

**A1. Report Forms
TEST METHOD D5967**

VERSION T8 VERSION 20020107

METHOD: CCCCCCCC

CONDUCTED FOR:

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

T-8A: C	V = VALID; THE REFERENCE OIL/NON-REFERENCE OIL WAS EVALUATED IN ACCORDANCE WITH THE TEST PROCEDURE.
T-8: C	I = INVALID; THE REFERENCE OIL/NON-REFERENCE WAS NOT EVALUATED IN ACCORDANCE WITH THE TEST PROCEDURE.
T-8E: C	N = NOT INTERPRETABLE; THE NON-REFERENCE OIL RESULTS CANNOT BE INTERPRETED AND SHALL NOT BE USED IN DETERMINING AN AVERAGE TEST RESULT USING MULTIPLE TEST CRITERIA.

STAND: CCCCC	STAND RUN NO.: CCCC	ENGINE NO.: CCCCC	ENGINE HOURS: CCCC
END OF TEST DATE: YYYYMMDD		END OF TEST TIME: HH:MM	
OIL CODE/CMIR: ^A CCCCC			
T-8 FORMULATION/STAND CODE: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			
T-8E FORMULATION/STAND CODE: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			
ALTCODE1: CCCCCCCCCCCCCC	ALTCODE2: CCCCCCCCCCCCCC	ALTCODE3: CCCCCCCCCCCCCC	

^A CMIR or Non-Reference Oil Code

SUBMITTED BY: _____

 Testing Laboratory
 Signature Image

 Signature

 Typed Name

 Title

**TEST METHOD D5967
FORM 1
TEST RESULT SUMMARY**

T-8 FORMULATION/STAND CODE: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		TEST LENGTH: ^A S1234	
T-8E FORMULATION/STAND CODE: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			
REFERENCE OIL TEST			
CMIR CODE NO.: CCCCCC		NON-REFERENCE OIL TEST	
OIL CODE NO.: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			
TMC OIL NO.	TEST LAB NO.	TEST STAND NO.	REBUILD BLOCK HOURS
CCCCC	CC	CCCC	CCCC
TEST LAB NO.	TEST STAND NO.	TEST STAND NO.	ENGINE BLOCK HOURS
CC	CCCC	CCCC	CCCC
DATE TEST STARTED: YYYYMMDD	DATE TEST COMPLETED: YYYYMMDD	DATE TEST COMPLETED: YYYYMMDD	EOT TIME: HH:MM
YYYYMMDD	YYYYMMDD	YYYYMMDD	HH:MM
Laboratory Oil Code:		Laboratory Oil Code:	
CCCCCCCCCCCCCCCC		CCCCCCCCCCCCCCCC	
SAE Viscosity:		SAE Viscosity:	
CCCCCCC		CCCCCCC	

VISCOSITY SLOPE 100 - 150 h, cSt/h	S.123		S.123
VISCOSITY INCREASE AT 3.8% TGA, cSt	S12.12		S12.12
RELATIVE VISCOSITY AT 4.8%, TGA (50% LOSS)^B	S12.12		S12.12
RELATIVE VISCOSITY AT 4.8%, TGA (100% LOSS)^B	S12.12		S12.12
TGA SOOT % AT 250 h	S123.1		S123.1
TGA SOOT % AT 300 h	S123.1		S123.1
AVERAGE OIL CONSUMPTION AT 250 h (g/kW-h)	S1.123		S1.123
OIL FILTER DELTA AT 250 h, kPa	S123		S123

^A Test length is discussed in sections 1.2, 4.1, A8.3.1 and A9.3.1.

^B Relative viscosities are calculated using shear loss determined by D6278.

**TEST METHOD D5967
FORM 2
OPERATIONAL SUMMARY^A**

Laboratory	CC	Start Date	YYYYMMDD
Test Number ^B	CCCC -CCCC -CCCCC-CCCC	Oil Code	CCCCC
T-8 Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
T-8E Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

TEST PARAMETER	SPECIFICATION	AVERAGE	STD. DEV.	MINIMUM	MAXIMUM
Engine Speed, r/min	1800 ± 5	S12345	S12345	S12345	S12345
Torque, N-m	1369 - 1398	S1234	S1234	S1234	S1234
Fuel Flow, kg/h	63.28 ± 0.63	S12.12	S12.12	S12.12	S12.12
Humidity, g/kg	Report	S1.1		S1.1	S1.1
Blowby, L/min	Report	S12.1		S12.1	S12.1
TEMPERATURES	SPECIFICATION	AVERAGE	STD.DEV	MINIMUM	MAXIMUM
Coolant Out, °C	85 ± 3	S1234	S1234	S1234	S1234
Coolant In, °C	Report Only	S1234	S1234	S1234	S1234
Oil, °C	100 - 107	S1234	S1234	S1234	S1234
Fuel In, °C	40 ± 1	S1234	S1234	S1234	S1234
Intake Air, °C	25 ± 3	S1234	S1234	S1234	S1234
Intake Manifold, °C	43 ± 3	S1234	S1234	S1234	S1234
Pre-Turb. (F), °C	602 - 632	S1234	S1234	S1234	S1234
Pre-Turb. (R), °C	602 - 632	S1234	S1234	S1234	S1234
TailPipe, °C	455 - 474	S1234	S1234	S1234	S1234
PRESSURES	SPECIFICATION	AVERAGE	STD.DEV	MINIMUM	MAXIMUM
Oil Gallery, kPa	372 - 441	S1234		S1234	S1234
Crankcase, kPa	0.50 ± 0.25	S1.12	S1.12	S1.12	S1.12
Exhaust, kPa	3.1 ± 0.4	S1.1	S1.1	S1.1	S1.1
Oil Filter Delta, kPa	138 Max.				S123
Inlet Air Res., kPa	2.5 ± 0.25	S12.12	S12.12	S12.12	S12.12
Intake Manifold, kPa	186 - 199	S123	S123	S123	S123
Compressor Discharge, kPa	Report	S123	S123	S123	S123
Intercooler Delta, kPa	13.6 Maximum	S1.1	S1.1	S1.1	S1.1

^A ALL DATA VALUES SHOWN ARE BASED ON TEST LENGTH REPORTED ON FORM1

^B TEST NUMBER IS: STAND - STAND RUN NO. - ENGINE SERIAL NO. - ENGINE HOURS

**TEST METHOD D5967
FORM 4
OIL ANALYSIS SUMMARY**

Laboratory: CC	Start Date: YYYYMMDD
Test Number: CCCC - CCCC - CCCCC - CCCC	Oil Code: CCCCC
T-8 Formulation/Stand Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	
T-8E Formulation/Stand Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	

Hours	Soot TGA %	Viscosity (cSt)	Viscosity Increase From Minimum(cSt)
S1234	S123.1	S123.12	
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
250 (2nd)	S123.1	S123.12	
250 (Average)	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12
S1234	S123.1	S123.12	S12.12

Viscosity Increase @ 3.8% TGA Soot Level	S12.12
D6278 Unsheared Viscosity (cSt), Vu	S123.12
D6278 Sheared Viscosity (cSt), Vs	S123.12
Relative Viscosity @ 4.8% TGA Soot Level (50% Loss) ^A	S12.12
Relative Viscosity @ 4.8% TGA Soot Level (100% Loss) ^A	S12.12

ELEMENT	Parts per million (ppm) at Test Hour			
	S1234	S1234	S1234	S1234
Fe	S12345	S12345	S12345	S12345
Pb	S12345	S12345	S12345	S12345
Cu	S12345	S12345	S12345	S12345
Cr	S12345	S12345	S12345	S12345
Al	S12345	S12345	S12345	S12345
Si	S12345	S12345	S12345	S12345
Na	S12345	S12345	S12345	S12345

Centrifugal Oil Filter mass: grams	Pre-Test	Post-Test	Mass Gain
	S123.1	S123.1	S123.1

^ARelative viscosities are calculated using shear loss determined by D5278.

**TEST METHOD D5967
FORM 5**

TEST FUEL ANALYSIS (LAST BATCH)

Laboratory	CC	Start Date	YYYYMMDD
Test Number	CCCCC -CCCC -CCCCC-CCCC	Oil Code	CCCCCC
T-8 Formulation/Stand Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			
T-8E Formulation/Stand Code: CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC			
Supplier	CCCCCCCCCCCCCCCCCCCC	Batch Identifiers	CCCCCCCCCCCCCCCC

Measurement	Specs.	Analysis		Test Method
		NEW	EOT	
Total Sulfur, % wt	0.03 - 0.05	S1.12	S1.12	D 2622
Gravity, °API	32 - 36	S1.1	S1.1	D 287 or D 4052
Hydrocarbon Composition				
Aromatics % vol	28 - 35	S1.1		D 1319
Olefin	Report	S12.1		D 1319
Saturates	Report	S12.1		D 1319
Cetane Index	Report	S1.1		D 4737
Cetane No.	42 - 48	S1.1		D 613
Copper Strip Corrosion	3 max	S123		D 130
Flash Point, °C	54 min	S123		D 93
Cloud Point, °C	-12 max	S123		D 2500
Pour Point, °C	-18 max	S123		D 97
Carbon Residue on 10% Residium, %	0.35 max	S1.12		D 524 (10 % Bottoms)
Water & Sediment, % Vol	0.05 max	S12.12		D 2709
Ash, % wt	0.01 max	S1.123		D 482
Viscosity, cSt @ 40°C	2.0 - 3.2	S1.1		D 445
Distillation, °C				
IBP	177 - 199	S1234		D 86
10%	210 - 232	S1234		D 86
50%	249 - 277	S1234		D 86
90%	299 - 327	S1234		D 86
EP	327 - 360	S1234		D 86

**TEST METHOD D5967
FORM 7**

CHARACTERISTICS OF THE DATA ACQUISITION SYSTEM

Laboratory CC	Start Date YYYYMMDD
Test Number CCCCC -CCCC -CCCCCC -CCCC	Oil Code CCCCC
T-8 Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
T-8E Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

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.	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
FUEL IN.	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
INTAKE AIR	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
INTAKE MAN	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
PRE-TURB.	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
COOL. OUT	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
Other							
FUEL FLOW	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
ENGINE RPM	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
LOAD	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
INLET RESTR	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
EXH. PRESS.	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC
OIL GAL PRES	CCCCCCCCCC	CCCCCCCCCC	CCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCCCC	CCCCCCCC

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

**TEST METHOD D5967
FORM 8**

BUILD-UP AND HARDWARE INFORMATION

Laboratory	CC	Start Date	YYYYMMDD
Test Number	CCCCC .CCCC	Oil Code	CCCCCC
T-8 Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
T-8E Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

TIMING

Lite/HPC Offset (deg)	S1.12
Piston Travel to TDC (deg)	S1.12
Timing (deg)	S1.12

PARTS

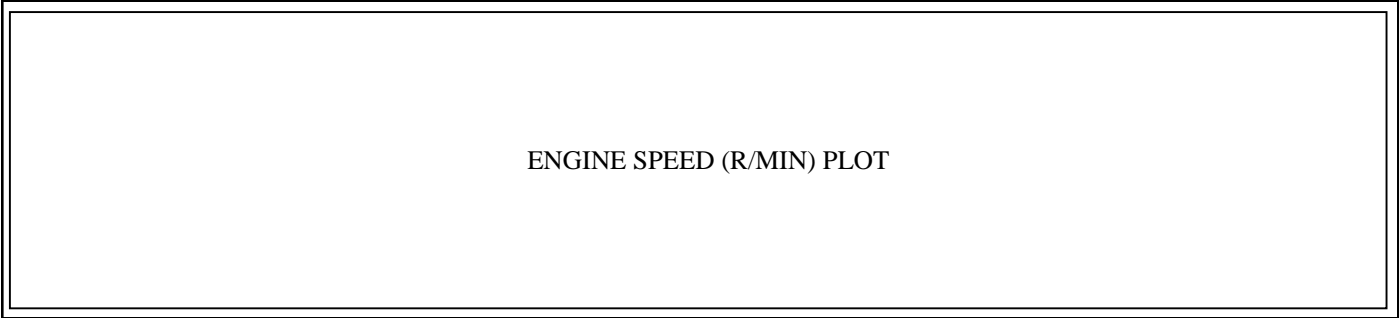
Part	Part Number	Serial Number
Injection Pump	CCCCCCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCCCCCC
Turbo Charger	CCCCCCCCCCCCCCCCCCCC	
Cylinder Head (front)	CCCCCCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCCCCCC
Cylinder Head (rear)	CCCCCCCCCCCCCCCCCCCC	CCCCCCCCCCCCCCCCCCCC
Pistons	CCCCCCCCCCCCCCCCCCCC	
Injection Nozzles	CCCCCCCCCCCCCCCCCCCC	

**TEST METHOD D5967
FORM 9**

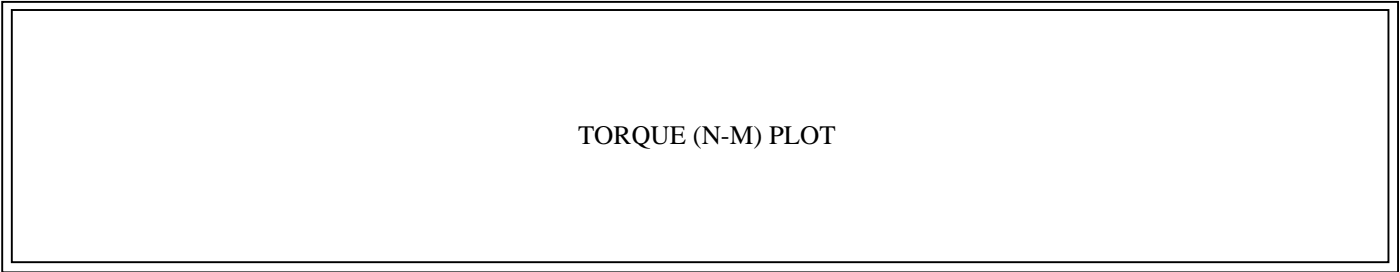
OPERATIONAL DATA

Laboratory	CC	Start Date	YYYYMMDD
Test Number	CCCC -CCCC	-CCCCC-CCCC	Oil Code CCCCCC
T-8 Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
T-8E Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

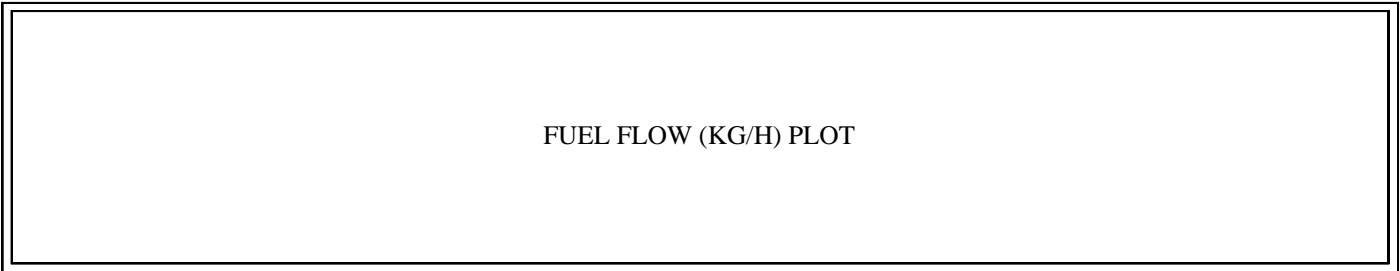
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



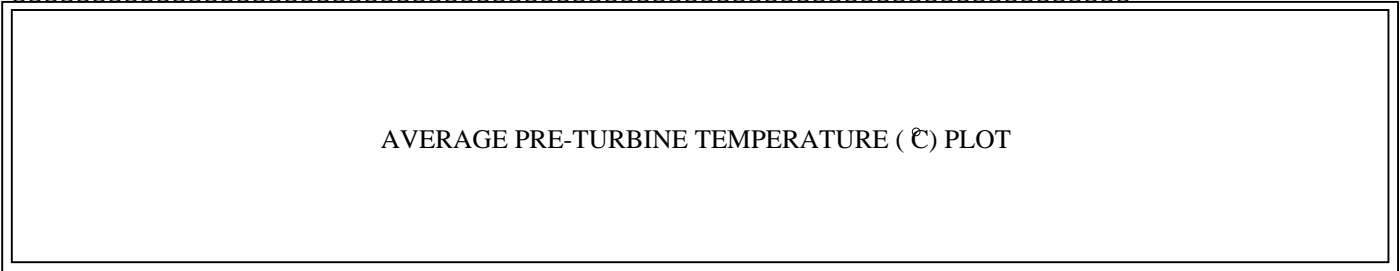
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



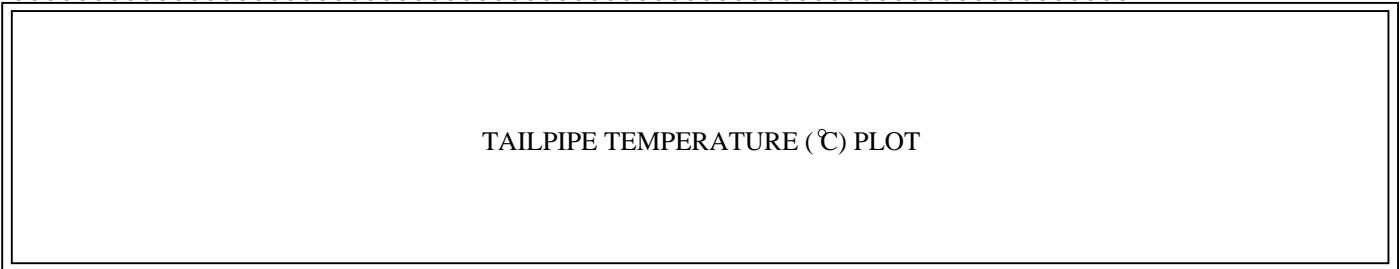
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



**TEST METHOD D5967
FORM 10**

OPERATIONAL DATA

Laboratory	CC	Start Date	YYYYMMDD
Test Number	CCCC -CCCC	-CCCCC-CCCC	Oil Code CCCCCC
T-8 Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
T-8E Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

COOLANT IN TEMPERATURE (°C) PLOT

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

COOLANT OUT TEMPERATURE (°C) PLOT

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

OIL TEMPERATURE (°C) PLOT

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

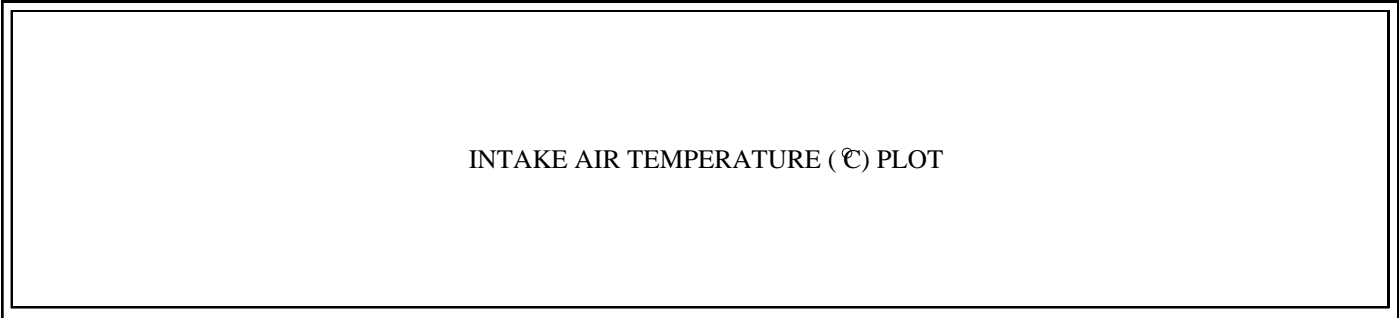
FUEL IN TEMPERATURE (°C) PLOT

**TEST METHOD D5967
FORM 11**

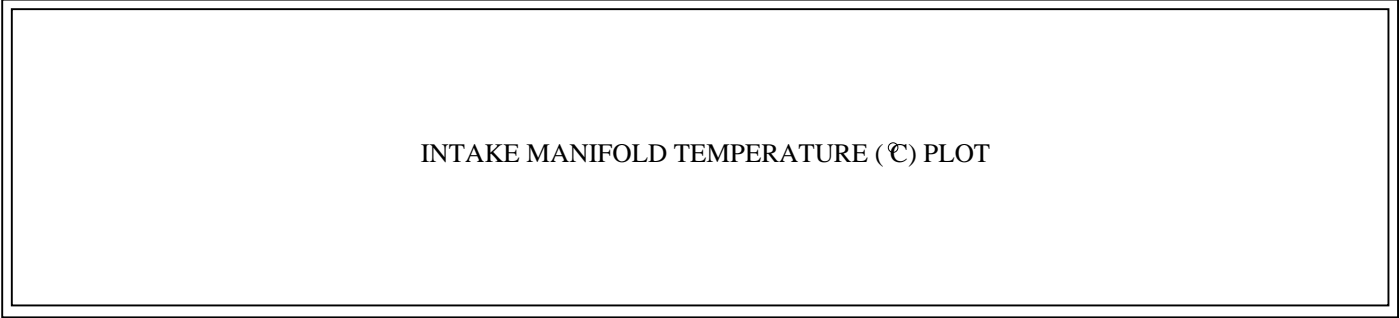
OPERATIONAL DATA

Laboratory	CC	Start Date	YYYYMMDD
Test Number	CCCC -CCCC	-CCCCC-CCCC	Oil Code CCCCCC
T-8 Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
T-8E Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

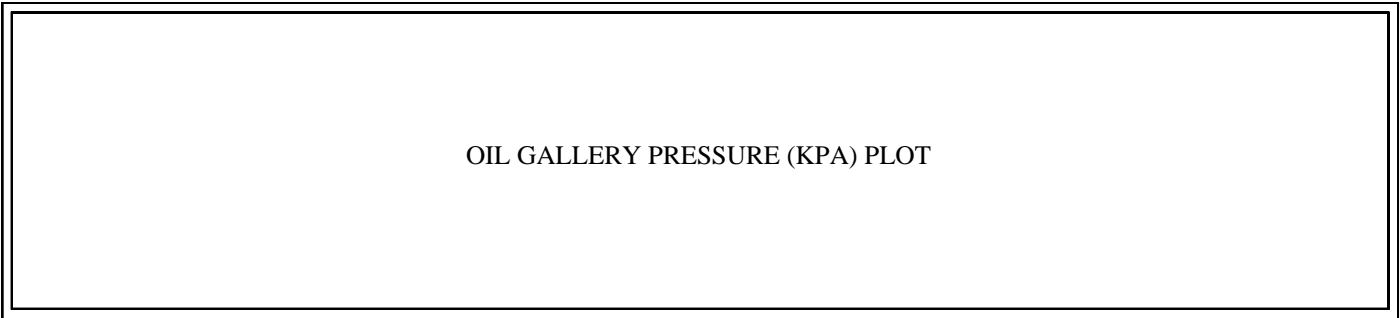
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



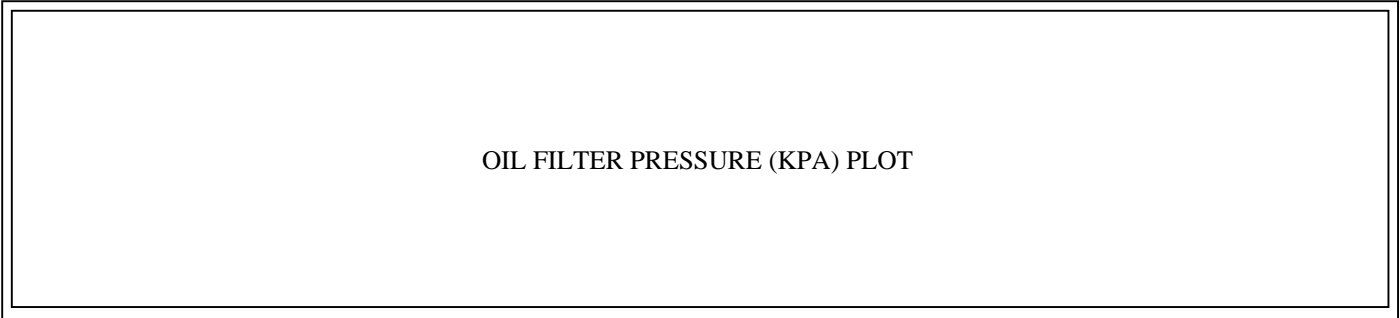
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

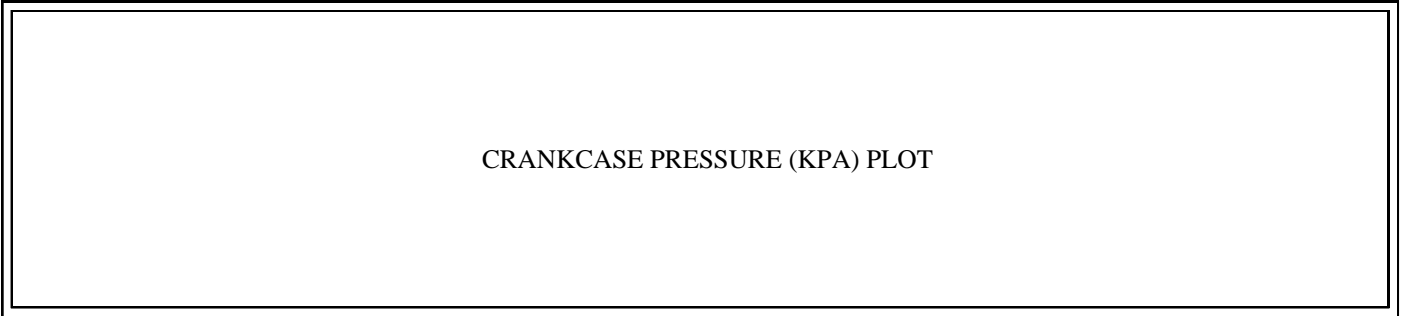


**TEST METHOD D5967
FORM 12**

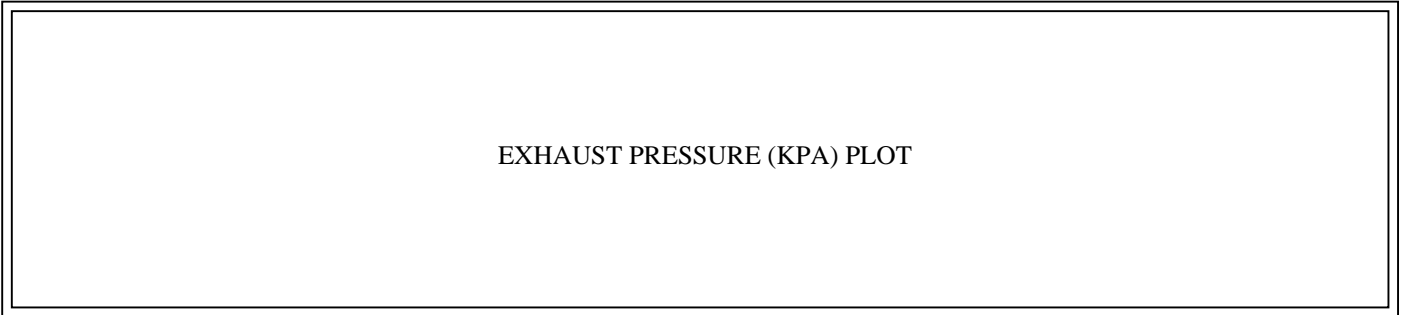
OPERATIONAL DATA

Laboratory	CC	Start Date	YYYYMMDD
Test Number	CCCC -CCCC	-CCCCC-CCCC	Oil Code CCCCC
T-8 Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		
T-8E Formulation/Stand Code:	CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC		

CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC



CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC

