

**D 5966**  
**Roller Follower Wear Test**  
**Final Report Cover Sheet**  
**Report Packet Version No.**

Conducted For:

	V = Valid
	I = Invalid

Test Number			
Test Stand	Stand Run	Engine	Engine Run
Date Completed		Time Completed	
Oil Code <sup>A</sup>			
Formulation/Stand Code			
Alternate Codes			

In my opinion this test _____ been conducted in a valid manner in accordance with the Test Method D 5966 and the appropriate amendments through the Information Letter System. The remarks included in the report describe the anomalies associated with this test.
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<sup>A</sup> CMIR or Non-Reference Oil Code

**Submitted By:** \_\_\_\_\_ **Testing Laboratory**

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

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

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

**D 5966  
Roller Follower Wear Test  
Form 1  
Test Lab Affidavit**

Reference Oil Test					Non-Reference Oil Test					
Lab	Stand	Stand Run	Engine	Engine Run	Lab	Stand	Stand Run	Engine	Engine Run	
Start Date	Date Completed	End of Test Time		Test Length	Start Date	Date Completed	End of Test Time		Test Length	
CMIR	TMC Oil Code		Viscosity Grade		Oil Code				Viscosity Grade	
Laboratory Oil Code					Laboratory Oil Code					
Engine Displacement					Formulation Stand Code					
Average Wear (mils)					Average Wear (mils)	Severity Adjustment	Adjusted Average Wear			

**D 5966**  
**Roller Follower Wear Test**  
**Form 2**  
**Summary of Roller Follower Wear**

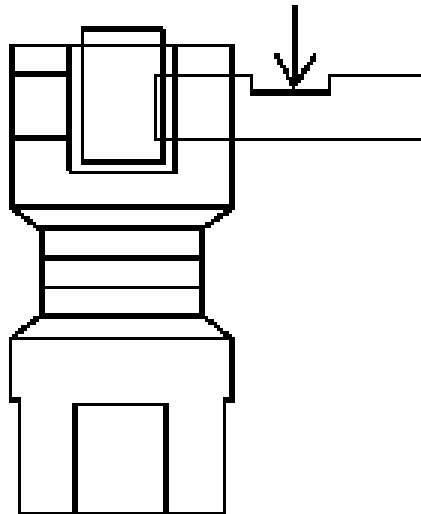
Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

<b>Lifter Part Number</b>

**Profilometer Wear Measurements in Mils**

Lifter Number	Wear (Mils)	Lifter Number	Wear (Mils)
1L		1R	
2L		2R	
3L		3R	
4L		4R	
5L		5R	
6L		6R	
7L		7R	
8L		8R	
<b>Wear Statistics</b>			
Minimum	Maximum	Average	Std. Deviation

Wear is measured at location shown by arrow



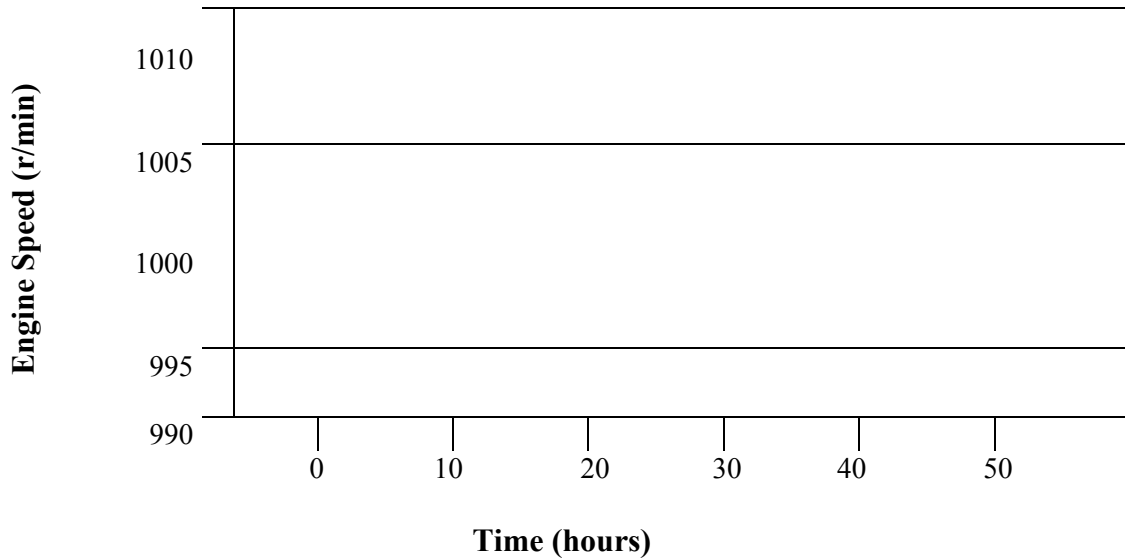
**D 5966**  
**Roller Follower Wear Test**  
**Form 3**  
**Operational Data Summary - Engine Speed**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Engine Speed (r/min)**

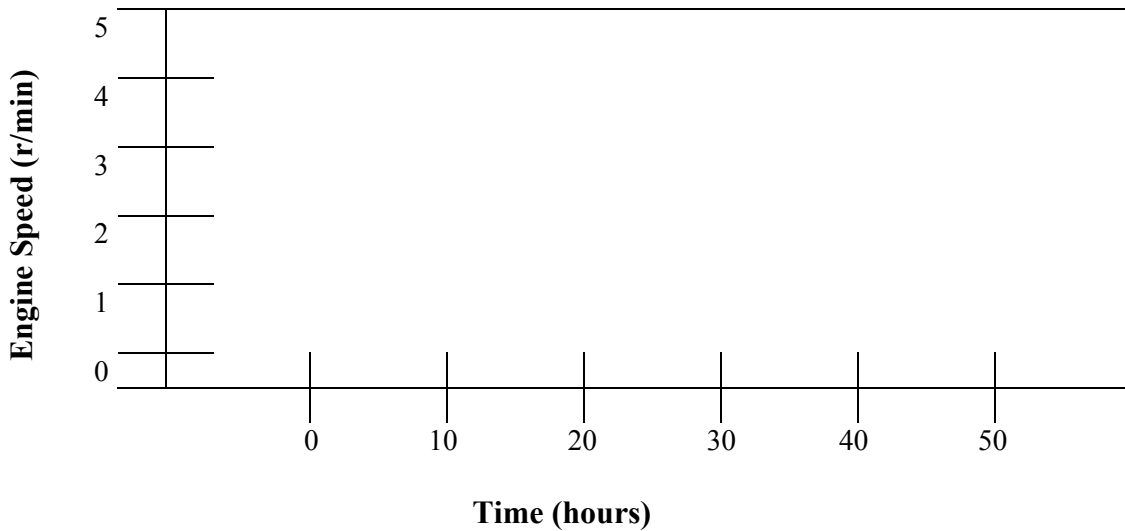
**Process Mean**

**$\bar{X}_{av} =$**



**Process Variability (s)**

**$\bar{S}_{av} =$**



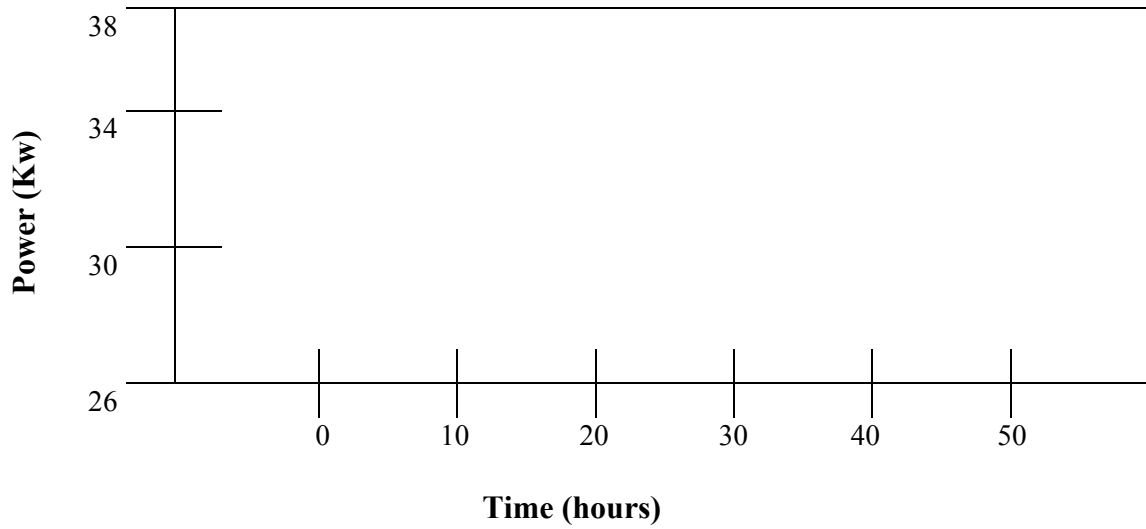
**D 5966**  
**Roller Follower Wear Test**  
**Form 4**  
**Operational Data Summary – Power**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Power (kW)**

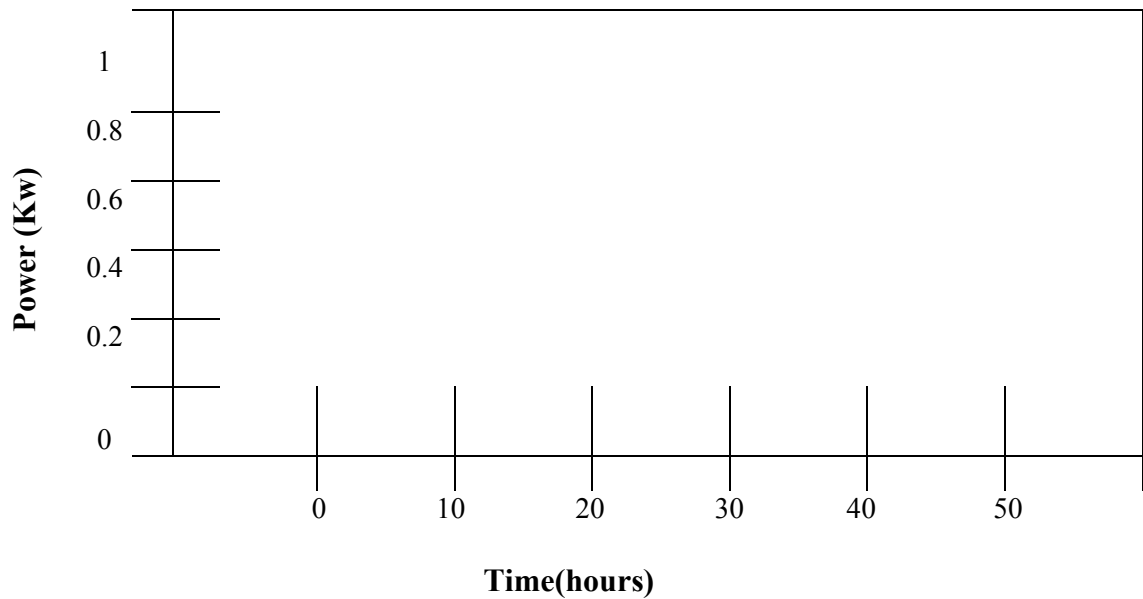
**Process Mean**

**X<sub>av</sub> =**



**Process Variability (s)**

**S<sub>av</sub> =**



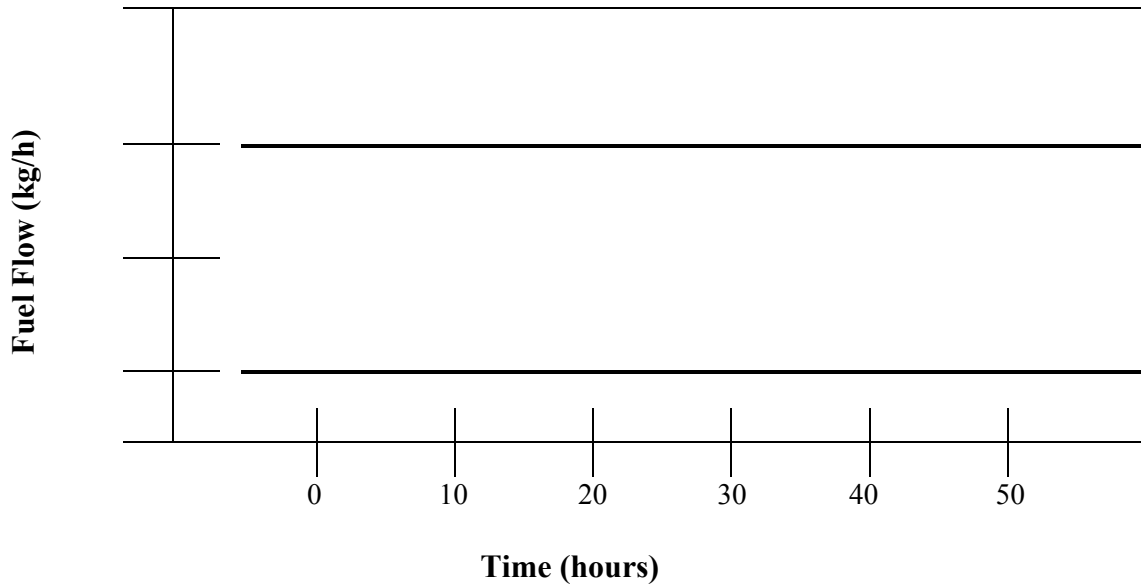
**D 5966**  
**Roller Follower Wear Test**  
**Form 5**  
**Operational Data Summary – Fuel Flow**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Fuel Flow (kg/h)**

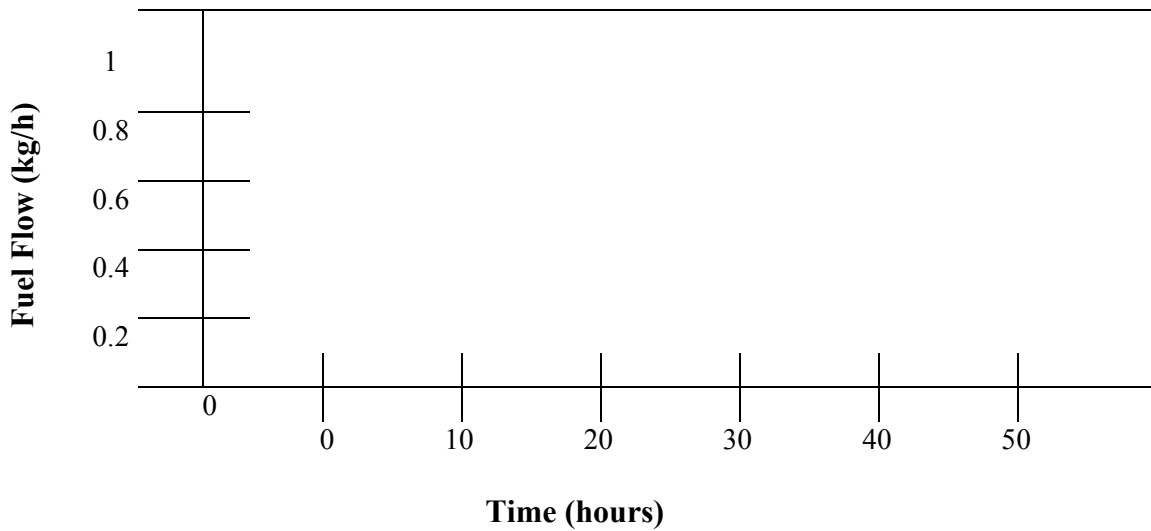
**Process Mean**

**X<sub>av</sub> =**



**Process Variability (s)**

**S<sub>av</sub> =**

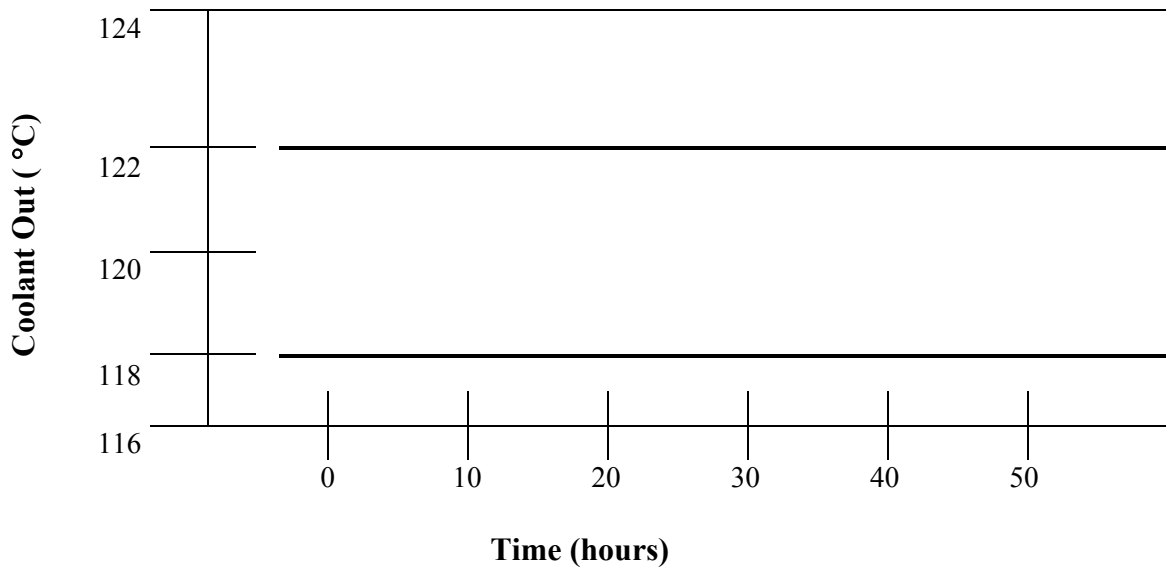


**D 5966**  
**Roller Follower Wear Test**  
**Form 6**  
**Operational Data Summary – Coolant Output Temperature**

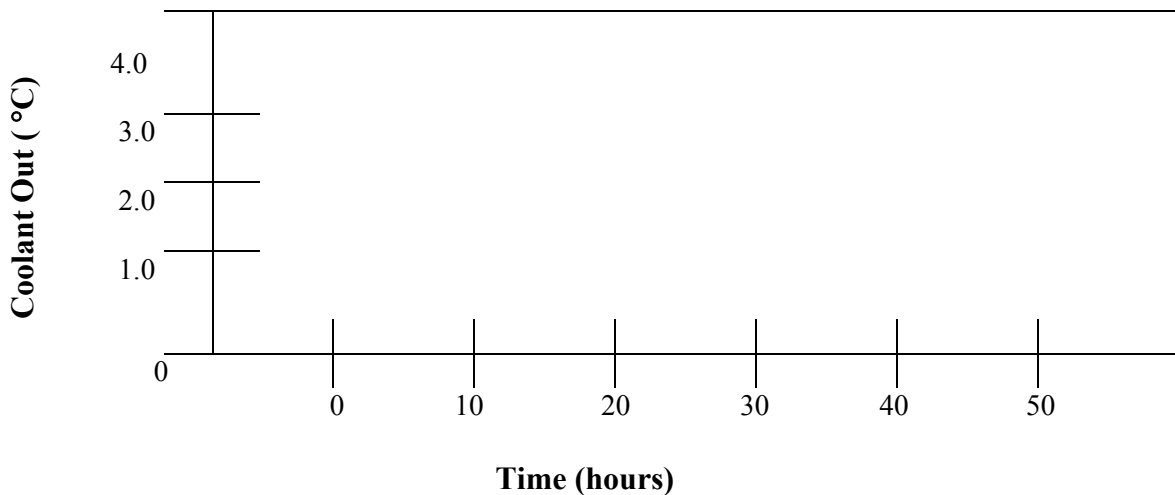
Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Coolant Out Temperature**

**Process Mean**  
 $\bar{X}_{av} =$



**Process Variability (s)**  
 $S_{av} =$



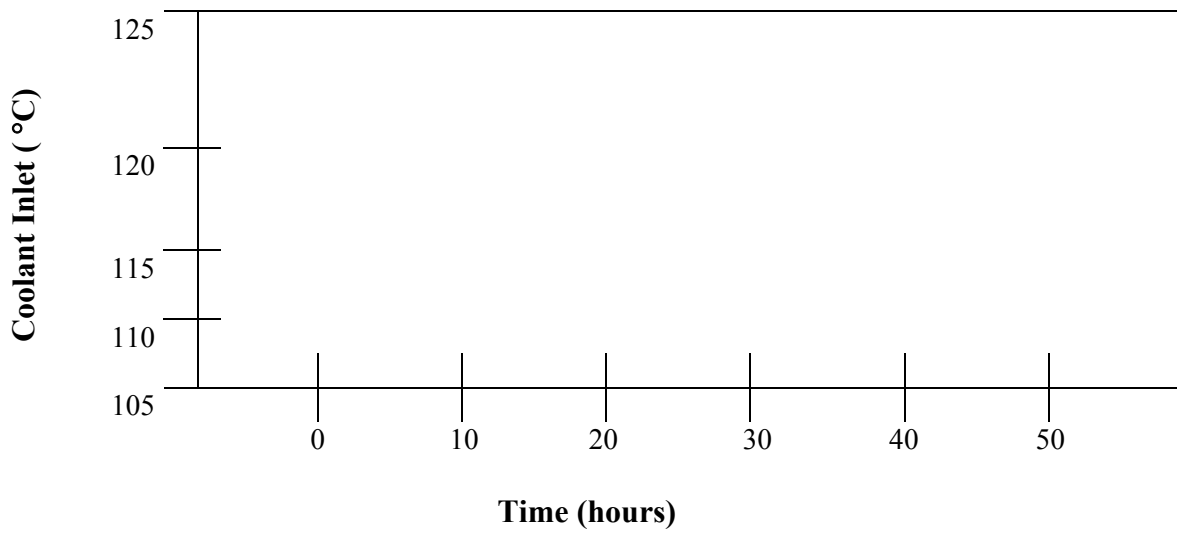
**D 5966**  
**Roller Follower Wear Test**  
**Form 7**  
**Operational Data Summary – Coolant Inlet Temperature**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Coolant Inlet Temperature**

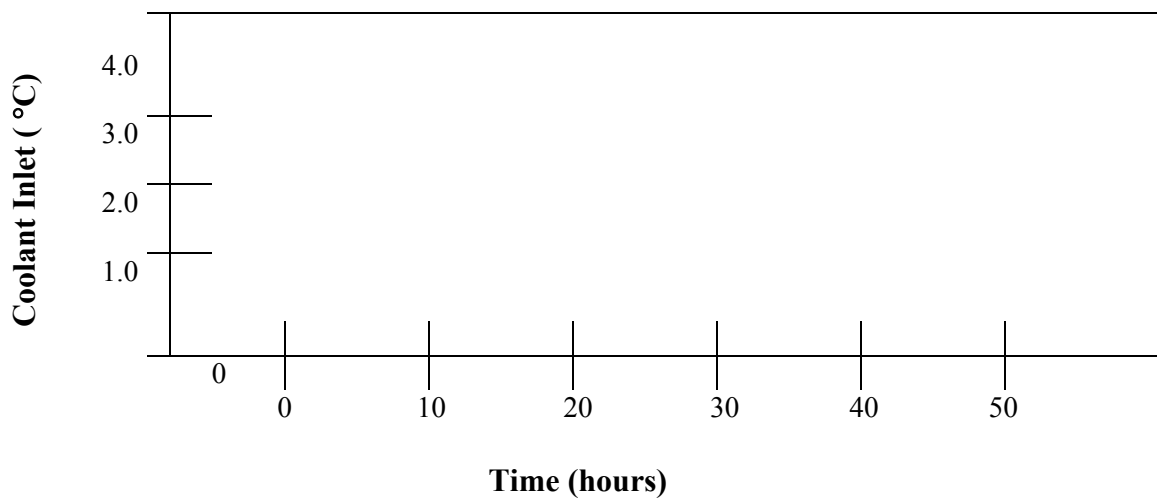
**Process Mean**

**$\bar{X}_{av}$  =**



**Process Variability (s)**

**$S_{av}$  =**





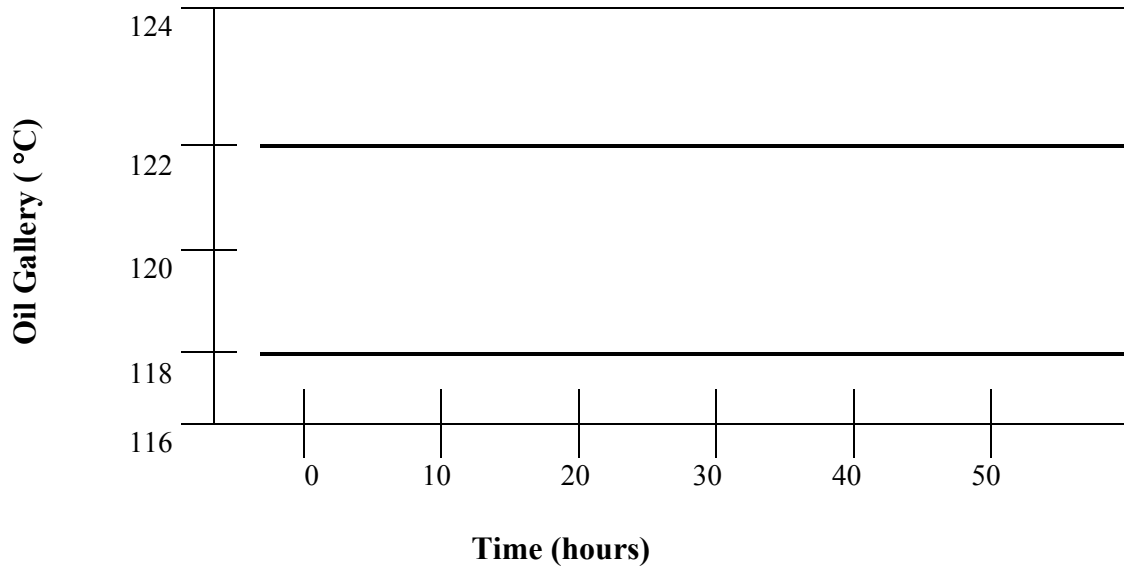
**D 5966**  
**Roller Follower Wear Test**  
**Form 8**

**Operational Data Summary – Oil Gallery Temperature**

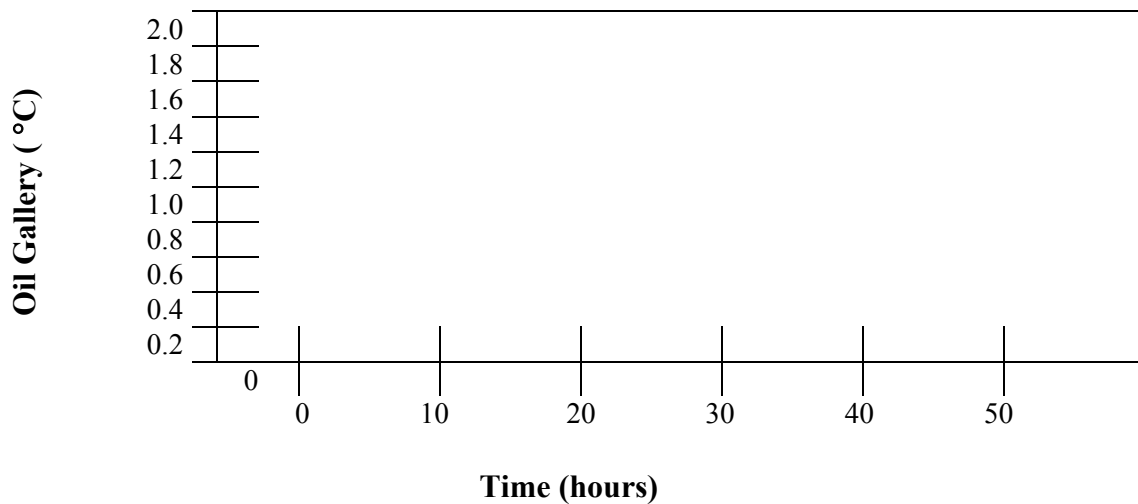
Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Oil Gallery Temperature**

**Process Mean**  
**X<sub>av</sub> =**



**Process Variability (s)**  
**S<sub>av</sub> =**

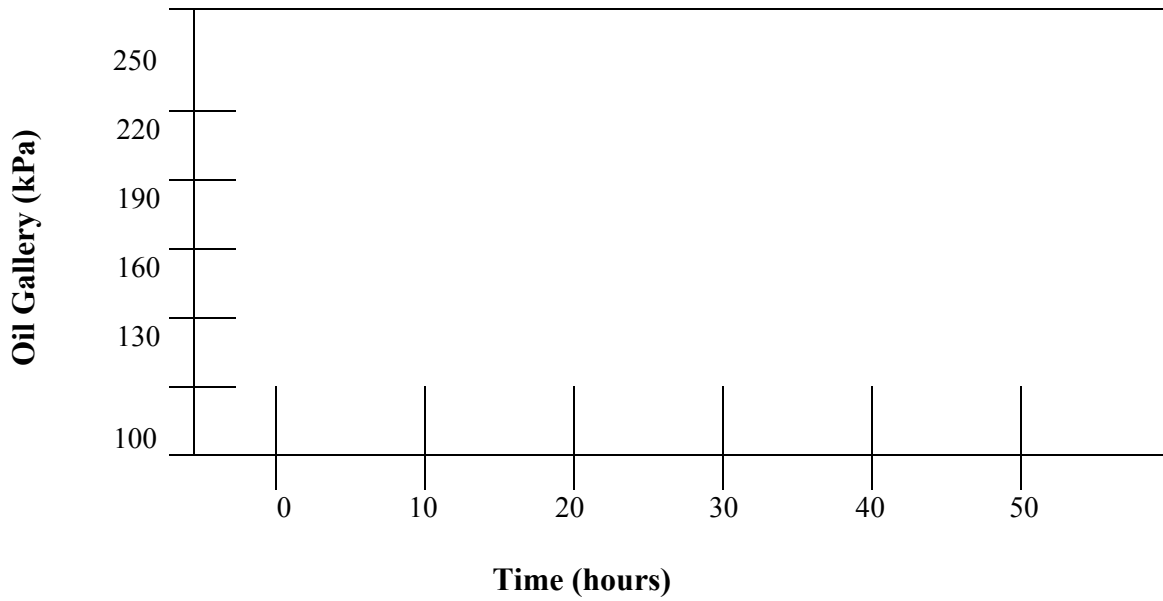


**D 5966**  
**Roller Follower Wear Test**  
**Form 9**  
**Operational Data Summary – Oil Gallery Pressure**

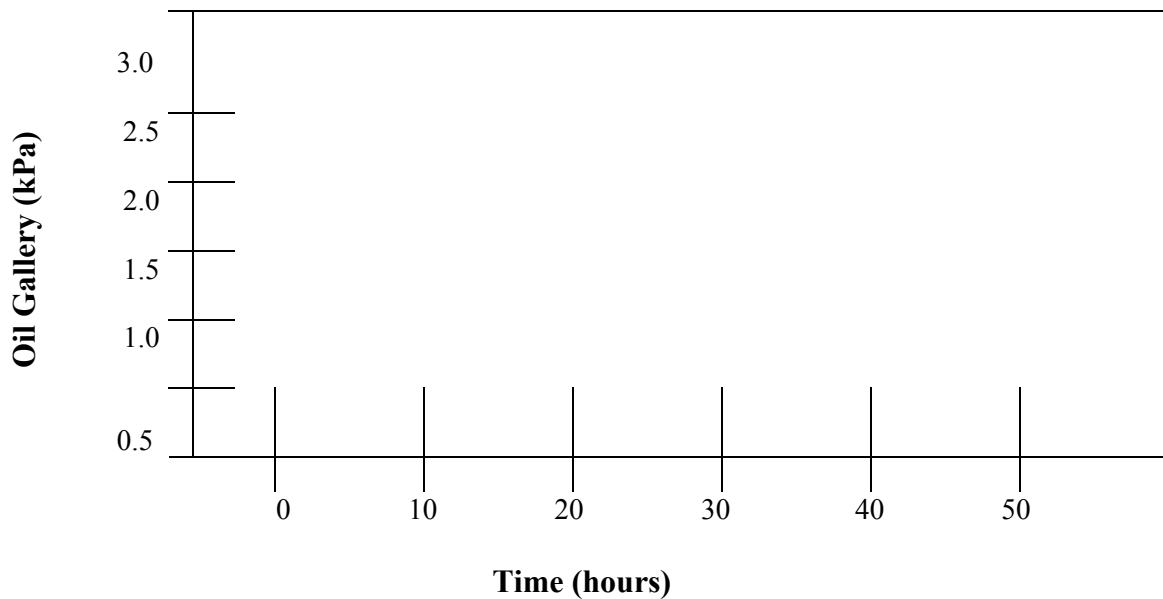
Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Oil Gallery Pressure**

**Process Mean**  
 **$\bar{X}_{av} =$**



**Process Variability (s)**  
 **$S_{av} =$**



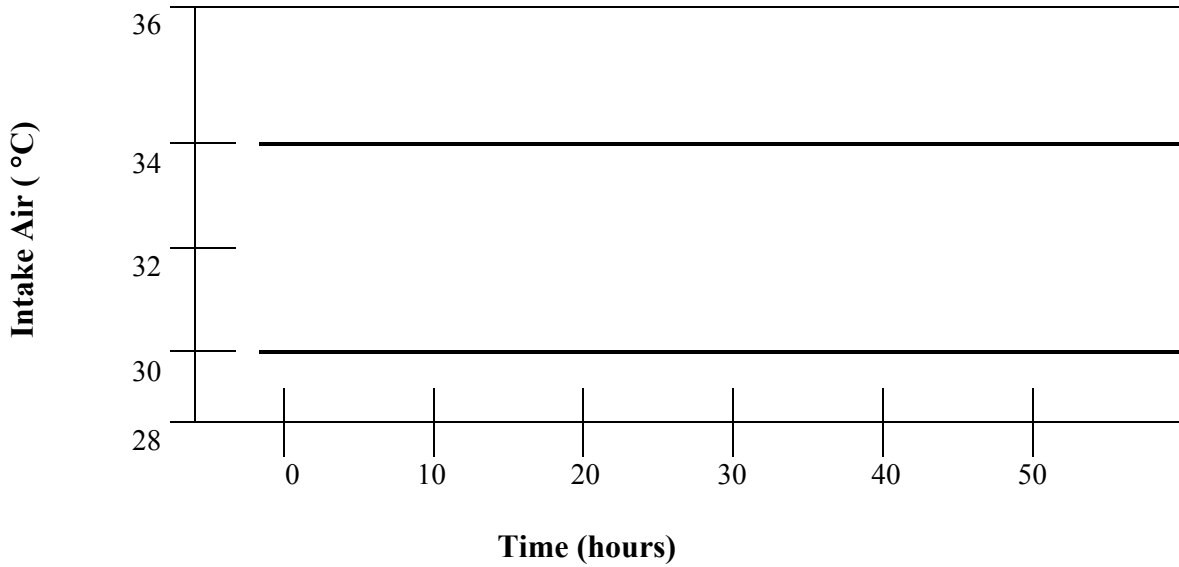
**D 5966**  
**Roller Follower Wear Test**  
**Form 10**  
**Operational Data Summary – Intake Air Temperature**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Intake Air Temperature**

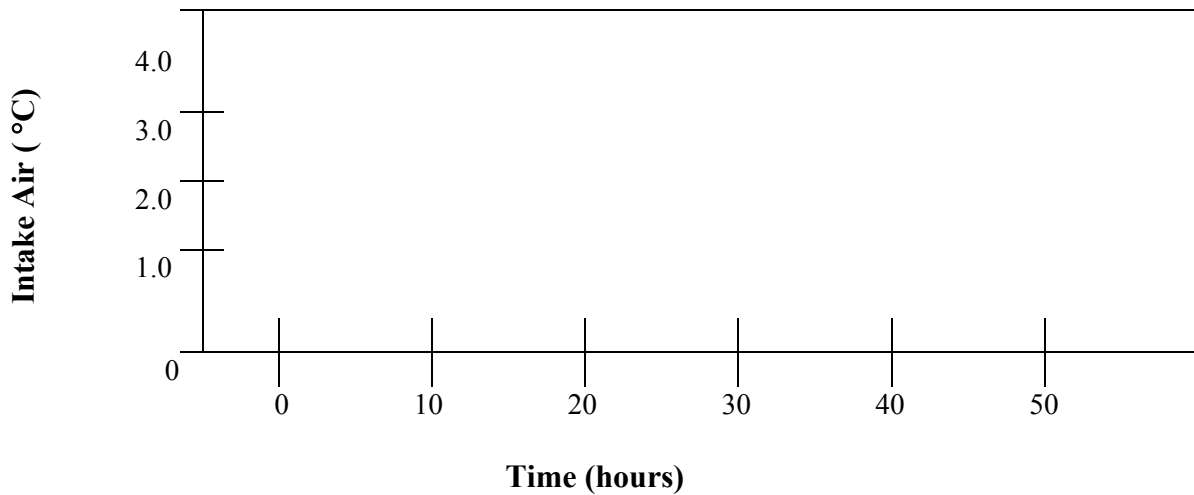
**Process Mean**

**X<sub>av</sub> =**



**Process Variability (s)**

**S<sub>av</sub> =**



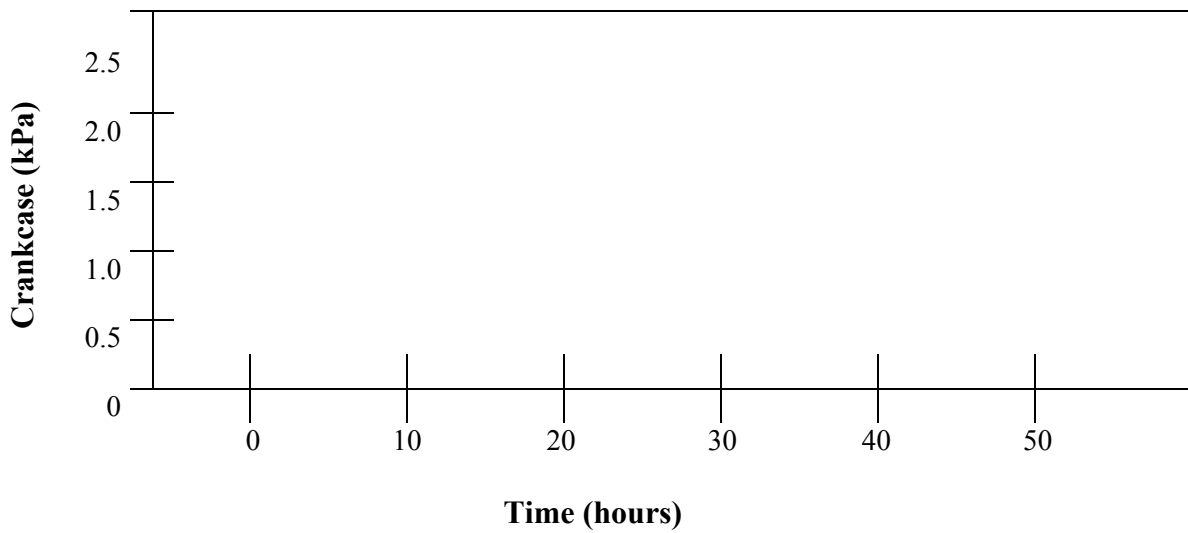
**D 5966**  
**Roller Follower Wear Test**  
**Form 11**  
**Operational Data Summary – Crankcase Pressure**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Crankcase Pressure**

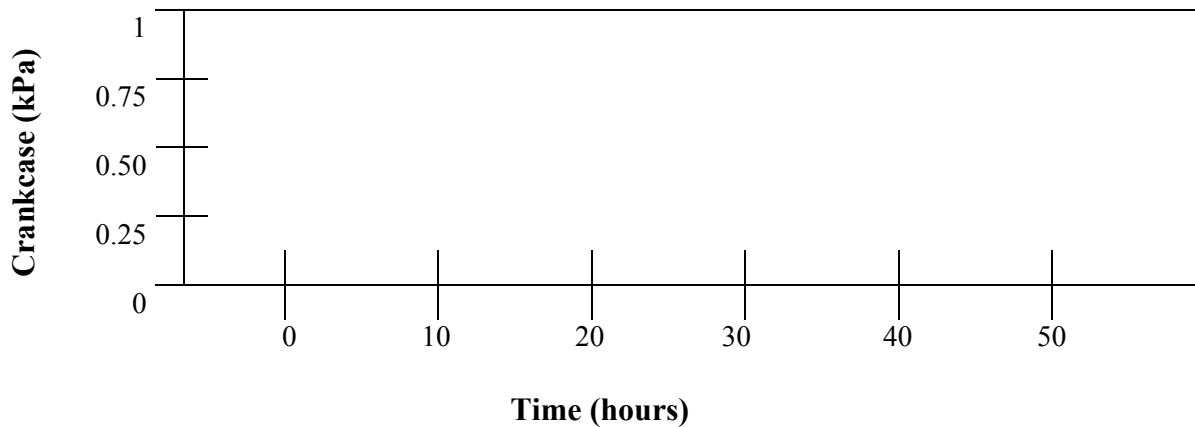
**Process Mean**

**$\bar{X}_{av}$  =**



**Process Variability (s)**

**$S_{av}$  =**



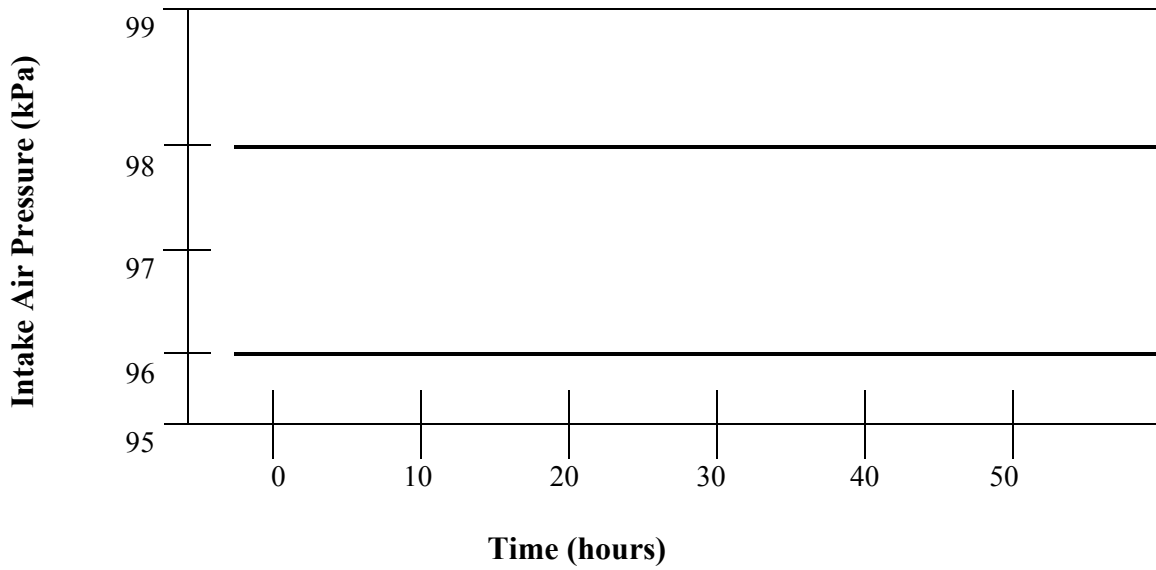
**D 5966**  
**Roller Follower Wear Test**  
**Form 12**  
**Operational Data Summary – Intake Air Pressure**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Intake Air Pressure**

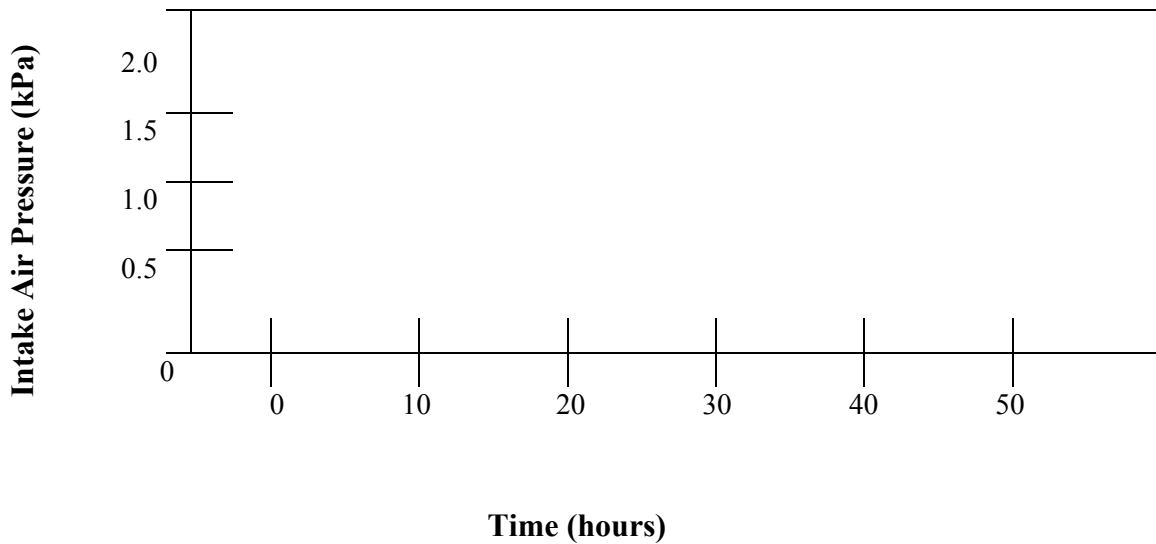
**Process Mean**

**$\bar{X}_{av}$  =**



**Process Variability (s)**

**$S_{av}$  =**



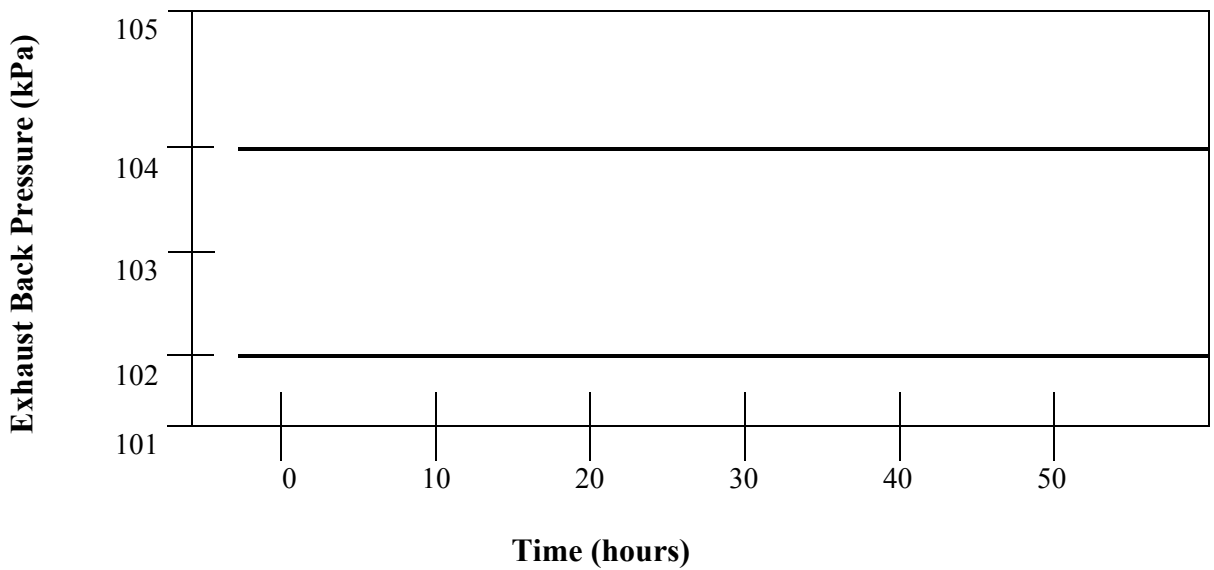
**D 5966**  
**Roller Follower Wear Test**  
**Form 13**  
**Operational Data Summary – Exhaust Back Pressure**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Exhaust Back Pressure**

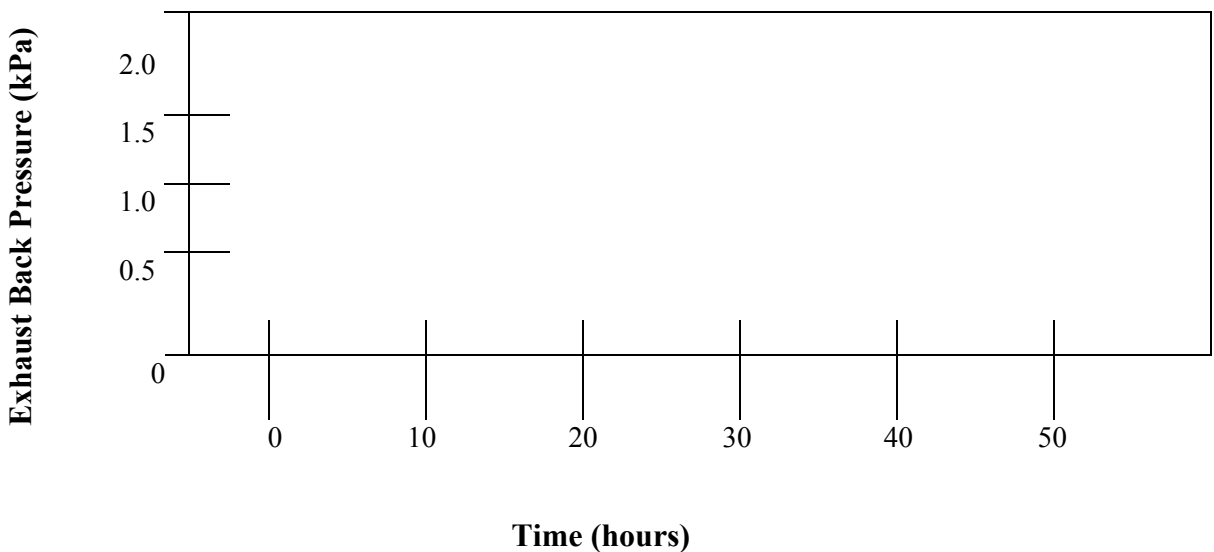
**Process Mean**

**$\bar{X}_{av}$  =**



**Process Variability (s)**

**$S_{av}$  =**



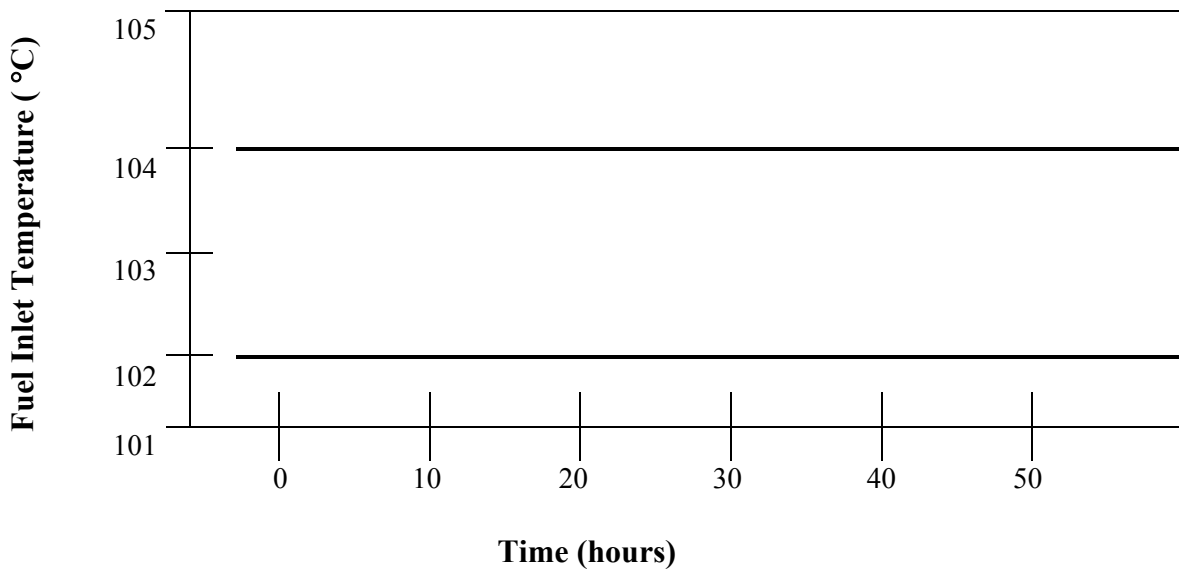
**D 5966**  
**Roller Follower Wear Test**  
**Form 14**  
**Operational Data Summary – Fuel Inlet Temperature**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Fuel Inlet Temperature**

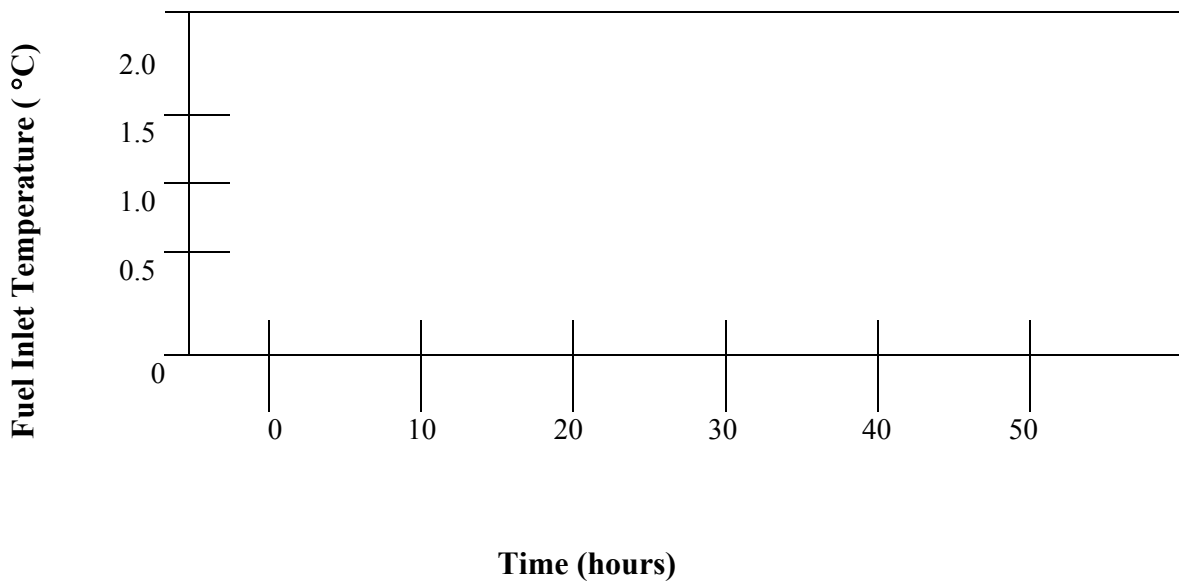
**Process Mean**

**$\bar{X}_{av}$  =**



**Process Variability (s)**

**$S_{av}$  =**



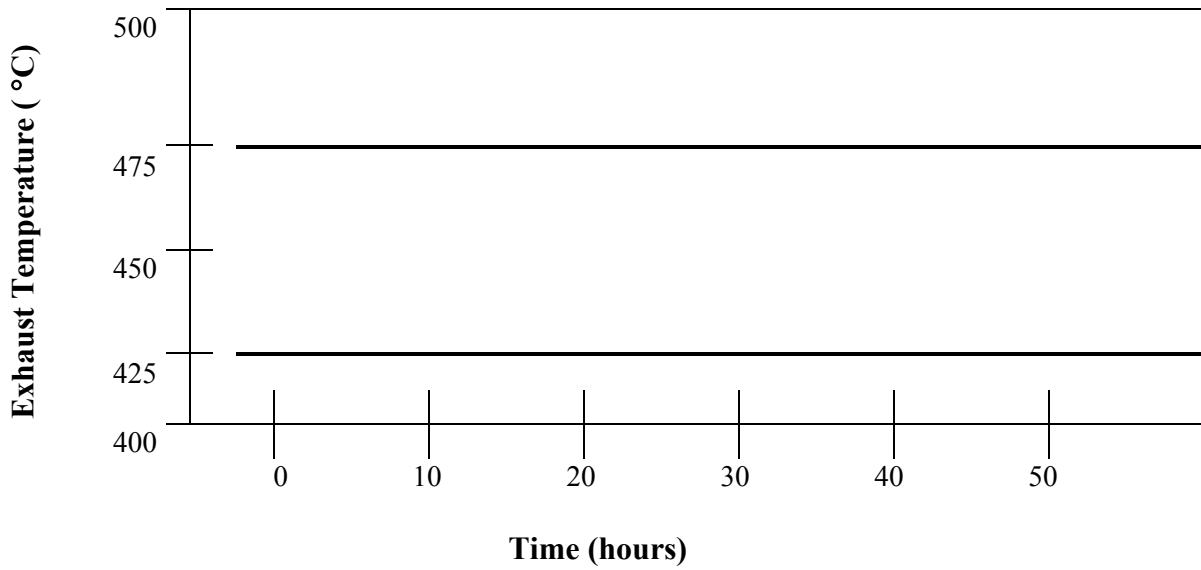
**D 5966**  
**Roller Follower Wear Test**  
**Form 15**  
**Operational Data Summary – Exhaust Temperature**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

**Exhaust Temperature**

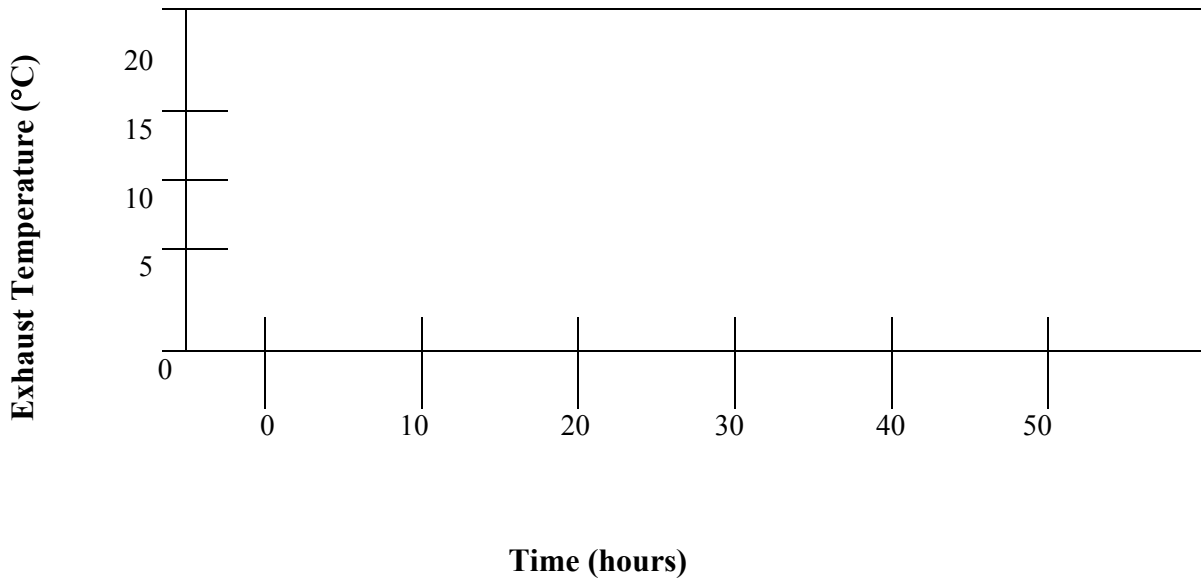
**Process Mean**

**$\bar{X}_{av}$  =**



**Process Variability (s)**

**$S_{av}$  =**





**D 5966**  
**Roller Follower Wear Test**  
**Form 16**  
**Operational Summary**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

<b>Specification</b>						
<b>Test Parameter</b>	<b>6.2L Engine</b>	<b>6.5L Engine</b>	<b>Average</b>	<b>Std. Dev.</b>	<b>Minimum</b>	<b>Maximum</b>
Engine Speed, r/min	1000 ± 5	1000 ± 5				
Torque, N-m	Record	Record				
Fuel Flow, kg/h	9.0 ± 0.1	9.4 ± 0.1				
Total Oil Consumption, kg	Record	Record				

<b>Temperatures</b>	<b>Specification</b>	<b>Average</b>	<b>Std. Dev.</b>	<b>Minimum</b>	<b>Maximum</b>
Coolant Out, °C	120 ± 2				
Coolant In, °C	Report Only				
Main Oil Gallery, °C	120 ± 2				
Fuel In, °C	35 ± 2				
Intake Air, °C	32 ± 2				
Oil Sump, °C	Report				
Exhaust, °C	Report				

<b>Pressures</b>	<b>Specification</b>	<b>Average</b>	<b>Std. Dev.</b>	<b>Minimum</b>	<b>Maximum</b>
Crankcase, kPa	Report				
Back Pressure, kPa	103 ± 1				
Intake Air, kPa	97 ± 1				

**D 5966**  
**Roller Follower Wear Test**  
**Form 17**  
**Oil Analysis**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

<b>Hours</b>	<b>Viscosity, cSt @ 100°C</b>	<b>% Soot</b>

<b>Hours</b>	<b>Elements</b>						
	<b>Al</b>	<b>Cr</b>	<b>Cu</b>	<b>Fe</b>	<b>Pb</b>	<b>Si</b>	<b>Sn</b>







**D 5966**  
**Roller Follower Wear Test**  
**Form 21**  
**Test Fuel Analysis (Last batch)**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

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

**D 5966**  
**Roller Follower Wear Test**  
**Form 22**  
**Characteristics of the Data Acquisition System**

Laboratory	Date Completed
Test Number	
Oil Code	
Formulation/Stand Code	

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>							
Main Oil G.							
Fuel In.							
Intake Air							
Oil Sump							
Exhaust							
Cool. Out							
<b>Other</b>							
Fuel Flow							
Engine Rpm							
Load							
Intake Pres.							
Exh. Press.							
Oil Gal Pres							

**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 recorded if 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

**Roller Follower Wear Test  
Form 23  
American Chemistry Council Code of Practice  
Test Laboratory Conformance Statement**

Test Laboratory					
Test Sponsor					
Formulation / Stand Code					
Test Number					
Start Date		Start Time		Time Zone	

**Declarations**

No. 1 All requirements of the ACC Code of Practice for which the test laboratory is responsible were met in the conduct of this test. Yes \_\_\_\_\_ No \_\_\_\_\_ \*

No. 2 The laboratory ran this test for the full duration following all procedural requirements; and all operational validity requirements of the latest version of the applicable test procedure (ASTM or other), including all updates issued by the organization responsible for the test, were met.  
Yes \_\_\_\_\_ No \_\_\_\_\_ \*

If the response to this Declaration is “No”, does the test engineer consider the deviations from operational validity requirements that occurred to be beyond the control of the laboratory?  
Yes \_\_\_\_\_ \* No \_\_\_\_\_

No 3. A deviation occurred for one of the test parameters identified by the organization responsible for the test as being a special case. Yes \_\_\_\_\_ \* No \_\_\_\_\_ (*This currently applies only to specific deviations identified in the ASTM Information Letter System*)

**Check The Appropriate Conclusion**

	Operational review of this test indicates that the results should be included in the Multiple Test Acceptance Criteria calculations.
	*Operational review of this test indicates that the results should not be included in the Multiple Test Acceptance Criteria calculations.

Note: *Supporting comments are required for all responses identified with an asterisk.*

<b>Comments</b>

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

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

\_\_\_\_\_  
Title