

John Deere Coolant Cavitation Test Report Forms

Title / Validity Declaration Page

Version

Conducted For

	V = Valid
	I = Invalid
	N = Results cannot be interpreted as representative of coolant performance (Non-Reference Coolant) and shall not be used in determining an average test result using multiple test acceptance criteria.

	NR = Non-reference Coolant Test
	RO = Reference Coolant Test

Test Number			
Stand:	Stand Run No:	Engine No.:	Engine Run No.:
Date Completed:		End of Test Time:	
Coolant Code:			
Formulation/Stand Code:			
Alternate Codes:			

<p>In my opinion this test _____ been conducted in a valid manner in accordance with the ASTM Test Method D 7583 and the appropriate amendments through the Information Letter system. The remarks included in the report describe the anomalies associated with this test.</p>

SUBMITTED BY _____

Testing Laboratory

Signature

Typed Name

Title

Form 2

John Deere Coolant Cavitation Test

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Form 3
John Deere Coolant Cavitation Test

Summary of Test Method

The John Deere Engine Coolant Cavitation Test Report Forms is a fired engine-dynamometer test which evaluates the ability of a heavy-duty engine coolant to provide protection against damage resulting from a phenomenon known as cylinder liner cavitation corrosion. This test method is a cyclic test, with a total running duration of 230 hours.

Each test is run for 230 hours, consisting of 54 cycles of 4 hours each. Each cycle consists of 3 stages.

The stages of the test cycle are set at the following conditions:

Condition	Low Idle	Peak Torque	Full Load	Over Speed	Fast Idle
Duration, minutes	1.5	1	4	1	0.5
Engine Speed, r/min	900	1500	2100	2300	2500
Fuel Flow, kg/h	Report	Report	68	68	Report
Engine Torque, N-m	0	1680	1220	1080	0
Manifold Abs Press, kPa	≥ 1	≥ 70	≥ 70	≥ 70	≥ 55
Engine Oil In, °C	88	88	88	88	88
Engine Coolant Out, °C	63	70	73	72	70
Engine Coolant In, °C	56	66	63	61	61
Engine Coolant Pressure, kPa (gauge)	0	0	0	0	0
Fuel In Temperature, °C	41	40	40	41	41
Oil Gallery Temperature, °C	82	83	89	91	90
Intake Air Temperature, °C	20	20	20	20	20

Upon test completion, the engine is disassembled and rated for cylinder liner pitting.

Form 4
John Deere Coolant Cavitation Test
Test Result Summary: Non-Reference & Reference Coolant Tests

Laboratory:	Test Number:
Coolant Code:	
Formulation/Stand Code:	
Date Started:	Time Started:
Date Completed:	Time Completed:
Test Length:	Number of Valid Tests Since Stand Calibration ^A :
Industry TMC Coolant Code:	Laboratory Coolant Code:

^ANon-Reference tests only, includes current test if valid.

Test Results	
	Liner Cavitation Pit Count
Original Result	
Transformed Result	
Industry Correction Factor ^B	
Corrected Transformed Result	
Severity Adjustment	
Final Transformed Result	
Final Original Unit Result	

^B Currently no industry correction factors

Last Stand Reference Test Results	
Test Number	
TMC Coolant Code	
Date Completed	
Calibration Expiration Date	
	Liner Cavitation Pit Count
Final Original Unit Result	

Form 5
John Deere Coolant Cavitation Test
Test Result Breakdown

Laboratory:	Test Number:
Coolant Code:	
Formulation/Stand Code:	

Liner Part Number :

Pit Area Count					
Liner Number	Front	Thrust	Rear	Anti-Thrust	Total
1					
2					
3					
4					
5					
6					
Total					

Form 6
John Deere Coolant Cavitation Test
Operational Summary

Laboratory:	Test Number:
Coolant Code:	
Formulation/Stand Code:	

	Parameter	Units	Stage	Target	QI	Average	Samples	BQD
Controlled Parameters	Engine Speed	r/min	20 Hr SS	2112				
			Low Idle	900				
			Peak Torque	1500				
			Full Load	2100				
			Over Speed	2300				
			Fast Idle	2500				
	Torque	Nm	20 Hr SS	766				
			Low Idle	0				
			Peak Torque	1680				
			Full Load	1220				
			Over Speed	1080				
			Fast Idle	0				
	Fuel Flow	kg/h	20 Hr SS	42				
			Low Idle	0				
			Peak Torque	40				
			Full Load	68				
			Over Speed	68				
			Fast Idle	45				
	Coolant Out	°C	20 Hr SS	70				
			Low Idle	63				
			Peak Torque	70				
			Full Load	73				
			Over Speed	72				
			Fast Idle	70				
	Intake Manifold Air Temperature	°C	20 Hr SS	100				
Low Idle			93					
Peak Torque			100					
Full Load			100					
Over Speed			100					
Fast Idle			100					

Form 7
John Deere Coolant Cavitation Test
Analysis Results

Laboratory:	Test Number:
Coolant Code:	
Formulation/Stand Code:	

Coolant Analysis						
Analysis Parameter	Method	Units	Test Hours			
					EOT	
Reserve Alkalinity	D1121	ml				
Freeze Point	D1177	°C				
Dilution	E202	??				
pH	D1287					
Boron	D5185	mg/kg				
Calcium						
Copper						
Iron						
Magnesium						
Molybdenum						
Lead						
Silicon						
Chlorine						
NO ₂						
NO ₃						
PHO ₄						
SO ₄						

Oil Analysis					
Analysis Parameter	Method	Units	Test Hours		
					EOT
Viscosity@100 °C	D445	m ² /s			
Aluminum	D5185	mg/kg			
Chrome					
Copper					
Iron					
Lead					
Wt. % Soot					

Average Oil Consumption, g/h	
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