

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

Report Packet Version No.
T11 VERSION 20031029

Conducted For

TSTSPON1

TSTSPON2

LABVALID	V = Valid; The reference oil/non-reference oil was evaluated in accordance with the test procedure.
	I = Invalid; The reference oil/non-reference oil was not evaluated in accordance with the test procedure.
	N = 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	NR = Non Reference Oil Test
	RO = Reference Oil Test

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

<p>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.</p>
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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 ₂ , %	1.5
Exhaust CO ₂ , %	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
Fuel Pressure, kPa	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**

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

Test Results		
Date Test Started: DTSTRT	Start Time: STRTTIME	
SAE Viscosity: SAEVISC	Test Length: TESTLEN	
TMC Oil Code: ^A IND	Laboratory Oil Code: LABOCODE	
TGA Soot % at 96 h	TGA096	
TGA Soot % at 192 h	TGA192	
TGA Soot % at 228 h	TGA228	
TGA Soot % at 252 h	TGA252	
Centrifugal Oil Filter Mass Gain, g	MASSG	
Oil Filter Delta P, kPa	XOILDP	
EOT TBN	TBNEOT	
Oil Consumption, g/hr	OILCON	
Viscosity Increase at 6.0% Soot, cSt	VIS60	
MRV Yield Stress, cP	MRVYS	
	Soot at 12 cSt (%)	MRV (cP)
Original Result	SOOT	MRV180
Transformed Result	TRNSOOT	TRNMRV
Correction Factor	SOOTCF	MRVCF
Corrected Transformed Result	SOOTCOR	MRVCOR
Severity Adjustment	SOOT_SA	MRV_SA
Final Transformed Result	TSOOTFNL	TMRVFNL
Final Original Unit Result	SOOTFNL	MRVFNL

Last Stand Reference Results		
Test Number: RSTAND RSTRUN	RENGINE	RENHOURS
Oil Code:	ROILCODE	
Test Length: RTESTLEN	TMC Oil Code: RIND	
EOT Date: RDTCOMP	EOT Time: REOTTIME	
Stand Calibration Expiration Date:	DTCALEXP	
TGA Soot % at 96 h	RTGA096	
TGA Soot % at 192h	RTGA192	
TGA Soot % at 228h	RTGA228	
TGA Soot % at 252 h	RTGA252	
Oil Consumption, g/hr	ROILCON	
Viscosity at 6.0% Soot, cSt	RVIS60	
	Soot at 12 cSt (%)	MRV
Final Original Unit Result	RSOOTFNL	RMRVFNL

^A Reference Tests only.

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

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

	Parameter	Units	QI Threshold	EOT QI ^A	Target	Average	Samples ^B	BQD ^C	Over/Under Range ^D
	Controlled Parameters	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 ₂		%			1.5+0.05	AICO2			
Non-controlled Parameters		Parameter	Units	Typical Values ^E		Average			
	Power	kW	TBD		APWR				
	Torque	Nm	TBD		ALOAD				
	Exhaust CO ₂	%	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				
	Fuel Pressure	kPa	TBD		AFUEL				
	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**

Laboratory:	LAB	EOT Date:	DTCOMP	EOT Time:	EOTIME
Test Number:	STAND	STRUN	ENGINE	ENHOURS	
Oil Code:	OILCODE				
Formulation/Stand Code:	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	TGA228	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**

Laboratory:	LAB	EOT Date:	DTCOMP	EOT Time:	EOTIME
Test Number:	STAND	STRUN	ENGINE	ENHOURS	
Oil Code:	OILCODE				
Formulation/Stand Code:	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
Rotational Viscosity of DIN 30 Pass Sample				RTVID30	RTVDD30	RTRID30	RTRDD30
Rotational Viscosity of DIN 90 Pass Sample				RTVID90	RTVDD90	RTRID90	RTRDD90

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

Laboratory: LAB	EOT Date: DTCOMP	EOT Time: EOTTIME
Test Number: STAND	STRUN	ENGINE ENHOURS
Oil Code: OILCODE		
Formulation/Stand Code: 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)**

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

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

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

Characteristics of the Data Acquisition System

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

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

Laboratory: LAB	EOT Date: DTCOMP	EOT Time: EOTTIME
Test Number: STAND	STRUN	ENGINE ENHOURS
Oil Code:		OILCODE
Formulation/Stand Code:		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	Total Timing Changes

Hardware

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

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

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

Laboratory: LAB	EOT Date: DTCOMP	EOT Time: EOTTIME
Test Number: STAND	STRUN	ENGINE ENHOURS
Oil Code:		OILCODE
Formulation/Stand Code:		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			Total Downtime

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**

Laboratory: LAB	EOT Date: DTCOMP	EOT Time: EOTTIME
Test Number: STAND	STRUN	ENGINE ENHOURS
Oil Code:		OILCODE
Formulation/Stand Code:		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			Total Downtime

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**

Laboratory: LAB	EOT Date: DTCOMP	EOT Time: EOTTIME
Test Number: STAND	STRUN	ENGINE ENHOURS
Oil Code:		OILCODE
Formulation/Stand Code:		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			Total Downtime

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