

**Mack T-11  
EGR Engine Oil Test**

**Report Packet Version No.**  
T11 VERSION 20030819

**Conducted For**

TSTSPON1

TSTSPON2

LABVALID	<b>V =</b> Valid; The reference oil/non-reference oil was evaluated in accordance with the test procedure.
	<b>I =</b> Invalid; The reference oil/non-reference oil was not evaluated in accordance with the test procedure.
	<b>N =</b> Results cannot be interpreted as representative of oil performance (non-reference oil) and shall not be used in determining an average test result using multiple test criteria.

TSTOIL	<b>NR = Non Reference Oil Test</b>
	<b>RO = Reference Oil Test</b>

<b>Stand:</b> STAND	<b>Stand Run:</b> STRUN	<b>Engine:</b> ENGINE	<b>Engine Hours:</b> ENHOURS
<b>End Of Test Date:</b> DTCOMP		<b>End Of Test Time:</b> EOTTIME	
<b>Oil Code:</b> OILCODE		<b>Formulation/Stand Code:</b> FORM	
<b>Altcode1:</b> ALTCODE1	<b>Altcode2:</b> ALTCODE2	<b>Altcode3:</b> ALTCODE3	

<p><b>In my opinion this test OPVALID been conducted in a valid manner in accordance with the Test Method Dxxx and the appropriate amendments through the information letter system. The remarks included in this report describe the anomalies associated with this test.</b></p>
--

**Submitted By:**

SUBLAB

\_\_\_\_\_  
**Testing Laboratory**

SUBSIGIM

\_\_\_\_\_  
**Signature**

SUBNAME

\_\_\_\_\_  
**Typed Name**

SUBTITLE

\_\_\_\_\_  
**Title**

**Mack T-11  
EGR Engine Oil Test  
Form 2**

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**Mack T-11  
EGR Engine Oil Test  
Form 3  
Summary of Test Method**

The Mack T-11 EGR Engine oil Test is a fuel engine-dynamometer test which evaluates diesel engine oils for performance characteristics including viscosity increase and soot concentrations (loading). This test is a single-phase, steady state test (constant speed and load). The test is 252 hours and is run with retarded fuel injection timing to produce elevated soot levels in the oil.

The test engine is a Mack E-TECH V-MAC III diesel engine with EGR. It is an in-line six-cylinder, four stroke, turbocharged engine. It has electronically controlled fuel injection with six individual electronic pumps.

**Mack T-11 Test Conditions**

Parameter	Value
Time, h	252
Injection Timing, °BTDC	Variable
Speed, r/min	1800
Fuel Flow, kg/h	53.5
Intake CO <sub>2</sub> , %	1.5
Exhaust CO <sub>2</sub> , %	Record
Inlet Manifold Temp., °C	70
Coolant Out Temp., °C	66
Fuel In Temp., °C	40
Oil Gallery Temp., °C	88
Intake Air Temp., °C	25
Intake Air Restriction, kPa	3.5 – 4.0
Inlet Manifold Pressure, kPa	Tbd
Exhaust Back Pressure, kPa	2.7 – 3.5
Crankcase Pressure, kPa	0.25 – 0.75
Power, kW	Record
Torque, Nm	Record
Pre-Turbine Exhaust Temp., °C	Record
Tailpipe Exhaust Temp., °C	Record
Oil Sump Temp., °C	Record
EGR Pre-Venturi Temp., °C	Record
Inlet Air Dew Point, °C	Record
Inlet Air Humidity, kg/kg	Record
Main Gallery Oil Pressure, kPa	Record
Oil Filter Delta P, kPa	Not to exceed 138

**Mack T-11  
EGR Engine Oil Test  
Form 4  
Test Results Summary**

<b>Laboratory:</b>	LAB	<b>EOT Date:</b>	DTCOMP	<b>EOT Time:</b>	EOTTIME
<b>Test Number:</b>	STAND	STRUN	ENGINE	ENHOURS	
<b>Oil Code:</b>	OILCODE				
<b>Formulation/Stand Code:</b>	FORM				

Test Results			
<b>Date Test Started:</b>	DTSTRT	<b>Start Time:</b>	STRTTIME
<b>SAE Viscosity:</b>	SAEVISC	<b>Test Length:</b>	TESTLEN
<b>TMC Oil Code:<sup>A</sup></b>	IND	<b>Laboratory Oil Code:</b>	LABOCODE
<b>TGA Soot % at 96 h</b>	TGA096		
<b>TGA Soot % at 192 h</b>	TGA192		
<b>TGA Soot % at 252 h</b>	TGA252		
<b>Centrifugal Oil Filter Mass Gain, g</b>	MASSG		
<b>Oil Filter Delta P, kPa</b>	XOILD P		
<b>EOT TBN</b>	TBNEOT		
<b>Oil Consumption, g/hr</b>	OILCON		
<b>Viscosity Increase at 6.0% Soot, cSt</b>	VIS60		
	<b>Soot at 12 cSt (%)</b>	<b>MRV</b>	
<b>Original Result</b>	SOOT	MRV180	
<b>Transformed Result</b>	TRNSOOT	TRNM RV	
<b>Correction Factor</b>	SOOTCF	MRVCF	
<b>Corrected Transformed Result</b>	SOOTCOR	MRVCOR	
<b>Severity Adjustment</b>	SOOT_SA	MRV_SA	
<b>Final Transformed Result</b>	TSOOTFNL	TMRVFNL	
<b>Final Original Unit Result</b>	SOOTFNL	MRVFNL	

Last Stand Reference Results			
<b>Test Number:</b>	RSTAND	RSTRUN	RENGINE RENHOURS
<b>Oil Code:</b>	ROILCODE		
<b>Test Length:</b>	RTESTLEN	<b>TMC Oil Code:</b>	RIND
<b>EOT Date:</b>	RDTCOMP	<b>EOT Time:</b>	REOTTIME
<b>Stand Calibration Expiration Date:</b>	DTCALEXP		
<b>TGA Soot % at 96 h</b>	RTGA096		
<b>TGA Soot % at 192h</b>	RTGA192		
<b>TGA Soot % at 252 h</b>	RTGA252		
<b>Oil Consumption, g/hr</b>	ROILCON		
<b>Viscosity at 6.0% Soot, cSt</b>	RVIS60		
	<b>Soot at 12 cSt (%)</b>	<b>MRV</b>	
<b>Final Original Unit Result</b>	RSOOTFNL	RMRVFNL	

<sup>A</sup> Reference Tests only.

**Mack T-11  
EGR Engine Oil Test  
Form 5  
Operational Summary**

<b>Laboratory:</b>	LAB	<b>EOT Date:</b>	DTCOMP	<b>EOT Time:</b>	EOTTIME
<b>Test Number:</b>	STAND STRUN	ENGINE	ENHOURS		
<b>Oil Code:</b>	OILCODE				
<b>Formulation/Stand Code:</b>	FORM				

	Parameter	Units	QI Threshold	EOT QI <sup>A</sup>	Target	Average	Samples <sup>B</sup>	BQD <sup>C</sup>	Over/Under Range <sup>D</sup>
	<b>Controlled Parameters</b>	Speed	r/min	0.000	QRPM	1800	ARPM	NRPM	BRPM
Fuel Flow		kg/h	0.000	QFFLO	53.5	AFFLO	NFFLO	BFFLO	OFFLO
Inlet Manifold Temp.		°C	0.000	QINMANT	70	AINMANT	NINMANT	BINMANT	OINMANT
Coolant Out Temp.		°C	0.000	QCOLOUR	66	ACOLOUR	NCOLOUR	BCOLOUR	OCOLOUR
Fuel In Temp.		°C	0.000	QFUEL	40	AFUEL	NFUEL	BFUEL	OFUEL
Oil Gallery Temp.		°C	0.000	QOILGT	88	AOILGT	NOILGT	BOILGT	OILGT
Inlet Air Temp.		°C	0.000	QINAIRT	25	AINAIRT	NINAIRT	BINAIRT	OINAIRT
Inlet Air Restriction		kPa			3.5 – 4.0	AINAIRR	NINAIRR	BINAIRR	OINAIRR
Inlet Man. Pressure		kPa			TBD	AINMANP	NINMANP	BINMANP	OINMANP
Exh. Back Pressure		kPa			2.7 – 3.5	AEXHSTP	NEXHSTP	BEXHSTP	OEXHSTP
Crankcase Pressure		kPa			0.25 – 0.75	ACCASEP	NCCASEP	BCCASEP	OCCASEP
Intake CO <sub>2</sub>		%			1.5+0.05	AICO2			
<b>Non-controlled Parameters</b>	Parameter	Units	Typical Values <sup>E</sup>		Average				
	Power	kW	TBD		APWR				
	Torque	Nm	TBD		ALOAD				
	Exhaust CO <sub>2</sub>	%	TBD		AECO2				
	Pre-Turbine Temp. (F)	°C	TBD		APTURFT				
	Pre-Turbine Temp. (R)	°C	TBD		APTURRT				
	Tailpipe Temp.	°C	TBD		ATAILPT				
	Oil Sump Temp.	°C	TBD		AOILST				
	EGR Pre-Venturi Temp.	°C	TBD		AEGRPVT				
	Blowby	L/min	TBD		ABLOBY				
	Inlet Air Dew Point	°C	TBD		AINADP				
	Inlet Air Humidity	g/kg	TBD		AHUMID				
Main Gallery Oil Press.	kPa	TBD		AOILPRS					

*A* QI values above the threshold are acceptable by the Mack Surveillance Panel. QI values below the threshold may not be considered acceptable based on an engineering review. Refer to Annex A3

*B* Total number of data points taken. Minimum acceptable value is 2520

*C* Number of Bad Quality Data points not used in the calculation of the statistical measures.

*D* Number of points clipped by over/under range limits.

*E* Typical values determined from reference oil test database

**Mack T-11  
EGR Engine Oil Test  
Form 6  
Oil Analysis Summary**

<b>Laboratory:</b>	LAB	<b>EOT Date:</b>	DTCOMP	<b>EOT Time:</b>	EOTTIME
<b>Test Number:</b>	STAND	STRUN	ENGINE	ENHOURS	
<b>Oil Code:</b>	OILCODE				
<b>Formulation/Stand Code:</b>	FORM				

Hours	Soot (Wt. %) D 5967 Annex 4	Viscosity at 100°C (cSt) D 5967 Annex A3	Viscosity Increase (cSt)	TBN D 4739	TAN D 664	Integrated IR Oxidation
TST_H000	TGA_H000	V100H000		TBN_H000	TAN_H000	IRINH000
TST_H012	TGA_H012	V100H012	IVISH012	TBN_H012	TAN_H012	IRINH012
TST_H024	TGA_H024	V100H024	IVISH024			
TST_H036	TGA_H036	V100H036	IVISH036	TBN_H036	TAN_H036	IRINH036
TST_H048	TGA_H048	V100H048	IVISH048			
TST_H060	TGA_H060	V100H060	IVISH060	TBN_H060	TAN_H060	IRINH060
TST_H072	TGA_H072	V100H072	IVISH072			
TST_H084	TGA_H084	V100H084	IVISH084	TBN_H084	TAN_H084	IRINH084
TST_H096	TGA096	V100H096	IVISH096			
TST_H108	TGA_H108	V100H108	IVISH108	TBN_H108	TAN_H108	IRINH108
TST_H120	TGA_H120	V100H120	IVISH120			
TST_H132	TGA_H132	V100H132	IVISH132	TBN_H132	TAN_H132	IRINH132
TST_H144	TGA_H144	V100H144	IVISH144			
TST_H156	TGA_H156	V100H156	IVISH156	TBN_H156	TAN_H156	IRINH156
TST_H168	TGA_H168	V100H168	IVISH168			
TST_H180	TGA_H180	V100H180	IVISH180	TBN_H180	TAN_H180	IRINH180
TST_H192	TGA192	V100H192	IVISH192			
TST_H204	TGA_H204	V100H204	IVISH204	TBN_H204	TAN_H204	IRINH204
TST_H216	TGA_H216	V100H216	IVISH216			
TST_H228	TGA_H228	V100H228	IVISH228	TBN_H228	TAN_H228	IRINH228
TST_H240	TGA_H240	V100H240	IVISH240			
TST_H252	TGA252	V100H252	IVISH252	TBNEOT	TAN_H252	IRINH252

**Mack T-11  
EGR Engine Oil Test  
Form 7  
Oil Analysis Summary**

<b>Laboratory:</b>	LAB	<b>EOT Date:</b>	DTCOMP	<b>EOT Time:</b>	EOTIME
<b>Test Number:</b>	STAND	STRUN	ENGINE	ENHOURS	
<b>Oil Code:</b>	OILCODE				
<b>Formulation/Stand Code:</b>	FORM				

Hours	Shear Viscosity (cSt) D 6278 30 Pass	Shear Viscosity (cSt) 90 Pass	MRV Viscosity (cP) D 6896	Rotational Viscosity at 100°C (mPa-s)		Rotational Viscosity Rate Index	
				Increasing	Decreasing	Increasing	Decreasing
TST_H000	DINVIS30	DINVIS90		RTVIH000	RTVDH000	RTRIH000	RTRDH000
TST_H012							
TST_H024				RTVIH024	RTVDH024	RTRIH024	RTRDH024
TST_H036							
TST_H048				RTVIH048	RTVDH048	RTRIH048	RTRDH048
TST_H060							
TST_H072				RTVIH072	RTVDH072	RTRIH072	RTRDH072
TST_H084							
TST_H096				RTVIH096	RTVDH096	RTRIH096	RTRDH096
TST_H108							
TST_H120				RTVIH120	RTVDH120	RTRIH120	RTRDH120
TST_H132				RTVIH132	RTVDH132	RTRIH132	RTRDH132
TST_H144				RTVIH144	RTVDH144	RTRIH144	RTRDH144
TST_H156				RTVIH156	RTVDH156	RTRIH156	RTRDH156
TST_H168				RTVIH168	RTVDH168	RTRIH168	RTRDH168
TST_H180			MRV180	RTVIH180	RTVDH180	RTRIH180	RTRDH180
TST_H192				RTVIH192	RTVDH192	RTRIH192	RTRDH192
TST_H204				RTVIH204	RTVDH204	RTRIH204	RTRDH204
TST_H216				RTVIH216	RTVDH216	RTRIH216	RTRDH216
TST_H228				RTVIH228	RTVDH228	RTRIH228	RTRDH228
TST_H240				RTVIH240	RTVDH240	RTRIH240	RTRDH240
TST_H252				RTVIH252	RTVDH252	RTRIH252	RTRDH252
<b>Rotational Viscosity of DIN 30 Pass Sample</b>				RTVID30	RTVDD30	RTRID30	RTRDD30
<b>Rotational Viscosity of DIN 90 Pass Sample</b>				RTVID90	RTVDD90	RTRID90	RTRDD90

**Mack T-11  
EGR Engine Oil Test  
Form 8  
Oil Analysis Summary**

<b>Laboratory:</b> LAB	<b>EOT Date:</b> DTCOMP	<b>EOT Time:</b> EOTTIME
<b>Test Number:</b> STAND	STRUN	ENGINE ENHOURS
<b>Oil Code:</b>		OILCODE
<b>Formulation/Stand Code:</b>		FORM

Hours	Fuel Dilution D 3524	Metal Elements (ppm) D 5185							
		Fe	Pb	Cu	Cr	Al	Si	Sn	Na
TST_H000		FEWMH000	PBWMH000	CUWMH000	CRWMH000	ALWMH000	SIWMH000	SNWMH000	NAWMH000
TST_H012									
TST_H024		FEWMH024	PBWMH024	CUWMH024	CRWMH024	ALWMH024	SIWMH024	SNWMH024	NAWMH024
TST_H036									
TST_H048		FEWMH048	PBWMH048	CUWMH048	CRWMH048	ALWMH048	SIWMH048	SNWMH048	NAWMH048
TST_H060									
TST_H072		FEWMH072	PBWMH072	CUWMH072	CRWMH072	ALWMH072	SIWMH072	SNWMH072	NAWMH072
TST_H084									
TST_H096	FDILH096	FEWMH096	PBWMH096	CUWMH096	CRWMH096	ALWMH096	SIWMH096	SNWMH096	NAWMH096
TST_H108									
TST_H120		FEWMH120	PBWMH120	CUWMH120	CRWMH120	ALWMH120	SIWMH120	SNWMH120	NAWMH120
TST_H132									
TST_H144		FEWMH144	PBWMH144	CUWMH144	CRWMH144	ALWMH144	SIWMH144	SNWMH144	NAWMH144
TST_H156									
TST_H168		FEWMH168	PBWMH168	CUWMH168	CRWMH168	ALWMH168	SIWMH168	SNWMH168	NAWMH168
TST_H180									
TST_H192	FDILH192	FEWMH192	PBWMH192	CUWMH192	CRWMH192	ALWMH192	SIWMH192	SNWMH192	NAWMH192
TST_H204									
TST_H216		FEWMH216	PBWMH216	CUWMH216	CRWMH216	ALWMH216	SIWMH216	SNWMH216	NAWMH216
TST_H228									
TST_H240		FEWMH240	PBWMH240	CUWMH240	CRWMH240	ALWMH240	SIWMH240	SNWMH240	NAWMH240
TST_H252	FDILH252	FEWMH252	PBWMH252	CUWMH252	CRWMH252	ALWMH252	SIWMH252	SNWMH252	NAWMH252



**Mack T-11  
EGR Engine Oil Test  
Form 9  
Test Fuel Analysis (Last Batch)**

<b>Laboratory:</b> LAB	<b>EOT Date:</b> DTCOMP	<b>EOT Time:</b> EOTTIME
<b>Test Number:</b> STAND STRUN	ENGINE	ENHOURS
<b>Oil Code:</b> OILCODE		
<b>Formulation/Stand Code:</b> FORM		
<b>Supplier:</b> FUELSUP	<b>Batch Identifiers:</b> FUELBTID	

Measurement	Specs.	Analysis		Test Method
		NEW	EOT	
<b>Total Sulfur, % Weight</b>	<b>0.04 – 0.05</b>	FUELSNEW	FUELSEOT	<b>D 2622</b>
<b>Gravity, °API</b>	<b>34.5 – 36.5</b>	APIGRNEW	APIGREOT	<b>D 287 or D 4052</b>
<b>Hydrocarbon Composition</b>				
<b>Aromatics % Vol.</b>	<b>28 – 33</b>	FUELAROM		<b>D 1319</b>
<b>Olefin</b>	<b>Report</b>	FUELOLEF		<b>D 1319</b>
<b>Cetane Index</b>	<b>Report</b>	CETANEIN		<b>D 976 &amp; D 4737</b>
<b>Cetane No.</b>	<b>42 – 48</b>	CETANENO		<b>D 613</b>
<b>Copper Strip Corrosion</b>	<b>1 Maximum</b>	FUELUCU		<b>D 130</b>
<b>Flash Point, °C</b>	<b>54 Minimum</b>	FLASHPT		<b>D 93</b>
<b>Pour Point, °C</b>	<b>-18 Maximum</b>	FUELPOUR		<b>D 97</b>
<b>Carbon Residue on 10% Residuam, %</b>	<b>0.35 Maximum</b>	FUELGRES		<b>D 524 (10% Bottoms)</b>
<b>Water &amp; Sediment, % Vol.</b>	<b>0.05 Maximum</b>	FUELH2O		<b>D 2709</b>
<b>Viscosity, cSt @ 40°C</b>	<b>2.4 – 5.0</b>	KINVIS		<b>D 445</b>
<b>Total Acid Number</b>	<b>0.05 Maximum</b>	FUELTAN		<b>D 664</b>
<b>Strong Acid Number</b>	<b>0.00 Maximum</b>	FUELSAN		<b>D 664</b>
<b>Accelerated Stability</b>	<b>tbd</b>	FUELACS		<b>D 2274</b>
<b>Distillation, °C</b>				
<b>IBP</b>	<b>Report</b>	FUELIBP		<b>D 86</b>
<b>10%</b>	<b>Report</b>	FUEL10		<b>D 86</b>
<b>50%</b>	<b>Report</b>	FUEL50		<b>D 86</b>
<b>90%</b>	<b>282 – 338</b>	FUEL90		<b>D 86</b>
<b>EP</b>	<b>Report</b>	FUELEP		<b>D 86</b>

**Mack T-11  
EGR Engine Oil Test  
Form 10**

**Characteristics of the Data Acquisition System**

<b>Laboratory:</b>	LAB	<b>EOT Date:</b>	DTCOMP	<b>EOT Time:</b>	EOTTIME
<b>Test Number:</b>	STAND	STRUN	ENGINE	ENHOURS	
<b>Oil Code:</b>	OILCODE				
<b>Formulation/Stand Code:</b>	FORM				

Parameter (1)	Sensing Device (2)	Calibration Frequency (3)	Record Device (4)	Observation Frequency (5)	Record Frequency (6)	Log Frequency (7)	System Response (8)
<b>Temperatures</b>							
<b>Oil @ Filt.</b>	OTEMSENS	OTEMCALF	OTEMRECD	OTEMOBSF	OTEMRECF	OTEMLOGF	OTEMSYSR
<b>Fuel In.</b>	FTESENS	FTEMCALF	FTEMRECD	FTEMOBSF	FTEMRECF	FTEMLOGF	FTEMSYSR
<b>Intake Air</b>	AITSENS	AITCALF	AITRECD	AITOBSF	AITRECF	AITLOGF	AITSYSR
<b>Intake Man.</b>	IMANSSENS	IMANCALF	IMANRECD	IMANOBSF	IMANRECF	IMANLOGF	IMANSYSR
<b>Pre-Turb.</b>	PTURSENS	PTURCALF	PTURRECD	PTUROBSF	PTURRECF	PTURLOGF	PTURSYSR
<b>Cool. Out</b>	COTSENS	COTCALF	COTRECD	COTOBSF	COTRECF	COTLOGF	COTSYSR
<b>Other</b>							
<b>Fuel Flow</b>	FFLOSENS	FFLOCALF	FFLORECD	FFLOBSF	FFLORECF	FFLOLOGF	FFLOSYSR
<b>Engine RPM</b>	RPMSSENS	RPMCALF	RPMRECD	RPMOBSF	RPMRECF	RPMLOGF	RPMSYSR
<b>Load</b>	LOADSENS	LOADCALF	LOADRECD	LOADOBSF	LOADRECF	LOADLOGF	LOADSYSR
<b>Inlet Restr.</b>	INRESENS	INRECALF	INRERECD	INREOBSF	INRERECF	INRELOGF	INRESYSR
<b>Exh. Press.</b>	EXPRSENS	EXPRCALF	EXPRECD	EXPROBSF	EXPRECF	EXPRLOGF	EXPRSYSR
<b>Oil Gal. Press.</b>	OILGSENS	OILGCALF	OILGRECD	OILGOBSF	OILGRECF	OILGLOGF	OILGSYSR

**LEGEND:**

- (1) **Operating Parameter**
- (2) **The type of device used to measure temperature, pressure or flow**
- (3) **Frequency at which the measurement system is calibrated**
- (4) **The type of device where data is recorded**  
 LG - Handlog Sheet  
 DL - Automatic Data Logger  
 SC - Strip Chart Recorder  
 C/M - Computer, Using Manual Data Entry  
 C/D - Computer, Using Direct I/O Entry
- (5) **Data are observed but only if recorded off spec.**
- (6) **Data are recorded but are not retained at EOT**
- (7) **Data are logged as permanent record, note specify if:**  
 SS - Snapshot Taken at Specified Frequency  
 AG/X - Average of X Data Points at Specified Frequency
- (8) **Time for the output to reach 63.2% of final value for step change at input**

**Mack T-11  
EGR Engine Oil Test  
Form 11  
Build-up and Hardware Information**

<b>Laboratory:</b> LAB	<b>EOT Date:</b> DTCOMP	<b>EOT Time:</b> EOTTIME
<b>Test Number:</b> STAND	STRUN	ENGINE ENHOURS
<b>Oil Code:</b>		OILCODE
<b>Formulation/Stand Code:</b>		FORM

**Injection Timing**

Timing Hours	Timing (Deg)
SITHR001	SIT R001
SITHR002	SIT R002
SITHR003	SIT R003
SITHR004	SIT R004
SITHR005	SIT R005
SITHR006	SIT R006
SITHR007	SIT R007
SITHR008	SIT R008
SITHR009	SIT R009
SITHR010	SIT R010
SITHR011	SIT R011
SITHR012	SIT R012
SITHR013	SIT R013
SITHR014	SIT R014
SITHR015	SIT R015
TOTSIT	<b>Total Timing Changes</b>

**Hardware**

Part	Part Number	Serial Number
<b>Primary Turbocharger</b>	TRBCHPPN	
<b>Secondary Charger</b>	TRBCHSPN	
<b>Cylinder Head (front)</b>	CYLHFRPN	CYLHFRSN
<b>Cylinder Head (rear)</b>	CYLHRRPN	CYLHRRSN
<b>Pistons</b>	PISTONPN	
<b>Injection Nozzles</b>	INJNOZPN	
<b>Rod Bearings</b>	RODBRGPN	
<b>Liners</b>	LINERPN	
<b>Ring Set</b>	RINGSTPN	

Cylinder Kit Location	CPD ID Number
<b>Cylinder 1</b>	CPDIDC1
<b>Cylinder 2</b>	CPDIDC2
<b>Cylinder 3</b>	CPDIDC3
<b>Cylinder 4</b>	CPDIDC4
<b>Cylinder 5</b>	CPDIDC5
<b>Cylinder 6</b>	CPDIDC6

**Mack T-11  
EGR Engine Oil Test  
Form 12  
Unscheduled Downtime and Maintenance Summary**

<b>Laboratory:</b> LAB	<b>EOT Date:</b> DTCOMP	<b>EOT Time:</b> EOTTIME
<b>Test Number:</b> STAND	STRUN	ENGINE ENHOURS
<b>Oil Code:</b>		OILCODE
<b>Formulation/Stand Code:</b>		FORM

Number of Downtime Occurrences			DWNOCR
Test Hours	Date	Downtime	Reasons
DOWNR001	DDATR001	DTIMR001	DREAR001
DOWNR002	DDATR002	DTIMR002	DREAR002
DOWNR003	DDATR003	DTIMR003	DREAR003
DOWNR004	DDATR004	DTIMR004	DREAR004
DOWNR005	DDATR005	DTIMR005	DREAR005
DOWNR006	DDATR006	DTIMR006	DREAR006
DOWNR007	DDATR007	DTIMR007	DREAR007
DOWNR008	DDATR008	DTIMR008	DREAR008
DOWNR009	DDATR009	DTIMR009	DREAR009
DOWNR010	DDATR010	DTIMR010	DREAR010
DOWNR011	DDATR011	DTIMR011	DREAR011
DOWNR012	DDATR012	DTIMR012	DREAR012
DOWNR013	DDATR013	DTIMR013	DREAR013
DOWNR014	DDATR014	DTIMR014	DREAR014
DOWNR015	DDATR015	DTIMR015	DREAR015
TOTLDOWN			<b>Total Downtime</b>

Other Comments	
Number of Comment Lines	TOTCOM
	OCOMR001
	OCOMR002
	OCOMR003
	OCOMR004
	OCOMR005
	OCOMR006
	OCOMR007
	OCOMR008
	OCOMR009
	OCOMR010
	OCOMR011
	OCOMR012
	OCOMR013
	OCOMR014
	OCOMR015

**Mack T-11  
EGR Engine Oil Test  
Form 12A  
Unscheduled Downtime and Maintenance Summary**

<b>Laboratory:</b> LAB	<b>EOT Date:</b> DTCOMP	<b>EOT Time:</b> EOTTIME
<b>Test Number:</b> STAND	STRUN	ENGINE ENHOURS
<b>Oil Code:</b>		OILCODE
<b>Formulation/Stand Code:</b>		FORM

Number of Downtime Occurrences			DWNOCR
Test Hours	Date	Downtime	Reasons
DOWNR016	DDATR016	DTIMR016	DREAR016
DOWNR017	DDATR017	DTIMR017	DREAR017
DOWNR018	DDATR018	DTIMR018	DREAR018
DOWNR019	DDATR019	DTIMR019	DREAR019
DOWNR020	DDATR020	DTIMR020	DREAR020
DOWNR021	DDATR021	DTIMR021	DREAR021
DOWNR022	DDATR022	DTIMR022	DREAR022
DOWNR023	DDATR023	DTIMR023	DREAR023
DOWNR024	DDATR024	DTIMR024	DREAR024
DOWNR025	DDATR025	DTIMR025	DREAR025
DOWNR026	DDATR026	DTIMR026	DREAR026
DOWNR027	DDATR027	DTIMR027	DREAR027
DOWNR028	DDATR028	DTIMR028	DREAR028
DOWNR029	DDATR029	DTIMR029	DREAR029
DOWNR030	DDATR030	DTIMR030	DREAR030
TOTLDOWN			<b>Total Downtime</b>

Other Comments	
Number of Comment Lines	TOTCOM
	OCOMR016
	OCOMR017
	OCOMR018
	OCOMR019
	OCOMR020
	OCOMR021
	OCOMR022
	OCOMR023
	OCOMR024
	OCOMR025
	OCOMR026
	OCOMR027
	OCOMR028
	OCOMR029
	OCOMR030

**Mack T-11  
EGR Engine Oil Test  
Form 12B  
Unscheduled Downtime and Maintenance Summary**

<b>Laboratory:</b> LAB	<b>EOT Date:</b> DTCOMP	<b>EOT Time:</b> EOTTIME
<b>Test Number:</b> STAND	STRUN	ENGINE ENHOURS
<b>Oil Code:</b>		OILCODE
<b>Formulation/Stand Code:</b>		FORM

Number of Downtime Occurrences			DWNOCR
Test Hours	Date	Downtime	Reasons
DOWNR031	DDATR031	DTIMR031	DREAR031
DOWNR032	DDATR032	DTIMR032	DREAR032
DOWNR033	DDATR033	DTIMR033	DREAR033
DOWNR034	DDATR034	DTIMR034	DREAR034
DOWNR035	DDATR035	DTIMR035	DREAR035
DOWNR036	DDATR036	DTIMR036	DREAR036
DOWNR037	DDATR037	DTIMR037	DREAR037
DOWNR038	DDATR038	DTIMR038	DREAR038
DOWNR039	DDATR039	DTIMR039	DREAR039
DOWNR040	DDATR040	DTIMR040	DREAR040
DOWNR041	DDATR041	DTIMR041	DREAR041
DOWNR042	DDATR042	DTIMR042	DREAR042
DOWNR043	DDATR043	DTIMR043	DREAR043
DOWNR044	DDATR044	DTIMR044	DREAR044
DOWNR045	DDATR045	DTIMR045	DREAR045
TOTLDOWN			<b>Total Downtime</b>

Other Comments	
Number of Comment Lines	TOTCOM
	OCOMR031
	OCOMR032
	OCOMR033
	OCOMR034
	OCOMR035
	OCOMR036
	OCOMR037
	OCOMR038
	OCOMR039
	OCOMR040
	OCOMR041
	OCOMR042
	OCOMR043
	OCOMR044
	OCOMR045