



Test Monitoring Center

@ Carnegie Mellon University
6555 Penn Avenue, Pittsburgh, PA 15206, USA

<http://astmtmc.cmu.edu>
412-365-1000

Sequence VIE Information Letter 18-2
Sequence Number 6
July 23, 2018

ASTM consensus has not been obtained on this information letter. An appropriate ASTM ballot will be issued in order to achieve such consensus.

TO: Sequence VI Surveillance Panel

SUBJECT: 1. Additional Piston Valve Actuator
2. Addition of Component Source Footnotes

1. Recently, the Sequence VI Surveillance Panel approved the use of an additional piston valve actuator. Section 6.6.5.3 has been revised to allow the use of a Burkert Type 331 actuator with model 251 or 2000 piston operated valves.
2. It was noted that many required components did not have the sourcing information listed in the latest version of the Test Method. The attached sections have been revised to include footnotes detailing sourcing information.

The test method has been revised to incorporate these changes and are effective with the issuance of this letter. The text of the revisions is shown in the attachment.

Michael P. Raney
Engine Oil Test Development and Support
GM Global Propulsion Systems

Frank M. Farber
Director
ASTM Test Monitoring Center

Attachment

c: http://www.astmtmc.cmu.edu/ftp/docs/gas/sequencevi/procedure_and_ils/VIE/il18-2.pdf
Distribution: Email

Revises D8114-18 as amended by Information Letter 18-1

6.4.1 *Dynamometer*—Use a Midwest or Eaton 37 kW Model 758 dry gap dynamometer⁹. Replacing an engine dynamometer during a test (reference or non-reference oil) is not acceptable. If a dynamometer needs to be replaced during a test, abort the test. Follow calibration requirements shown in 10.2.3 before starting each new test.

6.5.4 The specified heat exchanger (HX-1 in Fig. A5.1) is an ITT Standard brazed plate model 320-20, Part No. 5-686-06-020-001¹⁰ or ITT Bell and Gossett brazed plate model BP-75H-20, Part No. 5-686-06-020-001¹⁰ (see X1.8). Parallel or counter flow through the heat exchanger is permitted

6.5.4.1 Approved replacement heat exchangers are: ITT Bell and Gossett brazed plate Model BP-420-20¹⁰, Part No. 5-686-06-020-005 and ITT Bell and Gossett brazed plate Model BP-422-20¹⁰, Part No. 5-686-06-020-007 (see X1.8).

6.5.4.2 The specified heat exchanger(s) for the alternative cooling system (see Figs. A5.2 and A5.3) are an ITT shell and tube Model BCF 5-030-06-048-001¹⁰ or an American Industrial AA-1248-3-6-SP¹¹ (see X1.8).

6.5.7.1 A Badger Meter Inc. Model No. 9003TCW36SV3AxxL36¹² (air-to-close), or Model No. 9003TCW36SV1AxxL36¹² (air-to-open) 3-way globe (divert), 2 in. valve is the specified valve (see X1.10).

6.5.7.2 A Badger Meter Inc. Model No. 9003TCW36SV3A19L36¹² (air-to-close), or Model No. 9003TCW36SV1A19L36¹² (air-to-open) are also acceptable if the trim package used with these valves has a CV of 16.0.

6.5.8 A control valve (FCV-103 in Figs. A5.1-A5.3) is required for controlling the coolant flow rate to 80.0 L/min \pm 4 L/min. A Badger Meter Inc. Model No. 9003GCW36SV3A19L36, 2-way globe, 2 in., air-to-close valve is the specified valve¹². A VFD device (P-1 in Fig. A17.3) would require this value.

6.5.9 Use a Viatran model 274/374¹³, Validyne model DP15 or P55¹⁴, or Rosemount models 1151 or 3051¹⁵ differential pressure transducer for reading the coolant flow rate at the orifice plate (FE-103 in Figs. A5.1-A5.3) if orifice plate is used for flow measurement.

6.5.12 Use a control valve (TCV-101 in Fig. A5.2 and Fig. A5.3) for controlling the process water flow rate through the heat exchanger HX-1. A Badger Meter Inc. Model 9001GCW36SV3Axxx36¹² (air-to-close) or Model 9001GCW36SV1Axxx36¹² (air-to-open), 2-way globe, 1-in. valve have been found to be suitable for this application.

6.6.4.1 A scavenge pump, Viking Series 475¹⁶, gear type, close-coupled pump, model H475M is specified. The pump shall have an electric motor drive of 1140 r/min to 1150 r/min with a minimum of 0.56 kW. Voltage and phase are optional.

6.6.5.2 Use a positive displacement oil circulation pump. A Viking Series 4125¹⁶, Model G4125 or G4214A, no relief valve, base mounted are specified. The pump shall have a V-belt or direct drive electric drive motor of 1140 r/min to 1150 r/min with a minimum power of 0.56 kW. Voltage and phase are optional.

NOTE 1—If using a V-belt drive, use a 1:1 pulley ratio so that the final speed of the pump is a nominal 1150 r/min.

6.6.5.3 Use solenoid valves (FCV-150A, FCV-150C, FCV-150D, and FCV-150E, in Fig. A5.6).

(1) FCV-150F and its related lines/piping are optional.

(2) FCV-150A is a Burkert¹⁷ Type 251 piston-operated valve used with a Type 312 solenoid valve (or a Burkert Type 2000 piston-operated valve used with a Type 311, 312, 330, or 331 solenoid valve) for actuation of air supply to the piston valve, solenoid valve direct-coupled to piston valve, normally closed,

explosion proof (left to the discretion of the laboratory), and watertight, $\frac{3}{4}$ in., 2-way, stainless steel NPT fitting.

(3) FCV-150C is to be Burkert¹⁷ Type 2000 with 13 mm orifice and 50 mm actuator. Additionally, flexible hoses to and from FCV-150C are to be size #12 and the internal diameter of all fittings on the suction side of the engine driven oil pump shall be equal to or greater than 0.50 in. Hose lines to and from FIL-2 are to be size #10.

(4) FCV-150D and FCV-150E are Burkert¹⁷ Type 251 piston-operated valves used with a Type 312 solenoid valve (or a Burkert Type 2000 piston-operated valve used with a Type 311, 312, 330, or 331 solenoid valve) for actuation of air supply to the piston valve, solenoid valve direct-coupled to the piston valve, normally closed, explosion proof (left to the discretion of the laboratory), and watertight, $\frac{1}{2}$ in., 2-way, stainless steel NPT fitting.

6.6.5.4 Use control valve (TCV-144 in Fig. A5.6). The specified valve is a Badger Meter Inc.¹² Model No. 1002TBN36SVOSALN36, 3-way globe (divert), $\frac{1}{2}$ in., air to open valve.

6.6.5.5 Use a heat exchanger (HX-6 in Fig. A5.6) for oil cooling. The specified heat exchanger is an ITT model 310-20¹⁰ or a Bell & Gossett, model BP-25-20¹⁰ (Part No. 5-686-04-020-001), brazed plate.

6.7.2 *Fuel Flow Measurement*—Measure the critical fuel flow rate throughout the test. Use a Micro Motion Model CMF010¹⁸ mass flow meter with either a RFT9739, 2500 MVD, 2700MVD, or 1700MVD transmitter. The Micro Motion sensor may be mounted in a vertical or a horizontal position.

⁹ Available from Dyne Systems, 3602 West Wheelhouse Road, Milwaukee, WI 53208, www.dynesystems.com

¹⁰ Available from ITT Standard, 175 Standard Parkway, Cheektowaga (Buffalo), NY 14227.

¹¹ Available from American Industrial Heat Transfer, Inc., 355 American Industrial Drive, LaCrosse VA 23950.

¹² Available from Badger Meter, 4545 W Brown Deer Rd, PO Box 245036, Milwaukee, WI 53224.

¹³ Viatran pressure transducers are available from Vaitran, 199 Fire Tower Drive, Tonawanda, NY 14150 .

¹⁴ Validyne pressure transducers are available from Validyne Engineering, 8626 Wilbur Avenue, Northridge CA 91324.

¹⁵ Rosemont pressure transducers are available from Emerson Electric Co, 8000 West Florissant Avenue, PO Box 4100, St. Louis MO 63136.

¹⁶ Viking Pumps are available from Viking Pumps, 401 State Street, Cedar Falls IA 50613.

¹⁷ Burkett Valves are available from Burkett Fluid Control Systems, 11425 Mt Holly-Huntersville Rd, Huntersville NC 28078.

¹⁸ Micromotion Flowmeters are available from Emerson Electric Co, 8000 West Florissant Avenue, PO Box 4100, St. Louis MO 63136.