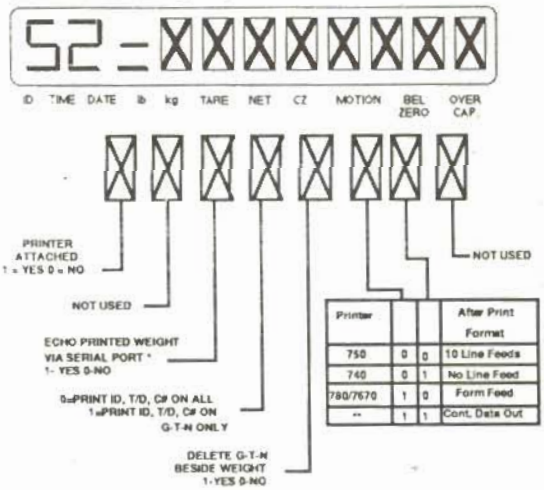
- Recommended Fill Control 10
- Recommended Static Weighing 2

11. Display shows: 'S 1 =' SETTING 1



A. Key-in desired settings, then press **ENTER** key.
B. Date now can display or printed in standard (MM/DD/YY) or European (DD/MM/YY).
C. Tare mode is disabled so that the 738 operates only in gross mode.

12. Display shows: 'S2=' SETTING 2
PRINTER PORT

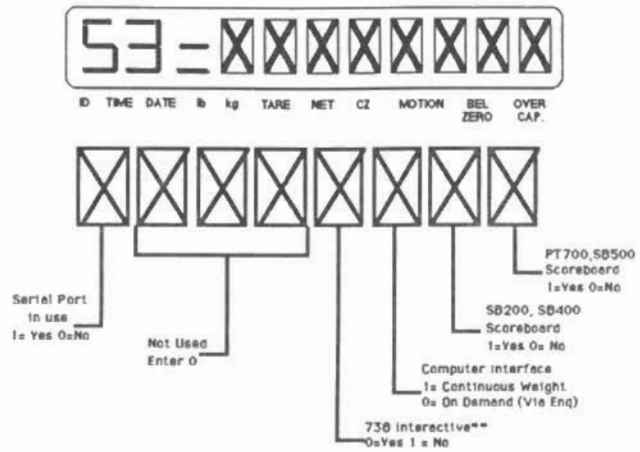


A. Key-in desired settings, then press **ENTER** key.

*If setting is '1', the weight transmitted to the device attached to the serial port is the last weight printed on the device attached to the printer port (does not apply to continuous data output). This setting is used in livestock scale applications.

**If continuous data output is selected, time/date, ID, Consec. No. keys DO NOT APPLY.

13. Display shows: 'S3=' SETTING 3
SERIAL PORT NO. 1



**If '0' - signal device may operate the indicator via serial data and may use the indicator display. Keyboard data will also be transmitted.
If '1' - no interaction is allowed (except for ENQ on COMPUTER INTERFACE/ON DEMAND applications).

A. Key-in desired settings, then press the **ENTER** key.

14. Display shows: 'b rAte =' BAUD RATE

A. If Serial or Printer port is used, set desired baud rate listed below:

'X' = **1** - 4800
2 - 2400
3 - **1200** (Standard Peripheral setting)
4 - 600
5 - 300
6 - 150
7 - 75

B. After desired baud rate is set, press the **ENTER** key.

15. Display shows: 'FiLtEr =' FILTER

'X'= 1 to 99*

A. Key-in desired setting, then press the **ENTER** key.

*The number 1 to 99 represents the number of consecutive weigh samples during which the weight deviation cannot exceed the motion range setting. Filter should be set to 1 for all applications except those with high motion characteristics (such as a livestock scale). For livestock scale the following settings are recommended : MOTION RANGE=2, SAMPLE RATE=2, FILTER=4.

PRINTER USE:

If a printer is connected to the indicator, the following series of 'TAB' displays are for setting the Line Printed On (LL) and the Position On The Line (PP) for Time, Date, ID, Consecutive Transaction Number, and Gross, Tare, Net labeling of weight. Refer to Figure 2 below showing relative (LL) and (PP) dimensions for various printers; to Table 'A' showing available printed Characters per inch for various printers; and to information in the appropriate Operator's manuals for various printers being used.

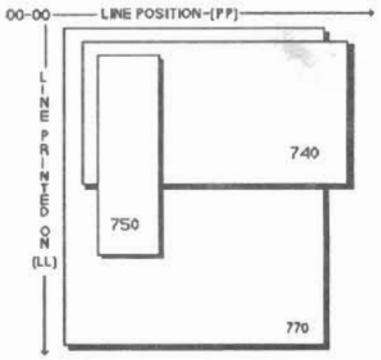


Figure 2 - Diagram showing relative Line (LL) and Position (PP) dimensions for various printer formats with upper left 'TAB' starting at 00-00.†

Char/inch	740/750 (max.tab)*
12.4	40
770 Char/inch	8-1/2" x11" (max. tab)*
10	80
12.4	90
17	99

TABLE 'A'

† The position on the line has a maximum value that will vary according to the print format and character size selected.
*Maximum 'TAB' settings indicate the extreme right hand margin reached by the printer.

16. If printer is connected - Display shows: 'tAbS t =' (Time)

A. Set 'LL' then press **ENTER** key.
B. Set 'PP' then press **ENTER** key.

Display then shows: 'tAbS d =' (Date)

A. Set 'LL' then press **ENTER** key.
B. Set 'PP' then press **ENTER** key.

Display then shows: 'tAbS id =' (ID)

A. Set 'LL' then press **ENTER** key.
B. Set 'PP' then press **ENTER** key.

Display then shows: 'tAbS Cn =' (Consecutive transaction number)

A. Set 'LL' then press **ENTER** key.
B. Set 'PP' then press **ENTER** key.

Display then shows: 'tAbS G =' (Gross)

A. Set 'LL' then press **ENTER** key.
B. Set 'PP' then press **ENTER** key.

Display then shows: 'tAbS tA =' (Tare)

A. Set 'LL' then press **ENTER** key.
B. Set 'PP' then press **ENTER** key.

Display then shows: 'tAbS n =' (Net)

A. Set 'LL' then press **ENTER** key.
B. Set 'PP' then press **ENTER** key.

Additional 'TABS' may be requested at this point if a special option is installed that produces additional print fields.

Display then shows: 'Print ?'

A. Press **ENTER** key. Printer will run test print showing data locations.

Display then shows: 'Again ?'

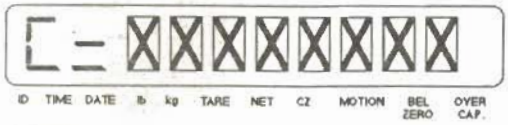
A. Enter **0** for **NO**-display goes to Step 17.

B. Enter **1** for **YES**-display goes back to beginning of Step 16.

C IPE50 Gdd
53 4 P1
5-8.90

Additional set-up information may be requested at this point if the PWC/FILL CONTROL OPTION, TRUCK STORAGE MEMORY BOARD OPTION, or other special options are installed.

17. Display shows: 'C=XXXXXXXX'



A. 'XXXXXXXX' = Calibration number to be saved and used for indicator calibration outlined in Step 5. NOTE: 'XXXXXXXX' may be any sequence or combination containing 8 of the following 16 characters:

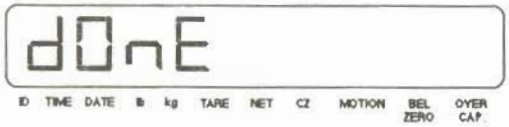
0-9 =Numbers 0 through 9

G =Gross n = Net d =Date

t =Tare P =Print ■ =(decimal)

B. After recording 'C' number, press ENTER key.

18. Display will then show: 'DonE'



19. With power **ON**, refer to Figure 1 in Step 1, place switch in the operate position (D), POWER DOWN, then POWER UP indicator. Check calibration with a known weight. If OK, reassemble indicator. The Indicator is ready for use. If not OK, proceed to Step 20.

20. FINE SPAN ADJUSTMENT

After calibration and set-up procedure is complete and a known weight is on the scale, any small error displayed plus or minus the known weight may be corrected as follows:

A. With indicator POWER ON and displaying weight, move switch to the calibrate position (See Step 1). An upper case 'C' will appear in the right most position of the display. This disables all keys except **0, 1, and ZERO.**

B. Press '1' to increase displayed weight 1 grad per press; press '0' to decrease displayed weight 1 grad per press. Press **ZERO** to zero scale.

C. After making the correction to the displayed weight, remove the test weight from the scale deck. If zero has shifted and one or more divisions are displayed, zero the scale by pressing the **ZERO** key. Place the test weight back on the scale. If the displayed weight is still incorrect by one or more divisions, press the '1' or '0' key to change the displayed weight until it is correct.

D. Perform the previous operation (Step C) until the span adjustment is correct and the scale returns to a solid zero when the test weight is removed.

E. When the span adjustment is complete, move the switch back to operate position and reassemble indicator. Display will show new 'C' number (Step 17). Record new 'C' number.

F. Press **ENTER** key.

G. Indicator is ready for use.

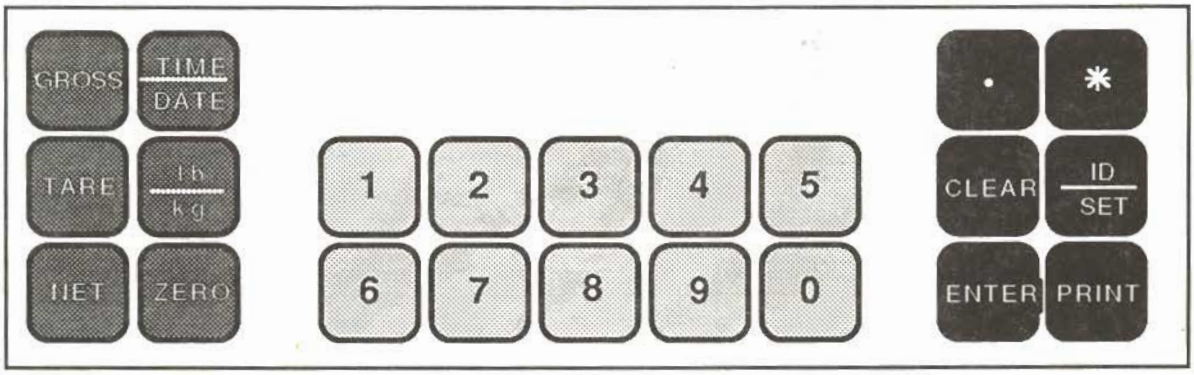
21. SETUP AND CALIBRATION REVIEW

The setup and calibration review allows you to inspect the setup and calibration parameters without removing the calibration jumper inside the indicator. To invoke this feature:

(1) Hold down the '*' key and turn ON the indicator simultaneously; when the introduction message appears, release the '*' key. After the introduction, the indicator will be in the review mode. It will go through the same sequence as setup and calibration described in the 738 operation manual; however, the only valid key is ENTER. To look at the next parameter, press the ENTER key.

(2) After the review is complete, the message DONE will be displayed. Turn the indicator OFF, then back ON.

KEYPAD FUNCTIONS



GROSS Press the GROSS key to display total weight on the scale or to exit a tare or net mode.

TARE Press TARE to view , enter, or acquire the weight of a container. Tare indicator will illuminate.

NET Pressing the NET key will display net weight (gross weight minus tare weight, if any). Net indicator will illuminate.

TIME/DATE Pressing TIME/DATE key will allow entry of hours-minutes (4 digits) followed by entry of day-month-year (6 digits) followed by consecutive transaction number entry. After last entry, indicator will return to weight display. TIME/DATE key applies only to print option. See notes.

NOTES:

1. When entering TIME/DATE, enter numbers <10 as 01, 02, etc. Enter time in 24 hour increments (militarytime).
2. Entry of TIME/DATE, CONSECUTIVE NO., OR ID number will replace a previously entered number, or previous number may be erased by pressing CLEAR then ENTER.
3. If TIME/DATE, CONSECUTIVE NO., OR ID number is not entered or only zeros are present in display, printout will exclude said items.
4. When indicator is powered down, TIME/DATE must be re-entered upon next start-up.

lb/kg lb/kg key is pressed to convert pounds to kilograms and conversely. Appropriate mode indicator will illuminate.

ZERO ZERO key is pressed to re-establish true zero of scale in gross mode if variance (±) from zero is less than 4% of scale capacity. CZ (Center of Zero) indicator will illuminate only at true zero.

• (DECIMAL) The DECIMAL key is used to enter a decimal point where needed.

CLEAR Press the CLEAR key to erase an entry.

ENTER Press ENTER key after a numerical entry or to enter a CLEAR command.

*** (TOTALS)** Press * key to display and print accumulation of net weights. †

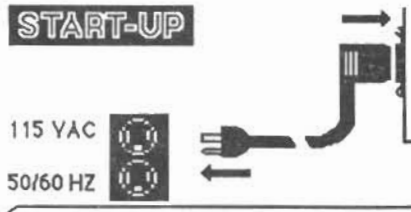
ID/SET Press ID/SET to enter a 10 digit identification number. ID applies only to print option.†

PRINT Press PRINT to initiate a printout of weight, time/date, consecutive number, and ID number on optional printer.

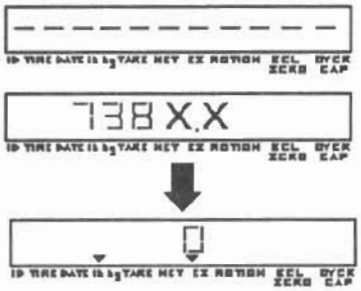
† Also special function key for truck storage memory board option functions.

OPERATION PROCEDURE

START-UP



NUMBER REPRESENTED BY X.X INDICATES THE VERSION OF SOFTWARE INSTALLED IN THE INDICATOR.

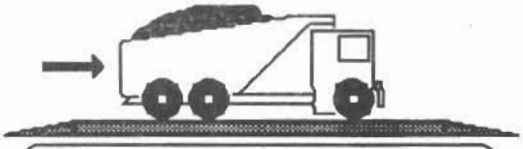


CONNECT POWER CORD TO SOCKET ON REAR OF INDICATOR AND INTO 115 VAC POWER RECEPTACLE.

SCALE IS READY WHEN DISPLAY SHOWS ZERO AND LB AND CZ INDICATORS ARE ILLUMINATED.

IF LAMP TEST IS DESIRED, HOLD THE ENTER KEY DOWN AND TURN THE INDICATOR ON SIMULTANEOUSLY; IT WILL PROCEED WITH THE LAMP TEST SEQUENCE. AT COMPLETION OF TEST, THE INTRODUCTION MESSAGE WILL APPEAR MOMENTARILY.

GROSS WT. OPERATION

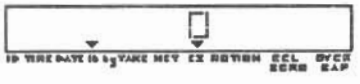


WEIGHT IS PLACED ON SCALE

INDICATOR WILL DISPLAY GROSS WEIGHT

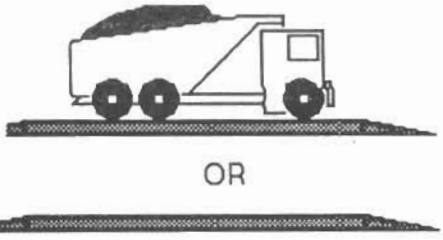
REMOVE WEIGHT FROM SCALE

INDICATOR WILL RETURN TO ZERO. SCALE IS READY FOR NEXT USE.



POUND/KILOGRAM CONVERSION

WITH SCALE LOADED OR UNLOADED



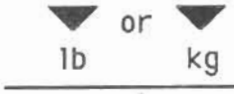
OR

PRESS lb/kg key

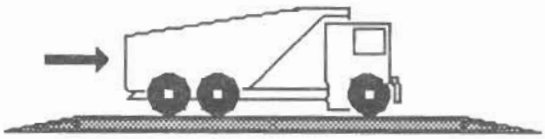
INDICATOR WILL CONVERT LBS TO KGS OR KGS TO LBS

OR

APPROPRIATE INDICATOR WILL ILLUMINATE



PUSHBUTTON TARE OPERATION



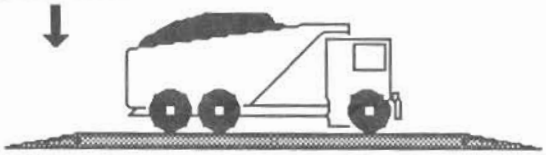
PLACE EMPTY CONTAINER ON SCALE

PRESS TARE KEY*

DISPLAY WILL SHOW PREVIOUS TARE WEIGHT (IF ANY)

PRESS ENTER KEY

DISPLAY WILL SHOW ZERO AND INDICATE NET MODE.



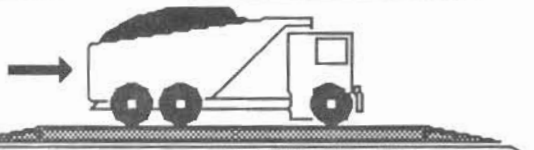
PLACE CONTAINER WITH COMMODITY ON SCALE.

DISPLAY WILL SHOW NET WEIGHT

REMOVE CONTAINER AND COMMODITY.

REPEAT OPERATION OR PRESS GROSS KEY

KEYPAD OR KNOWN TARE OPERATION



PLACE CONTAINER (KNOWN WEIGHT) AND COMMODITY ON SCALE.

INDICATOR WILL DISPLAY GROSS WEIGHT

PRESS TARE KEY*

DISPLAY WILL SHOW PREVIOUS TARE WEIGHT (IF ANY)

KEY IN KNOWN TARE (CONTAINER) WEIGHT

PRESS ENTER KEY

DISPLAY WILL SHOW NET WEIGHT AND INDICATE NET MODE

REMOVE CONTAINER AND COMMODITY.

REPEAT OPERATION OR PRESS GROSS KEY

*Note - If **PUSHBUTTTON TARE** is selected at CALIBRATION - STEP 11 (S1-SETTING), pressing TARE key saves gross weight as tare weight and sets scale mode to NET.

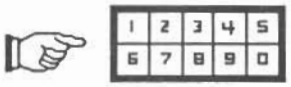
TIME / DATE / CONSEC. TRANSACTION NO. - ID / SET OPERATION

TIME/DATE SHOULD BE ENTERED UPON POWER-UP OF SCALE AS FOLLOWS:

PRESS TIME/DATE KEY

DISPLAY SHOWS PREVIOUS TIME/ DATE OR ZEROS AS SHOWN

KEY IN TIME, HH-MM



PRESS ENTER KEY

KEY IN DATE, MM-DD-YY

PRESS ENTER KEY

KEY IN CONSEC. TRANSACTION NO. UP TO 6 DIGITS.

PRESS ENTER KEY, INDICATOR WILL RETURN TO WEIGHT DISPLAY

ENTER ID NUMBER AS FOLLOWS:

PRESS ID/SET KEY

DISPLAY WILL SHOW PREVIOUS ID NUMBER OR BLANK AS SHOWN

KEY IN ID NO. UP TO 10 DIGITS

PRESS ENTER KEY, INDICATOR WILL RETURN TO WEIGHT DISPLAY.

PRINT / WEIGHT STORAGE MODES

1. PRESS GROSS PRINT *

= TIME, DATE, ID, # } IF ENTERED AND ENABLED (See Step 12 in CALIBRATION)
GROSS WT. } current scale wt.

2. PRESS  TARE PRINT *

= TIME, DATE, ID, # } IF ENTERED AND ENABLED (See Step 12 in CALIBRATION)
TARE WT. } current tare wt.

3. PRESS  NET PRINT *

* Not necessary to press if already in desired mode.

= TIME, DATE, ID, # } IF ENTERED AND ENABLED (See Step 12 in CALIBRATION)
NET WT. } current net wt.

4. PRESS  * GROSS PRINT †

Also see 15.

PRINTS/CLEARS PREVIOUSLY STORED GROSS, OTHERWISE PRINTS/STORES CURRENT SCALE WEIGHT

= TIME, DATE, ID, # } IF ENTERED AND ENABLED (See Step 12 in CALIBRATION)
GROSS WT. (M / K) } stored gross

5. PRESS  * TARE PRINT †

Also see 17.

PRINTS/CLEARS PREVIOUSLY STORED TARE, OTHERWISE PRINTS/STORES CURRENT SCALE WEIGHT

= TIME, DATE, ID, #
TARE WT. (M / K) } stored tare

M= Memory
K= Keyed In

† Scale weight will not print or be stored until motion on scale ceases. While motion is present, an intermittent "beep" will sound indicating the command is pending loss of motion. After a PRINT operation the ID contents are set to blanks (ID is lost).

OPERATION, Cont.

PRINT/WEIGHT STORAGE MODES cont.

6. PRESS  † = TIME, DATE, ID, # — ALWAYS PRINTS IF ENTERED. Cannot be disabled if via S2 (Step 12 in Calibration)

Allowed only if gross or tare weight has previously been stored.

GROSS WT. (M/K), TARE WT. (M/K) — scale gross or stored

NET WT. — computed

7. PRESS  † = STORES CURRENT SCALE WT. AS GROSS.

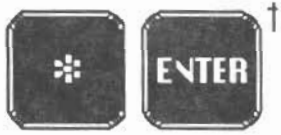
Also see 14.

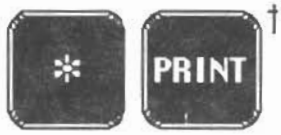
8. PRESS  † = STORES CURRENT SCALE WT. AS TARE.

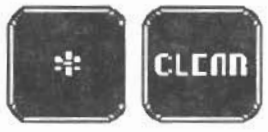
Also see 16.

9. PRESS  = CLEARS STORED GROSS

10. PRESS  = CLEARS STORED TARE

11. PRESS  †† = DISPLAYS TOTAL NET ACCUMULATED (Display is eliminated when any key is pressed)

12. PRESS  †† = PRINTS TOTAL NET

13. PRESS  = CLEARS TOTAL NET

†Scale weight will not print or be stored until motion on scale ceases. While motion is present, an intermittent "beep" will sound indicating the command is pending loss of motion. After a PRINT operation the ID contents are set to blanks (ID is lost).

††Accumulator contains the accumulated net weights printed by either Step 3 or Step 6.

PRINT/WEIGHT STORAGE MODES cont.

14. PRESS 

= STORE KEYED GROSS WT.

15. PRESS 

= STORE/PRINT KEYED GROSS WT.

16. PRESS 

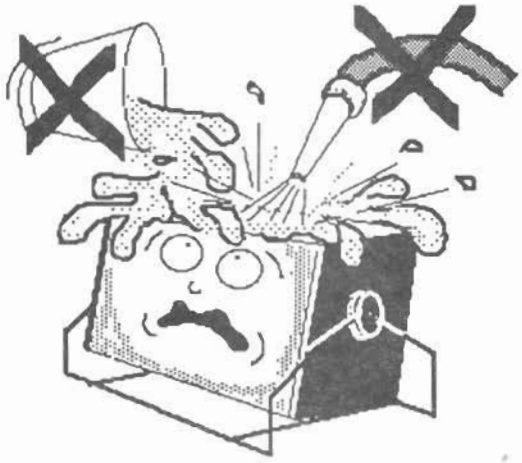
= STORE KEYED TARE WT.

17. PRESS 

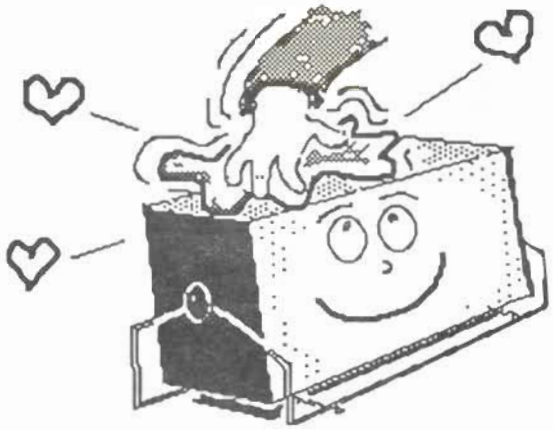
= STORE/PRINT KEYED TARE WT.

CARE & CLEANING

DO NOT SUBMERGE INDICATOR IN WATER, POUR OR SPRAY WATER DIRECTLY ON INSTRUMENT.

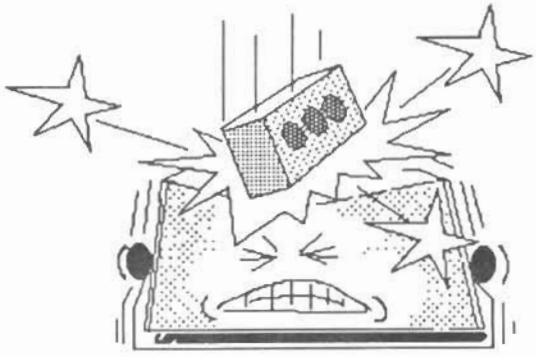


CLEAN INDICATOR FRONT PANEL AND CHASSIS WITH A DAMP SOFT CLOTH AND MILD DETERGENT. DO NOT USE ABRASIVES.

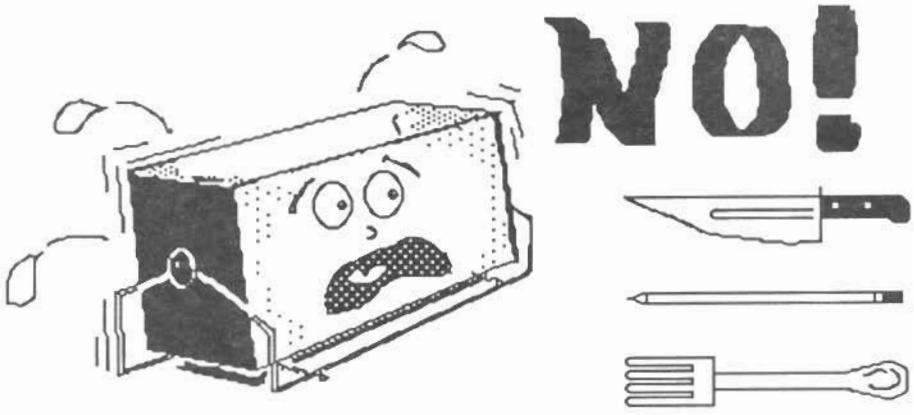


DO NOT USE ACETONE, THINNER OR OTHER VOLATILE SOLVENTS FOR CLEANING.

DO NOT SUBJECT THE INDICATOR TO HEAVY SHOCK OR IMPACT.



DO NOT USE SHARP TOOLS OR UTENSILS TO DEPRESS KEYS.

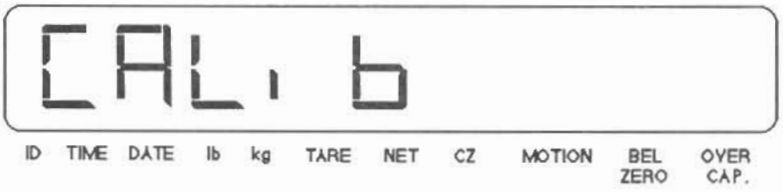


ERROR AND FAIL MESSAGES

This Indicator incorporates built-in error and failure messages appearing in the digital display. The following illustrations represent messages that will appear in the event of a problem.

This message indicates a defective electrical indicator or scale component requiring technical service.

This message indicates overload capacity has been exceeded if the "over capacity" blanking switch in calibration, Step 11 has been set to '1'.



This message indicates calibration is required.

Before you call for Service...

Customer satisfaction is our prime objective. If, however, any problems occur in connection with the operation of this Indicator, please check the following points before calling for service:

1. Is the power cord fully inserted into the wall receptacle and Indicator?
2. Check the Indicator fuse.
3. Is the wall receptacle receiving proper AC power?
4. Check the AC power supply circuit breaker?
5. Has there been a power failure of any kind?
6. Are the data cables and load cell cables properly connected?
7. Have the proper calibration and set-up adjustments been made?
8. Has the proper operation procedure been followed?

If you have any problems, DO NOT TRY TO REPAIR THIS INSTRUMENT YOURSELF! Unplug the power cord and contact your dealer.

APPENDIX A

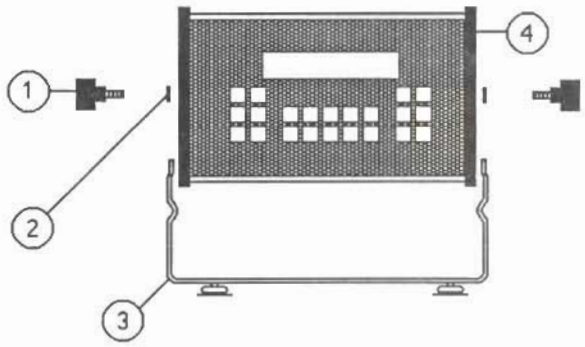
DISASSEMBLY PROCEDURES

The following procedures are designed to instruct persons through preparation of this indicator for calibration and set-up procedures. When calibrating, disassembly up to Step 2 only is required. The balance of the assembly should not be attempted by untrained personnel. It is presented for authorized personnel only. Any attempt to disassemble this unit by untrained or unauthorized personnel may result in electrical hazards or damage to the unit.

To avoid electrical shock, disconnect power before disassembly.

STEP 1 -

With power disconnected, refer to Figure 1. Unscrew and remove both pivot knobs (1). Slide indicator (4) out of gimbal stand (3). Make certain not to lose spacers (2).



STEP 2 -

Refer to Figure 2. As viewed from the rear, remove the two screws (5) from the left end panel. **For calibration only, remove the left end panel**. For complete disassembly, remove both end panels, then remove the six screws (6) securing the back panel to the indicator chassis.

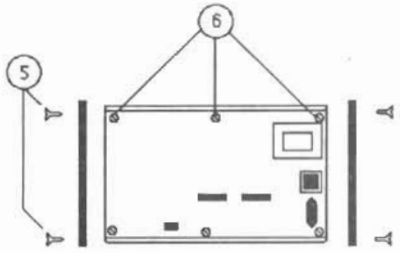


Figure 2 - Rear view of indicator chassis showing removal of end panels and back panel retaining screws.

STEP 3 -

Refer to Figure 3. Disconnect keypad connector P3 (7) before sliding rear panel assembly out right side (as viewed from rear) of chassis.

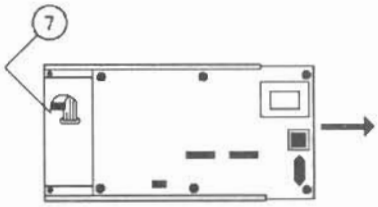


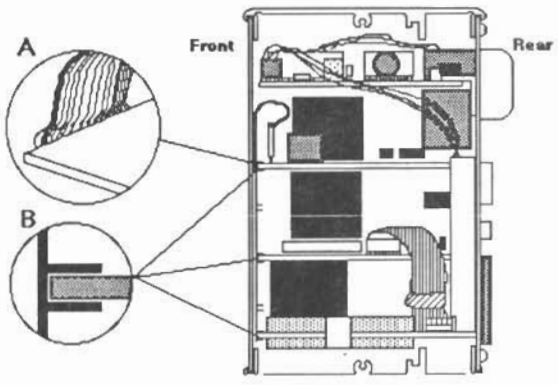
Figure 3 - Rear view of indicator chassis showing rear panel assembly removal.

STEP 4 -

Refer to Figure 4. Reassemble indicator chassis by reversing disassembly procedure. Slide rear panel/PC board assembly in from the right side (as viewed from rear) making certain PC boards engage slots shown in detail (B).

Be careful not to damage the keypad connector strip when sliding the PC board past it as shown in detail (A).

Balance of reassembly is reverse of disassembly procedure.



ANALOG FILTER MODIFICATIONS
(VIBRATION DAMPING)

Damping and Typical Application	Response Time *	COMPONENT LOCATION ON ANALOG BOARD C14	C13	C16
LOW BATCH & LOAD OUT SYSTEMS	FAST .25-.50 SEC.	.22µ P/N 6550-0046	.33µ P/N 6550-1082	.047µ P/N 6550-1074
LOW / MEDIUM	FAST/MED .5-1 SEC.	.68µ P/N 6550-1083	1.0µ P/N 6550-1050	.15µ P/N 6550-1073
MEDIUM (standard setting)	MED 1.5-2.5 SEC.	1.5µ P/N 6550-0053	2.2µ P/N 6550-1084	.47µ P/N 6550-0993
MEDIUM/HIGH	MED/SLOW 3-4 SEC.	2.2µ P/N 6550-1084	3.3µ P/N 6550-1085	1.0µ P/N 6550-1050
HIGH CATTLE WEIGHING- EXTREME VIBRATION OF LOADS OR SCALE	SLOW 5-6 SEC.	6.0µ P/N 6550-1086	8.0µ P/N 6550-1071	1.0µ P/N 6550-1050

* Response time is the time required to display a weight reading of 99% accuracy after applying a steady state load.

1. Capacitor values in microfarads.
2. Capacitors must be installed in sets to prevent oscillation.
3. Replacement capacitors must be the same type, leakage from other types will cause drift.
4. This procedure requires de-soldering and soldering and should not be attempted by inexperienced personnel.

Analog Board Assembly
P/N 8530-D014-0A

DATA FORMAT:

1 Start bit, 7 Data bits, Space Parity, 2 Stop bits on Transmit,
1 or 2 Stop bits on Receive.

RECORD FORMATS:

COMPUTER INTERFACE:

SWWWWWWbUUbMbCCb (C/R)

C/R = Carriage return (OD HEX)
S = Space (positive) or - (negative)
W = Weight
Leading Zero suppressed
Embedded decimal point (if any)
b = space
UU = Weight units (lb, kg, tn.)
M = Mode: G=gross, N=net, T=tare.
CC = MO = Motion
CZ = Center of zero*
OC = Over capacity*
BZ = Below zero*

**Reflects state of scale gross weight only.*

SCOREBOARD:

(C/R) SWWWWWW.CbUUbMbb(etx)

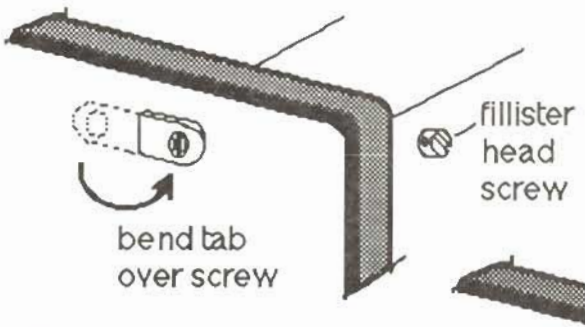
- Trails W's if not embedded.

C= **C** = Over capacity
C=M = Motion
(etx) = Ø3HEX

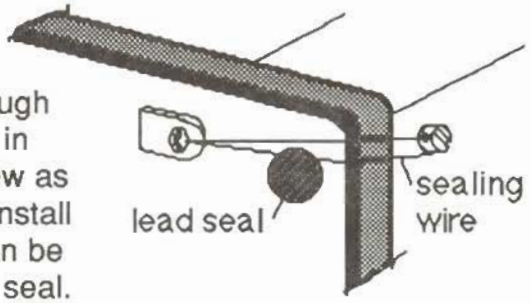
See COMPUTER INTERFACE FORMAT DEFINITION
All alphabetic characters are lower case for Scoreboard.

RECOMMENDED SEALING PROCEDURE

To prevent access to interior components, seal the Indicator chassis as follows:



1. Bend tab over end cap retaining screw as shown. Press the tab down against the screw head. Make certain both screws are tightened securely before proceeding.

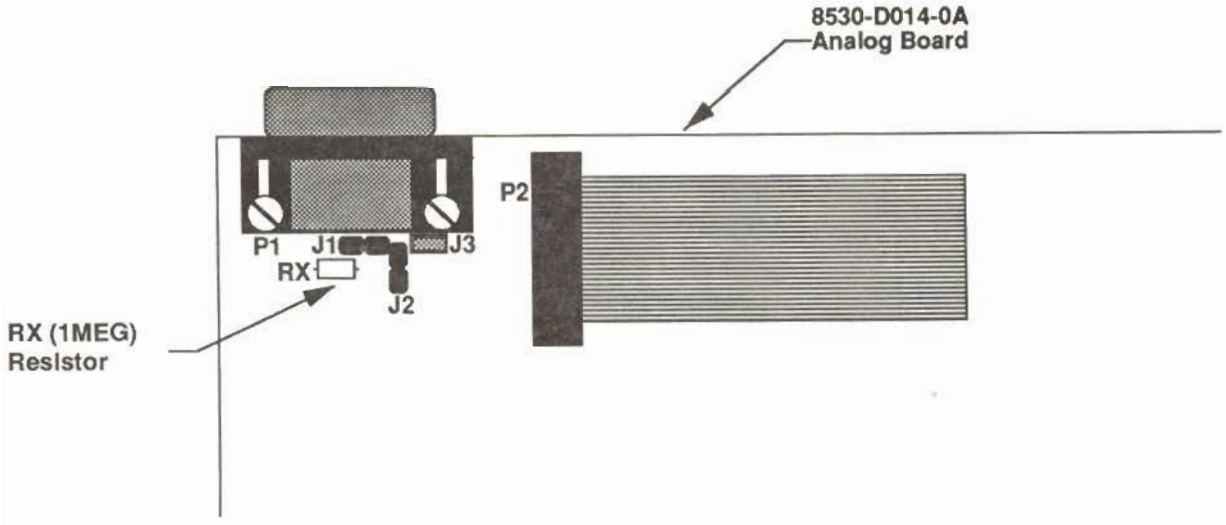


2. Thread the sealing wire through the hole in the tab and the hole in the rear panel fillister head screw as shown. Pull the wire tight and install the lead seal. Neither screw can be removed without damaging the seal.

DEAD LOAD COMPENSATION

In some cases, your scale may not meet the minimum dead load requirements (.75 MV input) of this instrument, making it necessary to connect the one meg resistor installed on the analog board in the RX location. To connect RX, install a jumper between pins 3 and 8 in the external load cell cable connector.

NOTE: This resistor must be an RN55E (25ppm/°C temperature coef.) or equivalent.



SPARE PARTS LIST

ANALOG BOARD ASSEMBLY	8530-D014-1A
DISPLAY BOARD ASSEMBLY	8530-C015-0A
CONTROLLER BOARD ASSEMBLY	8530-C017-0A
POWER SUPPLY BOARD ASSEMBLY	8530-C018-0A
TRANSFORMER ASSEMBLY	8530-C022-0A
FRONT PANEL ASSEMBLY	8530-D035-0A
KEYPAD	8530-D002-08
WIRE STAND (GIMBAL)	8530-D001-08
RACK/PANEL MOUNT ADAPTER	8530-C019-0A
COLUMN MOUNT ADAPTER	8530-CO30-0A
FUSE 1/2 ASB	6610-4021
SIDE KNOBS	6540-1052
RUBBER FEET	6540-1053
POWER CORD	6980-1001
RS-232 DATA CABLE	8510-C304-DA
RS-232 CONNECTOR	6610-2047
LOAD CELL CONNECTOR	6610-2379


DESIGNED & MANUFACTURED
IN U.S.A.