



## NATIONAL TYPE EVALUATION PROGRAM

# Certificate of Conformance

for Weighing and Measuring Devices

**For:**

Retail Motor Fuel Dispenser  
Electronic Computing  
Model: 1XXX  
Generic Name: Pacific Pump  
Capacities: Total Volume 999.999 Gallons  
Total Sale \$9999.99  
Total Unit Price \$99.999/Gallon  
Flow Rate: 1-24 GPM

**Submitted By:**

Bennett Pump Company  
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**Standard Features and Options****Standard Features**

708 Electronics (Pacific Electronics)  
X19 Electronics (the X in the model designation does not affect metrological integrity)  
Electronic Meter Calibration  
Mechanical Meter Calibration  
Prepay, Postpay and Stand Alone Transactions  
High Hose Configuration  
LCD Display  
Console Interface  
Category 2 Audit Trail (see sealing section)

**Options**

Electronic Blender  
At the Pump Preset Volume  
At the Pump Preset Money  
1-5 Products for Each Side  
Card Reader  
2 Tier Pricing

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages. \*Editorial changes, not affecting the type or metrological content, corrected this certificate.

Kristin Maeey  
Chairman, NCWM, Inc.

Jerry Buendel  
Committee Chair, National Type Evaluation Program Committee  
Issued: July 12, 2017

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Retail Motor Fuel Dispenser / 1XXX

**Application:** For use in dispensing gasoline and gasoline blends up to 85% Ethanol and diesel fuels and biodiesel fuel blends up to 99% at a retail service station. This device may also be used with additional approved and compatible equipment.

**Identification:** The identification badge is a self-destructing label located on the vapor barrier on the inside cabinet of the device.  
\*\* For Dispenser manufactured After 8/1/2017, see table far below for new payment options in Position 7 of the Nomenclature. The Serial label will be marked with “SPEC 200” text on it.

Model Designation Chart		
Position Number	Description	Selections
1	Base Digit	1=Dispenser Series
2	Price Tiers	1=One Tier Pricing 2= Two Tier Pricing
3	Number of Products	1= One Product 2=Two Products 3=Three Products 4=Four Products 5= Five Products
4	Number of Hose Outlets	1=One Outlet 2=Two Outlets 4=Four Outlets 6= Six Outlets 8= Eight Outlets
5	Blender Options	N=Non-Blender M=Mixer B=Blender E= Extended Blender
6	Fueling Positions	1=One Side 2=Two Sides
7	Payment Options	N=None C=Credit B/W D=Debit B/W E=Debit Color F=Fiscal Card Reader G= Alpha-Numeric B/W J= Alpha-Numeric Color K=Credit Color L=Local Preset (Preset is at the pump) P=Local Preset and Printer (Preset and printer are at the pump) V=Verifone Card Reader
8	Fuels	S=Standard Fuels A=Alcohol
9	Unit of Measure	G=Gallon L=Liter I=Imperial Gallon A=US Gallon (Mechanical Calibration) B=Liters (Mechanical Calibration) C=Imperial Gallon (Mechanical Calibration)
10	Valance	Non-metrological Feature
11	Vapor Recovery	N=None A=Active Healy System B=Balanced (No NTEP testing has been performed on the device equipped with vapor recovery option or equipment to determine compliance with the Air Resources Board requirements.)



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12-30	Non-metrological features
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Payment Options	
N = None	K = EMV 7" NFC, No Audio
A = EMV Ready, 7" No Audio	L = Local Preset
B = EMV, 7" Display, No Audio	M = EMV Ready 7" NFC w/ Audio
C = Credit 7" No Audio	O = EMV 7" NFC w/ Audio
D = EMV Ready 10.5" Display w/ Audio	P = EMV Ready 10.5" NFC
E = EMV, 10.5" Display w/ Audio	R = EMV 10.5" NFC
F = Fleet Ready	S = Credit 7" NFC
G = 7" Alpha Numeric Credit	T = NCR 12"
H = EMV Ready 7" Display w/ Audio	U = NCR 5"
I = EMV 7" Display w/ Audio	V = 10.5" Video Display Only w/ Audio
J = EMV Ready NFC, No Audio	

**Sealing:** This device utilizes category two sealing by having event counters for each meter and event counters for blend changes, unit changes and volume resolution changes. Some meters may also have a mechanical calibration that would also need to be sealed.

**Devices With Mechanical Calibration:** A mechanical adjustment may be made by removing a metal pin and turning the calibrator wheel to adjust the Bennett SB100 meter. This will increase or decrease the delivery amounts. A wire security seal can be threaded through a hole in the metal pin to prevent removal of the pin.

**Devices with Electronic Calibration:** The Pacific Electronics (708 Electronics) incorporate event counters with a capacity of 999999 events for each counter. Each meter has its own counter. There are also counters for blender % changes, unit changes and volume resolution changes. These counters may be viewed by using the following method:

- While in the normal mode and the handle in the off position, place the top portion of the key, which contains a magnet, over the LL in the word "GALLONS" in the main display.
- Remove the key once the main display shows "AUDIt tRAIL".
- Briefly touch the key over the LL in the word "GALLONS" in the main display to scroll through the event counters (each time the key is touched over the LL in the word "GALLONS" it changes to the next counter).

The device will return to the normal operating mode after a short time, the device may also be returned to the normal operating mode by raising the handle to the on position.

The audit trail will be in the following order:

One meter versions (One primary tank)

ECAL 1A	(side one meter A counter)
ECAL 2A	(side two meter A counter)
BLEndr	(blend % counter)
UnitCh	(unit change counter)
VolrES	(volume resolution counter)

Two meter versions (two primary tanks and one blended product)

ECAL 1A	(side one meter A counter)
ECAL 1C	(side one meter C counter)
ECAL 2A	(side two meter A counter)
ECAL 2C	(side two meter C counter)



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BLEndr (blend % counter)  
UnitCh (unit change counter)  
VolrES (volume resolution counter)

Two meter versions (two primary tanks and two hoses per side)

ECAL 1A (side one meter A counter)  
ECAL 1b (side one meter C counter)  
ECAL 2A (side two meter A counter)  
ECAL 2b (side two meter C counter)  
BLEndr (blend % counter)  
UnitCh (unit change counter)  
VolrES (volume resolution counter)

Sealing continued:

Three meter versions (two primary tanks and one blended product plus an additional product (such as diesel))

ECAL 1A (side one meter A counter)  
ECAL 1b (side one meter b counter)  
ECAL 1d (side one meter d counter)  
ECAL 2A (side two meter A counter)  
ECAL 2b (side two meter b counter)  
ECAL 2d (side two meter d counter)  
BLEndr (blend % counter)  
UnitCh (unit change counter)  
VolrES (volume resolution counter)

Three meter versions (three primary tanks)

ECAL 1A (side one meter A counter)  
ECAL 1b (side one meter B counter)  
ECAL 1C (side one meter C counter)  
ECAL 2A (side two meter A counter)  
ECAL 2b (side two meter B counter)  
ECAL 2C (side two meter C counter)  
BLEndr (blend % counter)  
UnitCh (unit change counter)  
VolrES (volume resolution counter)

Four meter versions (Four primary tanks)

ECAL 1A (side one meter A counter)  
ECAL 1b (side one meter B counter)  
ECAL 1C (side one meter C counter)  
ECAL 1d (side one meter D counter)  
ECAL 2A (side two meter A counter)  
ECAL 2b (side two meter B counter)  
ECAL 2C (side two meter C counter)  
ECAL 2d (side one meter D counter)  
BLEndr (blend % counter)  
UnitCh (unit change counter)  
VolrES (volume resolution counter)



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The counter will be identified in the total sale display while the value of the counter will be displayed in the volume display. (Side one is always the side with the Identification badge facing it.)



Example of audit trail for side two meter A with one event

**Operation:** The Pacific Pump is used to dispense gasoline from one, two or three primary fuel tanks or to dispense a blend of two primary fuels. In certain applications an additional product (usually diesel) will be available through a separate hose and nozzle. These devices may be configured to operate as either a stand-alone dispenser or may be used in connection with an approved and compatible console. The blender allows setting the ratio of one primary product to the second primary product. This allows for the desired octane to be blended. Every blend dispenser delivers the two primary products as well as one blended product. These devices use the SB-100 meter (Certificate of Conformance Number 91-095A2).

The meter can be electronically calibrated as follows:

- Step 1 Unscrew and remove the calibration switch pin at the top of the CPU board.
- Step 2 Push the calibration switch to the left to allow for calibration.
- Step 3 Attach the portable keypad into the J3 socket on the top right side of the unit price display. The display will show "Enter Side 1". Press "enter" on the key pad
- Step 4 The device will show "CODE 00". Press "03" (manager's mode) on the key pad then press "mode" to enter the manager's mode. Enter the manager's access password and press, "enter". Press the "cancel" button to return to the code selection screen (the device will show "CODE 00")
- Step 5 Press "27" on the keypad then "mode" to enter the calibration mode. The display will show the first configured meter and the correction factor. Using the UP ARROW button or DOWN ARROW button scroll through the meters until the desired meter is displayed. Press the "enter" button to select that meter.
- Step 6 The main display will show the test prover size entry prompt. Enter the prover size and press "enter" to select that size prover. Once entered, the prover size will show in the first price per volume display. The main display will show "READY" and the second price per volume display will show the volume units of measure ("USG" for United States Gallons, "LIT" for liters or "BIG" for British Imperial Gallons).
- Step 7 Turn on the pump handle. If the push to start is active the user will be prompted to press the start button. If the pump handle supports multiple products the user will be prompted to select the desired product. Once the product has been selected the main display will reset. The total sale display will identify the meter being calibrated as well as show the current calibration factor. The current volume will be displayed in the volume display.
- Step 8 Dispense product until the volume display reads as close as possible to the prover size. Turn the pump off by lowering the handle.



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Step 9 The device will show either "in Err" (for errors entered in cubic inches) or "cc Err" (for errors in milliliters) depending on what the device was set to dispense (gallons or liters). Enter the amount of any error (positive or negative) or zero then press "enter". The main display will show "READY". At this point another run may be made by returning to step 7, or press the "CANCEL" button to exit.

Step10 Return the calibration switch to operate by pushing it to the right. Remove the keypad from the device (If switch is left in the calibrate mode the device will indicate an error and no sale would be allowed.)

**Test Conditions:** This Certificate supersedes Certificate of Conformance Number 07-098A2 and was issued to recognize the change of electronics model designation from 819 to X19. The electronics software does not change, it is for internal flexibility with no metrological effect. Contact information has also been updated. Previous test conditions are listed below for reference.

**Certificate of Conformance Number 07-098A2:** This certificate supersedes Certificate of Conformance 07-098A1 and is issued to add a new electronics package to the model 1000 series. All timeout scenarios were tested. Receipts were checked for the correct content. Calibration features were tested as well as the audit trail to make sure it incremented in the correct position. Flow tests were performed at fast, medium and slow. After 30 days the test were repeated and all results were within tolerance and repeatability requirements.

**Certificate of Conformance Number 07-098A1:** This Certificate supersedes Certificate of Conformance Number 07-098 and was issued to include a card reader. A Bennett dispenser model 1244B2V-SGN NN was interfaced with a Verifone OP4100 card reader. The emphasis of the evaluation was on the operation, receipt format, performance and agreement of indicated and recorded values. The evaluation was performed in a lab environment using Varsol as the test liquid. Five tests were performed at 12 gpm, 3 tests were performed at 7 gpm and five tests were performed at 3 gpm. After 30 days the tests were repeated using the same criteria. Tolerances applied were 3 cubic inches as provided for in the Liquid-Measuring Device Code, National Institute of Standards and Technology (NIST) Handbook 44, 2008 edition

**Certificate of Conformance Number 07-098:** The emphasis of the evaluation was on the design, operation, receipt format, agreement of indicated and recorded values, and performance of the 1000 series.

A model 1132B2N-SGVNJ was tested at a retail service station using gasoline as the test liquid. Five gallon test drafts were performed at the following flow rates: five tests were performed at 10 gpm, three tests at 6 gpm and five tests at 2 gpm. After 30 days the tests were repeated using the same criteria, the through put requirement was waived based on the previous testing of the SB100 meter (Certificate of Conformance Number 91-095A2).

A model 1144B2N-SGVNJ was tested in a lab environment using Varsol as the test liquid. Five gallon test drafts were performed at the following flow rates: five tests were performed at 12 gpm, three tests were performed at 6 gpm and five tests at 2 gpm. After 30 days the tests were repeated using the same criteria, the throughput requirement was waived based on the previous testing of the SB100 meter (Certificate of Conformance Number 91-095A2).

Tolerances applied were 3 cubic inches as provided for in the National Institute of Standards and Technology (NIST) Handbook 44, 2007 edition.

**Type Evaluation Criteria Used:** *NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices, 2017 Edition. NCWM Publication 14 Measuring Devices, 2017 Edition.*

**Tested By:** David Bliss (MI), Michael Frailer (MD) 07-098, 07-098A1; A. Katalinic (NC) 07-098A2; H. Hairr, J. Wethington (NC) 07-098A3

**Conclusion:** The results of the evaluations and information provided by the manufacturer indicate the devices comply with applicable requirements.

**Information Reviewed By:** S. Patoray, L. Bernetch (NCWM) 07-098, 07-098A1; J. Truex (NCWM) 07-098A2, 07-098A3

**Example of Device:**



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An Example of a Bennett Model 1XXX

