Australian Government
National Measurement Institute
Bradfield Road, West Lindfield NSW 2070

Supplementary Certificate of Approval

NMI S409

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.

Veeder-Root Model 767163-305 Pulse Generator for use in Flowmetering Systems

submitted by Gilbarco Australia Limited
20 Highgate Street
AUBURN NSW 2144

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 **1/10/19**, and then every 5 years thereafter.

DOCUMENT HISTORY

Rev	Reason/Details	Date
0	Pattern & variant 1 approved – interim certificate issued	3/09/02
1	Pattern & variant 1 approved – certificate issued	8/04/03
2	Pattern & variant 1 reviewed– notification of change issued	25/02/08
3	Pattern & variant 1 reviewed & updated – certificate issued	12/05/14

CONDITIONS OF APPROVAL

General

Instruments purporting to comply with this approval shall be marked with pattern approval number 'NMI (or NSC) S409' and only by persons authorised by the submittor.

Instruments incorporating a component purporting to comply with this approval shall be marked 'NMI (or NSC) S409' in addition to the approval number of the instrument, and only by persons authorised by the submittor.

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 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.

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

Dr A Rawlinson

TECHNICAL SCHEDULE No S409

1. Description of Pattern **approved on 3/09/02**

A Veeder-Root model 767163-305 pulse generator for use in compatible NMI-approved flowmetering systems (Figures 1 and 2).

1.1 Field of Operation

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

• Pulses per shaft revolution	50 pulses/revolution/channel
• Maximum pulser shaft speed	600 revolutions/minute
• Output pulses	Positive rectangular waveform
• Maximum pulse frequency	500 Hz
• Power supply range	10 to 15 volts DC
• Environmental class	–25°C to 55°C
• Accuracy class	0.3 (or larger)

1.2 Pulse Generator

The Veeder-Root model 767163-305 bi-directional dual channel (overlapping) pulse generator is designed to produce pulses proportional to volume throughput, when fitted to a compatible NMI-approved flowmeter and interfaced with a Contrec model 1010A controller as described in approval NMI S313A or any other compatible NMI-approved controller or calculator/indicator.

1.3 Installation

The pulse generator is connected to the flowmeter such that the movement of the pulse generator shaft is directly proportional to the movement of the metering shaft. When considering the compatibility of the flowmeter and the calculator/ indicator for use with the pulse generator, the consideration shall include the field of operation of each device.

1.4 Checking Facilities

The pulse generator is configured for two-channel pulse output operation and with an overlapping pulse output. The overlapping pulse output permits the detection of direction and errors on either channel when interfaced to a compatible NMI-approved controller or calculator/indicator.

1.5 Descriptive Markings and Notices

The following is the minimum data required to be marked on the pulse generator:

Pattern approval number	NMI (or NSC S409
Manufacturer’s identification mark or trade mark	.....
Manufacturer’s designation (model number)	.....
Serial number	.....
Year of manufacture	.....
Environmental class	class C

1.6 Verification Provision

Provision is made for the application of a verification mark.

1.7 Sealing Provision

Provision is made for the pulse generator to be sealed (Figure 2) to prevent access to its electronics.

2. Description of Variant 1 **approved on 3/09/02**

Other models and configurations as listed below in Table 1. The staggered pulse output allows errors to be detected on either channel or on both concurrently (power loss to pulser).

TABLE 1

Model	Configuration
767163-30#	overlapped pulse output and bi-directional shaft rotation
767163-31#	staggered pulse output and bi-directional shaft rotation
767163-40#	overlapped pulse output and clockwise shaft rotation
767163-41#	staggered pulse output and clockwise shaft rotation
767163-50#	overlapped pulse output and counter-clockwise shaft rotation
767163-51#	staggered pulse output and counter-clockwise shaft rotation

– indicates length of shaft

TEST PROCEDURE

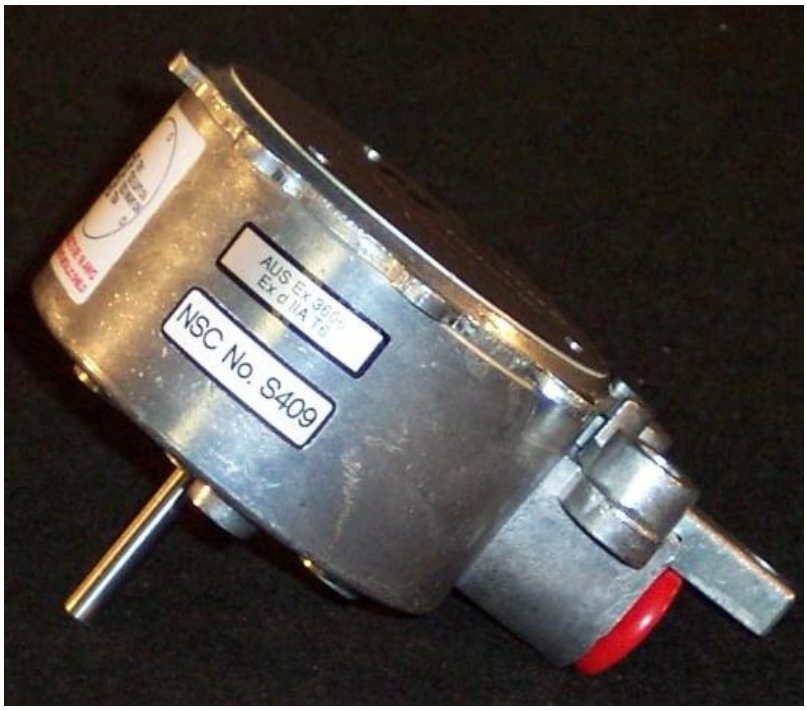
Instruments should be tested in accordance with any tests included in the approval documentation for the flowmetering system/s in which the pattern is included, as appropriate, and in accordance with any relevant tests, and in accordance with any relevant tests specified in the National Instrument Test Procedures.

The instrument shall not be adjusted to anything other than as close as practical to zero error, even when these values are within the maximum permissible errors.

Maximum Permissible Errors

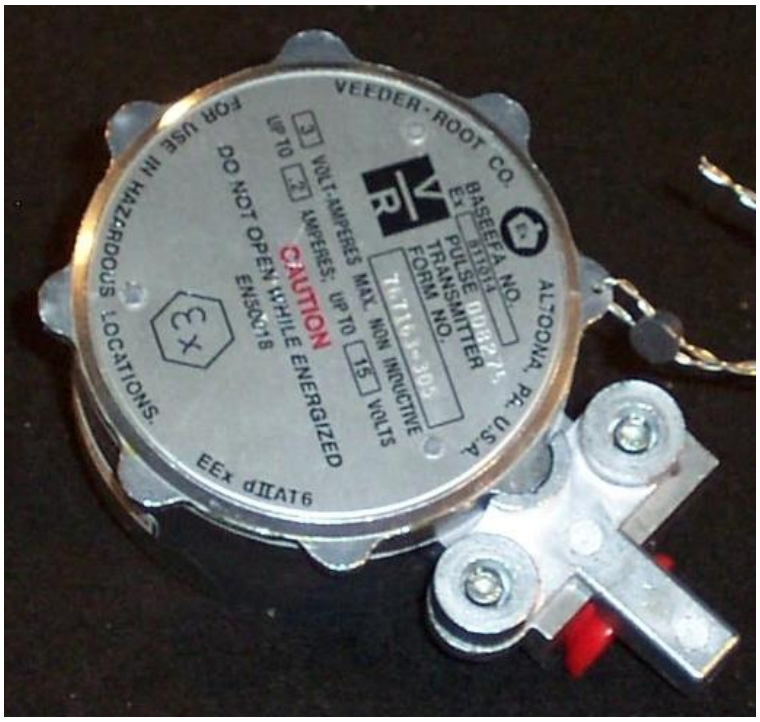
The maximum permissible errors applicable are those specified for flowmetering system in which the pattern is included, as stated in the approval documentation for the system or as specified in Schedule 1 of the *National Trade Measurement Regulations 2009*.

FIGURE S409 – 1



Veeder-Root Model 767163-305 Pulse Generator – Side View

FIGURE S409 – 2



Model 767163-305 Pulse Generator – Top View Showing Typical Sealing

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