



Test Monitoring Center

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

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

Sequence VIE Information Letter 17-3
Sequence Number 3
October 2, 2017

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. Information Letters 17-1 and 17-2 Revision to the test method
2. Change in Part Number for oil filter
3. Additional oil pump
4. Clarification to Table 5
5. Corrections to Annex A15
6. BLB3 Calculations

1. The following sections of Test Method D8114-17 have been revised to incorporate Information Letters 17-1 and 17-2: 11.5.4, 10.1.1.2, 10.2.2.
2. The part number for the oil filter specified in 6.6.5.7 has changed and section 6.5.5.7 has been revised to reflect this change.
3. The oil pump specified in 6.6.5.2 is no longer available. Section 6.6.5.2 has been revised to include a replacement pump from the same manufacturer.
4. A clarification was added to Table 5 with regards to the flush to BL After in the FO to BL Flush portion of the table.
5. Annex A15 was found to have extraneous information contained in Section A15.1 and this section has been deleted and subsequent sections renumbered accordingly.
6. Additional equations were added to address calculations when BLB3 is required. Section 11.6.17.2, and Annexes A15 and A16 have been revised.

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

Tim Cushing
Engine Oil Test Development and Support
GM Global Propulsion Systems

Frank M. Farber
Director
ASTM Test Monitoring Center

Attachment

c: ftp://ftp.astmtmc.cmu.edu/docs/gas/sequencevi/procedure_and_ils/VIE/IL17-3.pdf

Distribution: Email

Revises D8114-17

10.1.1.2 The calibration period on a given stand and engine combination is three full-length non-reference oil tests or 900 engine hours or 100 days, whichever occurs first.

10.2.2 Every three months perform a partial instrumentation calibration according to Table 7.

11.5.4: Stand Requirements for Conducting New Engine Break-In - Perform engine break-in in a stand configured in accordance with the test method. Alternately, break-in may be conducted on a test stand configured in accordance with the test method, but with the exceptions that adherence to the following subsections is not required: 6.6.1, 6.6.3, 6.6.4, 6.6.4.1, 6.6.4.2, 6.6.4.3, 6.6.4.4, 6.6.4.5, 6.6.4.6, 6.6.5.3 (1), 6.6.5.3 (2), 6.6.5.3 (4), 6.7.2, 6.8, 6.8.1, and 6.8.2.

6.6.5.2 Use a positive displacement oil circulation pump. A Viking Series 4125, Model G4125 or G4124A, no relief valve, base mounted are specified (see X1.15). 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.

6.6.5.7 Install one oil filter (FIL-1 in Fig. A5.6) in the external oil system. The filter specified is OHT6A-012-5 with a stainless steel screen having a rating of 60 μm , Part No. OHT6A-013-3 (see X1.20). Locate the filter between the engine oil pump and where the oil enters the engine oil gallery.

TABLE 5 VIE Test Schedule

BLB-1 Oil Test		Estimated Elapsed Time, h ^A
1.	Double flush to BLB-1	1:30
2.	S90, BSFC/fuel flow \times 6 at Stage 1 ^B	2:00
3.	S90, BSFC/fuel flow \times 6 at Stage 2	2:00
4.	S90, BSFC/fuel flow \times 6 at Stage 3	2:00
5.	S90, BSFC/fuel flow \times 6 at Stage 4	2:00
6.	S90, BSFC/fuel flow \times 6 at Stage 5	2:00
7.	S90, BSFC/fuel flow \times 6 at Stage 6	2:00
	Warm-up to Stage Flush	0:30
	Sub Total	14:00
BLB-2 Oil Test		
1.	Double flush to BLB-2	1:30
2.	S90, BSFC/fuel flow \times 6 at Stage 1 ^B	2:00
3.	S90, BSFC/fuel flow \times 6 at Stage 2	2:00
4.	S90, BSFC/fuel flow \times 6 at Stage 3	2:00
5.	S90, BSFC/fuel flow \times 6 at Stage 4	2:00
6.	S90, BSFC/fuel flow \times 6 at Stage 5	2:00
7.	S90, BSFC/fuel flow \times 6 at Stage 6	2:00
	Warm-up to Stage Flush	0:30
	Sub Total	14:00

BLB-3 Oil Test (if required)		Estimated Elapsed Time, h ^A
1.	Double flush to BLB-2	1:30
2.	S90, BSFC/fuel flow × 6 at Stage 1 ^B	2:00
3.	S90, BSFC/fuel flow × 6 at Stage 2	2:00
4.	S90, BSFC/fuel flow × 6 at Stage 3	2:00
5.	S90, BSFC/fuel flow × 6 at Stage 4	2:00
6.	S90, BSFC/fuel flow × 6 at Stage 5	2:00
7.	S90, BSFC/fuel flow × 6 at Stage 6	2:00
	Warm-up to Stage Flush	0:30
	Sub Total	14:00
Phase I Aging		
1.	Double flush to Non-reference Oil	1:30
2.	Age 16 Hours	16:00
3.	S90, BSFC/fuel flow × 6 at Stage 1 ^B	2:00
4.	S90, BSFC/fuel flow × 6 at Stage 2	2:00
5.	S90, BSFC/fuel flow × 6 at Stage 3	2:00
6.	S90, BSFC/fuel flow × 6 at Stage 4	2:00
7.	S90, BSFC/fuel flow × 6 at Stage 5	2:00
8.	S90, BSFC/fuel flow × 6 at Stage 6	2:00
	Sub Total	29:30
Phase II Aging		
1.	Age 109 Hours	109
2.	S90, BSFC/fuel flow × 6 at Stage 1 ^B	2:00
3.	S90, BSFC/fuel flow × 6 at Stage 2	2:00
4.	S90, BSFC/fuel flow × 6 at Stage 3	2:00
5.	S90, BSFC/fuel flow × 6 at Stage 4	2:00
6.	S90, BSFC/fuel flow × 6 at Stage 5	2:00
7.	S90, BSFC/fuel flow × 6 at Stage 6	2:00
8.	Warm-up to Stage Flush	0:30
	Sub Total	121:30
FO to BL Flush		
	Flush in FO & Run	0:30
	Flush in FO & Run	2:00
1.	Two Double flushes to BL After	2:30
2.	S90, BSFC/fuel flow × 6 at Stage 1 ^B	2:00
3.	S90, BSFC/fuel flow × 6 at Stage 2	2:00
4.	S90, BSFC/fuel flow × 6 at Stage 3	2:00
5.	S90, BSFC/fuel flow × 6 at Stage 4	2:00
6.	S90, BSFC/fuel flow × 6 at Stage 5	2:00
7.	S90, BSFC/fuel flow × 6 at Stage 6	2:00
	Sub Total	17:00

^A Adhere to stabilization times and times for the 6 replicate BSFC measurements. Warm-up and cool-down times included in flushing elapsed times are estimates.

^B Example: Stabilize 90 min followed by 6 replicate BSFC measurements at intervals of 5 min.

11.6.17.2 *BSFC Measurement of BL Oil After Test Oil*—Run Stages 1 through 6 as detailed in Table 2. When the BLA Test Oil is completed, calculate the BL shift using equations A16.4 or A16.5, if BLB3 was required to be run.

Delete Existing A15.1

Renumber Existing A15.2 through A15.11 as A15.1 through A15.10

A15.5 Perform calculation steps A15.1 – A15.4 for the remaining test stages (2 to 6) using the respective nominal power, stage length, and weight factors.

A15.7 Complete the total fuel consumed calculation detailed in Steps A15.1 – A15.6 above for the BL Before Test Oil 1, BL Before Test Oil 2, BL Before Test Oil 3 (where required), Test Oil Phase I, Test Oil Phase II, and BL After Test Oil.

New Equation 15.3:

When BLB3 is required, Percent FEI Test Oil Phase I =

$$\left[\frac{[(BL_{\text{before test oil 3}} \times 80\%) + (BL_{\text{after test oil}} \times 20\%) - \text{Test Oil}]}{[(BL_{\text{before test oil 3}} \times 80\%) + (BL_{\text{after test oil}} \times 20\%)]} \right] \times 100 \quad (\text{A15.3})$$

Renumber existing Equation A15.3 as A15.4

New Equation A15.5:

When BLB3 is required Percent FEI Test Oil Phase II =

$$\left[\frac{[(BL_{\text{before test oil 3}} \times 10\%) + (BL_{\text{after test oil}} \times 90\%) - \text{Test Oil}]}{[(BL_{\text{before test oil 3}} \times 10\%) + (BL_{\text{after test oil}} \times 90\%)]} \right] \times 100 \quad (\text{A15.5})$$

Renumber previously existing equations A15.4 and A15.5 as A15.6 and A15.7, respectively

New equation A16.3:

When BLB3 is required then Percent Unweighted Baseline Shift BLB2 to BLB3 =

$$\left[\frac{(\text{Unweighted BLB2} - \text{Unweighted BLB})}{\text{Unweighted BLB2}} \right] \times 100 \quad (\text{A16.3})$$

Renumber existing equations A16.3 as A16.4

New equation A16.5:

When BLB3 is required then Percent Unweighted Baseline Shift BLB3 to BLA =

$$\left[\frac{(\text{Unweighted BLB3} - \text{Unweighted BLA})}{\text{Unweighted BLB3}} \right] \times 100 \quad (\text{A16.5})$$