



Australian Government
Department of Industry,
Innovation and Science

**National
Measurement
Institute**

Certificate of Approval

NMI 5/6A/219

Issued by the Chief Metrologist under Regulation 60
of the
National Measurement Regulations 1999

This is to certify that an approval for use for trade has been granted in respect of the instruments herein described.

Wayne Model Global Century 3/G2203/P Fuel Dispenser for Motor Vehicles

submitted by Wayne Fueling Systems Sweden AB
(formerly submitted by Transponder Technologies Pty Ltd)
now of Hanogatan 10
211 24 Malmö Sweden

NOTE: This Certificate relates to the suitability of the pattern of the instrument for use for trade only in respect of its metrological characteristics. This Certificate does not constitute or imply any guarantee of compliance by the manufacturer or any other person with any requirements regarding safety.

This approval has been granted with reference to document NMI R 117, Measuring Systems for Liquids Other than Water, dated June 2011.

This approval becomes subject to review on **1/05/19**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variants 1 to 3 approved – interim certificate issued	3/04/09
1	Pattern & variants 1 to 3 approved – certificate issued	12/02/10
2	Variant 4 approved – certificate issued	28/07/10
3	Pattern & variants 1 to 4 updated (branding, etc.) – notification of change issued	23/05/11
4	Pattern & variants 1 to 4 updated (submittor, etc.) & reviewed – variant 4 amended (software version) – certificate issued	2/10/15

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 5/6A/219' and only by persons authorised by the submitter.

It is the submitter's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the National Measurement Institute (NMI) and with the relevant Certificate of Approval and Technical Schedule. Failure to comply with this Condition may attract penalties under Section 19B of the National Measurement Act and may result in cancellation or withdrawal of the approval, in accordance with document NMI P 106.

Auxiliary devices used with this instrument shall comply with the requirements of General Supplementary Certificates No S1/0/A or No S1/0B.

Signed by a person authorised by the Chief Metrologist
to exercise their powers under Regulation 60 of the
National Measurement Regulations 1999.

A handwritten signature in black ink, appearing to be 'Dr A Rawlinson', with a horizontal line underneath.

Dr A Rawlinson

TECHNICAL SCHEDULE No 5/6A/219

1. Description of Pattern

approved on 3/04/09

A Wayne Global Century model 3/G2203/P fuel dispenser for motor vehicles (Figures 1 and 2) is approved to dispense various grades of fuels (*), in attendant-operated mode, or in attended self-service mode using any compatible (#) approved control console. The meter is adjusted to be correct for the liquid for which it is to be verified/ certified. (Instruments may be known as Wayne or Dresser Wayne AB units. The model 3/G2203/P is also known as a 'Duo II –two hoses dispensing two products.)

- (*) including up to 10% ethanol (E10) and various grades of pure biodiesel and biodiesel/distillate blends (to Australian government standard).
- (#) 'Compatible' is defined to mean that no additions/changes to hardware/software are required for satisfactory operation of the complete system including all checking facilities.

1.1 Field of Operation

The field of operation of the measuring system is determined by the following characteristics:

- Minimum measured quantity, V_{min} 2 L
 - Maximum flow rate, Q_{max} 40 L/min
 - Minimum flow rate, Q_{min} 4 L/min
 - Maximum pressure of the liquid, P_{max} 300 kPa
 - Minimum pressure of the liquid, P_{min} 120 kPa (#1)
 - Range of liquids viscosity 0.5 to 20 mPa.s (at 20°C) (#2)
 - Maximum temperature of the liquid, T_{max} 50°C
 - Minimum temperature of the liquid, T_{min} -10°C
 - Ambient temperature range -25 to 55°C
 - Accuracy class 0.5
- (#1) Minimum pressure required for effective operation of the gas elimination device.
- (#2) The flowmeter is adjusted for use with one product viscosity. Fuels include kerosene, distillate and various grades of petrol (which may include up to 10% ethanol).

1.2 Description of the Metering System

The metering system incorporates the following components: (Components may be known as Wayne or Dresser Wayne AB units.)

- (i) Two Wayne model CPU compact pumping units each with an integral gas elimination device.
- (ii) Two Wayne model WM 002393-001 (aka model iMeter) positive displacement four piston double-sided measurement transducers (Figure 3) each fitted with a Wayne model WM 001682 WIP ('Wayne Integrated Pulser') pulse generator which produces 200 pulses per revolution.
- (iii) Two hoses/nozzles mounted on each end of the dispenser housing. This model is fitted with 16 mm hoses, ZVA Slimline 2 (21 mm) nozzles, and 0.75 kW pump motors. Note that the submittor should be consulted regarding the acceptability of any alternative nozzles.

1.3 Calculator/Indicator

Each Wayne or Dresser Wayne AB model iGEM calculator/indicator (Figure 1) has a display for total price, for volume delivered and for unit price for each nozzle, on both the front and the rear of the dispenser.

The display limits and increments are:

Price (6 digits) up to 9999.00 in 0.01 cents
Volume (6 digits) up to 9999.00 in 0.01 L
Unit price (4 digits) up to 99.99 in price/L

A pre-set facility (keypad and display) may also be fitted.

The instrument is approved with version 10.xx (#) software, which can be viewed by pressing '3' on the remote control or by pressing 'CRC' button on the iGEM computer board. The software version will appear on the unit price display.

(#) The last two digits of the software version number (10.xx) may be any number greater than '02' (e.g. 10.03) – these last two digits represent features which are not metrologically significant.

1.4 Checking Facilities

An automatic segment test is performed at the start of each delivery.

The calculator monitors the presence and correct transmission of signal from the measurement transducer, and in the event of detecting a fault the instrument indicates an error code and has provision for controlling electrically-operated valves to stop the delivery.

1.5 Descriptive Markings and Notices

Instruments are marked with the following data, together in one location on a data plate:

Pattern approval sign	NMI 5/6A/219
Manufacturer's identification mark or trade mark	Wayne Fueling Systems Sweden AB
Manufacturer's designation (model number)
Serial number
Year of manufacture
Maximum flow rate (Q_{\max}) L/min
Minimum flow rate (Q_{\min}) L/min
Minimum measured quantity (V_{\min}) L (#1)
Maximum operating pressure (P_{\max}) kPa
Minimum operating pressure (P_{\min}) kPa
Nature of liquids to be measured (#2)
Maximum temperature of the liquid, T_{\max}	50°C
Minimum temperature of the liquid, T_{\min}	-10°C
Environmental class	class C

(#1) In addition, the minimum measured quantity (V_{\min}) shall be clearly visible on any indicating device visible to the user during measurement, in the form 'Minimum delivery 2/5 L'.

(#2) e.g. distillate or D.

1.6 Sealing Provision

The gas separator test valve has provision for sealing. The meter is sealed as shown in Figure 4.

1.7 Verification Provision

Provision is made for the application of a verification mark.

2. Description of Variant 1

approved on 3/04/09

Certain other models and configurations of the Global Century 3/G22 series of fuel dispensers identified using Table 1.

Instruments may be fitted with 21 mm hoses, ZVA Slimline 2 (25 mm) nozzles (*), and 1.1 kW pump motors, in which case the fuel dispenser has the following field of operation:

- Maximum flow rate (Q_{max}) 70 L/min (#)
 - Minimum flow rate (Q_{min}) 7 L/min (#)
 - Minimum measured quantity (V_{min}) 5 L
- (#) A maximum flow rate of 90 L/min (Q_{min} 9 L/min) may be achieved when both chambers of the model WM 002393-001 flowmeter are used.

3. Description of Variant 2

approved on 3/04/09

With two Wayne or Dresser Wayne AB model CPU compact pumping units as described for the pattern supplying a single Wayne or Dresser Wayne AB model WM 002393-001 meter using 32 mm piping, a 32 mm hose, a ZVA (25 or 31 mm) nozzle (*) and 1.1 kW pump motors. The fuel dispenser (Figure 5) has the following field of operation:

- For use with distillate
 - Maximum flow rate (Q_{max}) 130 L/min
 - Minimum flow rate (Q_{min}) 13 L/min
 - Minimum measured quantity (V_{min}) 5 L
- (*) The submitter should be consulted regarding the acceptability of alternatives.

4. Description of Variant 3

approved on 3/04/09

With one or more compatible submersible turbine pumps (STPs) incorporating a leak detection system. The STP replaces the equivalent components (i.e. motor, pump/strainer/gas separator, and associated pipework) in certain fuel dispensers covered by this approval (refer to Table 1). Figure 6 shows a typical fuel dispenser with a submersible turbine pump system, including typical sealing.

More than one fuel dispenser may be connected to the same submersible turbine pump.

Dispensers may operate with the standard maximum flow rate, Q_{max} of 40 L/min, or with the increased maximum flow rates, Q_{max} of 70 or 90 L/min (Variant 1), or dispensers for use with distillate may be used with the high maximum flow rate, Q_{max} of 130 L/min (Variant 2).

5. Description of Variant 4

**approved on 28/07/10
amended 2/10/15**

The pattern and variants now with versions 11.xx or 12.xx (#) software, which can be viewed by pressing '3' on the remote control or by pressing 'CRC' button on the iGEM computer board. The software version will appear on the unit price display.

- (#) The last two digits of the software version number (11.xx or 12.xx) may be any number greater than '00' (e.g. 11.01) – these last two digits represent features which are not metrologically significant.

TEST PROCEDURE No 5/6A/219

Instruments shall be tested in accordance with any relevant tests specified in the National Instrument Test Procedures.

Maximum Permissible Errors

The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

Tests

Tests should be conducted in conjunction with any tests specified in the approval documentation for any components used, including indicator/controller and submersible turbine pump (STP) hydraulic systems.

TABLE 1– Meaning of Model Designations of the Wayne Global Century 3/G Series

Field Descriptor	Code (#1)	Code Description
Defines electronics & hydraulics configuration	3	iGem computer & Global hydraulics module
Defines the product line	G	Global product line
Defines model series	2	Century model line
Defines body style	2	Column style - default for Global Century
Defines options	0	40 L/min
	1	70 L/min or 90 L/min (#2)
	2	130 L/min
Defines products & hoses	1	Single, Lane Oriented (#3)
	2	Twin (Duo I), Lane Oriented (#3)
	3	Duo (Duo II), Lane Oriented (#3)
Defines hydraulic configuration	D	D = dispenser hydraulics fed with external pressure pump(s)
	P	P = pump hydraulics fitted with internal suction pump(s)

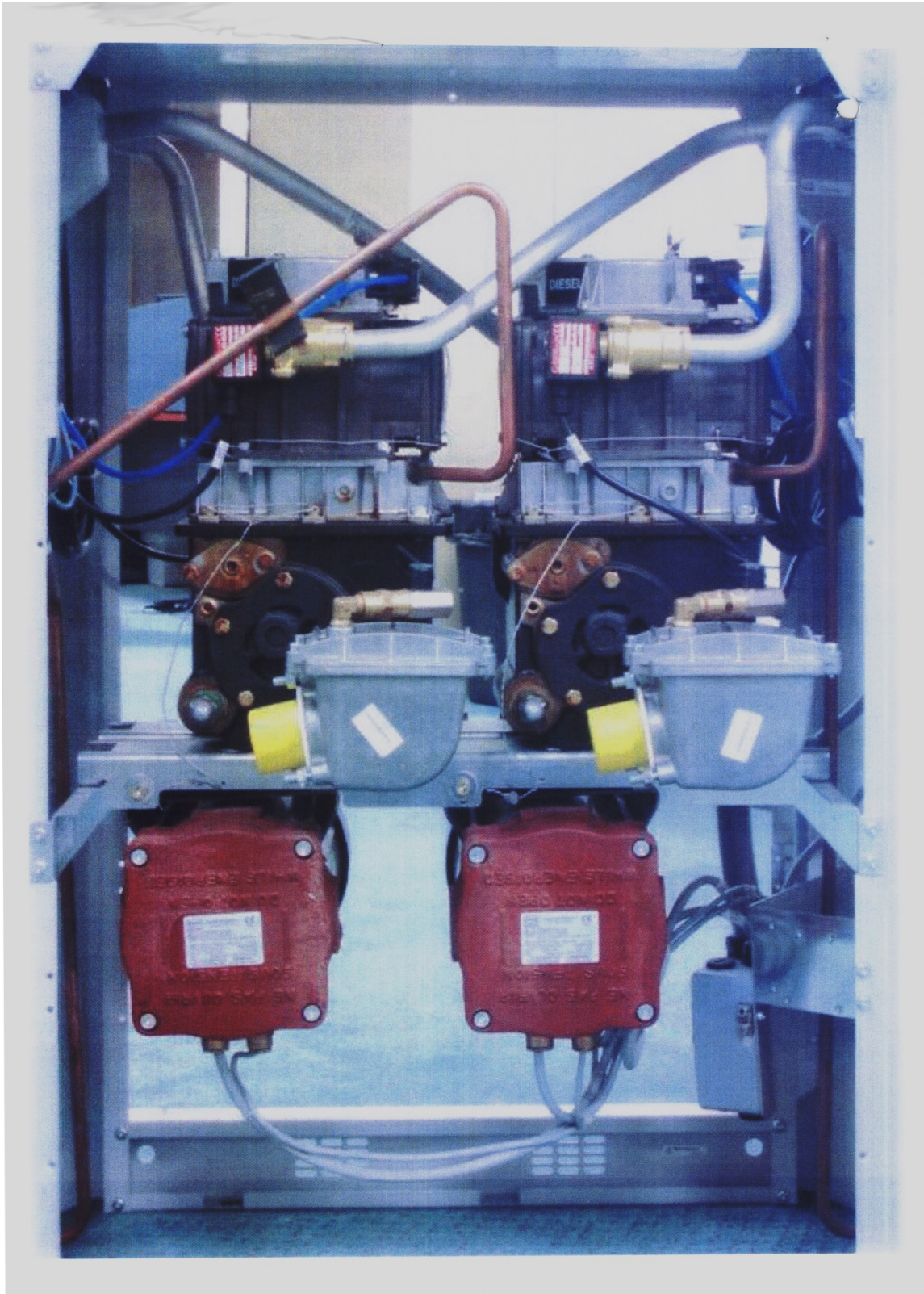
- (#1) The model number for the pattern is 3/G2203/P
- (#2) A maximum flow rate of 70 litres/minute may be achieved only when both chambers of the model WM 002393-001 flowmeter are used.
- (#3) This refers to the position of the hoses and nozzles in relation to the dispenser. 'Lane Oriented' means that the hoses and nozzles are on the sides (ends) of the dispenser (Figure 1) allowing access from both sides (rather than 'Island Oriented' when the hoses/nozzles are facing the traffic flow). Global Century series dispensers (for Australia) come in lane oriented housings, and as either singles, 'Duo I' (2 hoses dispensing 1 product) or 'Duo II' (2 hoses dispensing 2 products) versions.

FIGURE 5/6A/219 – 1



Wayne Model Global Century 3/G2203/P
Fuel Dispenser for Motor Vehicles (The Pattern)

FIGURE 5/6A/219 – 2



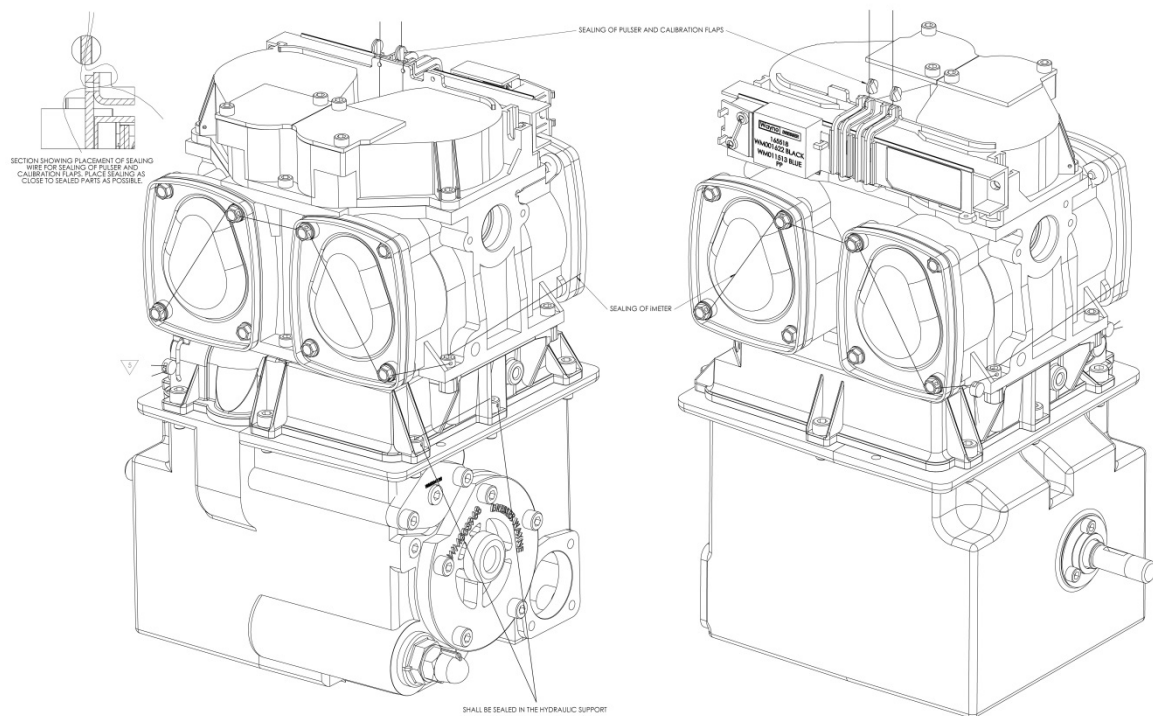
Typical Global Century 3/G22 Series – Hydraulics
(actually a model 3/G2203/P(Duo II))

FIGURE 5/6A/219 – 3



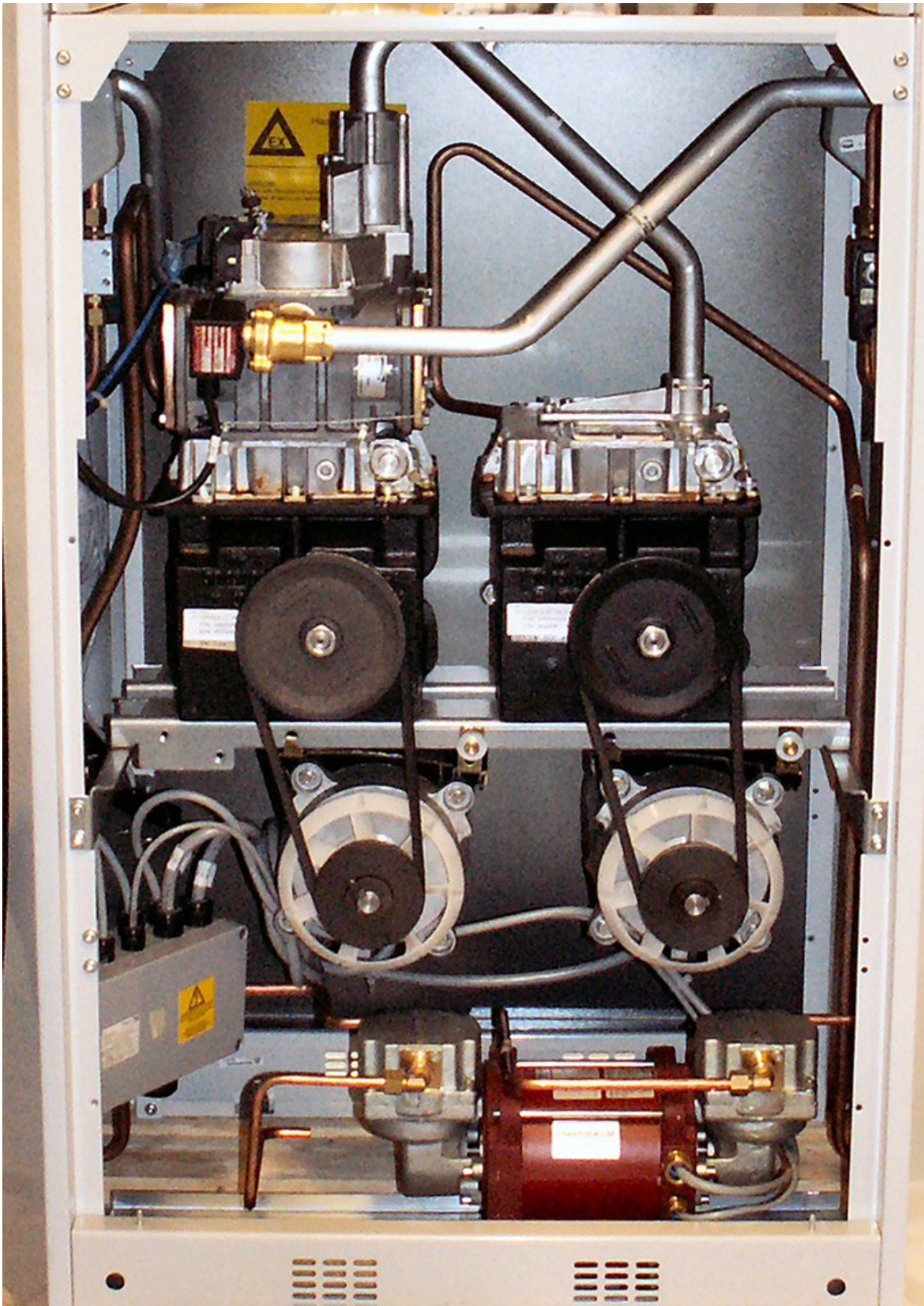
Wayne AB Model WM 002393-001 (aka model iMeter) Measurement Transducer
and Model WM 001682 WIP Pulse Generator

FIGURE 5/6A/219 – 4



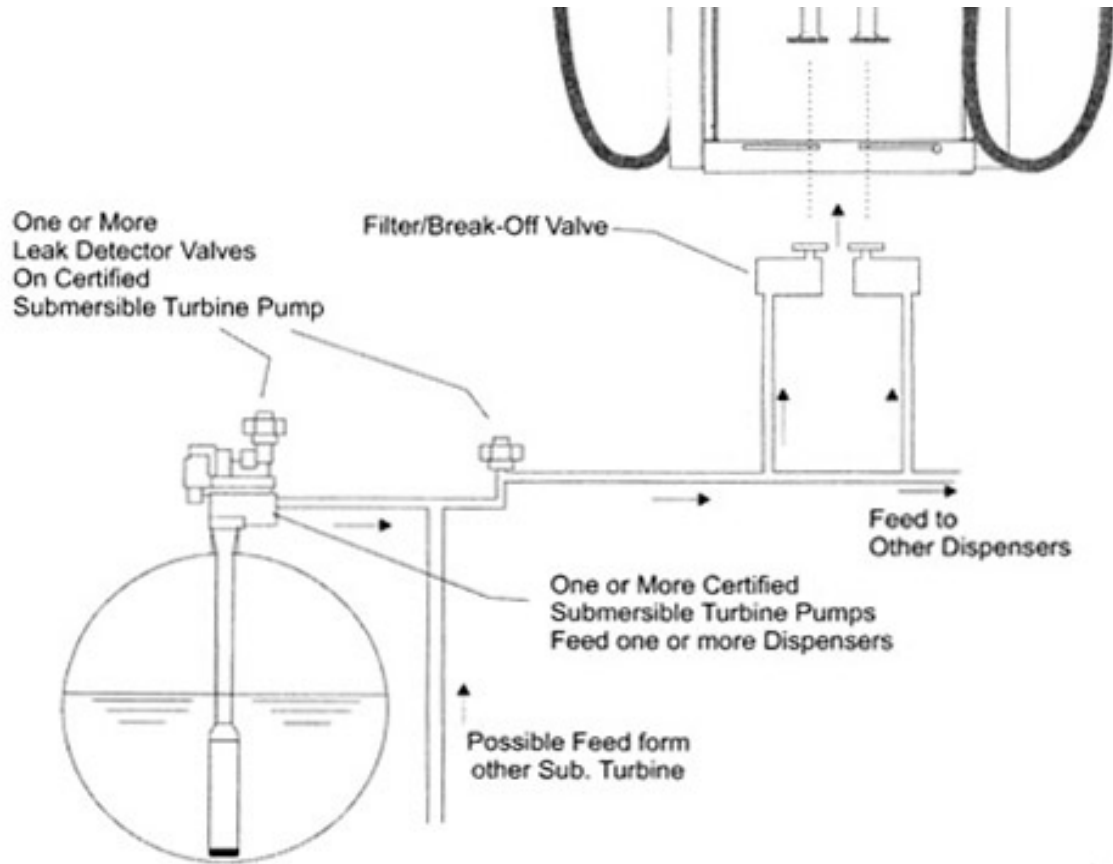
Showing Typical Sealing Method for Instruments With an Internal Pumping Unit

FIGURE 5/6A/219 – 5

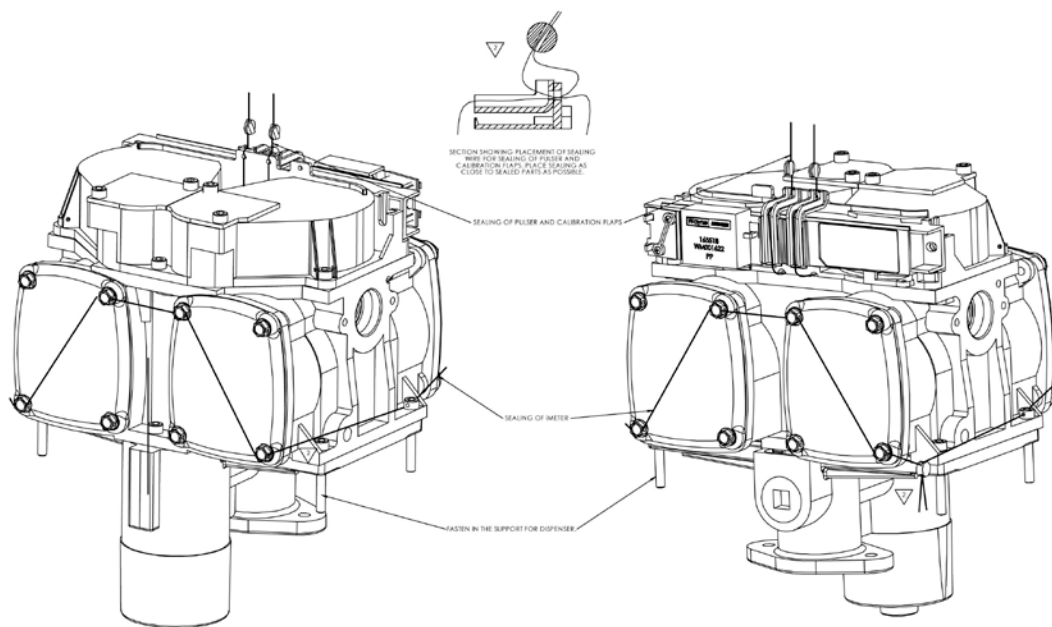


With Two Pumping Units Supplying a Single Meter – Variant 2

FIGURE 5/6A/219 – 6



(a) Typical Submersible Turbine Pump (STP) System – Variant 3



(b) Showing Typical Sealing Method for Instruments Connected to an STP System – Variant 3