



Australian Government

National Measurement
Institute

Bradfield Road, West Lindfield NSW 2070

Certificate of Approval

No 5/6B/214

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

Transponder Technologies Model 805-WM7-D11-A70S-RR Liquid Dispenser

submitted by Transponder Technologies Pty Ltd
 2 Hamra Drive, Export Park
 Adelaide Airport SA 5950.

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 117-1, Measuring Systems for Liquids Other than Water, July 2004.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 May 2015, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked with approval number 'NMI 5/6B/214' and only by persons authorised by the submitter.

Instruments purporting to comply with this approval and currently marked 'NMI P5/6B/214' may be re-marked 'NMI 5/6B/214' but 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.

The National Measurement Institute reserves the right to examine any instrument or component of an instrument purporting to comply with this approval.

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

DESCRIPTIVE ADVICE

Pattern: provisionally approved 1 July 2009
approved 23 April 2010

- A Transponder Technologies model 805-WM7-D11-A70S-RR liquid dispenser approved to dispense AdBlue fluid AUS32 (aqueous urea solution 32.5%) in attendant-operated mode.

Variant: provisionally approved 1 July 2009
approved 23 April 2010

1. Certain other models of the 805-WM series as listed in Table 1.

Technical Schedule No 5/6B/214 describes the pattern and variant 1.

Variants: approved 3 November 2011

2. Certain models of the 805-WM series fitted with both Macnaught model WM7 and model WM-40 flowmeters.
3. Certain models of the 805-WM-DW series fitted with both Macnaught model WM7 and Dresser Wayne model DW 2PM-6 flowmeters.
4. With an external centrifugal or vane type pump.

Technical Schedule No 5/6B/214 Variation No 1 describes variants 2 to 4.

FILING ADVICE

Certificate of Approval No 5/6B/214 dated 11 August 2010 is superseded by this Certificate, and may be destroyed. The documentation for this approval now comprises:

Certificate of Approval No 5/6B/214 dated 4 November 2011
Technical Schedule No 5/6B/214 dated 11 August 2010 (incl. Test Procedure)
Technical Schedule No 5/6B/214 Variation No 1 dated 4 November 2011
incl. Table 1 and Notification of Change)
Figures 1 to 3 dated 11 August 2010
Figure 4 dated 4 November 2011

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



TECHNICAL SCHEDULE No 5/6B/214

Pattern: Transponder Technologies Model 805-WM7-D11-A70S-RR
Liquid Dispenser

Submittor: Transponder Technologies Pty Ltd
2 Hamra Drive, Export Park
Adelaide Airport SA 5950

1. Description of Pattern

A Transponder Technologies model 805-WM7-D11-A70S-RR liquid dispenser fuel dispenser (Figures 1 and 2) approved to dispense AdBlue fluid AUS32 (aqueous urea solution 32.5%) in attendant-operated mode. The meter is adjusted to be correct for the liquid for which it is to be verified.

1.1 Field of Operation

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

- Minimum measured quantity, V_{min} 15 L
- Maximum flow rate, Q_{max} 70 L/min
- Minimum flow rate, Q_{min} 14 L/min
- Maximum pressure of the liquid, P_{max} 1000 kPa
- Range of liquids viscosity 0.5 to 5 mPa.s (at 20°C) (#)
- Maximum temperature of the liquid, T_{max} 30°C
- Minimum temperature of the liquid, T_{min} 0°C
- Ambient temperature range -10 to 55°C
- Accuracy class 0.5

(#) The flowmeter is adjusted to be correct for AdBlue fluid AUS32 (aqueous urea solution 32.5%) for which it is to be verified.

1.2 Description of the Metering System

The Transponder Technologies model 805-WM7-D11-A70S-RR metering system incorporates the following components:

- (i) A supply tank incorporating a detector for low liquid-level with a submersible turbine type pump to provide flow through one or more flowmeters.
- (ii) A measurement transducer comprising a Macnaught model WM7 25 mm positive displacement flowmeter.
- (iii) A Burkert model 6213 solenoid valve.
- (iv) A Transponder Technologies model T5b calculator/indicator.
- (v) A ZVA nozzle. Note that the submitter should be consulted regarding the acceptability of any alternative nozzles.

1.3 Measurement Transducer

The measurement transducer comprises a Macnaught model WM7 25 mm positive displacement flowmeter (Figure 3) incorporating oval gear rotors with two magnets per rotor that pass across a pulser circuit board with dual reed switch sensors to produce a dual output signal proportional to the volume throughput (52 pulses per litre).

1.4 Calculator/Indicator

The Transponder Technologies model T5b calculator/indicator as described in the documentation of approval NMI S414 comprises a computing unit and two display units. Separate displays are provided for volume, price and unit price. The indicators display the following maximum values:

Total price:	\$9,999.99 in \$0.01 increments
Volume:	9,999.99 in 0.01 litre increments
Unit price:	999.9 cents per litre in 0.1 cent increments

1.5 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.

1.6 Transfer Device

The transfer device is any approved nozzle that maintains the hose full of liquid at all times and is designed so that the nozzle can not be placed in a hang up position other than to end the delivery.

1.7 Sealing Provision

The electronic calibration switch in the model T5b calculator/indicator has provision for sealing as described in the documentation of approval NMI S414.

The flowmeter is sealed as shown in Figure 3.

1.8 Verification Provision

Provision is made for the application of a verification mark.

1.9 Markings

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

Pattern approval sign	5/6B/214	
Manufacturer's identification mark or trade mark	.....
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	
Nature of liquids to be measured	AdBlue	
Maximum temperature of the liquid, T_{\max}	30°C	
Minimum temperature of the liquid, T_{\min}	0°C	
Accuracy class	0.5	
Environmental class	class N	(#2)

(#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 15 L'.

(#2) Refer to clause 1.1 **Field of Operation**.

2. Description of Variant 1

Certain other models and configurations of the 805-WM series of AdBlue fluid dispenser as defined by the variations as listed below.

(For example, the pattern is a model 805-WM7-D11-A70S-RR having a single inlet and outlet, and a retail display.)

A. **Inlet/outlet field** – either **11**, **12** or **22** comprised of:

- **1** or **2** as the first digit – representing the number of inlets; and
- **1** or **2** as the second digit – representing the number of outlets.

B. **Display field** – comprised of two characters representing the type of display fitted to each side of the dispenser (e.g. *-RR-*), either:

- **R** representing a retail display (price-computing);
- **C** representing a commercial display (volume only); or
- **B** representing no display fitted, to 2nd side only.

TEST PROCEDURE

Instruments should be tested in accordance with any relevant tests specified in the Uniform Test Procedures. 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.

Maximum Permissible Errors at Verification

The maximum permissible errors applied during a verification test of the liquid dispenser using the liquid for which it is to be verified, and from normal flow rate to the minimum flow rate specified in the Certificate of Approval or Technical Schedule are:

±0.3% for the calibration/adjustment of the meter; and

±0.5% for in-service inspection of the complete measuring system.

The meter is required to be verified with the liquid that the meter is metering.

Note: Adjusting the errors of a meter to values other than as close as practical to zero is forbidden, even when these values are within the maximum permissible errors.

Other applicable maximum permissible errors are:

±150 mL for deliveries equal to the minimum measured quantity.

Hose Dilation Test

The maximum permissible errors applicable for hose dilation are:

±(0.01 × Minimum Measured Quantity) litres for systems without a hose reel; and

±(0.02 × Minimum Measured Quantity) litres for systems with a hose reel.

Software Version Number

Check the software version number as described in the documentation of approval NMI S414 for the Transponder Technologies model T5b calculator/indicator.

TECHNICAL SCHEDULE No 5/6B/214
VARIATION No 1

Pattern: Transponder Technologies Model 805-WM7-D11-A70S-RR
Liquid Dispenser

Submittor: Transponder Technologies Pty Ltd
2 Hamra Drive, Export Park
Adelaide Airport SA 5950

1. Description of Variants

1.1 Variant 2

Certain models of the Transponder Technologies 805-WM series of dispensers fitted with Macnaught model WM7 and model WM40 flowmeters.

The model WM7 flowmeter is approved for use as described for the pattern, to dispense only AdBlue fluid AUS32 (aqueous urea solution 32.5%) over a flow rate range of 14 to 70 L/min.

The model WM40 flowmeter is approved for use only with distillate, biodiesel and biodiesel/distillate blends over a flow rate range of 50 to 160 L/min.

1.1.1 Field of Operation

The field of operation of the model WM7 flowmeter is as described for the pattern.

The field of operation of the model WM40 flowmeter is determined by the following characteristics:

- | | | | |
|---|--|-----------------|------|
| • | Minimum measured quantity, V_{min} | 50 L | |
| • | Maximum flow rate, Q_{max} | 160 L/min | |
| • | Minimum flow rate, Q_{min} | 32 L/min | |
| • | Maximum pressure of the liquid, P_{max} | 300 kPa | |
| • | Minimum pressure of the liquid, P_{min} | 90 kPa | (#1) |
| • | Range of liquids viscosity (at 20°C) | 0.5 to 20 mPa.s | (#2) |
| • | Nature of liquid to be measured, e.g. distillate | ..... |  |
| • | Maximum temperature of the liquid, T_{max} | 50°C | |
| • | Minimum temperature of the liquid, T_{min} | -10°C | |
| • | Ambient temperature range | -10 to 55°C | (#3) |
| • | 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 distillate, various grades of pure biodiesel and biodiesel/distillate blends (to Australian government standard).

(#3) May be marked as 'Class N'.

1.2 Variant 3

Certain models of the Transponder Technologies 805-WM-DW series of dispensers fitted with a Macnaught model WM7 flowmeters and Dresser Wayne model 2PM6 flowmeter (Figure 4).

The model WM7 flowmeter is approved for use as described for the pattern, to dispense only AdBlue fluid AUS32 (aqueous urea solution 32.5%) over a flow rate range of 14 to 70 L/min.

The Dresser Wayne model 2PM6 flowmeter is approved for use only with distillate, biodiesel and biodiesel/distillate blends over a flow rate range of 50 to 160 L/min.

1.2.1 Field of Operation

The field of operation of the model WM7 flowmeter is as described for the pattern.

The field of operation of the model 2PM6 flowmeter is determined by the following characteristics:

- Minimum measured quantity, V_{min} 2 (or 5) L
- Maximum flow rate, Q_{max} 40 (or 80) L/min
- Minimum flow rate, Q_{min} 4 (or 8) L/min
- Maximum pressure of the liquid, P_{max} 300 kPa
- Minimum pressure of the liquid, P_{min} 100 kPa (#1)
- Range of liquids viscosity (at 20°C) 0.5 to 20 mPa.s (#2)
- Nature of liquid to be measured, e.g. petrol
- Maximum temperature of the liquid, T_{max} 40°C
- Minimum temperature of the liquid, T_{min} 5°C
- Ambient temperature range -10 to 55°C (#3)
- 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 petrol, distillate, various grades of pure biodiesel and biodiesel/distillate blends (to Australian government standard).

(#3) May be marked as 'Class N'.

Model numbers are comprised of a series of fields representing the various configurations, as follows:

TABLE 1

(For example, the model number of a typical dispenser of variant 2 is 805-WM7-WM40-D22-D70S-D80S-RR-N-N, or for variant 3 is 805-WM7-DW-D22-....)

- Instrument series field – either:
805 – representing the 805 series (refer to the pattern and variant 1).
- Meter fields – always:
WM7 – representing the Macnaught model WM7 flowmeter; and either
WM40 – representing the Macnaught model WM40 flowmeter; or
DW – representing the Dresser Wayne model 2PM-6 flowmeter.

- Inlet/outlet field – always **22**, comprised of:
 - 2** as the first digit – representing the number of inlets; and
 - 2** as the second digit – representing the number of outlets.
- Product fields, for each flowmeter – always:
 - A** – representing AdBlue (Macnaught model WM7 flowmeter only); and either
 - B** – representing biodiesel or biodiesel/distillate blends (to Australian government standard); or
 - D** – representing distillate; or
 - P** – representing petrol (Dresser Wayne model 2PM-6 flowmeter only).
- Flow rate fields:
 - for Macnaught model WM7 flowmeters, always
 - 70** – representing 70 L/min; and either
 - for Macnaught model WM40 flowmeters, always
 - 160** – representing 160 L/min, or
 - for Dresser Wayne model 2PM-6 flowmeters, either
 - 40** – representing 40 L/min; or
 - 80** – representing 80 L/min.
- Solenoid field – always:
 - S** representing that solenoid valves are fitted.
- Display field – comprised of two characters representing the type of display fitted to each side of the dispenser (e.g. *-RR-*), either:
 - R** – representing a retail display (price-computing);
 - C** – representing a commercial display (volume only; or
 - B** – representing no display fitted, to 2nd side only.
- Approval field – always:
 - N** – representing NMI-approved.
- Forecourt Communications Protocol field – either one or two of the following characters (e.g. *-E-* or *-EG-*):
 - E** – representing that Email FCN protocol is fitted;
 - G** – representing that Gilbarco FCN protocol is fitted;
 - N** – representing that New Zealand FCN protocol is fitted; or
 - X** – representing that no FCN protocol is fitted.
- Pre-set field – either:
 - P** – representing that the pre-set facility is fitted; or
 - X** – representing that no pre-set facility is fitted.

1.3 Variant 4

With an external centrifugal or vane type pump installed in flooded suction and with the supply tank installed above ground. The supply tanks are fitted with a low level device which prevents deliveries when the device is activated.

These hydraulic systems replace the equivalent components (i.e. submersible turbine pump (STP), and associated pipework) for any 'dispenser' version fuel dispenser covered by this approval.

The hydraulic system field in the model number (refer various Tables in this approval) has a '**D**' representing the 'dispenser' version.

NOTIFICATION OF CHANGE

In Technical Schedule No 5/6B/214 dated 11 August 2010:

- (i) in clause **1.1 Field of Operation**, the value of the *Maximum pressure of the liquid* should be amended to read;
"300 kPa"
- (ii) the 1st sentence of the 1st paragraph of the TEST PROCEDURE should be amended as follows;
"Instruments shall be tested in accordance with any relevant tests specified in the **national instrument** test procedures."
- (iii) the paragraphs referring to the maximum permissible errors should be replaced by;
"Maximum Permissible Errors"
The maximum permissible errors are specified in Schedule 1 of the *National Trade Measurement Regulations 2009*."

FIGURE 5/6B/214 – 1



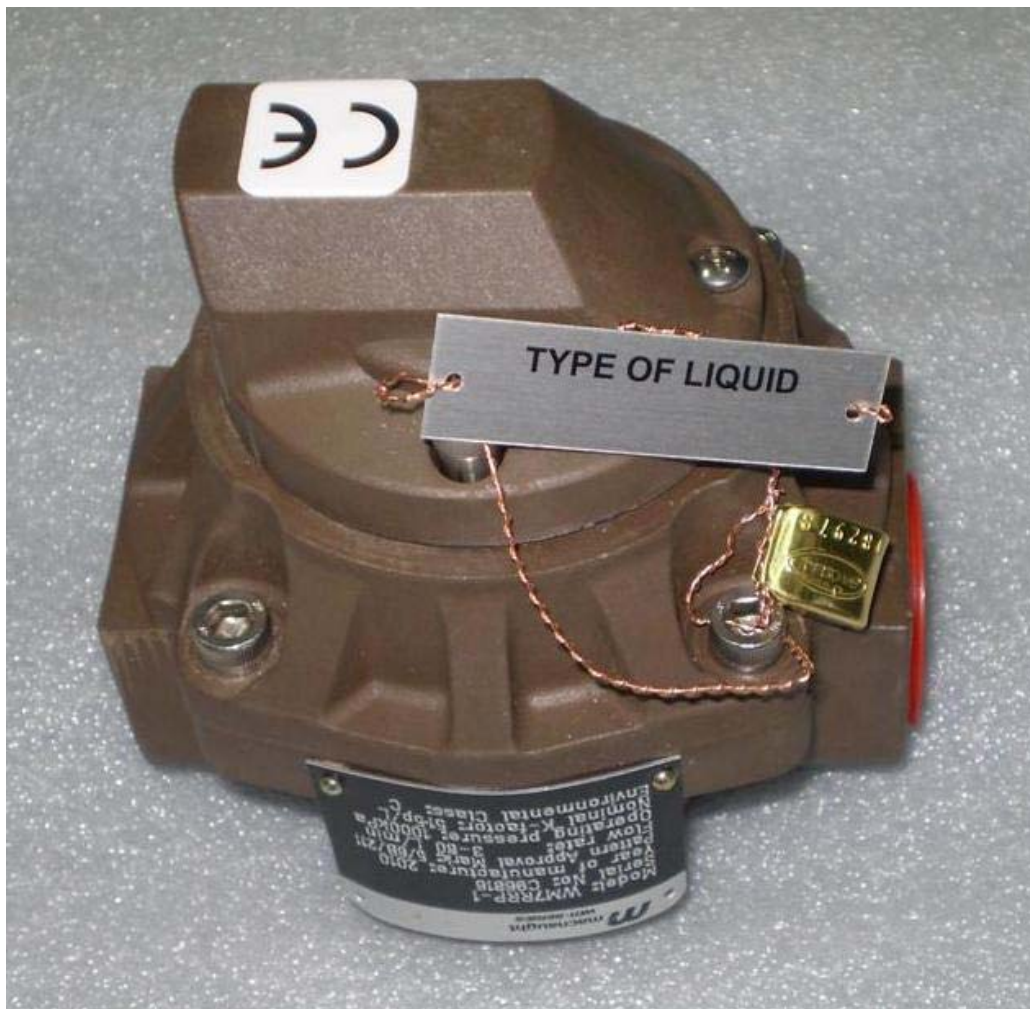
Transponder Technologies Model 805-WM7-D11-A70S-RR Liquid Dispenser

FIGURE 5/6B/214 – 2



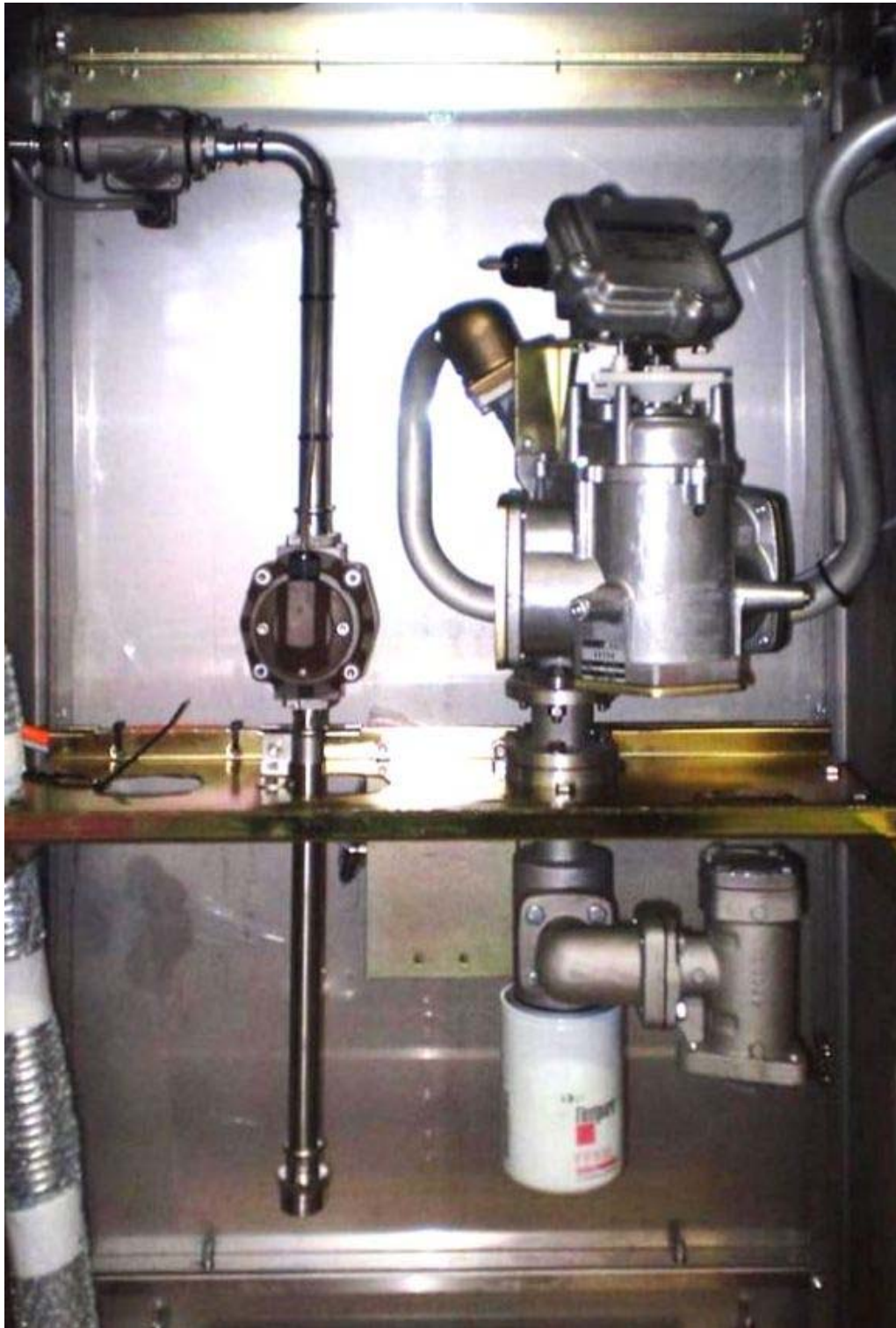
Model 805-WM7-D11-A70S-RR – Hydraulics

FIGURE 5/6B/214 – 3



Macnaught Model WM7 25 mm Flowmeter With Integral Pulser

FIGURE 5/6B/214 – 4



Transponder Technologies 805-WM7-DW Series – Hydraulics