



Test Monitoring Center

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Sequence VG Information Letter 16-2
Sequence No. 46
August 10, 2016

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 VG Mailing List

SUBJECT: Electronic Flow Meter for Coolant Flow Measurement

The Sequence V surveillance Panel approved, via recent eballot, the use of an electronic flow meter for measuring coolant flow. An electronic flow meter may be used in lieu of the current Barco orifice flow measurement device. The flow meter may be used for non-reference oil testing on or after June 8, 2016, provided that the laboratory has conducted a successful reference oil test utilizing this meter. Attached Sections 8.4.3.3, 9.3.2 and Figure A7.18 have been revised to include an electronic meter.

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Attachment

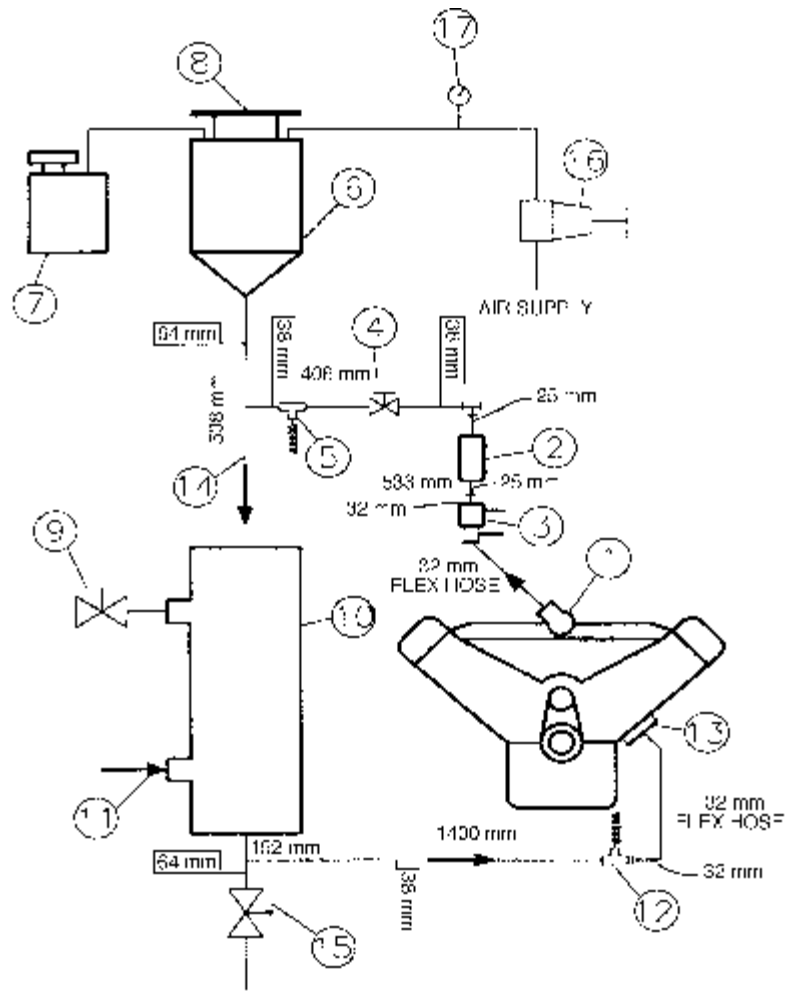
c: ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencev/procedure_and_ils/vgil16-2-46.pdf

Distribution: Email

(Revises Test Method D6593-16, as amended by information letters 15-2 and 16-1)

8.4.3.3 The engine coolant flow rate and outlet temperature are controlled in accordance with the specifications listed in [Table 2](#). Information concerning the cooling flow rate measurement device is detailed in [9.3.2](#). Cyclic ramping specifications are detailed in [Table 4](#). The coolant flow rate is measured with a venturi flowmeter ([X2.1.6](#)) and controlled with an in-line flow control valve. An electronic flow meter may be used in lieu of the venturi flow meter, provided its accuracy is ± 0.5 %.

9.3.2 *Engine Coolant*—Determine the engine coolant flow rate by measuring the differential pressure drop across the specified venturi flowmeter (see [A7.18](#)). Flowmeter is available from the supplier in [X2.1.6](#). Take precautions to prevent air pockets from forming in the lines to the pressure sensor. Transparent lines or bleed lines, or both, are beneficial in this application. Ensure that the manufacturer's required straight sections of pipe are installed immediately up and down stream of the flowmeter. An electronic flow meter may be used in lieu of the venturi flow meter, provided its accuracy is ± 0.5 %.



FRONT VIEW OF ENGINE

NOTE 1—Observe temperature sensor locations in thermostat housing and at water pump inlet.

NOTE 2—Components of Engine Cooling System—

- (1) Thermostat housing with temperature sensor
- (2) Sight glass
- (3) Venturi flowmeter Barco Model 725 1¹/₄ in. with pressure taps BR-12725-20-31 or electronic flow meter
- (4) Flow control valve
- (5) Optional temperature control sensor
- (6) Fabricated coolant reservoir
- (7) Constant full expansion tank
- (8) Pressure radiator cap (MOTORCRAFT RS40 P/N D2YY-8100-A)
- (9) Process water control valve (regulated by temperature controller with three remote set points)
- (10) Heat exchanger (ITT Standard P/N 5-030-06-048-001 TYP.)
- (11) Process water supply (shell side)
- (12) Tee with temperature sensor for coolant inlet; located (305 to 406) mm upstream of pump inlet
- (13) Water pump inlet
- (14) Engine coolant (tube side)
- (15) Coolant system drain valve
- (16) Coolant pressure regulator
- (17) Coolant pressure gage

FIG. A7.18 Typical Engine Cooling System Schematic