

## PERFORMANCE TESTS

### Mack-T12

#### Test Conditions

Phase One in the Mack T-12 runs for 100 hours with 35% EGR versus 75 hours and 15% EGR in the T-10. Phase Two runs 200 hours with higher sump temperature and 15% EGR versus 225 hours and essentially zero EGR for the T-10.

Parameters	Limits	
	Phase I	Phase II
Time, h	100	200
Injection Timing, °BTDC	Variable	21
<b>Controlled Parameters<sup>(A)</sup></b>		
Speed, r/min	1800	1200
Fuel Flow, kg/h (lb/h)	59.2 (130.5)	63.5 (140.0)
Intake CO <sub>2</sub> Level, %	3.09+/-0.05	1.42+/-0.05
Exhaust CO <sub>2</sub> Level, %	9.25+/-0.15	9.93+/-0.15
Inlet Manifold Temp., °C (°F)	90 (175)	80 (175)
Coolant Out Temp., °C (°F)	66 (150)	108 (226)
Fuel In Temp., °C (°F)	40 (104)	40 (104)
Oil Gallery Temp., °C (°F)	88 (190)	116 (240)
Intake Air Temp., °C (°F)	25 (77)	25 (77)
<b>Ranged Parameters<sup>(B)</sup></b>		
Inlet Air Restriction, kPa (in. H <sub>2</sub> O)	3.5 – 4.0 (14 – 16)	3.5 – 4.0 (14 – 16)
Inlet Manifold Pressure, kPa (in. Hg)	Tbd	Tbd
Exhaust Back Pressure, kPa (in. H <sub>2</sub> O)	2.7 – 3.5 (11 – 14)	2.7 – 3.5 (11 – 14)
Crankcase Pressure, kPa (in. H <sub>2</sub> O)	0.25 – 0.75 (1 – 3)	0.25 – 0.75 (1 – 3)
<b>Uncontrolled Parameters</b>		
Torque, N•m (lb•ft) <sup>(C)</sup>	Record	Record
Exhaust Temp., °C(°F)		
Pre-turbine	Record	Record
Tailpipe	Record	Record
Oil Sump Temp., °C(°F)	Record	Record
Coolant In Temp., °C(°F)	Record	Record
EGR Pre-Venturi Temp., °C(°F)	Minimum 104 (220)	Minimum 104 (220)
Intercooler Out Temp., °C(°F)	Minimum 30 (86)	Minimum 30 (86)
Inlet Air Dew Point, °C(°F)	Record	Record
Inlet Air Humidity, g/kg (gr/lb)	Record	Record
Blowby, L/min (ft <sup>3</sup> /min)	Record	Record
EGR Pre-Venturi Pressure, kPa (in. Hg)	Record	Record
Pre-turbine Exhaust Pressure, kPa (in. Hg)	Record	Record
Main Gallery Oil Pressure, kPa (psi)	Record	Record
Oil Filter ΔP, kPa (psi)	Not to exceed 138 (20) <sup>(D)</sup>	Not to exceed 138 (20) <sup>(D)</sup>

(A) = All control parameters shall be targeted at the mean indicated.

(B) = All ranged parameters shall fall within the specified ranges.

(C) = At 98.2 kPa (29 in. Hg) and 29.5 °C (85°F) dry air.

(D) = If oil filter ΔP exceeds 138 kPa (20 psi), change the two full flow filters. If the filters are changed, attempt to recover as much oil as possible by draining the filters. No new oil is to be added. The test report shall indicate if the filters are changed.