Cardinal®

Cardinal Scale Manufacturing Co.

204 and 204S

Weight Indicating Instrument

Operation Manual

8555-M313-01 Rev C
08/02

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INTRODUCTION

Thank you for purchasing our Model 204 Indicator. It has been manufactured with quality and reliability at our factory in Webb City, MO USA. This Indicator has been tested before leaving our factory to insure accuracy and dependability for years to come.

The purpose of this manual is to provide you with a guide through installation, calibration, and operation of your new weight-indicating instrument. Please read it thoroughly before attempting to install or operate your indicator and keep it handy for future reference.

FCC COMPLIANCE STATEMENT

WARNING! This equipment generates, uses and can radiate radio frequency and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant 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 may cause interference in which case the user will be responsible to take whatever measures necessary to correct the interference.

You may find the booklet “How to Identify and Resolve Radio TV Interference Problems” prepared by the Federal Communications Commission helpful. It is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 001-000-00315-4.

SERIAL NUMBER _____

DATE OF PURCHASE _____

PURCHASED FROM _____

_____

_____

_____

RETAIN THIS INFORMATION FOR FUTURE USE

PRECAUTIONS

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

IMPORTANT

ELECTRICAL WARNING

STATIC SENSITVE

SPECIFICATIONS

Power Requirements:	(6) C cell batteries, Alkaline, Ni-Cad or NiMH (batteries not included) *OR* an optional 115 VAC 50/60Hz 12 VDC 300 mA wall plug-in UL/CSA listed power supply. (Also available for 230 VAC 50/60 Hz)
Operating Temperature:	14 to 104 ºF (-10 to +40 ºC)
Display:	Six digit, seven segment, 1" high LCD
Sensitivity:	1.2 uV/division (0 to 3.0 mV/V), Class III
Signal Input Range:	0.2mV to 15mV max.
Transducer Excitation:	5.0 VDC
Number of Load Cells:	up to 4 each 350Ω
Load Cell Cable Length:	30 feet max.
Resolution:	5,000 divisions
Capacities:	1,000 to 5,000 divisions commercial up to 10,000 divisions noncommercial
Division Value:	1, 2, 5 or 10 x 1, 0.1, 0.01, 0.001
Sample Rate:	1 to 10 samples per second selectable
Auto Zero Range:	0.5 or 1 through 9 divisions
Weighing Units:	Pounds, kilograms, ounces or grams
Keyboard:	Membrane type with 7 keys
Enclosure Size:	8" W x 6 5/8" H x 2 1/8" D (204 x 168 x 54mm)
Enclosure Construction:	304 Stainless Steel
Weight:	3.1 lb (with batteries) – 2.1 lb (without batteries)

SITE PREPARATION REQUIREMENTS

The 204 Weight Indicator is a precision weight indicating instrument. As with any precision instrument, it requires an acceptable environment to operate at its peak performance and reliability. This section is provided to assist you in obtaining such an environment.

Electrical Power

The 204 indicator has been designed to operate from a 115 VAC 50/60 Hz (optional 230 VAC 50/60 Hz) AC adapter. Note that an optional AC adapter is required for operation at 230 VAC.

CAUTION! - To avoid electrical hazard and possible damage to the indicator, DO NOT, under any circumstance, 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.

The power outlet for the indicator should be on a separate circuit from the distribution panel. This circuit should be dedicated to the exclusive use of the indicator. The wiring should conform to national and local electrical codes and ordinances and should be approved by the local inspector to assure compliance.

To prevent electrical noise interference, make certain all other wall outlets for use with air conditioning and heating equipment, lighting or other equipment with heavily inductive loads, such as welders, motors and solenoids are on circuits separate from the indicator. Many of these disturbances originate within the building itself and can seriously affect the operation of the instrument. These sources of disturbances must be identified and steps must be taken to prevent possible adverse effects on the instrument. Examples of available alternatives include isolation transformers, power regulators, uninterruptible power supplies, or simple line filters.

PRECAUTIONS

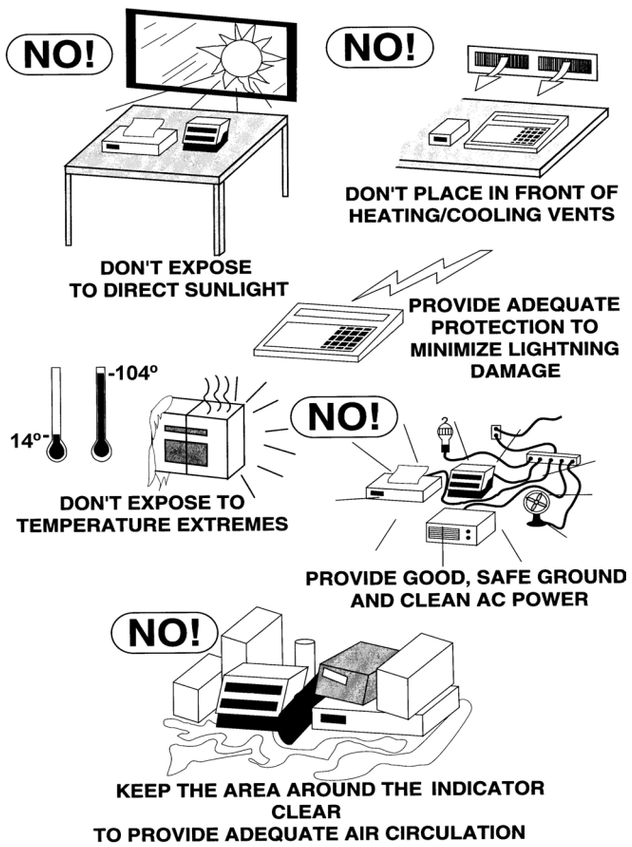
In general, the 204 indicator will perform well within a temperature range of 14 to 104 °F (-10 to +40 °C).

In order to keep cooling requirements to a minimum, the indicator should be placed out of direct sunlight and to provide adequate air circulation, keep the area around the indicator clear.

Make certain the indicator is not directly in front of a heating or cooling vent. Such a location will subject the indicator to sudden temperature changes which may result in unstable weight readings.

Insure that the indicator has good, clean AC power and is properly grounded.

In areas subject to lightning strikes, additional protection to minimize lightning damage, such as surge suppressors, should be installed.



INSTALLATION

Before beginning installation of your 204 weight indicator, make certain that it has been received in good condition. Carefully remove the indicator from the shipping carton and inspect it for any evidence of damage (such as exterior dents and scratches) that may have taken place during shipment. Keep the carton and packing material for return shipment if it should become necessary. It is the responsibility of the purchaser to file all claims for any damages or loss incurred during transit.

Should your 204 come already installed on a scale, the following information describing the installation of the indicator does not apply to you.

Mounting

Begin the installation by deciding where the indicator is to be mounted. The 204 indicator may come mounted on a column or you may choose to mount it on a desktop or wall. Refer to Figure No. 1 for illustrations of the mounting bracket. Two (2) holes are located in the mounting bracket for attachment to the wall. This bracket may be removed or left in place for desktop use.

Regardless of how and where you mount your 204, it should be in a safe area where it will not be in the way of normal traffic. The location chosen should be free of temperature extremes and water. It should be in a location where the display is easily viewed and is not subject to direct sunlight. The indicator should be mounted such that it is within easy reach of the operator. If wall mounted, make certain that the structure and mounting bolts are of sufficient strength to support the 204. The mounting bracket should be securely fastened to the wall or column top so that it cannot break loose from the mounting surface. After the 204 has been mounted, it may be connected to the plug-in power supply or the batteries may be installed.

INSTALLATION, Cont.

The Model 204 Weight Indicator may be mounted on a desktop or other smooth, flat, horizontal surface or it may be mounted on a wall using two (2) #10 screws placed 6.00 inches apart on the wall. Refer to Figure No. 1.

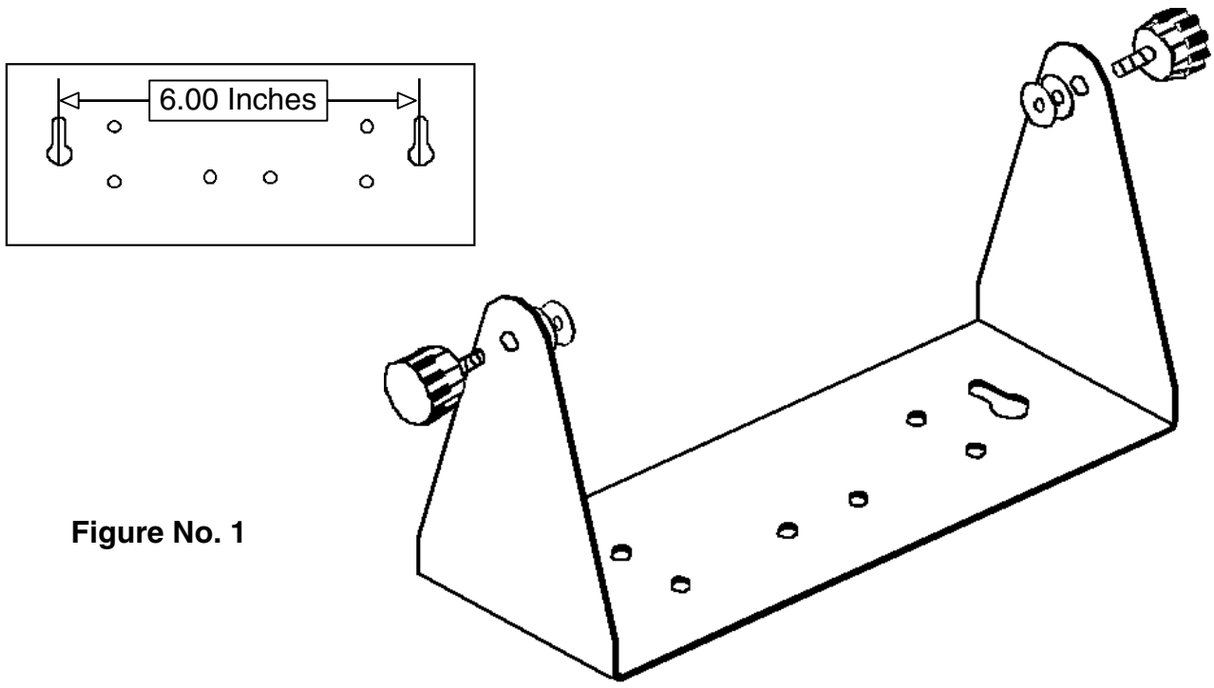


Figure No. 1

Interconnections

All Input, Output and power connections to the 204 are made at the rear panel of the indicator. Connections for the Load Cell input and the RS-232 Serial I/0 are all made via 9 pin "D" shaped subminiature connectors. The 12VDC 300 mA wall plug-in UL/CSA listed power supply is connected using a power jack. Figure No. 2 illustrates the layout of the rear connector panel.

Power Supply

To apply power to the 204 using the power supply, connect the power cable's connector into the power jack on the back of the indicator and then connect the 12 VDC, 300 mA power adapter into the proper electrical outlet. The 204 is now ready for operation.

Batteries

The 204 can use 6 "C" size Alkaline, Ni-Cad or NiMH batteries (*not included*). If you wish to operate the 204 from batteries, you must first obtain and install batteries before operations can begin. The batteries are contained in a battery holder inside the indicator. Access is via a removable panel on the back of the indicator.

The 204 can operate for 200 hours of continuous use when using Alkaline batteries or with fully charged Ni-Cad or NiMH batteries, 50 hours of continuous use.

NOTE: When using Alkaline batteries, make sure the *niCAd* setup option is disabled, set to 0 (zero). Refer to Setup and Calibration or Setup Review.

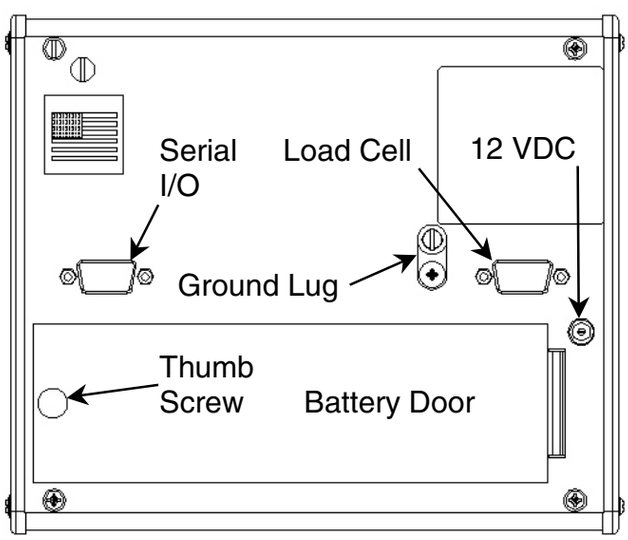


Figure No. 2

INSTALLATION, Cont.

Batteries, Cont.

To install the batteries, turn the indicator so that the display is facing down (away from you) and resting on the keypad (see Figure No. 2). Locate the rectangular panel on the back of the indicator and remove the thumb screw retaining it. Remove the panel (lift straight up and slide it out) exposing the battery holder. Install 6 "C" size batteries in the holder, making certain that they are positioned in accordance with the polarity markings located in the battery holder. Refer to Figure No. 3.

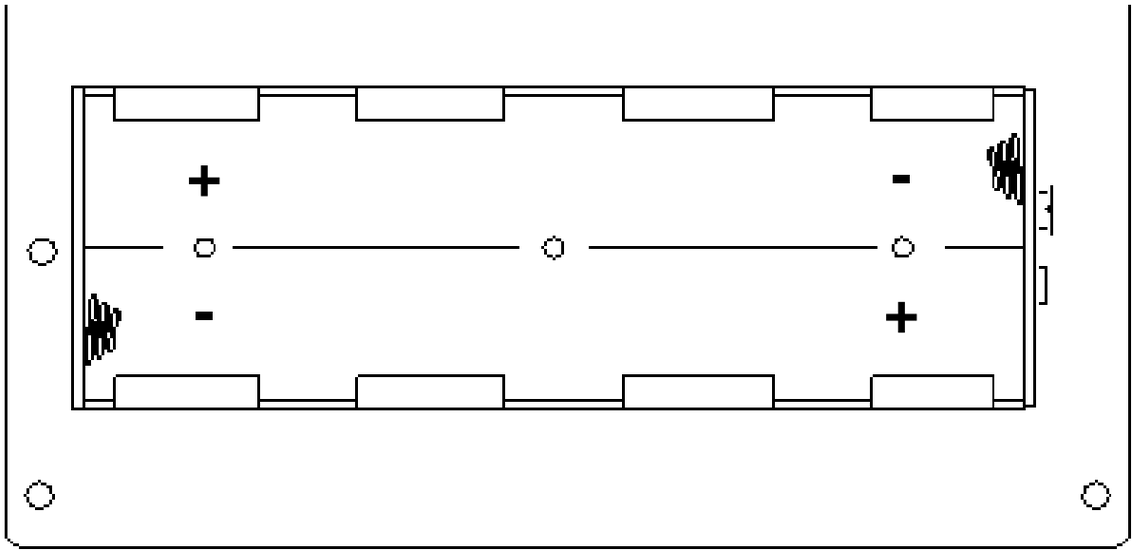


Figure No. 3

After placing all 6 batteries in the holder, replace the panel on the back of the indicator (slide the tab in the slot on the rear panel) and install the thumb screw. Make sure the wall plug-in power supply is unplugged, then turn the indicator over (display facing up) and press the **ON|OFF** key. If the display turns on, the batteries have been installed correctly. If not, remove the panel and check for one or more improperly positioned batteries..

The 204 indicator can be operated from a power supply or from Alkaline, Ni-Cad or NiMH batteries. All six (6) batteries must be of the same type. They must all be Alkaline, all Ni-Cad or all NiMH. DO NOT mix Alkaline and Ni-Cad or NiMH batteries. The power supply is also used to recharge the batteries, when the 204 is operated from Ni-Cad or NiMH batteries. DO NOT connect a power supply to the scale if using Alkaline batteries.

Low Battery Indicator

When the batteries are near the point they need to be replaced (Alkalines) or recharged (NiCad or NiMH), a low battery annunciator on the display will turn on. (See Figure No. 7). If the battery voltage drops too low for accurate weighing, the 204 will automatically shut off and you will be unable to turn it back on.

If using Alkaline batteries when the low battery annunciator turns on, turn the 204 off, remove the old batteries and replace with new ones. Follow the same procedure for installing batteries when battery replacement becomes necessary.

If using NiCad or NiMH (and the nICAd setup option is enabled, set to "1"), plug the power supply into the indicator and then into the proper electrical wall outlet. The 204 will begin charging the batteries.

INSTALLATION, Cont.

Battery Status

If batteries are used, the indicator will show the battery status on power up. The display will show batTry then change to ≡ YY ≡, where YY indicates the remaining battery voltage expressed as a percentage (%) of the total battery voltage.

Battery Charging

To recharge the Ni-Cad or NiMH batteries, the power supply must be connected to a AC power outlet and plugged into the indicator. It will take approximately 15 hours to fully recharge the batteries in the scale. While the batteries are charging the 204 can still be operated. Note that charging the batteries for more than 15 hours *will not* damage them.

When the 204 is to be turned off, pressing the **ON/OFF** key once will display “dashes" scrolling across the display indicating the batteries are being charged. Pressing **the ON/OFF** key again, will display OFF and turn the 204 off. If the power supply is disconnected before the 15 hours, the indicator will continue to charge the batteries when the power supply is plugged back in.

NOTE: When the 204 is turned off, the indicator is NOT charging the batteries.

Load Cell Connection

The load cell cable connects to the 204 via a 9-pin "D" connector on the rear panel of the indicator. Figure No. 4 shows the pin identification for the load cell connector. Make certain that the pins are correctly identified before soldering a wire to them. Use the connector retaining screws to hold the load cell cable connector securely to the rear panel.

PIN NO.	FUNCTION
1	+EXCITATION
2	-SIGNAL
3	no connection
4	-SENSE
5	SHIELD
6	-EXCITATION
7	+SIGNAL
8	no connection
9	+SENSE

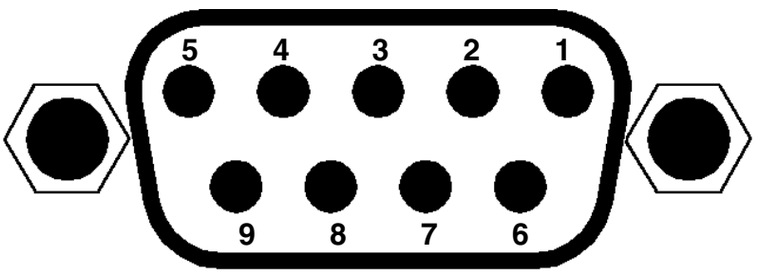


Figure No. 4

MATING CONNECTOR INFORMATION

DESCRIPTION	ITEM	Cardinal Part #
CONNECTOR	DE9-P	6610-2379
CONNECTOR SHELL	C883010001	6610-1131

Load Cell Connection With Over 30 Feet of Cable

For installations with over 30 feet of cable between the indicator and the load cells, sense wires should be used. The sense wires must be connected between the +SENS and the -SENS terminals on the indicator and the +EXCITATION and the -EXCITATION wires of the load cells or the +SENS and -SENS terminals of the load cell trim board or the section seal trim board. For the indicator to utilize the sense wires, the sense jumpers must be open.

INSTALLATION, Cont.

Main PCB

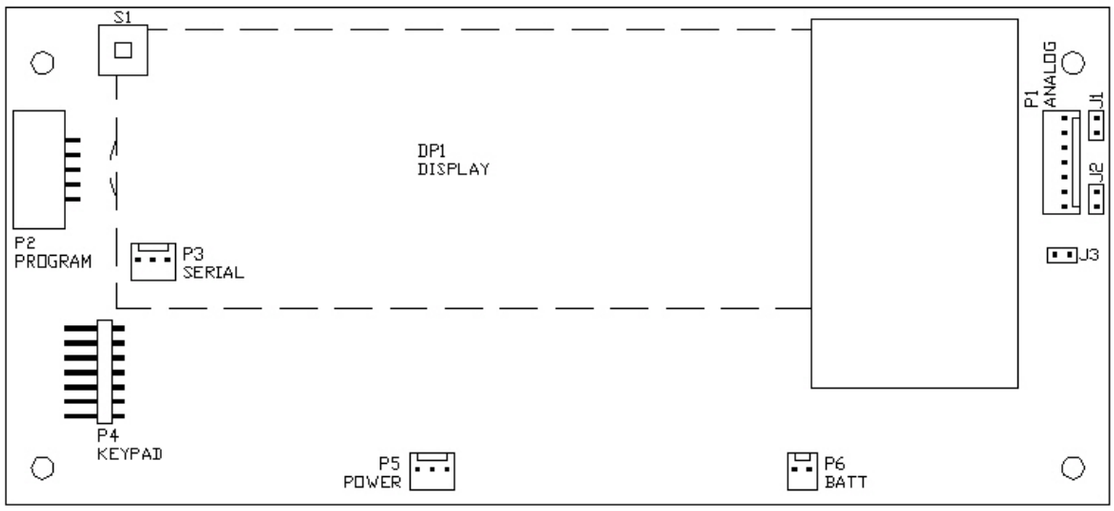


Figure No. 5 - Main PCB

J1 and J2 - Sense Jumpers

If sense leads are NOT used, you must install plug-in jumpers at J1 and J2 (adjacent to the P1 connector). These jumpers attach the sense leads to the excitation leads. If sense leads ARE used, these plug-in jumpers should be positioned on one plug-in pin only or removed and stored for later use. Refer to Figure No. 5 for the location of the jumpers.

J3 - Dead Load Boost Jumper

For very low dead loads (less than 10% of the combined load cell capacity) connect the dead load boost jumper J3 on the printed circuit board. Refer to Figure No. 5 for jumper location.

NOTE! Remove the left end cap to access the jumpers. Refer to Figure No. 9.

SERIAL INTERFACE SPECIFICATIONS

Your Model 204 has a RS-232 serial port that may be connected to a printer to record weight and associated data or it may be connected to a remote display (like the SB-80) or to a computer for transmission of weight data. The weight data may be transmitted on demand (pressing the **PRINT** key or on receipt of a command from the computer) or continuously. Figure No. 6 shows the Serial I/0 connector along with the identity of the pins used.

PIN NO.	FUNCTION
2	DATA INPUT (RXD)
3	DATA OUTPUT (TXD)
5	SIGNAL GROUND (GND)

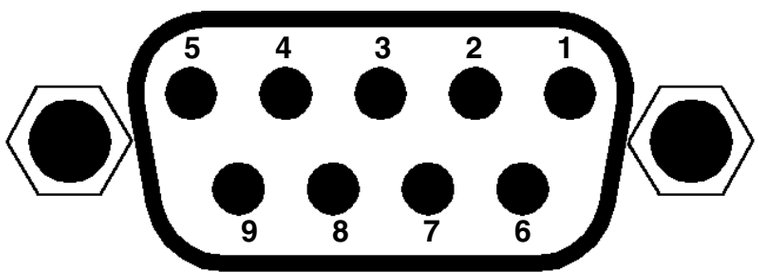


Figure No. 6

The 204 RS-232 serial interface can be configured during the setup and calibration procedure or during the setup review operation. Using either method, it is possible to select the operation of the serial interface as well as select the baud rate.

- The baud rates supported are: 1200, 2400, 4800, 9600, 19.2K and 38.4K baud.
- The data format is fixed at 8 bits, No parity, and 1 stop bit.
- The indicator is shipped from the factory with the baud rate set to 9600 baud.

SERIAL DATA FORMATS

Weight-On-Demand

If the Printer Continuous output was not selected, CONt=0 (0=NO) during setup and calibration of the indicator, and the 204 is connected to a computer, it will transmit a single set of weight data each time the computer sends an ENQ (hex 05) or a SMA weight request (W). This is known as Weight-On-Demand. Eamples and explanation of the data format transmitted are shown below.

Continuous Output

If the Printer Continuous output was selected CONt=1 (1=YES) during setup and calibration, the 204 will transmit weight data continuously. If connected to a remote display, the display will continuously show weight data. An example and explanation of the data format transmitted is shown below.

Weight-On-Demand And Continuous Output Data Format

The data format transmitted for ***both*** Weight-On-Demand and Continuous Output will be GROSS weight only. The weight data always includes the units of measure. An example of the data output (with and without a decimal point) is shown below:

Pxxxxx^UU^M^SS^CR (no decimal point in weight display)

PxxxxxD^UU^M^SS^CR (decimal point in weight display)

where:

P =	Polarity	(space if positive, - if negative)
xxxxx =	Weight	(with leading spaces)
^ =	Space	
D =	Decimal Point	(embedded where necessary)
UU =	Units	LB, KG, OZ, ^G
M =	Mode	G = (gross)
SS =	Status	CZ = center-of-zero, O = motion, BZ = below zero and OC = over capacity)
CR =	Carriage Return	(hex OD)

SMA Weight On Demand Format

The host device (computer) sends:

<lf> W <cr>

The 204 will respond:

<lf><s><r><n><m><xxxxx><uuu><cr>

where:

lf =	Line Feed	
s =	Flags	Z= center of Zero, O = Over cap, E = zeroError, e = weight not currently being displayed
r =	Range	1, 2, 3, ...
n =	Mode	G = Gross
m =	Motion	M = Motion, " "(*blank*) = no motion
xxxxx =	Weight	Five digits
uuu =	Units	lb^, kg^, oz^, g^^ (^ = space)
cr =	Carriage Return	(hex 0D)

KEYPAD FUNCTIONS

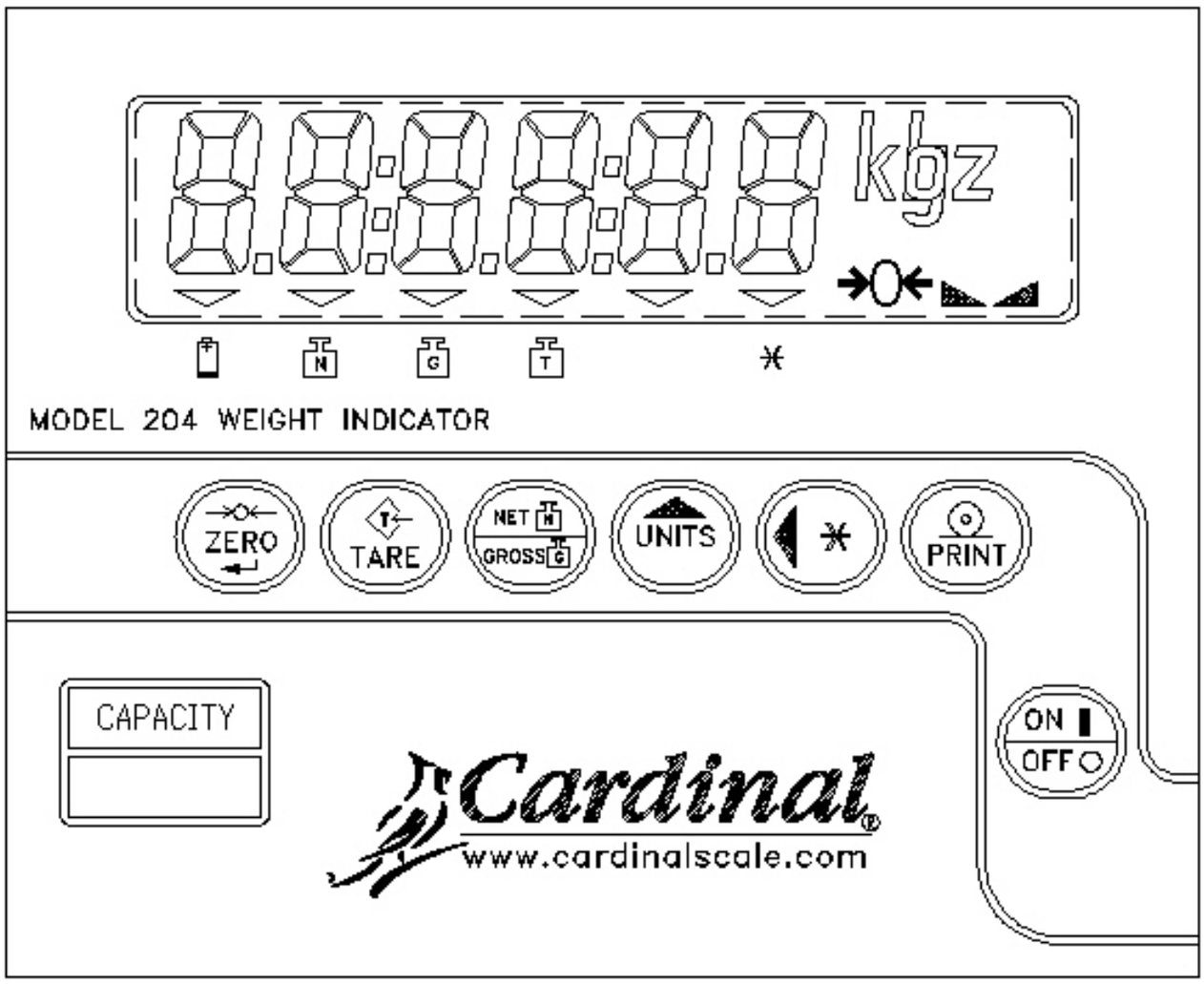


Figure No. 7

The membrane keypad is not to be operated with pointed objects (pencils, pens, fingernails, etc). Damage to keypad resulting from this practice is NOT covered under warranty.

ON / OFF (I / O) KEY
With the indicator off, pressing this key will apply power to the 204 and turn on the display. If the indicator is already on, pressing this key will remove power from the indicator.

→0← ZERO KEY
This key is used to reset the display to zero up to the selected limit of either 4% or 100% of the scale capacity. The zero limit is set during setup and calibration of the indicator.

TARE KEY
Pressing the **TARE** key alone will cause the current gross weight to be stored as the new tare weight and cause the weight display to change to the net weight display mode (Net annunciator will turn on).

NET / GROSS KEY
This key is used to toggle between Net and Gross weight modes. The selected mode is indicated by turning on the appropriate annunciator on the display. Note that if no valid tare weight has been entered, pressing this key will cause a momentary display noTArE and the indicator will remain in the Gross weight mode.

KEYPAD FUNCTIONS, Cont.

UNITS / ▲ (UP ARROW) KEY
This key is used to change the weighing units to the alternate units of measurement if selected during setup of the indicator (WEIGHTING UNITS = 3 or 4). For example, with pounds displayed (lb annunciator turned on) pressing this key will change the weighting units to kilograms (kg annunciator will turn on). **Note!** This feature must be enabled during setup and calibration for this key to be operational. This key is also used during setup and calibration to increment the value.

∗ / ◄ (ASTERISK / LEFT ARROW)
This key is used to lock and unlock the display. If enabled during setup and calibration, (Hold Key Enable), pressing this key (after obtaining a stable weight value) will cause the indicator to lock onto the weight and turn on the asterisk annunciator on the display. Pressing this key a second time will unlock the display and turn off the asterisk annunciator. This key is also used during setup and calibration to select the digit to change.

NOTE! The lock feature is for non-commercial (NOT "Legal for Trade") applications.

⊙ PRINT
Pressing this key will initiate the transmission of weight data via the serial I/O port unless the continous data output feature was enabled during setup and calibration or setup review. **Note!** If the continuous data output feature was selected, this key will be disabled. This key is also used to save the current setting during setup and calibration.

NOTE! The indicator will not respond to the Print command unless the weight display is stable. If displaying gross weight, the only weight printed is gross weight. If displaying net weight, the gross, tare, and net weights are printed.

The 204 includes support for *nControl*. *NControl* is a PC based program that can design a ticket then download the ticket information to the indicator. The 204 allows 2 programmable formats in addition to the standard print tab settings format. **NOTE!** When the **PRINT** key is pressed the indicator looks for the selected format. If no “nControl” ticket is found, the default ticket is used.

```
#2
100.00  lb  G
 20.00  lb  T
 80.00  lb  N
```

SAMPLE TICKET

For more information on nControl, refer to the nControl Fast Start Guide.

ANNUNCIATORS

The annunciators are turned on to indicate that the display is in the mode corresponding to the annunciator label or that the status indicated by the label is active.

➔0← (Center-of-Zero)
The Center-of-Zero annunciator is located to the right of the weight display and is turned on to indicate that the weight is within +/- 1/4 division of the center of zero.

◣◢ (Stable)
The (Stable) annunciator is located to the right of the weight display and is turned on when the weight display is stable. When off, it means that the change in successive weight samples is greater than the motion limits selected during setup and calibration of the indicator.

ANNUNCIATORS, Cont.

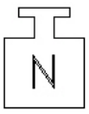
lb
The lb annunciator is located on the right of the weight display and is turned on to show that the displayed weight units is pounds.

kg
The kg annunciator is located on the right of the weight display and is used to indicate that the displayed units of weight measurement is kilograms.

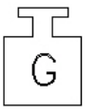
oz
The oz annunciator is located on the right of the weight display and is turned on to show that the displayed weight units is ounces.

g
The g annunciator is located on the right of the weight display and is used to indicate that the displayed units of weight measurement is grams.

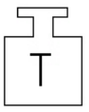
Low Battery



NET



GROSS



TARE

Low Battery
The low battery annunciator is used with the battery operation. It will turn ON to indicate that the batteries will soon need to be replaced (if using Alkalines) or recharged (if using NiCad or NiMH). No change in operation will occur until just before the battery voltage drops to a level where operation is affected. At this level, the indicator will automatically turn itself off.

NET
The NET annunciator is turned on to show that the weight displayed is the net weight. Net weight is determined by subtracting the stored tare weight from the gross weight. The tare weight, is usually the weight of the empty container. Note that the NET annunciator is only active when a tare weight value is stored.

GROSS
The GROSS annunciator is turned on to show that the weight displayed is the gross weight. Gross weight will be displayed when no tare weight value is stored.

TARE
The TARE annunciator is turned on to show that the indicator is in a weight mode in which a known tare (container) weight value is stored.

∗ (ASTERISK)
The ∗ (ASTERISK) annunciator is turned on to show that the indicator is locked onto the weight.

NOTE: The lock feature (Hold Key Enable) must be enabled during setup and calibration. In operation, pressing the **∗ / ◀** key (after obtaining a stable weight value) will cause the indicator to lock onto the weight and turn on the annunciator. Pressing the **∗ / ◀** key a second time will unlock the display and turn off the annunciator.

SETUP AND CALIBRATION

Your 204 indicator has been thoroughly tested and calibrated before being shipped to you. If you receive the indicator with a scale, calibration is not necessary. If the indicator is being connected to a scale for the first time or recalibration is necessary for other reasons, proceed as indicated.

Calibration of the 204 indicator is accomplished entirely by the keypad. To enter the setup and calibration mode:

1. With the power off, remove the Calibration Access Screw on the upper left corner of the rear panel, see Figure No.8.
2. With the screw removed, insert a small non-metallic tool into the screw hole and press and hold the calibration switch.
3. Press the **ON/OFF** key.
4. The display will show *int*. The indicator is now ready for setup and calibration.

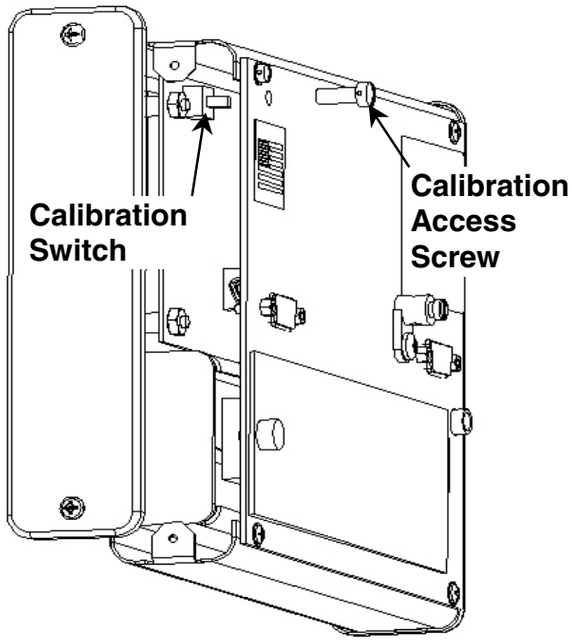


Figure No. 8

During the setup and calibration process it will be necessary to enter operational parameters via the 204's keyboard. Pressing the **PRINT** key will cause the data entered or displayed to be retained and the 204 will advance to the next prompt. The cursor location is identified by the blinking character and can be advanced to the left to the next position by pressing the **ASTERISK** key. Pressing the **UNITS** key will change the blinking character to the next value.

Scale Interval

With the display showing *int=* press the **ASTERISK** key to show the current setting. Press the **UNITS** key until the proper scale interval (1, 2, 5 or 10) is displayed, then press the **PRINT** key to store the displayed value and proceed to the next prompt.

Flash

To display *FLASH*, press the calibration switch while the display is showing the prompt *int=* (Scale Interval). With the display showing *FLASH*, press the **PRINT** key. The display will change to show *0* (0=NO). Press the **PRINT** key to proceed to the next prompt *Unit=* (Weighing Units). To return to the *int=* prompt, start the setup and calibration process over.

THE FLASH UPDATE OPTION WILL BE AVAILABLE IN FUTURE RELEASES OF THE 204 ABOVE REV 2.0 / AND A FUTURE RELEASE OF NCONTROL REV 2.0 OR GREATER.

Weighing Units

With the display showing *Unit=* press the **UNITS** key to show the current setting. If the value shown is acceptable, press the **PRINT** key again to save it, otherwise press the **UNITS** key to enter the new weighing units and press the **PRINT** key to save the new setting.

0 = None	3 = Pounds/Kilograms	6 = Grams Only
1 = Pounds Only	4 = Kilograms/Pounds	
2 = Kilograms Only	5 = Ounces Only	

SETUP AND CALIBRATION, Cont.

Decimal Point Location

With the display showing dPP= press the **ASTERISK** key to show the current setting. Press the **UNITS** key until the number corresponding to the desired decimal point position is displayed. Press the **PRINT** key to store this setting and proceed to the next step.

0 = XXXXX 1 = XXXX.X 2 = XXX.XX 3 =X X.XXX

Scale Capacity

With the display showing CAP= press the **ASTERISK** key to show the current setting. Press the **UNITS** key to enter the proper digit at the blinking location. Press the **ASTERISK** key to step to the left and the next digit location. Repeat the process until all digits of the capacity have been entered. Should you make a mistake and press the **ASTERISK** key with an incorrect digit entered, it will be necessary to press the **ASTERISK** key until the blinking character returns to the proper location, then use the **UNITS** key to enter the correct digit. After all digits have been correctly entered, press the **PRINT** key to store the capacity and advance to the next step.

Calibration

With the display showing CAL= press the **ASTERISK** key. The display will change to show the current setting 0 (0=NO). If the scale has been previously calibrated and you wish to skip calibration and proceed to trA=, the Zero Tracking Range, simply press the **PRINT** key and the internal calibration factor will be retained.

To begin calibration, press **UNITS** to select 1 (1=YES), then press the **PRINT** key. After pressing the **PRINT** key the display will change to LOAd=.

Load Calibration Weight

The display will now indicate LOAd= which is a prompt for the entry of the calibration weight value and placement of this amount of test weights on the scale platform.

1. Make certain the scale platform is empty and free of debris, then place the desired amount of calibrated test weights on the scale platform. It is recommended that a minimum of 50% of the scale's capacity be used but 70% to 100% is preferred.
2. Press the **PRINT** key.
3. Determine the exact amount of test weights to be placed on the scale platform and enter this value into the 204 by using the **UNITS** and **ASTERISK** keys in the same manner used to enter the scale's capacity. Verify that the numbers entered are the same as the total weight of test weights, and the least significant digit agrees with the scale interval.
4. Press the **PRINT** key.

After a moment the display will indicate the message unLOAd which is a request that the test weights be removed from the scale platform. Remove the weights then press the **PRINT** key. The calculated calibration factor is now stored in the 204's nonvolatile memory.

Zero Tracking Range

The display will now indicate trA=. Press the **ASTERISK** key to show the value assigned to the Automatic Zero Tracking Range. This is the value in scale divisions that will be automatically zeroed off. Values of 1 through 18 (1 to 9 divisions by 0.5 divisions) are available for the zero tracking range. Entry of two zeros (00) will disable the zero tracking feature. Use the **UNITS** key to step through these available values. Once the proper value is shown press the **PRINT** key to store the value.

SETUP AND CALIBRATION, Cont.

Four Percent Zero Tracking Range Limit

The display will next indicate trL=. This is the prompt to select whether a 4% limit be placed on the zero tracking and the push button zero. Press the **ASTERISK** key to show current setting, then press the **UNITS** key to select 1 (1=YES, enable) or 0 (0=NO, disable). If enabled (1), the zero tracking and the push button zero is limited to 4 % of the scale capacity. If disabled (0), zero tracking and the push button zero will operate up to the full capacity of the scale. Press the **PRINT** key to save the setting.

Motion (Unstable) Range

The display will now show UnS=. Press the **ASTERISK** key to show the current setting. Changes in weight exceeding the selected number of divisions will cause the STABLE weight annunciator to turn off. Values from 1 to 9 divisions may be selected by pressing the **UNITS** key. Once the correct value is shown press the **PRINT** key to save the setting.

Digital Filter Level Selection

The display will now show FLt= which is the prompt for the selection of the digital filtering level. Your 204 will arrive with the factory filter setting (1=minimal) already entered. Please check with your scale service technician should you wish to change the programmed filter level and break range. Four levels of filtering are available. They are as follows:

0 = NO FILTERING	2 = MODERATE FILTERING
1 = MINIMAL FILTERING	3 = CUSTOM FILTERING

NOTE: Selection 3, Custom Filtering is used when 0, 1 or 2 are inadequate.

Press the **ASTERISK** key to show the current setting. Then press the **UNITS** key to select the desired level of filtering. Press the **PRINT** key to save the setting.

F= - Filter Level

If you select Custom Filtering, the 204 will display F=. Press the **ASTERISK** key to show the current setting for the Filter Level. The filter level is a number from 1 to 16 that corresponds to the level of filtering with 16 being the greatest filtering and 1 the least. Use the **UNITS** and **ASTERISK** keys to select the filter level, then press the **PRINT** key to save the setting.

br= - Break Range

Next, the 204 will display br= . Press the **ASTERISK** key to show the current setting for the Break Range. The break range is a number from 1 to 64 that corresponds to the number of division change to break out of filtering. Use the **UNITS** and **ASTERISK** keys to select the break range value, then press the **PRINT** key to save the setting.

Sample Rate

The display will now show Sr=. Press the **ASTERISK** key to show the current setting. The sample rate may be set from a minimum of 1 sample per second to a maximum of 10 samples per second in one sample per second intervals. Press the **UNITS** key until the desired sample rate is displayed. Press the **PRINT** key to save the setting.

Hold Key Enable

The display will next indicate HLd= which is the prompt for the selection to enable or disable the Hold (ASTERISK) key. This mode of operation will lock the 204 display and is used only in noncommercial applications. Press the **ASTERISK** key to show the current setting, then press the **UNITS** key to select 1 (1=YES, enable) or 0 (0=NO, disable). Press the **PRINT** key to save the setting. **Note! This feature must be set to 0 (0=NO) for "Legal for Trade" applications.**

SETUP AND CALIBRATION, Cont.

Battery Type

With the display showing niCAd= press the **ASTERISK** key to show current setting, then press **UNITS** to select 1 if NiCad or NiMH batteries are going to be used *or* 0, if using Alkaline batteries. Press the **PRINT** key to save the setting. **Note:** This setting may be revised without having to enter the calibration mode.

CAUTION: Selecting 1, enables battery charging. DO NOT select 1, when using Alkaline batteries.

Power Up Zero

With the display showing PUO= press the **ASTERISK** key to show current setting, then press **UNITS** to select 1 (1=YES, enable) or 0 (0=NO, disable). Press the **PRINT** key to save the setting. **Note:** This setting may be revised without having to enter the calibration mode.

- If 1=YES is selected, the weight display will be reset to zero automatically on power up.
- If 0=NO is selected, the weight display will not be reset to zero.

Automatic Shutoff

The display will now show ASH=. This Automatic Shutoff feature will automatically turn the 204 off after a predetermined period of inactivity to prolong battery life. To turn the indicator back on you must press the **ON / OFF** key.

Press the **ASTERISK** key to show the current setting. Use the **UNITS** key to select the number (1 through 9) of minutes (*time approximate*) of inactivity before turning the 204 off. A 0 disables the Automatic Shutoff feature. Press the **PRINT** key to save the setting. **Note:** This setting may be revised without having to enter the calibration mode.

Sleep Mode

The display will now show SLP=. The Sleep Mode feature also conserves battery power when the indicator remains unused for a selected period of time. With the feature enabled, the load cell excitation will be reduced and the display will show SLEEP. The Sleep feature requires that the indicator remain at the center of zero to activate, unlike the Automatic Shutoff feature which only requires no motion. Weight placed on the scale will activate the indicator and return it to the weight mode. **Note:** This setting may be revised without having to enter the calibration mode.

Press the **ASTERISK** key to show the current setting. To enable, use the **UNITS** key to select the number (1 to 9) of minutes (*time approximate*) of inactivity at zero before the indicator will enter the Sleep mode. Press the **PRINT** key to save the setting. Enter a 0 to disable the Sleep mode. **Note:** This setting may be revised without having to enter the calibration mode.

Baud Rate Selection

The display will now show bAUd. Press the **ASTERISK** key to show the current setting. If acceptable, press the **PRINT** key to save it. Otherwise use the **UNITS** key to select the desired baud rate and press the **PRINT** key to save the setting. **Note:** The FACTORY setting is 3 (9600 baud) and may be revised without having to enter the calibration mode. The following baud rates are available:

0 = 1200 1 = 2400 2 = 4800 3 = 9600 4 = 19,200 5 = 38,400

SETUP AND CALIBRATION, Cont.

Print Ticket Format

The display will now show Prt=. Press the **ASTERISK** key to view the current setting. If acceptable, press the **PRINT** key to save it. Otherwise use the **UNITS** key to *change* the selected print ticket format. Allowable values are:

0 = Default Format 1 = nControl Format 1 2 = nControl Format 2

Continuous Output

The display will now show COnt=. Press the **ASTERISK** key to view the current setting. If a 1 (1=YES) is displayed, the feature has been enabled and the 204 will send a continuous output of weight data to the serial I/0 connector. If a 0 (0=NO) is displayed the data will only be transmitted when the **PRINT** key is pressed or on receipt of an ENQ command from a computer. Press the **UNITS** key to change between 1 (YES) and 0 (NO). Once the proper setting is displayed, press the **PRINT** key to save the setting. **Note:** This setting may be revised without having to enter the calibration mode.

End-Of-Print Line Feeds

The display will now show EoP=. At the end of a data transmission to a printer, the 204 can send a number of line feed commands to space the paper in the printer to the desired position for withdrawal or for the next print. Press the **ASTERISK** key to view the current setting. If the setting shown is acceptable, press the **PRINT** key to save it. Otherwise, use the **UNITS** key to select the desired number of line feeds (0 to 99). With the desired number displayed, press the **PRINT** key to save the setting. **NOTE:** This setting may be revised without having to enter the calibration mode.

Done

The indicator display will now show dOnE. The setup and calibration process has been completed. Remove the power from the indicator and re-assemble for use.

SETUP REVIEW

The 204 allows several operational parameters to be reviewed and changed as necessary without having to enter the setup and calibration mode. The parameters in the setup review will be processed in the following sequence:

- NiCAd Select to use Ni-Cad (NiMH) or Alkaline batteries
- PUO Enable or Disable automatic reset of weight display to zero on power up
- ASH Disable or select number of minutes for automatic shutoff timer
- SLP Disable or select number of minutes of inactivity at zero for sleep mode
- BAUd Select baud rate for serial I/O port.
- Prt Select the ticket format to be used when the **PRINT** key is pressed.
- Cont Enable or Disable the continuous output.
- EoP= The Number of Ending Linefeeds Printed.

To enter the setup review mode, simply turn the 204 off then press and hold the **PRINT** key then press the **ON** key. The display will then prompt with niCAd, the selection to use Ni-Cad (NiMH) or Alkaline batteries. Refer to the instructions listed in the Setup and Calibration section of this manual for information on how to change these parameters.

ERROR AND STATUS DISPLAYS

The 204 is equipped with a diagnostic software program that tests various portions of the indicator's circuitry and verifies proper operation. Should a problem be detected, an error or status message will be displayed alerting the operator to that condition. The following lists these errors and status displays and their meaning:

Display	Meaning
-UnS-	Motion is present when the 204 is attempting to perform one of the following operations: Power Up Zero or Zero Weight Display
-OF-	Attempting to display a negative number greater than –99,999 or a positive number greater than 99,999
-OCAP-	Scale weight exceeds scale capacity
CALib	Indicates improper stored calibration data, calibration is necessary.
Ad Err	The analog to digital circuit has failed. Consult the scale service representative.
Err A	The analog to digital sample is invalid.
ErrAL	The load cell input is below the range of the indicator.
ErrAH	The load cell input is above the range of the indicator.
EE Err	NOVRAM failure. Consult the scale service representative.
-trL-	Indicates an attempt to zero a weight outside the scale zero range. (See Four Percent Zero Tracking Range Limit).
battry	Indicates the remaing battery voltage expressed as a percentage (%) of the total battery voltage.
nOtArE	Attempting to switch to Net mode without a tare value.
-Err-	General error, invalid keypad entry was attempted.
OFF	Displayed to indicate the 204 is turning off.

BEFORE YOU CALL FOR SERVICE

The 204 has been designed to provide you with years of trouble-free operation. In spite of this, troubles sometimes happen. Before calling for service assistance you should make some initial checks to verify that a problem does exist. The following describes several types of symptoms along with suggested remedies.

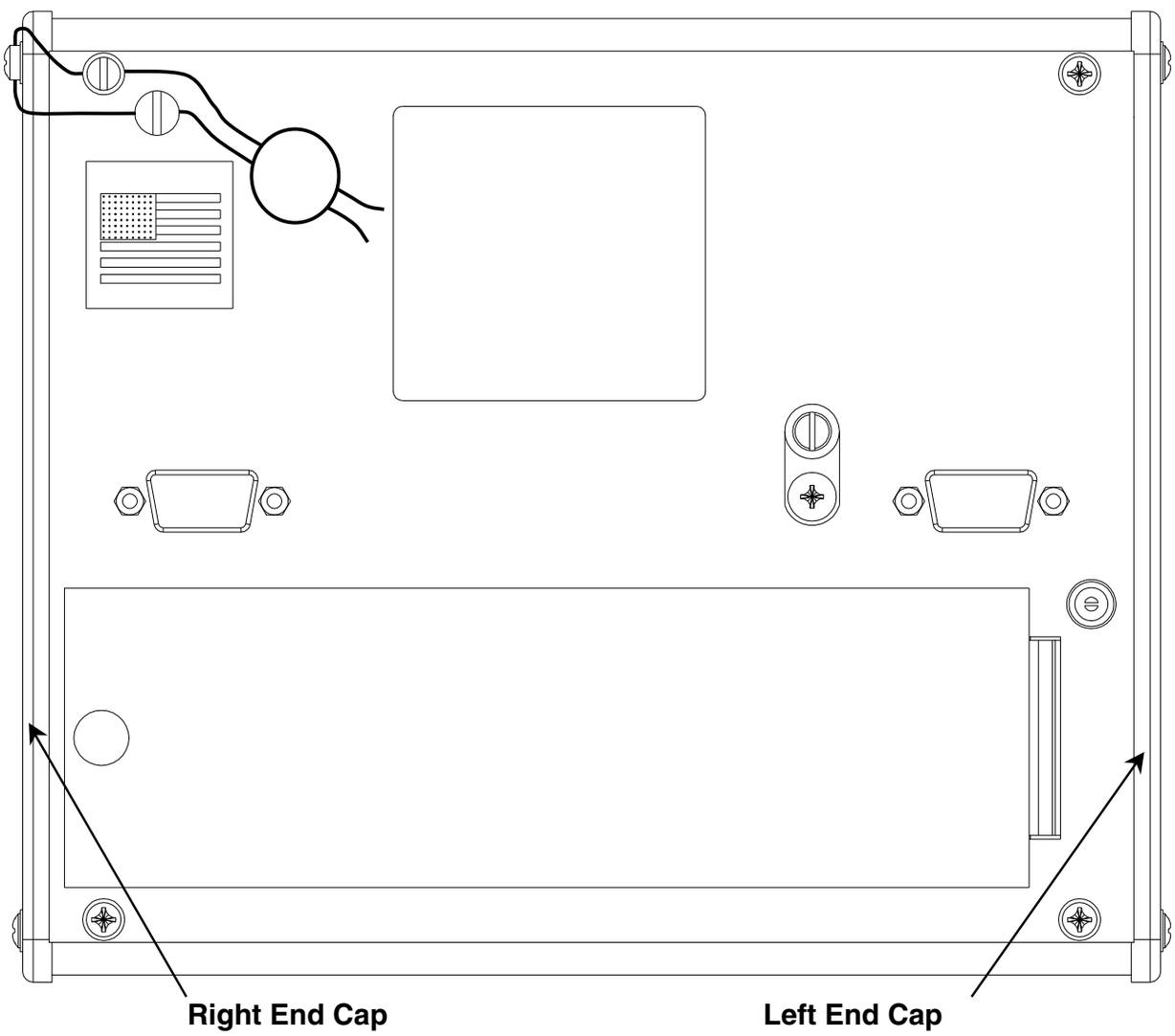
Problem	Possible Solutions
Display does not turn on	AC Operation: Is the AC power cord fully inserted into the wall receptacle? Check wall receptacle for proper AC power. Try another electrical appliance in the same receptacle, does it work? Check the circuit breaker. Has there been power failure? Battery operation: Check if batteries are installed and correctly. Are batteries discharged? Replace if Alkaline or recharge if NI-CAD or NiMH.
Incorrect weight displayed	Has the indicator been calibrated? Insure that the scale platform isn't touching an adjacent object. Check the load cell connector wiring. If using four (4) wire load cells, insure the sense lead jumpers (J1 & J2) are installed. If using a low dead-load scale, install the dead load boost jumper, J3. Have proper operation procedures been followed?
Indicator will not display weight	Refer to Error and Status Display section and make certain that the 0 CAP message is not displayed. If so, and scale is not loaded, perform the calibration sequence.

CARE AND CLEANING

1. **DO NOT** submerge indicator in water, pour or spray water directly on indicator.
2. **DO NOT** use acetone, thinner or other volatile solvents for cleaning.
3. **DO NOT** expose equipment to temperature extremes.
4. **DO NOT** place equipment in front of heating/cooling vents.
5. **DO** clean the indicator with a damp soft cloth and mild non-abrasive detergent.
6. **DO** remove power before cleaning with a damp cloth.
7. **DO** provide clean AC power and adequate protection against lightning damage.
8. **DO** keep the surroundings clear to provide clean and adequate air circulation.

CALIBRATION SEAL INSTALLATION

If your Model 204 Weight Indicator is used in a commercial application it must be tested and sealed by your local weights and measurement official. The 204 is designed to accept a lead and wire security seal to prevent unauthorized access to the calibration adjustments. Refer to the Figure No. 9 for details on the installation of the seal.



(Indicator as viewed from rear)

Figure No. 9

204S - NEMA 4X ENCLOSURE

Installation Instructions

The Model 204S Indicator is housed in a NEMA 4X stainless steel wall or desk-mount enclosure. The 204S gimbal may be mounted on a desktop or other smooth, flat, horizontal surface or may be mounted on a wall. Refer to Figure No. 10 for the hole layout to wall-mount the gimbal.

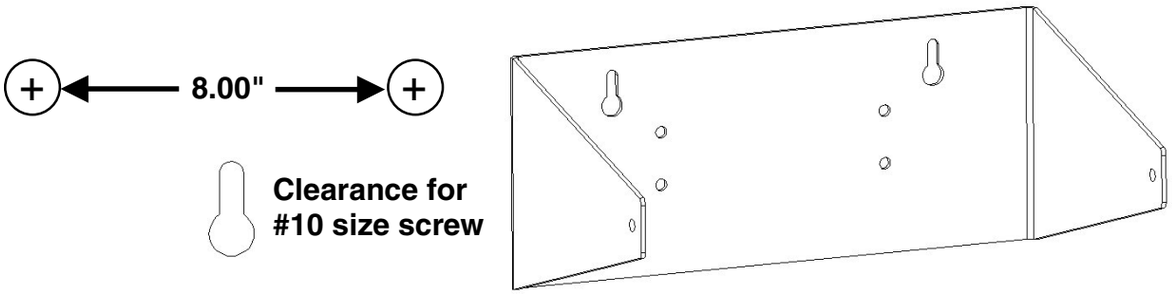


Figure No. 10

First make certain that the location is free from sudden changes in temperature and the mounting surface is strong enough to support the enclosure while being close enough to provide the operator easy access to the keypad. Carefully lay out the mounting hole locations, then drill and install the anchor bolts. Attach the gimbal to the wall and securely tighten the retaining bolts.

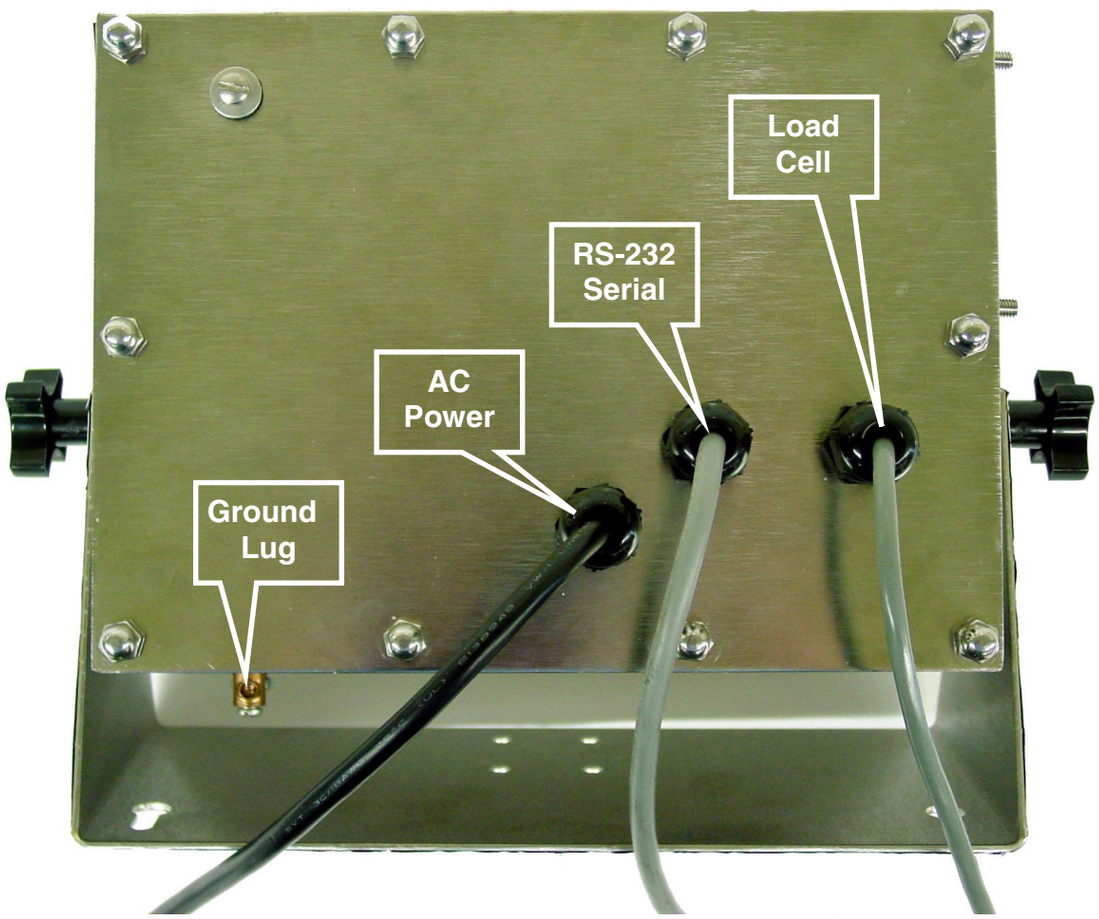


Figure No. 11

Continue by removing the back cover on the instrument enclosure. Referring to Figure No. 11, remove the 10 acorn nuts and set aside. Lift the back cover (so that it clears the threaded studs), slide the cover slightly to the left and towards the bottom of the enclosure, lift and remove, exposing the internal circuit boards. See Figure No. 12.

204S - NEMA 4X ENCLOSURE, Cont.

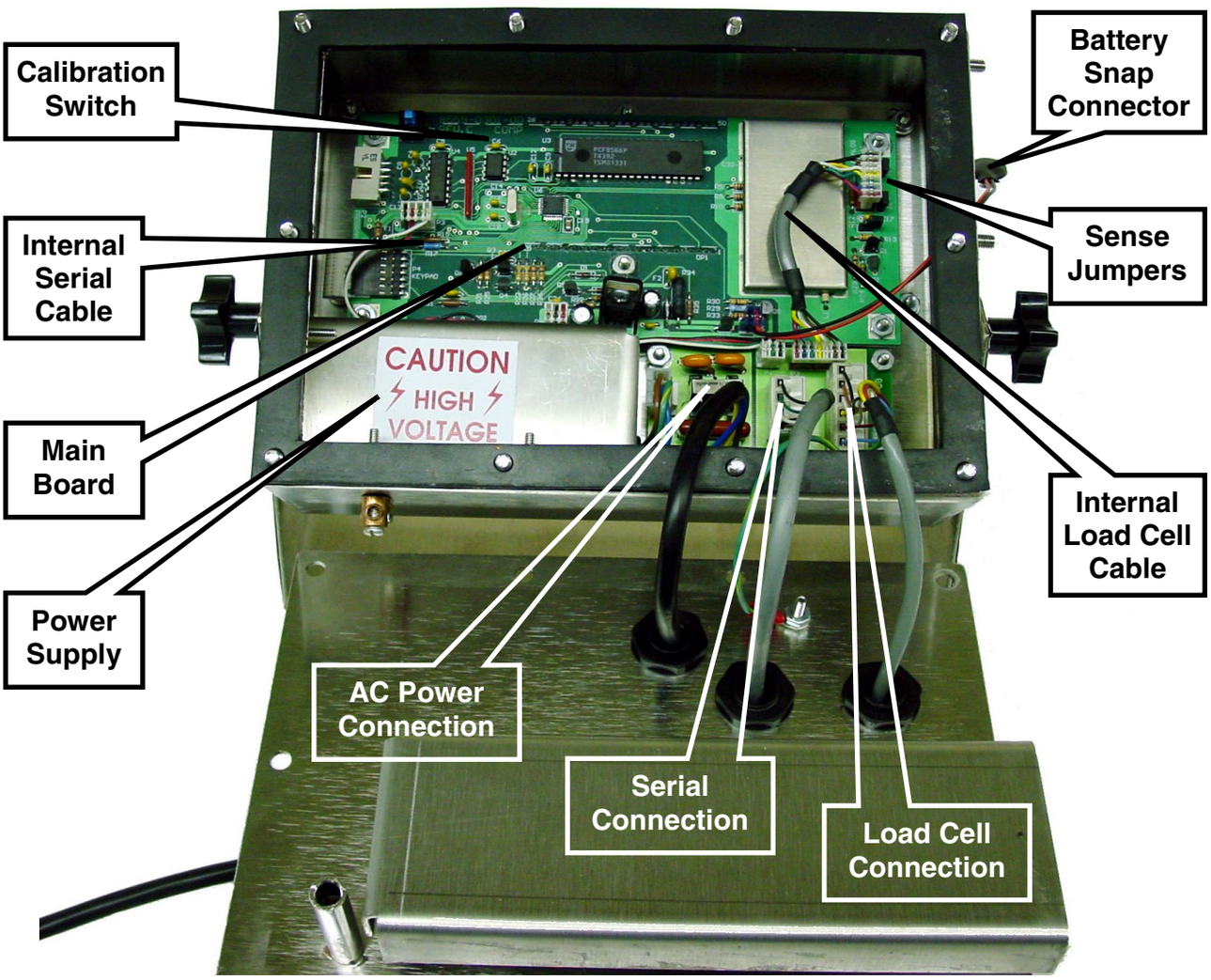


Figure No. 12

Please note, for ease of wiring, the terminal blocks can be removed from the mating connector, then replaced after the wiring has been completed. See Figure No. 13.

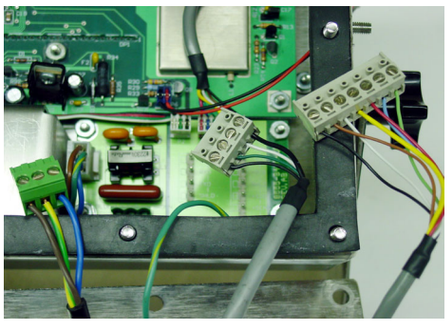


Figure No. 13

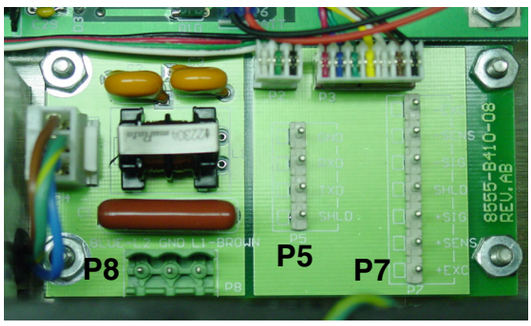


Figure No. 14

Load Cell Connection

CAUTION! Disconnect any external load cell power supply before connecting load cells to the instrument. Failure to do so, will result in permanent damage to the instrument.

1. Loosen the cable gland connector for the load cell. This gland connector is located on the back of the enclosure. Refer to Figure No. 11 for an illustration of the gland connector layout.
2. Slip the single cable from the load cell or load cell junction box through the gland connector and into the enclosure.

204S - NEMA 4X ENCLOSURE, Cont.

3. Remove 2" of the outer insulation jacket then remove 1/4" of insulation from each of the four (4) wires and shield without sense leads or six (6) wires and shield with sense leads (refer to Figure No. 15). See Figures No. 5 (Main PCB) and No. 12 for location of Sense Jumpers.
4. Connect each wire to the terminal block for scale input (P7) referring to the labels on the circuit board for terminal connections. Refer to Figure No. 14 for terminal block location.
5. To terminate, insert the wire into the opening then tighten the cage clamp screw locking the wire in place. Repeat the procedure until all of the wires are in place.
6. Reconnect the terminal block to the (P7) mating connector.

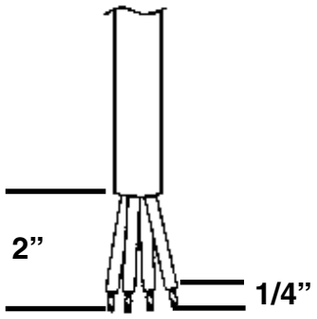


Figure No. 15

RS-232 Serial Cable Installation

1. Loosen the cable gland connector(s) for the RS-232 serial cable. The gland connector for the RS-232 serial data is located on the back of the enclosure. Refer to Figure No. 11 for an illustration of the gland connector layout.
2. Slip the serial cable throught the gland connector and into the enclosure.
3. Remove 2" of the outer insulation jacket then remove 1/4" of insulation from each of the wires (refer to Figure No. 15).
4. Connect each wire to the Serial Data terminal block (P5) referring to the labels on the circuit board for terminal connections. Refer to Figure No. 14 for terminal block location.
5. To terminate, insert the wire into the opening then tighten the cage clamp screw, locking the wire in place. Repeat the procedure until all of the wires are in place.
6. Reconnect the terminal block to the (P5) mating connector.

AC Power Connection (90 to 260 VAC)

It is the responsibility of the customer to have a qualified electrician install the proper power cord plug which conforms to the national electrical codes and local codes and ordinances.

Referring to Figure No. 11 for an illustration of the gland connector and conduit hole layout, use the 3/8" conduit hole to bring the AC power into the enclosure. Use a seal-tite or rigid conduit fitting to make a water-tight connection. **NOTE!** 18AWG copper wire should be used to connect the AC power to the instrument.

1. With the AC wiring in the enclosure, remove 1/4" of insulation from each of the wires (refer to Figure No. 15).
2. Connect each wire to the AC power terminal block (P8) referring to Figure No. 16, the color code wiring table below and the labels on the circuit board for terminal connections. Refer to Figure No. 14 for terminal block location.

P8 - 120V WIRING COLOR CODE TABLE

Function	U.S. Code	International Code
L1 (Hot)	Black	Brown
L2 (Neutral)	White	Blue
Ground	Green	Green/Yellow

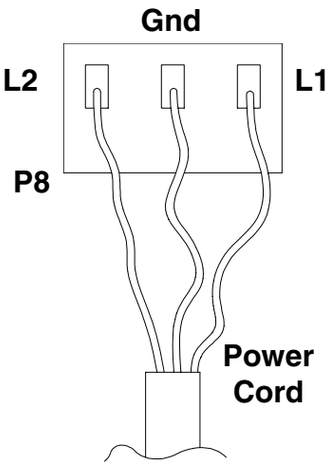


Figure No. 16

3. To terminate, remove the terminal block from the mating connector, insert the wire into the opening, then tighten the cage clamp screw, locking the wire in place.
4. Repeat the procedure until all of the wires are in place.
5. Reconnect the terminal block to the (P8) mating connector.

204S - NEMA 4X ENCLOSURE, Cont.

DC Power Connection (Model 204S-DC Only)

DO NOT connect to 24 VDC systems. 15 VDC is maximum allowable voltage.

Referring to Figure No. 11 for an illustration of the gland connector and conduit hole layout, use the 3/8" conduit hole for the AC power to bring the DC power wiring into the enclosure. Use a seal-tite or rigid conduit fitting to make a water-tight connection. **NOTE!** 18AWG copper wire should be used to connect the DC power to the instrument.

1. With the DC wiring in the enclosure, remove 1/4" of insulation from each wire (refer to Figure No. 15).
2. Connect each wire to the power terminal block (P8) referring to Figure No. 17, for terminal connections. Refer to Figure No. 14 for terminal block locations.
3. To terminate, remove the terminal block from the mating connector, insert the wire into the opening, then tighten the cage clamp screw, locking the wire in place.
4. Reconnect the terminal block to the (P8) mating connector.

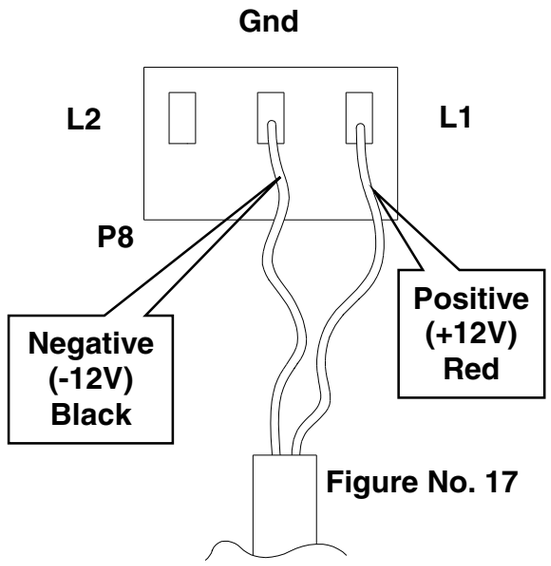


Figure No. 17

Re-Installing The Rear Panel

After all terminations have been made, remove the excess cable from the instrument enclosure. Next, route the battery cable through the enclosure opening. Make certain no cables or wires are exposed between the main housing and rear panel then place the rear panel onto the main housing. Secure with the 10 acorn nuts removed earlier. Follow a diagonal pattern when tightening the acorn nuts.

Gently pull the remainder of the excess cable (AC power, load cell and serial) from the enclosure then tighten each of the cable gland connectors. Do not over-tighten these connectors but make certain they are snug. **DO NOT USE TOOLS!** Finger tighten only! **NOTE!** Insure any unused gland connectors are plugged.

Setup And Calibration

Your 204S has been thoroughly tested and calibrated before being shipped to you. If you receive the indicator with a scale, calibration is not necessary. If it is being connected to a scale for the first time or recalibration is necessary for other reasons, proceed as indicated.

The calibration switch is located on the enclosure rear panel. To gain access to this switch, first remove the calibration access screw on the rear panel. (See Figure No. 18)

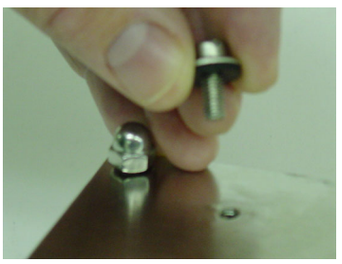


Figure No. 18

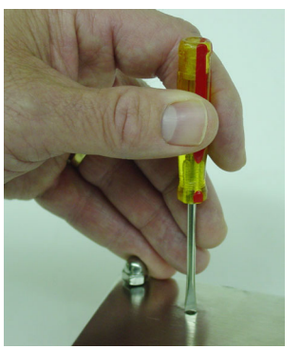


Figure No. 19

Once you have located the calibration switch, with a screwdriver or other tool inserted through the calibration switch access hole on the rear panel (see Figure No. 19) press the push button calibration switch, then press ON / OFF and release. When int= is displayed, release the push button switch. The 204S is now ready for setup and calibration. Proceed with the calibration procedure described on page 12 of this manual.

204S - NEMA 4X ENCLOSURE, Cont.

Calibration Seal Installation

If your Model 204S Indicator is used in a commercial application it must be tested and sealed by your local weights and measurement official. The 204S NEMA 4X enclosure is designed to accept a lead and wire security seal to prevent unauthorized access to the calibration adjustments. Refer to the Figure No. 20 for details on the installation of the seal.

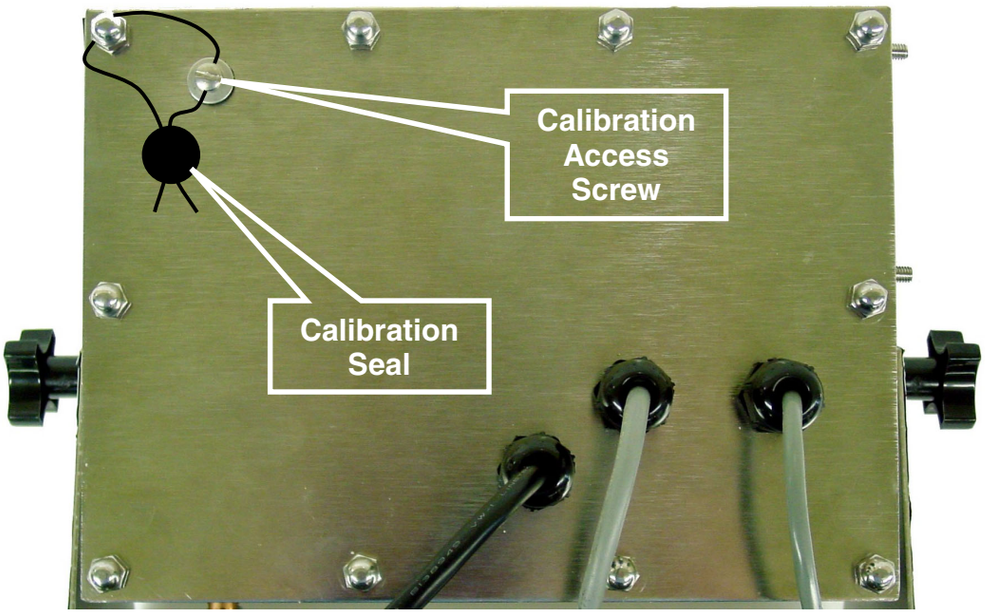


Figure No. 20

Battery Replacement

1. Referring to Figure No. 21, remove the battery compartment door and gasket.
2. Pull the battery pull tab to slide the battery tray out of the compartment about 1 inch.
3. Disconnect the battery snap connector.
4. Remove the battery tray and replace the batteries.
5. Slide the battery tray into the opening leaving about 1 inch out of the compartment.
6. Reconnect the battery snap connector.
7. Slide the battery tray into the compartment until it stops.
8. Push the excess battery cable into the enclosure.
9. Replace the gasket and battery compartment door.

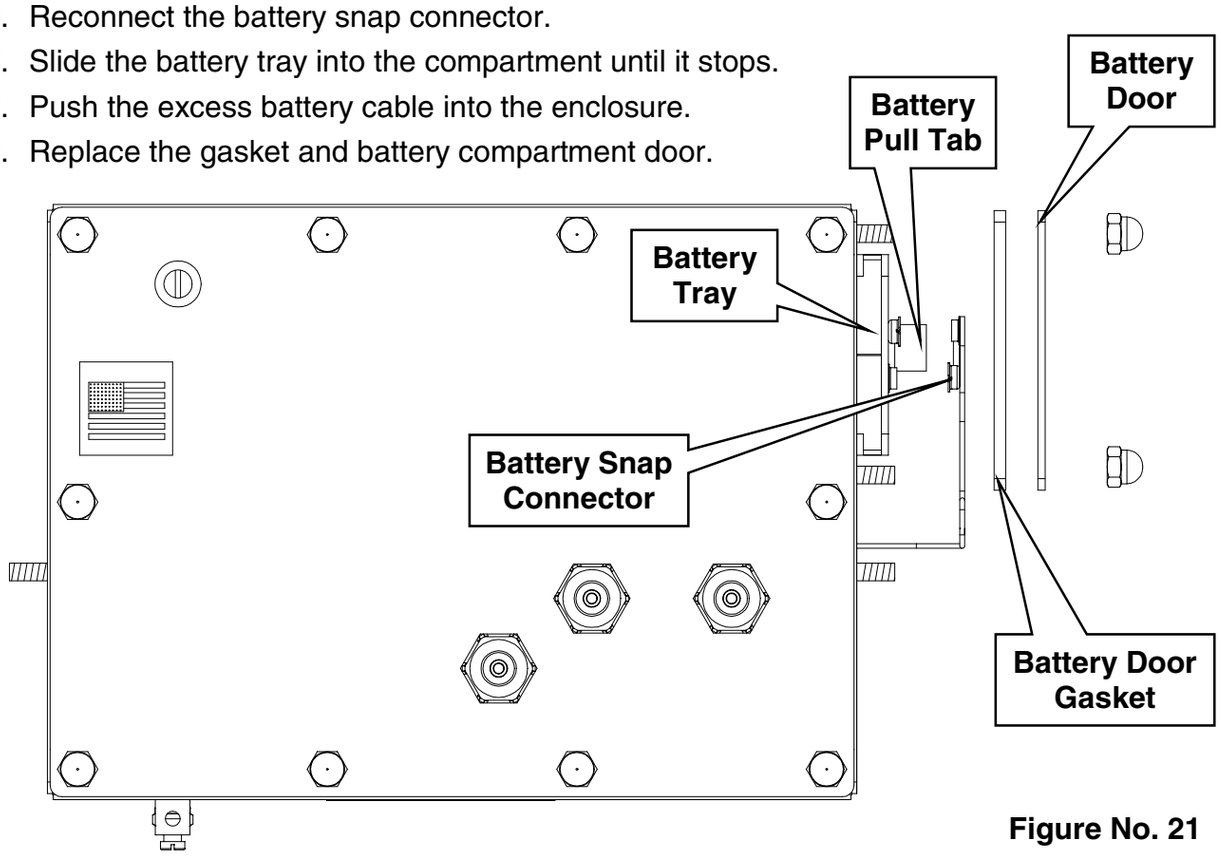
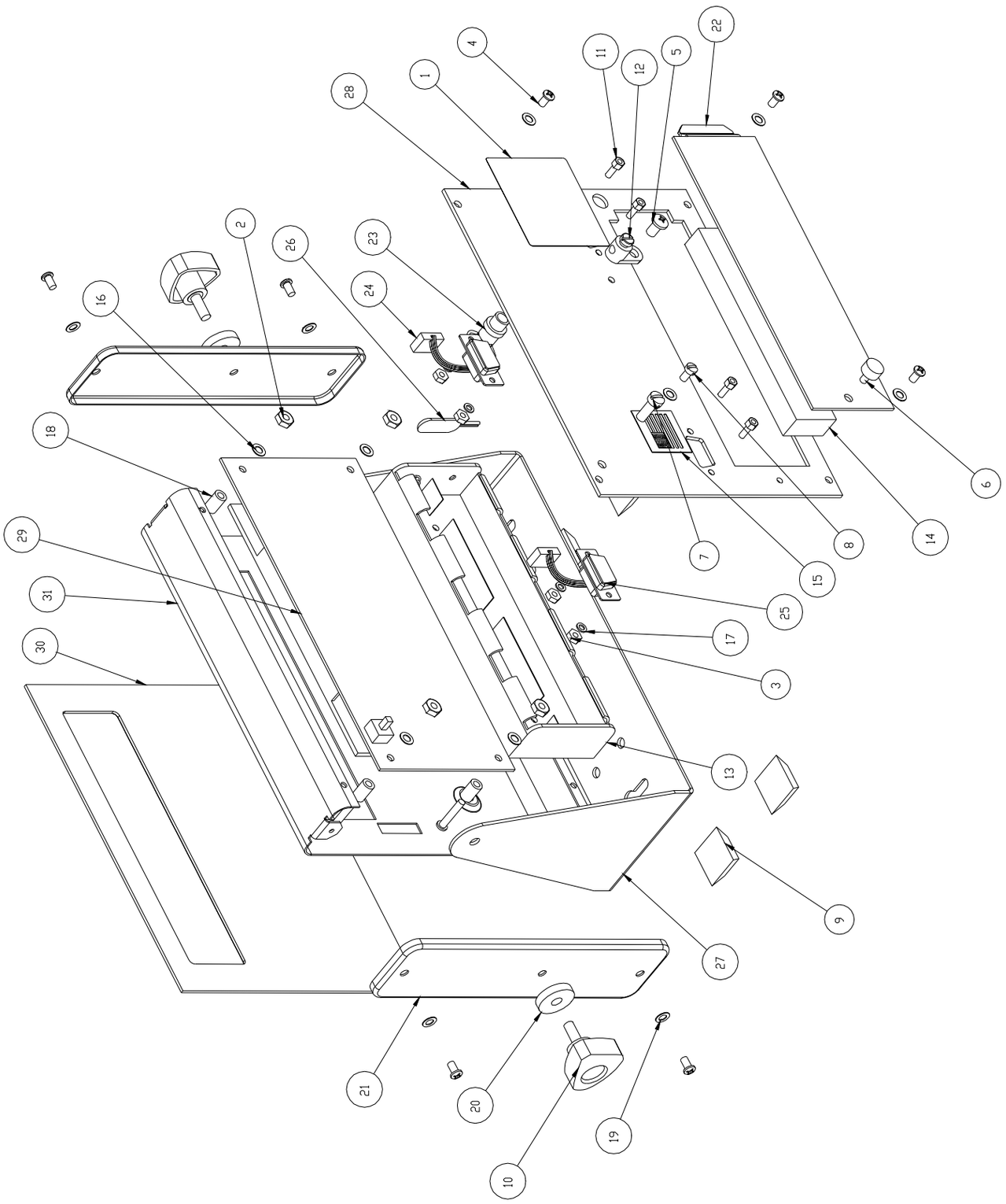


Figure No. 21

204 PARTS IDENTIFICATION

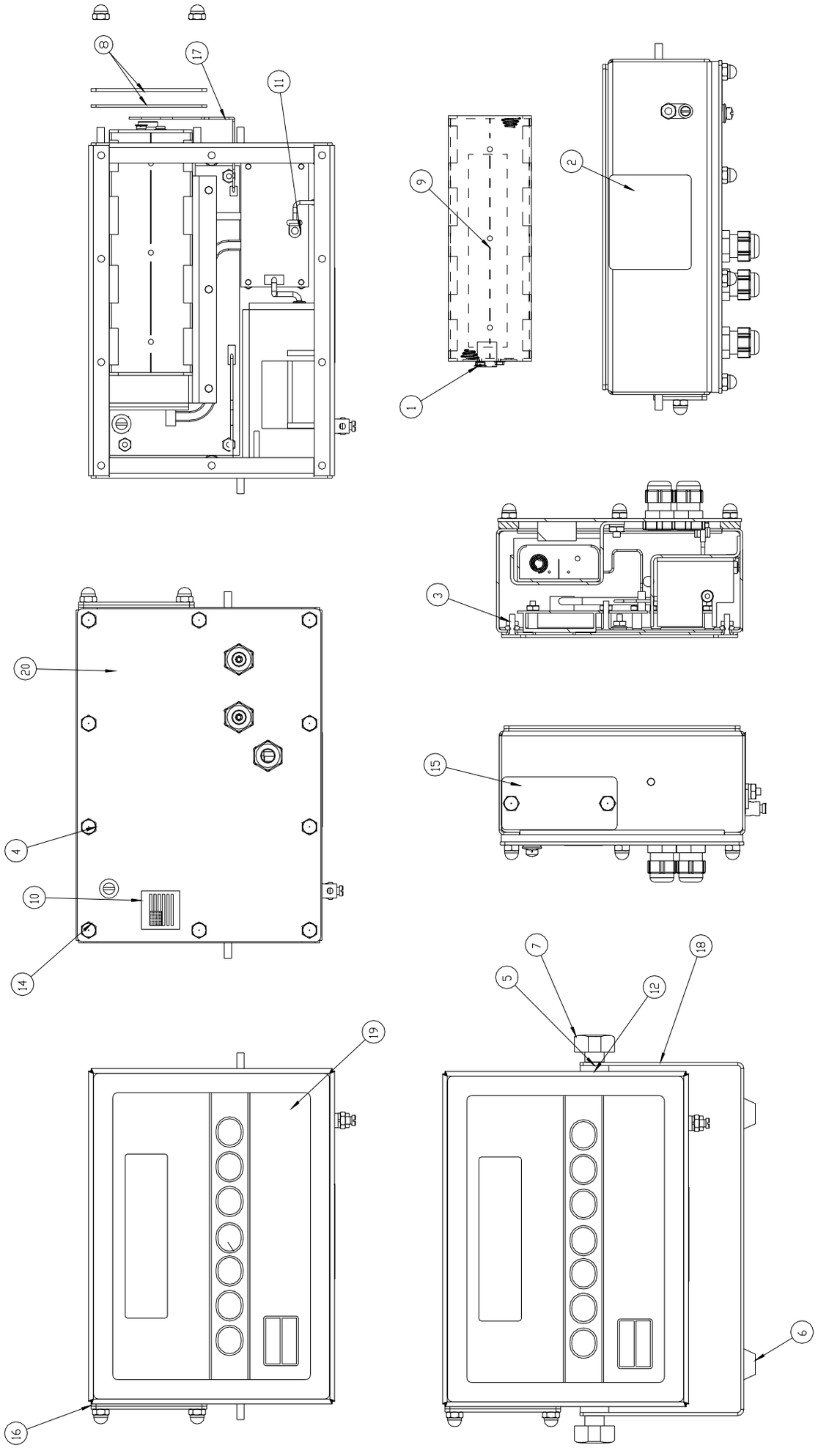


204 PARTS IDENTIFICATION

ITEM	PART NO.	QTY	DESCRIPTION
1	593GR986	1	SERIAL TAG
2	6013-0039	5	NUT HEX #6-32
3	6013-0245	4	HEX NUT #4-40
4	6021-0661	6	SCW PAN HEAD #6-32 x .25 S.S.
5	6024-0037	1	#10 SPLIT LOCK WASHER
6	6021-1032	1	THUMB SCRW, 6-32 x 0.25
7	6021-1108	2	SCW FILLISTER MACHINE-SCW #10-32 x .375 S.S.
8	6021-2071	2	SCW FILLISTER #6-32 x .250 S.S.
9	6540-1050	4	RUBBER FOOT
10	6540-1052	2	ENCLOSURE KNOB 1.18 DIA. X .44
11	6610-2000	4	JACK SOCKET
12	6610-5002	1	GROUND LUG
13	6610-5119	1	BATTERY HOLDER 6-C CELLS
14	6650-0018	1	GASKET MATERIAL 1” x 1/2” x 4 5/8”
15	6650-0087	1	LABEL: MADE IN THE USA
16	6680-0004	5	WASHER LOCK INT. TOOTH #6 Z/P
17	6680-0052	4	WASHER LOCK #4 Z/P
18	6680-0131	5	SPACER (PCB) #6 x .4
19	6680-1006	8	WASHER LOCK INT. TOOTH #6 S.S.
20	6680-1008	2	SPACER #10 x .155
21	8555-B173-18	2	END CAP, 758CSV
22	8555-B176-08	1	BATTERY DOOR
23	8555-B308-0A	1	CABLE: POWER CORD
24	8555-B309-0A	1	CABLE: LOAD CELL
25	8555-B310-0A	1	CABLE: SERIAL
26	8555-B312-0A	1	CABLE: BATTERY
27	8555-C146-08	1	DISPLAY STAND
28	8555-C304-18	1	REAR PANEL
29	8555-D301-0A	1	CONTROLLER BOARD
30	8555-D302-08	1	KEYPAD
31	8555-C306-0A	1	FRONT PANEL ASSEMBLY
not shown	728R90	1	AC ADAPTER 115VAC to 12VDC @ 300 mA
not shown	728R901	1	AC ADAPTER 230VAC to 12VDC @ 300 mA

204S – NEMA 4X PARTS IDENTIFICATION

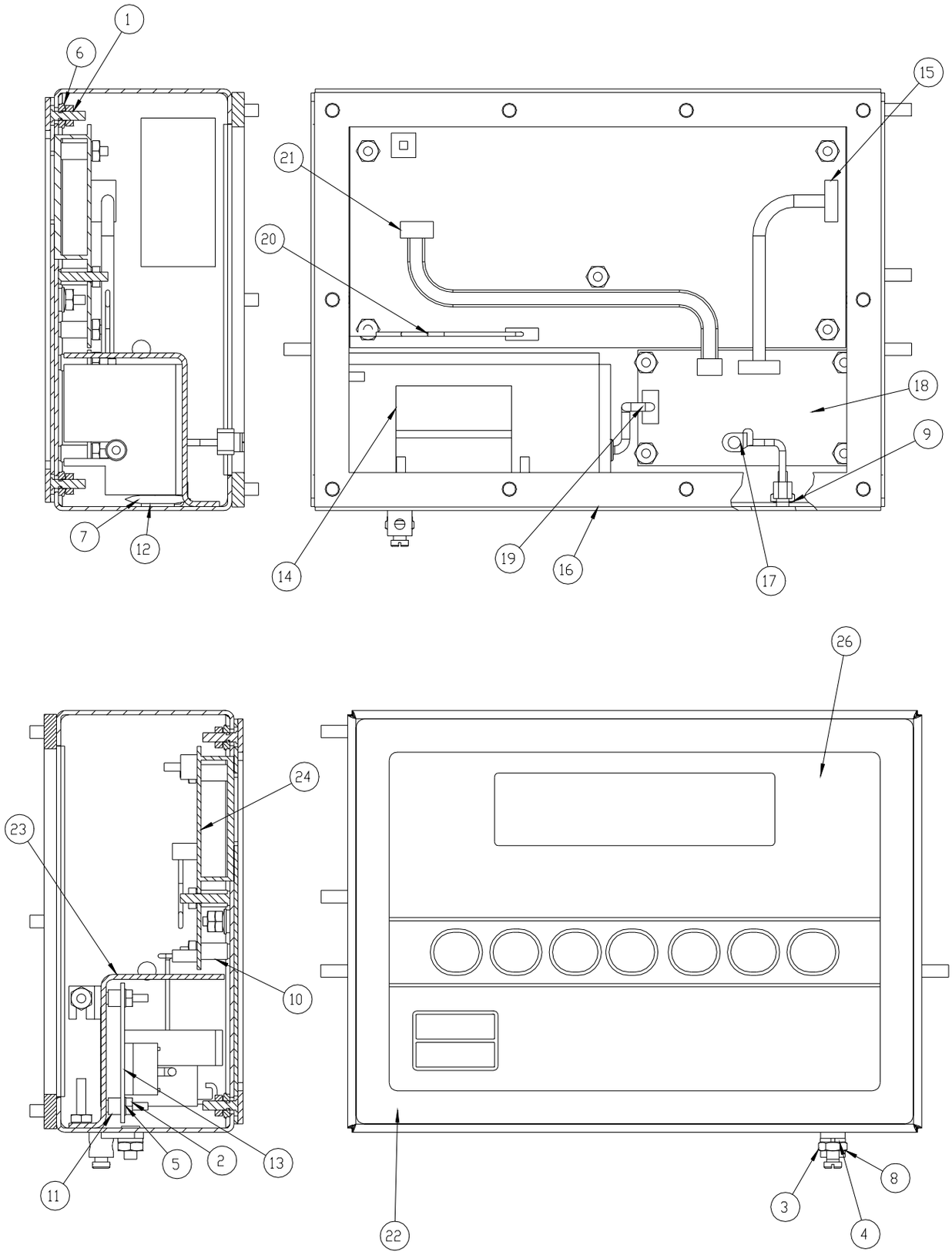
(Final Assembly)



204S – NEMA 4X PARTS IDENTIFICATION
(Final Assembly)

ITEM	PART NO.	QTY	DESCRIPTION
1	0033-B075-18	1	SLIDE FRICTION PAD
2	593GR986	1	SERIAL TAG ASSEMBLY
3	6013-0039	1	NUT HEX #6-32
4	6013-0433	11	NUT HEX #10-32 ACORN S.S.
5	6024-0083	2	WASHER FLAT 3/16 NEOPRENE, 70 DURO.
6	6540-1004	4	RUBBER FOOT
7	6540-1053	2	ENCLOSURE KNOB 1.25 DIA., 10-32 INSERT
8	6560-0047	AR	WEATHERSTRIP ADHESIVE (AS REQUIRED)
9	6610-5119	1	BATTERY HOLDER 6-C CELLS
10	6650-0087	1	LABEL: MADE IN THE USA
11	6680-0004	1	WASHER LOCK INT. TOOTH #6 Z/P
12	6680-1008	2	SPACER #10 X .155
13	6980-1030	1	POWER CORD
14	8200-B026-08	1	NUT HEX #10-32 ACORN S.S. DRILLED
15	8555-B406-08	1	BATTERY DOOR
16	8555-B408-08	1	BATTERY DOOR GASKET
17	8555-B417-0A	1	BATTERY CABLE
18	8555-C414-08	1	GIMBAL FOR 204S
19	8555-D401-0A	1	ASSEMBLY: ENCLOSURE, FRONT
20	8555-D402-0A	1	ASSEMBLY: ENCLOSURE, REAR

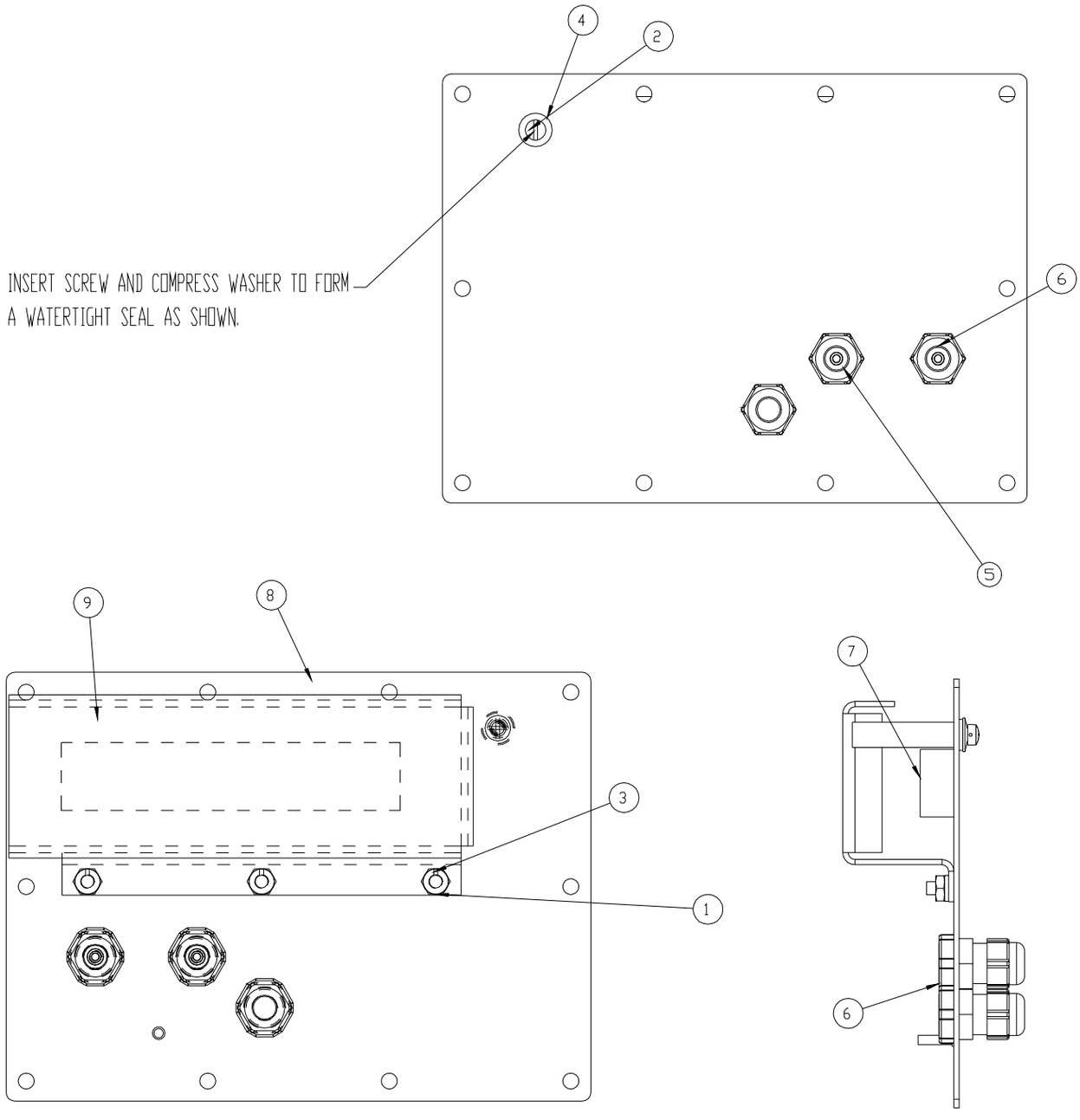
204S – NEMA 4X PARTS IDENTIFICATION
(Front Enclosure)



204S – NEMA 4X PARTS IDENTIFICATION
(Front Enclosure)

ITEM	PART NO.	QTY	DESCRIPTION
1	6013-0039	22	NUT HEX #6-32
2	6013-0245	4	NUT HEX #4-40
3	6013-0297	1	NUT HEX 10-32 HEX
4	6024-0037	1	WASHER – LOCK #10 HEL SPLIT
5	6024-0108	4	WASHER – LOCK INT TOOTH #4 S.S.
6	6024-1078	8	WASHER – FLAT #6 NEOPRENE BACKING S.S.
7	6560-0064	1	DESSICCANT 1 x 1 BAG
8	6640-5002	1	GROUND LUG
9	6680-0004	13	WASHER – LOCK INT TOOTH #6 Z/P
10	6680-0131	9	SPACER (PCB) #6 x .4
11	6680-0138	4	SPACER #6 x .187 NYLON
12	6710-1017	1	TAPE DBL SIDED 1.0 WIDE 45 MIL THICK
13	6800-1033	1	POWER SUPPLY BOARD
14	8510-C346-0I	1	LABEL – HIGH VOLTAGE
15	8555-B052-0A	1	LOAD CELL CABLE
16	8555-B064-08	1	GASKET FOR 758S ENCLOSURE
17	8555-B168-0A	1	CABLE: GROUND CABLE
18	8555-B410-0A	1	TRANSITION BOARD
19	8555-B413-0A	1	AC POWER CABLE
20	8555-B415-0A	1	POWER CABLE
21	8555-B416-0A	1	SERIAL CABLE
22	8555-C405-0A	1	WELDMENT: BEZEL FOR 204S
23	8555-C407-0A	1	POWER SUPPLY COVER WELDMENT
24	8555-D301-0A	1	CONTROLLER BOARD
25	8555-D403-0A	1	WELDMENT: ENCLOSURE, FRONT
26	8555-D409-08	1	KEYPAD: 204S

204S – NEMA 4X PARTS IDENTIFICATION
(Rear Enclosure)



ITEM	PART NO.	QTY	DESCRIPTION
1	6013-0297	3	NUT 10-32 HEX
2	6021-1108	1	SCW FILLISTER MACHINE-SCW #10-32 x .375 S.S.
3	6024-0037	3	WASHER – LOCK #10 HEL SPLIT
4	6024-1081	1	WASHER FLAT #10 NEOPRENE BACKING S.S.
5	6540-1104	2	PLUG, HOLE 0.173-.240 RED POLYETH.
6	6610-2248	3	GLAND CONNECTOR
7	6650-0018	5 in	GASKET MATERIAL 1 in X 1/2 in X 5 in
8	8555-C404-0A	1	WELDMENT: ENCLOSURE, REAR
9	8555-C411-08	1	BATTERY BRACKET


DESIGNED & MANUFACTURED
IN U.S.A.