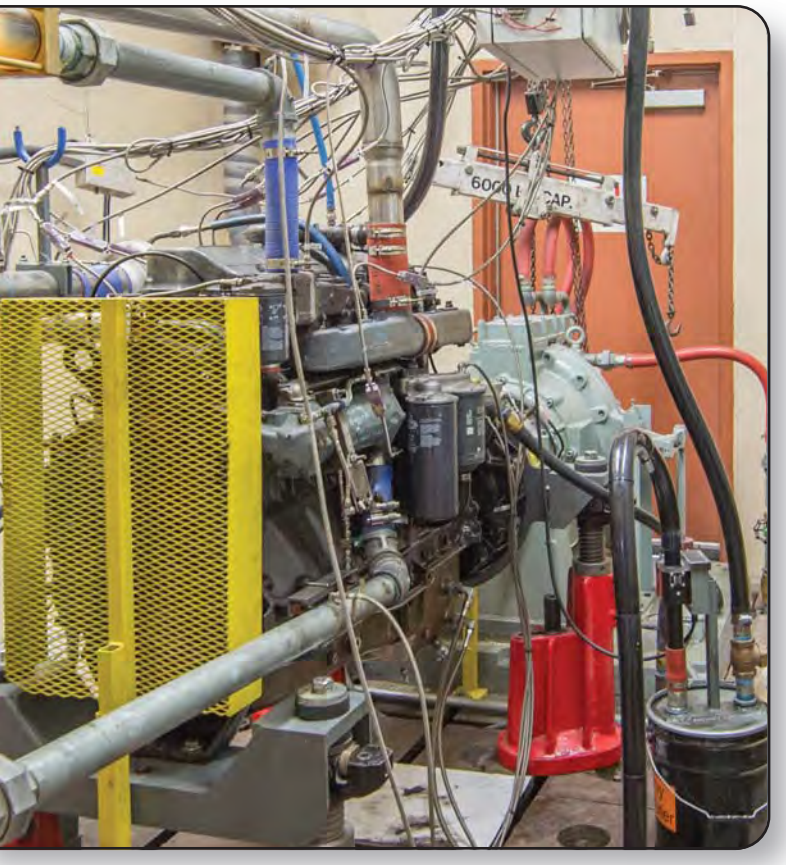
Intertek

Mack T-8 Engine Lubricant Test
(ASTM D5967)



Test Engine
The test uses a 1994 Mack E7-350 HP mechanically-governed controlled fixed timing direct fuel injection, 4 valve per cylinder head, turbocharged, intercooled, 4 cycle, in-line six cylinder 12L engine.

Test Operation
Evaluate the engine oils viscosity increase performance with soot generation created by fixed retarded fuel injection timing. Specified test fuel is PC-9 HS 0.04% mass fuel sulfur. The engine runs at 1800 RPM at rated power at the following test lengths.

- T-8A, 150 hr. Category JASO DH-1 and DH-2
- T-8, 250 hr.
- T-8E, 300 hr. Category CH-4, CI-4, ACEA E4, E6, and E7, EO-M Plus, EO-N, VDS-3, RLD-2

Oil Specifications
Mack, Volvo, and Renault
EO-N Plus, EO-N, VDS-3, and RLN-2

API:
CH-4 and CI-4

JASO:
DH-1 and DH-2

ACEA:
E4, E6, and E7

Pass/Fail Determination*

T-8A	Viscosity increase limit is < 0.20 centistokes per hour at 100-150 hours.
T-8	Viscosity increase at 3.8% soot, maximum 11.5%; Oilfilter plugging < 138 kPa; oil consumption 0.304 g/kW-h max.
T-8E	Viscosity increase at 3.8% soot, maximum 11.5%. Relative viscosity at 4.8% soot, max (RV=Visc. at 4.8% soot/Visc. of new oil sheared in D6278) ≤ 1.8 for CI-4 and 2.1 max for CH-4.

*As specified by ASTM D4485

For more information, please contact:
Intertek Automotive Research Services
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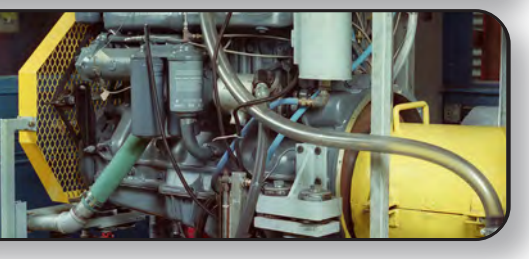

Engine Test Mack T-8A, T-8, and T-8E

Manufacturer Mack Truck Co. part of Volvo Group
Bore X Stroke, 124.0 mm X 165.0 mm
12.0L, 1990 Inline six cylinder
Two Piece (Articulated) Steel Piston with Aluminum Skirt

Total Piston Height 143.92mm

Top Crown to Center Pin Bore 94.03 mm

Crownland Configuration Radial Crownland to Liner Clearance 0.418mm

Piston Rings	**Type**	**Groove Widths**
Top Ring	Keystone	3.01mm
Second Ring	Positive Twist Rectangular w/ Inside Bevel	2.44mm
Oil Ring	Rectangular	4.77mm

Land Widths	
Crownland	9.04mm
Second	6.68mm
Third	4.68mm

Parameters	Operating Conditions	Units
Test Duration	150/250/300	Hours
Fuel (PC-9-HS)	0.4	%
Speed	1800 ± 5	r/min
Fuel Flow	63.3 ± 1	kg/h
Torque	1369-1398 range	Nm
Temperatures		
Intake Manifold	43 ± 3	DegC
Coolant Out	85 ± 3	DegC
Intake Air	25 ± 3	DegC
Fuel In	40 ± 1	DegC
Oil Gallery	~100-107 range	DegC
Exhaust Pre-turbine	~602-632 range	DegC
Exhaust Tailpipe	~455-474 range	DegC
Pressures		
Crankcase	0.5 ± 0.25	kPa
Coolant System (Expansion Tank)	103 ± 4	kPa
Inlet Air	2.5 ± 0.25	kPa
Exhaust	3.1 ± 0.4	kPa
Intercooler Delta	13.6 max.	kPa
Intake Manifold	~186-199 range	kPa
Oil Gallery	~372-441 range	kPa
Oil Filter Delta*	138 max.	kPa

* If the oil Filter delta P exceeds 138 kPa (occurs 0-250 hours), change full flow filters

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