A Program of ASTM International

Test Monitoring Center

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

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

Sequence X Information Letter 20-1
Sequence Number 1
January 15, 2020

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 X Surveillance Panel

SUBJECT:
1. Revised Drive Shaft Specifications
2. Correction to Engine Oil Inlet Temperature Parameter
3. Revisions to Table 4.
4. Correction of Blowby Measurement Technique when using the J-Tec Flowmeter
5. Correction of Pre and Post Intercooler Pressure Measurement Locations
6. Corrections of Typographical Errors in Sections 8.2.6, 8.26.1.1 and Figures A9.18, A9.28 and A10.2

The following changes/corrections to Test Method D8279 were approved during the November 20, 2019 Sequence X Surveillance Panel conference call.

1. The panel agreed to modify the driveshaft length and provide a list of driveshaft components. Section 6.8.2 has been modified to identify components and list acceptable driveshaft lengths.

2. The panel agreed to rename engine oil inlet temperature as engine oil gallery temperature. Only section 8.23.2.3 refers to this sensor as oil inlet, all other references to this sensor show it as oil gallery. Section 8.23.2.3 has been revised to reflect this change.

3. The panel also agreed to several revisions of Table 3: fuel temperature has been changed to a non-controlled parameter; coolant flowrate, coolant pressure, and lambda have been changed to controlled parameters; power and blowby coolant flow rate are no longer monitored parameters. Revised Table 3 is attached. Section 8.25.2.2 has also been deleted and subsequent sections renumbered accordingly.

4. The panel was informed that it is not necessary to maintain crankcase pressure at 0 when using the J-Tec blowby meter. Section 8.26.2.1 has been revised to reflect maintaining crankcase pressure at 0 is only required when using a blowby cart.

5. A location discrepancy for the pre-intercooler pressure was identified. Section 8.24.2.8 had the pre-intercooler pressure located differently. It has been revised to address the intended location of the pre-intercooler probe. Figure A9.13 has also been updated to reflect the correct locaion.

6. The panel agreed to address a number of typographical errors as well. Section 8.26.1.1 (b), figure A9.28 and Table A10.2 all have been corrected.

These revised text and or section(s) have been highlighted in red and are effective November 20, 2019.

Ron Romano
FCSD, Service Product Development, SEO
Ford Motor Company

Frank M. Farber
Director
ASTM Test Monitoring Center

Attachment

c: http://www.astmtmc.cmu.edu/ftp/docs/gas/sequencex/procedure_and_ils/X/il20-1_ix.pdf
Distribution: Email

Revises D8279-19

6.8.2 ~~Use the driveshaft listed in Table A5.7.~~*Driveshaft*—Grease the driveshaft every test. The driveshaft specifications are as follows:
(1) Driveshaft angle degree: 1.5° ± 0.5°;
(2) Installed length from flange to flange: 450 mm to 790 mm;
(3) 1410 series flanges; 1550 joints;
(4) Driveshaft stiffness: 0.1° to 0.3°/136 N·m (100 ft·lbf).
P/N MSI-41/55S-22 from Machine Services Inc. (see A.5.7 and X1.33) has been found to be a suitable driveshaft.

8.23.2.3 *Engine-Oil gallery*—Install the tip of the sensor at the center of the flow stream in the external oil-filter adapter (see Fig. A9.16) through the hole for the oil-pressure switch (not used). Install a tee to accept this temperature sensor and attach the oil-pressure line.

8.24.2.8 *Pre-intercooler*—Measure the pre-intercooler pressure with the exhaust gas sampling probe located a minimum of 130 mm downstream of the turbocharger flange (see Fig. A9.13).

Delete section 8.25.2.2; renumber existing section 8.25.2.3 as 8.25.2.2; delete existing footnote 40 and renumber existing footnotes 41 through 43 as 40 through 42, respectively
~~*8.25.2.2 Blowby Heat Exchanger Coolant—Measure the total volumetric coolant flowrate through the blowby heat exchanger system as shown in Fig. A9.11. A suitable heat exchanger is available from Standard Xchange.*~~[40,7]

8.26.1.1
(b) The hose used to connect the valve cover vent port to the heat exchanger shall have ID of ¾ in. with a length of 50.8 cm 6 7.6 cm (20 in. 6 3 in.). No part of this hose shall be lower than the valve cover vent, and there shall be no sags or dips in the hose that can retain fluid.

8.26.2.1 When using the cart apparatus, maintain crankcase pressure during operation of the system at 0.0 Pa ± 25 Pa to minimize the potential for crankcase leakage.

Table 3 Parameter Logging

Test Point	Units
Controlled	
Engine speed	r/min
Engine torque	N·m
Coolant –out temperature	°C
Oil-gallery temperature	°C
Coolant flowrate	L/m
Air-charge temperature	°C
Inlet-air temperature	°C
Inlet-air pressure (gauge)	kPa
Coolant pressure (gauge)	kPa
Exhaust back pressure (absolute)	kPa
~~Fuel temperature~~	~~°C~~
Air fuel ratio (AFR), lambda	unitless
Humidity	g/kg
Monitored	
Fuel flowrate	Kg/h
Manifold absolute pressure (MAP)	kPa
Boost pressure (absolute)	kPa
Barometric pressure (absolute)	kPa
Oil-gallery pressure (gauge)	kPa
Oil-head pressure (gauge)	kPa
Oil-filter-in temperature	°C
Exhaust temperature	°C
Crankcase pressure (gauge)	kPa
Fuel pressure (gauge)	kPa
~~Power~~	~~kW~~
Pre-intercooler air pressure (absolute)	kPa
Ambient temperature	°C
Coolant-in temperature	°C
~~Coolant pressure (gauge)~~	~~kPa~~
Fuel temperature	°C
~~Coolant flowrate~~	~~L/m~~
~~Blowby heat exchanger coolant flow rate~~	~~L/m~~
~~Lambda (λ)~~	~~unitless~~
PCM CAN BUS Channels	
Ignition timing advance for #1 cylinder	°CA
Absolute throttle position	%
Engine coolant temperature	°C
Inlet-air temperature	°C
Equivalence ratio (lambda)	unitless
Absolute torque value	%
Intake-manifold absolute pressure	kPa
Fuel-rail pressure	KPa
Accelerator pedal position	%
Boost absolute pressure – raw value	kPa
Turbocharger waste gate duty cycle	%
Actual Intake (A) camshaft position	°
Actual Exhaust (B) camshaft position	°
Intake (A) camshaft position actuator duty cycle	**%**
Exhaust (B) camshaft position actuator duty cycle	**%**
Charge air cooler temperature	°C

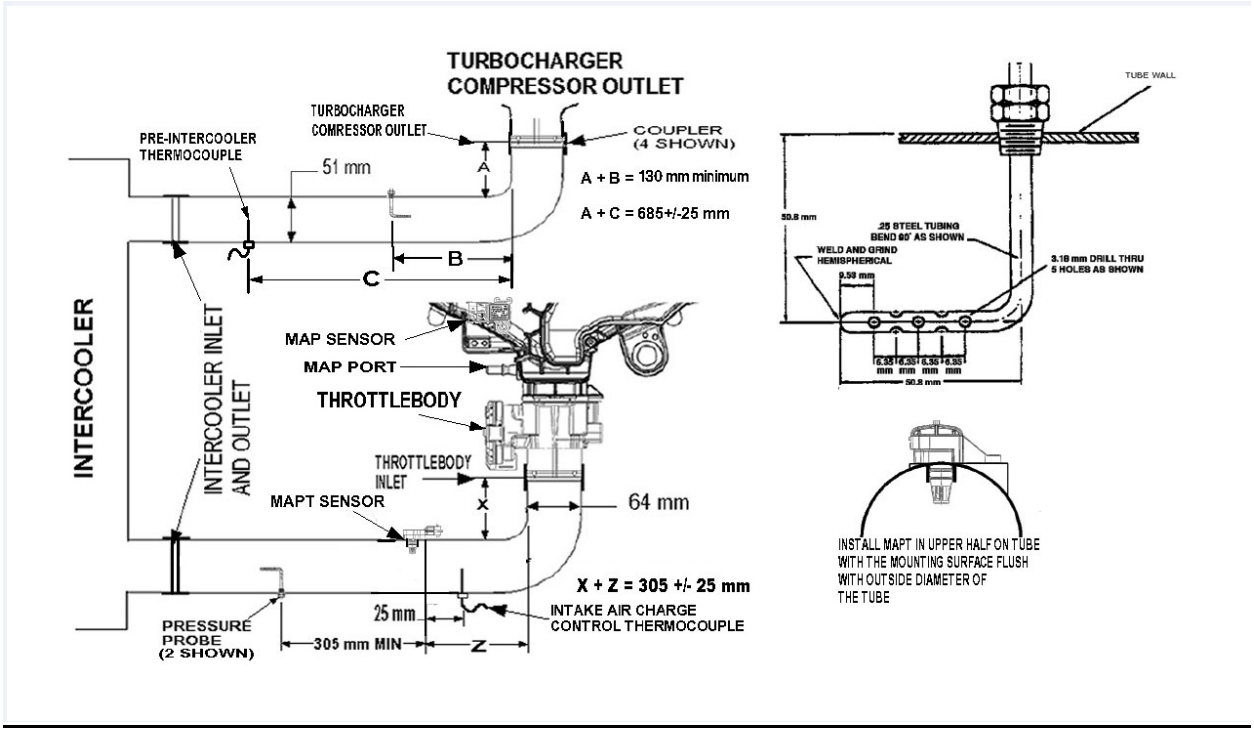
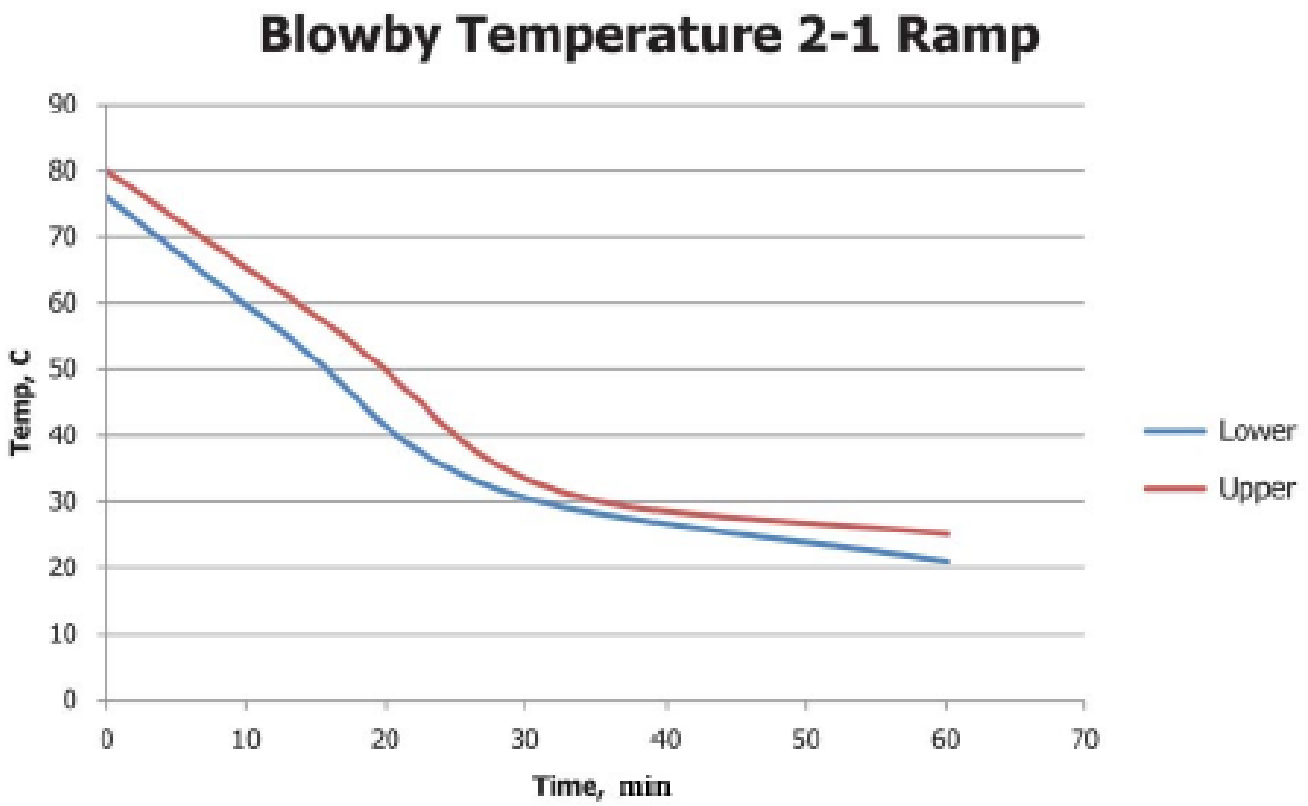


FIG A9.13 Intercooler Tubing Measurements and Instrumentation



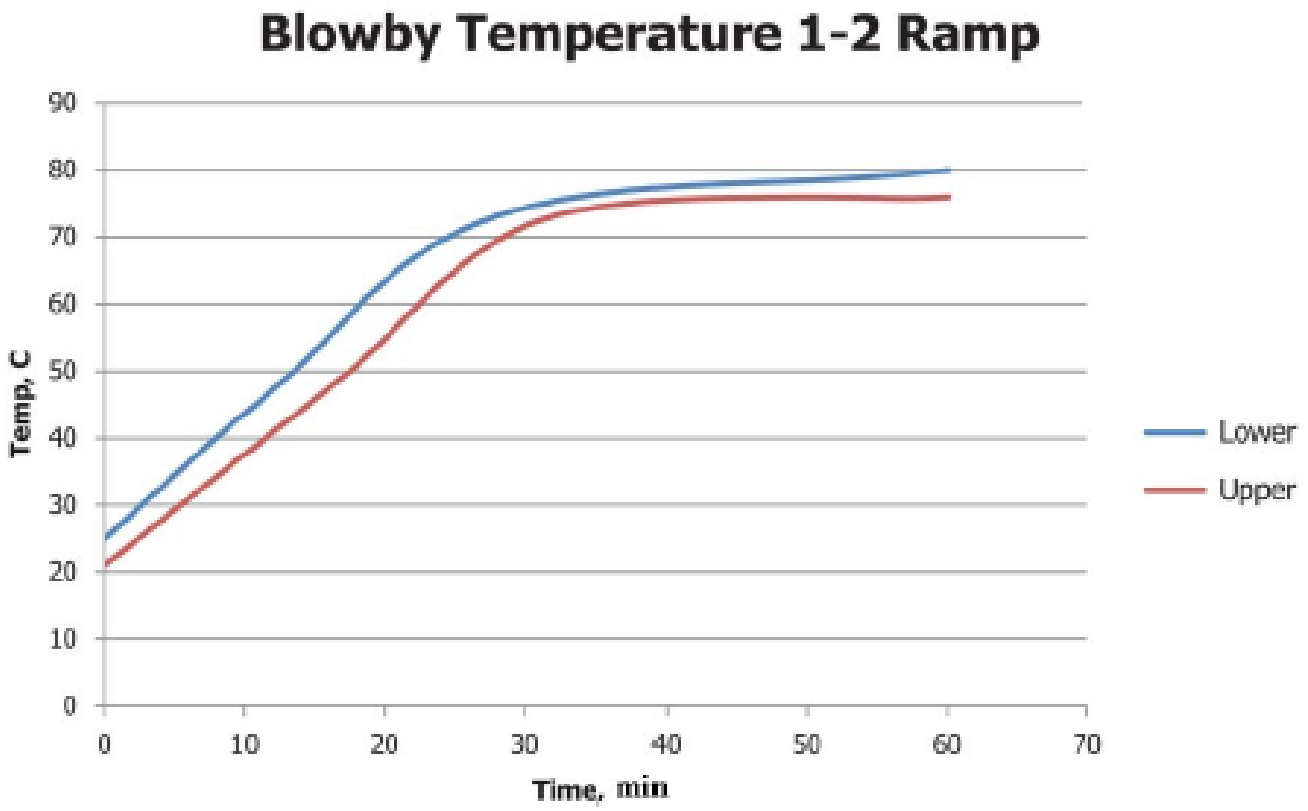


FIG. A9.28 Typical Blowby Temperature Ramps

Table A10.2 L and U Constants and Over- and Under-Range Values

Quantity, unit	Stages	L	U	Over-Ranges	Under-Ranges
Coolant flowrate, L/min	1	38	42	267	0
	2	68	72	267	0
Coolant out temperature, °C	1	~~84.5~~ 44.5	~~85.5~~ 45.5	134	0
	2	~~45.5~~ 84.5	~~44.5~~ 85.5	134	0
Exhaust backpressure, kPa	1	102	106	304	0
	2	105	109	304	0
Humidity, g/kg	1,2	10.4	12.4	109.9	0
Inlet-air pressure, kPa	1,2	0.03	0.07	2	-1.9
Oil-gallery temperature, °C	1	~~99.5~~ 49.5	~~100.5~~ 50.5	149.2	0.8
	2	~~49.5~~ 99.5	~~50.5~~ 100.5	149.2	0.8
Engine speed, r/min	1	~~2505~~ 1545	~~2495~~ 1555	149.2	0.8
	~~3~~ 2	~~1555~~ 2495	~~1545~~ 2505	149.2	0.8
Torque, N·m	1	48	52	325	0
	2	~~128~~ 126	~~132~~ 130	325	0
Coolant pressure, kPa	1,2	68	72	267	0
Air-charge temperature, °C	1,2	29.5	30.5	79.2	0
Lambda	1	0.73	0.83	5.9	0
	2	0.95	1.05	5.9	0