P12/1/2
3 March 2009

Australian Government

National Measurement Institute

Bradfield Road, West Lindfield NSW 2070

Cancellation
Provisional Certificate of Approval No P12/1/2

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

This is to certify that the approval for use for trade granted in respect of the

SAGASCO Model BE/NGV/DIS/1 Natural Gas for Vehicles (NGV) Flowmetering System

submitted by South Australian Gas Company Limited
35 Waymouth Street
Adelaide SA 5000

has been cancelled in respect of new instruments as from 1 May 2009.

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

National Standards Commission

Provisional Certificate of Approval

No P12/1/2

Issued under Regulation 9
of the
National Measurement (Patterns of Measuring Instruments) Regulations

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

SAGASCO Model BE/NGV/DIS/1 Natural Gas for Vehicles (NGV) Flowmetering System

submitted by South Australian Gas Company Limited
35 Waymouth Street
Adelaide SA 5000.

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.

CONDITIONS OF APPROVAL

This approval becomes subject to review on 1 November 2001, and then every 5 years thereafter.

Instruments purporting to comply with this approval shall be marked NSC No P12/1/2 and only by persons authorised by the submittor.

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It is the submittor's responsibility to ensure that all instruments marked with this approval number are constructed as described in the documentation lodged with the Commission 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 the Commission's Document 106.

The Commission 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.

Special:

This approval is limited to ten (10) instruments.

The submittor shall advise the Commission in writing of the proposed location and specifications of each instrument prior to it being initially verified/certified.

Instruments shall not be initially verified/certified until the person intending to carry out the verification/certification has been advised in writing by the Commission of the location and suitability of the instrument.

Instruments purporting to comply with this approval shall be marked NSC No P12/1/2 prior to verification/certification.

Instruments installed under this approval are to be re-verified at six-monthly intervals. The submittor is to arrange such tests and is to send the results to the Commission.

In the event of unsatisfactory performance or of suitable test results not being received by the Commission, this approval may be withdrawn.

DESCRIPTIVE ADVICE

Pattern: provisionally approved 31 October 1996

- A SAGASCO model BE/NGV/DIS/1 natural gas for vehicles (NGV) flowmetering system. The system is a single dispenser fitted with a Rheonik model RHM 08/RHE 06 mass flowmeter.

Technical Schedule No 12/1/2 describes the pattern.

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FILING ADVICE

The documentation for this approval comprises:

Provisional Certificate of Approval No P12/1/2 dated 7 August 1997
Technical Schedule No 12/1/2 dated 7 August 1997 (incl. Test Procedure)
Figures 1 and 2 dated 7 August 1997

Signed and sealed by a person authorised under Regulation 9 of the National Measurement (Patterns of Measuring Instruments) Regulations to exercise the powers and functions of the Commission under this Regulation.

TECHNICAL SCHEDULE No 12/1/2

Pattern: SAGASCO Model BE/NGV/DIS/1 Natural Gas for Vehicles (NGV) Flowmetering System.

Submittor: South Australian Gas Company Limited
35 Waymouth Street
Adelaide SA 5000.

1. Description of Pattern

A SAGASCO model BE/NGV/DIS/1 flowmetering system approved for use to dispense natural gas for vehicles (NGV) over a flow rate range of 3 to 30 m^3/min. The minimum delivery is 1.0 m^3.

Instruments are approved for attendant-operated or remotely-authorised operation. In the latter case the system includes an Email model Epitronic Mk II control console.

1.1 Component Structure

The system is a single dispenser in an Email Pacesetter series housing (Figure 1). Each model BE/NGV/DIS/1 flowmeter has components as detailed below and as shown in Figure 2.

(i) Mass Flowmeter

A Rheonik model RHM 08 GNT mass flow sensor (with integral pulse generator) and a Rheonik model RHE 06 remote electronics unit form the model RHE 08/RHE 06 mass flowmeter.

(ii) Remote Electronics Unit

The model RHE 06 remote electronics unit is located in a non-hazardous area and converts signals received from the mass flowmeter.

(iii) Indicators

An Email Eclipse MVR series electronic price-computing driveway flowmeter indicator receives the signal from the remote electronics unit. A Rheonik model DZ04 indicator may also be fitted to display the measured flow rate and totalise the throughput of the flow sensor.

An electronic mass to volume conversion facility is incorporated.

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A conversion factor of 1.31643 is used for converting the mass to volume. Note that because of limitations in the Eclipse indicator, the conversion factor is displayed as 5.266, i.e. rounded value of 1.31643 x 4.

The unit of measurement in use for trade and displayed to the purchaser is cubic metres (m^3). The indicator also carries a notice stating 'Volume delivered converted to standard conditions of 15°C and 101.325 kPa' (or similar wording) in a position clearly visible to the purchaser.

The unit of measurement for price and unit price shall be dollars ($) or cents (c).

(iv) Outlet Piping

The pipework from the meter to the hose includes an Intermec regulator/slide valve (incorporating excess flow device), an APSCO/Bettis solenoid-controlled pneumatically-operated ball valve, and two Nupro relief valves.

(v) Hose and Nozzle

The dispenser is fitted with two hoses; a 10 mm supply line and a 6 mm return vent line.

The hoses are supported on a hose mast and are fitted with hose-break couplings.

The nozzle incorporates a Whitey 3-way valve and a Parker series 60 refuelling connection.

1.2 Markings and Notices

(i) Instruments carry the following markings, in the form shown on the right, together in one location:

Manufacturer's mark, or name written in full	SAGASCO
Model designation	BE/NGV/DIS/1
Serial number of the instrument	.....
Pattern approval mark for the instrument in the form	NSC No P12/1/2
Maximum flow rate	..... m^3/min
Minimum flow rate	..... m^3/min
Minimum quantity	..... m^3
Maximum operating pressure	..... kPa

(ii) The indicator also carries a notice stating 'Volume delivered converted to standard conditions of 15°C and 101.325 kPa' (or similar wording) in a position clearly visible to the purchaser.

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1.3 Sealing Provision

Provision is made for the calibration adjustments to be sealed by sealing the housing of the Eclipse indicator, by sealing the housing of the pulse generator, and by sealing the 'signal conditioning' circuit board (#) and the 'input/output' circuit board (#) in the remote electronics unit.

(#) These circuit boards are numbered 3.2 and 3.4, respectively, in the Rheonik Massflow Meter Technical Manual.

1.4 Verification/Certification Provision

Provision is made for the application of a verification/certification mark.

TEST PROCEDURE

Maximum Permissible Errors

The maximum permissible errors applicable at verification/certification and reverification are:

(i) Measured Quantity

The maximum permissible error for verification/certification shall be ±2% of the quantity delivered.

The maximum permissible error for reverification shall be ±3% of the quantity delivered.

(ii) Price

The price indicated shall equal the price calculated from the volume and unit price indicated.

1. Scope

Tests shall be carried out at six-monthly intervals using the gravimetric system. A report shall be prepared and forwarded to the National Standards Commission.

2. Equipment

2.1 A suitable weighing instrument with a scale interval not greater than 20 g, and which is able to provide the required weighing measurements with an uncertainty not greater than ±0.67%.

2.2 Certified test masses of at least 10 kg.

2.3 Three, 60 litre NGV cylinders.

2.4 Necessary valves, hoses and couplings to be able to fill and empty the cylinders.

2.5 A stop watch to determine the flow rate.

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3. Procedure

3.1 Set up the weighing instrument on a flat surface and out of the wind. Level the instrument, switch on, and allow for any warm-up time.

3.2 Zero the instrument and place the empty cylinder on the weighing platform. Either note the mass of the empty cylinder or tare off the mass of the cylinder.

3.3 Remove the cylinder from the weighing platform and place it in the vicinity of the fuel dispenser.

3.4 Connect the nozzle/hose of the fuel dispenser to the cylinder. Authorise the dispenser, open the cylinder valve, then open the refuelling nozzle and make a delivery at the maximum achievable flow rate until the cylinder is approximately 75% full. For a 60 L cylinder this equates to approximately 7.6 kg of gas. Time the filling process and determine the nominal flow rate.

3.5 Close the cylinder valve and the refuelling nozzle and return the nozzle/hose to the dispenser.

3.6 Record the quantity displayed by the fuel dispenser.

3.7 Place the cylinder on the weighing platform and record the mass (kg) indicated. Subtract the tare mass of the cylinder if the cylinder has not been tared off to obtain the mass of the gas delivered.

3.8 If the fuel dispenser indicates volume, convert the mass of the gas in the cylinder to volume delivered by multiplying by the conversion factor (1.31643).

3.9 Determine the relative error as follows:

$$\frac{(\text{quantity displayed} - \text{quantity delivered}) \times 100}{\text{quantity delivered}}$$

3.10 Remove the partly filled cylinder from the weighing platform and place it near to the dispenser. Connect the nozzle/hose of the fuel dispenser to the partly filled cylinder and perform a slow flow rate test by completing the delivery into the cylinder until the flow stops. Time the filling process and determine the flow rate.

3.11 Close the cylinder valve and the refuelling nozzle and return the nozzle/hose to the fuel dispenser. Record the quantity displayed by the dispenser.

3.12 Place the cylinder on the weighing platform and record the total mass of gas delivered into the cylinder. To determine the mass of gas delivered for the slow flow rate test, subtract the mass of gas delivered for the fast flow rate test.

3.13 Repeat steps 3.2 to 3.12 with at least two more test cylinders.

3.14 Check that all results are within the maximum permissible errors. Check that the fast and slow flow rates determined in 3.4 and 3.10 are within the flow rate range marked on the nameplate of the dispenser.

3.15 Check price calculations for the quantities delivered and the unit price settings.

P12/1/2
24 October 2000

National Standards Commission

12 Lyonpark Road, North Ryde NSW

Notification of Change

Provisional Certificate of Approval No P12/1/2

Change No 1

The following change is made to the approval documentation for the

SAGASCO Model BE/NGV/DIS/1 Natural Gas for Vehicles (NGV) Flowmetering System

submitted by South Australian Gas Company Limited
35 Waymouth Street
Adelaide SA 5000.

In Technical Schedule No 12/1/2 dated 7 August 1997, pages 3, 4 and 5 are replaced by the attached pages (3 and 4), which include an amended Test Procedure.

Signed by a person authorised under Regulation 63 of the National Measurement Regulations 1999 to exercise the powers and functions of the Commission under this Regulation.

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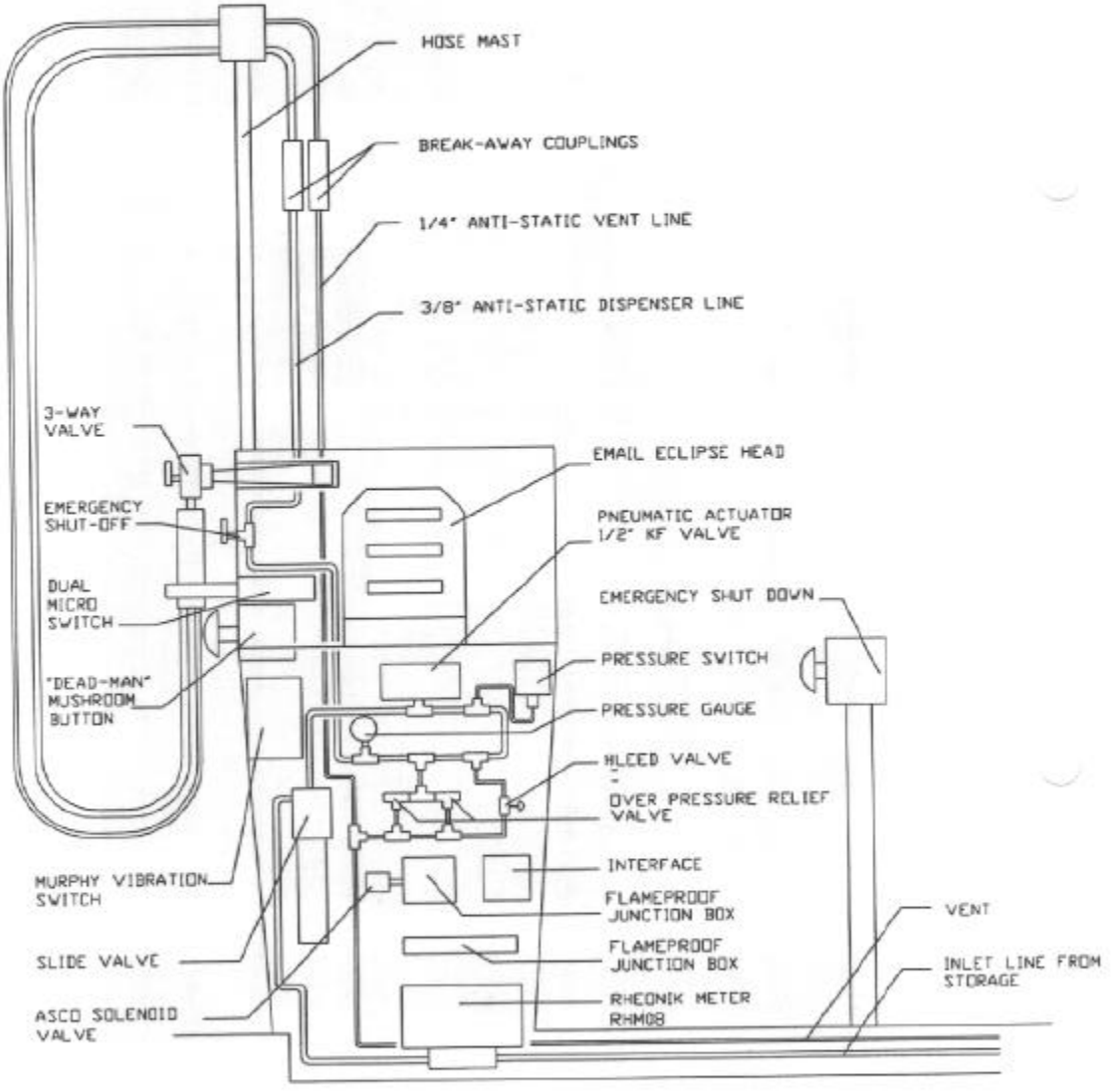
FIGURE 12/1/2 – 1

SAGASCO Model BE/NGV/DIS/1 NGV Flowmeter

FIGURE 12/1/2 – 2



Showing Component Structure