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SEQUENCE VIB INFORMATION LETTER 01-5
SEQUENCE NUMBER 12
December 7 , 2001

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 VIA/VIB Mailing List

SUBJECT: Air to Fuel Ratio Control Range

At the November 16, 2001 Sequence VIB Surveillance Panel meeting, the panel agreed to change the control range for Air to Fuel Ratio (AFR) from 14.25:1-15.25:1 to 14.00:1-15.00:1. Revised Tables 4 and 5 of Draft 6 of the Sequence VIB procedure are attached. This change is effective December 7 , 2001.

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John L. Zalar
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Attachment

c: ftp://tmc.astm.cmri.cmu.edu/docs/gas/sequencevi/procedure_and_ils/il01-5.pdf

TABLE 4 Sequence VIB Test Operating Conditions (SI Units)

Parameter	Stage	Stage	Stage	Stage	Stage
[A] Speed, r/min	1500	800	800	1500	1500
	± 2	± 2	± 2	± 2	± 2
[A] Load, Nm	98.00	26.00	26.00	98.00	98.00
	± 0.07	± 0.07	± 0.07	± 0.07	± 0.07
Nominal, Power kW	15.39	2.18	2.18	15.39	15.39
[A] Gallery, °C	125 ± 1	105 ± 1	70 ± 1	70 ± 1	45 ± 1
[A] Coolant, °C	105 ± 1	95 ± 1	60 ± 1	60 ± 1	45 ± 1
[B] Stabilization, min.	60	60	60	60	60

Temperatures °C	**ALL STAGES**
Oil Circulation	Record
Coolant Out	Record
[A] Intake Air	27 ± 2
[C] Fuel to Flowmeter	20 to 32 (delta from the maximum stage average reading shall be ≤ 4)
[A] Fuel to Fuel Rail	20 ± 2
[C] Delta Load Cell	Delta from the maximum stage average shall be ≤ 6
Oil Heater	205 maximum
Pressures	
Intake Air, kPa	0.05 ± 0.02
Fuel to Flowmeter. kPa	100 minimum
Fuel to Fuel Rail, kPa	205 to 310
Intake Manifold. kPa abs.	Record
[A] Exhaust Back Pressure, kPa abs.	104.00 ± 0.17
Engine Oil, kPa	Record
Crankcase, kPa	0.0 ± 0.25
Flows	
Engine Coolant, L/min	130 ± 4
[A] Fuel Flow, kg/h	Record
Humidity, Intake Air, gr/kg of dry air	11.4 ± 0.8
[A] Air to Fuel Ratio	14.00:1 to 15.00:1
[C] Air to Fuel Ratio	Delta from maximum stage average reading shall be ≤0.50
Ignition Timing	20° BTDC ± 2°
Blowby (Stage 1)	(Pre-BC Only)

Notes:

Controlled parameters should be targeted for the middle of the specification range

[A] Critical measurement and control parameters

[B] Counted from the time the temperature set points are initially adjusted to the specific levels

[C] Difference between the maximum stage average reading of the entire test and the individual stage average readings

TABLE 5 Sequence VIB Test Operating Conditions
Stage Flush and Stage Aging Hours SI Units

	Stage Flush	Aging Phase I	Aging Phase II
Speed, r/min	1500 ± 5	1500 ± 5	2250 ± 5
Load, Nm	98.00 ± 0.10	98.00 ± 0.10	98.00 ± 0.10
Temperatures, ^{O}C			
Oil Gallery	125 ± 2	125 ± 2	135 ± 2
Coolant In	105 ± 2	105 ± 2	105 ± 2
Oil Circulation	Record	Record	Record
Coolant Out	Record	Record	Record
Intake Air	27 ± 2	27 ± 2	27 ± 2
[B] Fuel to Flowmeter	20 - 32	20 - 32	20 - 32
Fuel to Rail	20 ± 2	20 ± 2	20 ± 2
Pressures			
Intake Air, kPa	0.05 ± .02	0.05 ± .02	0.05 ± .02
Fuel to Flowmeter, kPa	100 min.	100 min	100 min.
Fuel to Rail, kPa	205 - 310	205 - 310	205 - 310
Intake Manifold, kPa abs	Record	Record	Record
Exhaust Back, kPa abs	104.00 ± .20	104.00 ± .20	104.00 ± .20
Engine Oil, kPa	Record	Record	Record
Flows & Others			
Engine Coolant, L/min	130 ± 4	130 ± 4	130 ± 4
Fuel Flow, kg/h	Record	Record	Record
Humidity, Intake Air	Record	Record	Record
gr/kg, of dry air	11.4 ±0.8	11.4 ±0.8	11.4 ±0.8
Air to Fuel Ratio	14.00:1 to 15.00:1	14.00:1 to 15.00:1	14.00:1 to 15.00:1
Ignition Timing, ^{O}BTDC	20± 2^{O}	20± 2^{O}	20± 2^{O}
Crankcase, Press., kPa	N/A	0.0 ± 0.25	0.0 ± 0.25

Notes:

Controlled parameters should be targeted for the middle of the specification range

[A] Counted from the time the temperature set points are initially adjusted to the specific levels

[B] ± 3^{O} C within this range