



Test Monitoring Center

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M11EGR INFORMATION LETTER 02-1
Sequence No. 1

March 22, 2002

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

TO: M11 Mailing List

SUBJECT: 1. Filter Plugging Delta P Correction Factor
2. Intake CO₂ Control of EGR Rates

The following changes to the M11EGR test procedure were approved by the Cummins Surveillance Panel and went into effect on February 21, 2002:

1. A correction factor of 3.15 (transformed units) is to be added to the Filter Plugging Delta P result for all tests. This correction factor is due to the shift in severity associated with a new batch of oil filters. Section 11.6.5.1 has been added to the procedure accordingly.

2. Test EGR rates are obtained by controlling intake CO₂. The reporting of EGR as a percentage is no longer required. Table 3, Table 5, Section 11.11, and Table A8.1 have been modified accordingly.

The new and modified sections of the procedure are attached. The updated version of the test procedure, Draft 5, is available in its entirety from the TMC web site (www.tmc.astm.cmri.cmu.edu/docs/diesel/cummins/procedure_and_ils) or by contacting the TMC for a hardcopy.

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Attachments

c: ftp://tmc.astm.cmri.cmu.edu/docs/diesel/cummins/procedure_and_ils/il02-1.pdf

Distribution: Email

Table 3 Break-in Conditions

Parameter	Unit	Specification
Stage Length	min	120
Speed	r/min	1600 ± 5 (target)
Torque ^A	N•m	1930
Fuel Flow	kg/h	64.4 ± 0.9 (target)
Coolant Out Temperature	°C	65.5
Fuel In Temperature	°C	40 ± 2
Oil Gallery Temperature	°C	115.5
Turbo Inlet Air Temperature	°C	record
Intake Manifold Temperature	°C	65.5 (target)
Oil Gallery Pressure	kPa	record
Oil Filter Delta Pressure	kPa	record
Intake Manifold Pressure	kPa abs.	≤ 320
Exhaust Pressure	kPa abs.	107 ± 1
Crankcase Pressure	kPa	record
Inlet Air Pressure	kPa abs.	record
Coolant System Pressure	kPa	103 ± 4

^A At standard atmospheric temperature and pressure

Table 5 300-h Test Sequence

Stage Parameter	unit	A	B	C	D	E	F
Stage Length	h	50	50	50	50	50	50
Speed	r/min	1800 ± 5	1600 ± 5	1800 ± 5	1600 ± 5	1800 ± 5	1600 ± 5
Power	kW	record	record	record	record	record	record
Torque (typical) ^A	N•m	1300	1930	1300	1930	1300	1930
Fuel Flow	kg/h	58 ± 1	64.4 ± 1	58 ± 1	64.4 ± 1	58 ± 1	64.4 ± 1
Intake Manifold Temp.	°C	80	65.5	80	65.5	80	65.5
Blowby Flow	L/min	record	record	record	record	record	record
Coolant Out Temp.	°C	65.5 ± 2	65.5 ± 2	65.5 ± 2	65.5 ± 2	65.5 ± 2	65.5 ± 2
Coolant In Temp.	°C	record	record	record	record	record	record
Coolant Delta Temp.	°C	record	record	record	record	record	record
Fuel In Temp.	°C	40 ± 2	40 ± 2	40 ± 2	40 ± 2	40 ± 2	40 ± 2
Oil Gallery Temp.	°C	115 ± 2	115 ± 2	115 ± 2	115 ± 2	115 ± 2	115 ± 2
Turbo Inlet Temp.	°C	record	record	record	record	record	record
Intake Manifold Press.	KPa abs.	≥ 300	≥ 320	≥ 300	≥ 320	≥ 300	≥ 320
Exhaust Temp.	°C	record	record	record	record	record	record
Fuel Pressure	kPa	record	record	record	record	record	record
Oil Gallery Pressure	kPa	record	record	record	record	record	record
Oil Filter Delta Press.	kPa	record	record	record	record	record	record
Coolant System Press. ^B	kPa	99-107	99-107	99-107	99-107	99-107	99-107
Exhaust Press.	kPa abs.	107 ± 1	107 ± 1	107 ± 1	107 ± 1	107 ± 1	107 ± 1
Crankcase Press.	kPa	record	record	record	record	record	record
Inlet Air Press.	kPa abs.	record	record	record	record	record	record
Intake CO ₂	%	0.97-1.09	0.78-0.85	0.97-1.09	0.78-0.85	0.97-1.09	0.78-0.85

^A At standard atmospheric temperature and pressure

^B Measure the coolant pressure on the top of the expansion tank

11.6.5.1 For all tests completed on or after February 21, 2002, correct the Filter Plugging Delta P result by converting the calculated result (11.6.5) to square root units and adding 3.15. Report this corrected transformed value in the appropriate section of the test report form. Convert this result back to original units by squaring the corrected transformed value. Report this original unit value in the appropriate section of the test report form.

11.11 *Intake and Exhaust CO₂* – The locations of the CO₂ probe for the exhaust and intake are noted in Figures A4.6, A4.13 and A4.14. The exhaust probe should be inserted fully until the probe tip touches the opposing wall then retracted 10 mm.

Table A8.1 Minimum Resolution of Recorded Measurements

Parameter	Record data to Nearest
Speed	1 r/min
Power	1 kW
Torque	1 N•m
Fuel Flow	0.1 kg/hr
Coolant In Temperature	0.1 °C
Coolant Out Temperature	0.1 °C
Fuel In Temperature	0.1 °C
Oil Gallery Temperature	0.1 °C
Intake Air Temperature	0.1 °C
Exhaust (Tailpipe) Temperature	1 °C
Intake Manifold Pressure	0.1 kPa
Crankcase Pressure	0.01 kPa
Exhaust Pressure	0.1 kPa