

OIL ANALYSIS REPORT

Sample Rating Trend



INTERNATIONAL 109112 Component

Diesel Engine Fluid SHELL ROTELLA T 15W40 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

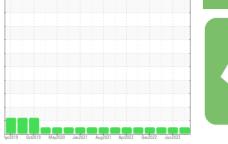
All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

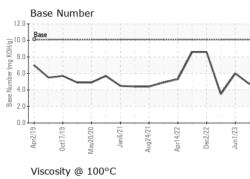


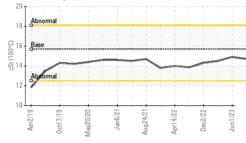


Sample NumberClient InfoIL0032743IL0027530IL0027408Sample DateClient Info09 Oct 202301 Jun 202308 Feb 2023Machine AgemlsClient Info547379505466467465Oil AgemlsClient Info419133800143469Oil ChangedClient InfoChangedChangedChangedOil ChangedClient InfoChangedChangedChangedSample StatusIImit/basecurrenthistory1history2FuelWC Method>3.0<1.0<1.0<1.0GlycolWC Method>3.0<1.0<1.0NEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>90272653ChromiumppmASTM D5185m>201<14NickelppmASTM D5185m>200<1SilverppmASTM D5185m>200<1	 01 Jun 2023 505466 38001 Changed NORMAL history1 <1.0 	09 Oct 2023 547379 41913 Changed NORMAL current		Client Info		
Machine AgemlsClient Info547379505466467465Oil AgemlsClient Info419133800143469Oil ChangedClient InfoChangedChangedChangedSample StatusNORMALNORMALNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2FuelWC Method>3.0<1.0<1.0<1.0GlycolWC MethodNEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>90272653ChromiumppmASTM D5185m>200<1NickelppmASTM D5185m>200<1TitaniumppmASTM D5185m>2<10<1	505466 38001 Changed NORMAL history1 <1.0	547379 41913 Changed NORMAL				Sample Number
Oil AgemlsClient Info419133800143469Oil ChangedClient InfoChangedChangedChangedSample StatusImit/baseNORMALNORMALNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2FuelWC Method>3.0<1.0<1.0<1.0GlycolWC MethodNEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>90272653ChromiumppmASTM D5185m>201<14NickelppmASTM D5185m>200<1TitaniumppmASTM D5185m>2<10<1	38001 Changed NORMAL history1 <1.0	41913 Changed NORMAL current		Client Info		Sample Date
Oil AgemlsClient Info419133800143469Oil ChangedClient InfoChangedChangedChangedSample StatusImit/baseNORMALNORMALNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2FuelWC Method>3.0<1.0<1.0<1.0GlycolWC MethodNEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>90272653ChromiumppmASTM D5185m>201<14NickelppmASTM D5185m>200<1TitaniumppmASTM D5185m>2<10<1	Changed NORMAL history1 <1.0	Changed NORMAL current		Client Info	mls	Machine Age
Sample StatusImage: StatusNORMALNORMALNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2FuelWC Method>3.0<1.0<1.0<1.0GlycolWC MethodNEGNEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>90272653ChromiumppmASTM D5185m>201<14NickelppmASTM D5185m>200<1TitaniumppmASTM D5185m>2<10<1	NORMAL history1 <1.0	NORMAL current		Client Info	mls	0
Sample StatusImage: Sample StatusNORMALNORMALNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2FuelWC Method>3.0<1.0<1.0<1.0GlycolWC MethodNEGNEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m>90272653ChromiumppmASTM D5185m>201<14NickelppmASTM D5185m>200<1TitaniumppmASTM D5185m>2<10<1	history1 <1.0	NORMAL current		Client Info		Oil Changed
Fuel WC Method >3.0 <1.0	<1.0					Sample Status
Glycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >90 27 26 53 Chromium ppm ASTM D5185m >20 1 <1		4.0	limit/base	method	N	CONTAMINATION
GlycolWC MethodNEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2IronppmASTM D5185m<>90272653ChromiumppmASTM D5185m>201<14NickelppmASTM D5185m>200<1TitaniumppmASTM D5185m>2<10<1	NEG	<1.0	>3.0	WC Method		Fuel
Iron ppm ASTM D5185m >90 27 26 53 Chromium ppm ASTM D5185m >20 1 <1				WC Method		Glycol
Chromium ppm ASTM D5185m >20 1 <1	history1	current	limit/base	method		WEAR METALS
Chromium ppm ASTM D5185m >20 1 <1	26	27	>90	ASTM D5185m	maa	Iron
Nickel ppm ASTM D5185m >2 0 0 <1						-
Titanium ppm ASTM D5185m >2 <1						
	0	0	>2	ASTM D5185m	ppm	Silver
Aluminum ppm ASTM D5185m >20 6 4 6			>20	ASTM D5185m		Aluminum
Lead ppm ASTM D5185m >40 3 4 9	4	3	>40			Lead
Copper ppm ASTM D5185m >330 <1 <1 2	<1		>330	ASTM D5185m		Copper
Tin ppm ASTM D5185m >15 <1 1	<1	<1	>15	ASTM D5185m		
Vanadium ppm ASTM D5185m 0 0 0	0	0		ASTM D5185m		Vanadium
Cadmium ppm ASTM D5185m 0 0 0	0	0		ASTM D5185m	ppm	Cadmium
ADDITIVES method limit/base current history1 history2	history1	current	limit/base	method		ADDITIVES
Boron ppm ASTM D5185m 316 32 39 19	39	32	316	ASTM D5185m	ppm	Boron
Barium ppm ASTM D5185m 0.0 0 0 0	0	0	0.0	ASTM D5185m	ppm	Barium
Molybdenum ppm ASTM D5185m 1.2 31 48 105	48	31	1.2	ASTM D5185m	ppm	Molybdenum
Manganese ppm ASTM D5185m 0 <1	<1	0		ASTM D5185m	ppm	Manganese
Magnesium ppm ASTM D5185m 24 209 161 67	161	209	24	ASTM D5185m	ppm	Magnesium
	2181	1855	2292	ASTM D5185m	ppm	Calcium
	981	936	1064	ASTM D5185m	ppm	Phosphorus
Calcium ppm ASTM D5185m 2292 1855 2181 2278	1257	1148	1160	ASTM D5185m	ppm	Zinc
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950	2001	3007	4996	ASTM D5185m	ppm	Sulfur
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260	2991	5007		mothod		
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260			limit/base	methou		CONTAMINANTS
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726	history1	current				
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726 CONTAMINANTS method limit/base current history1 history2	history1 6	current 5		ASTM D5185m	ppm	Silicon
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 7	history1 6 3	current 5 0	>25	ASTM D5185m ASTM D5185m	ppm ppm	Silicon Sodium
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 7 Sodium ppm ASTM D5185m 0 3 3	history1 6 3 6	current 5 0 9	>25 >20	ASTM D5185m ASTM D5185m ASTM D5185m	ppm ppm	Silicon Sodium Potassium
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 7 Sodium ppm ASTM D5185m >20 9 6 10	history1 6 3 6 history1	current 5 0 9 current	>25 >20 limit/base	ASTM D5185m ASTM D5185m ASTM D5185m method	ppm ppm ppm	Silicon Sodium Potassium INFRA-RED
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 7 Sodium ppm ASTM D5185m >20 9 6 10 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7844 >6 0.8 0.5 0.8 Nitration Abs/cm 'ASTM D7624 >20 11.5 12.6 12.7	history1 6 3 6 history1 0.5	current 5 0 9 current 0.8	>25 >20 limit/base >6	ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844	ppm ppm ppm	Silicon Sodium Potassium INFRA-RED Soot % Nitration
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 7 Sodium ppm ASTM D5185m >20 9 6 10 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7844 >6 0.8 0.5 0.8	history1 6 3 6 history1 0.5 12.6	current 5 0 9 current 0.8 11.5	>25 >20 limit/base >6 >20	ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624	ppm ppm ppm % Abs/cm	Silicon Sodium Potassium INFRA-RED Soot % Nitration
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 7 Sodium ppm ASTM D5185m >20 9 6 10 INFRA-RED method limit/base current history1 history2 Soot % % 'ASTM D7844 >6 0.8 0.5 0.8 Nitration Abs/cm 'ASTM D7624 >20 11.5 12.6 12.7	history1 6 3 6 history1 0.5 12.6 26.4	current 5 0 9 current 0.8 11.5 28.1	>25 >20 limit/base >6 >20 >30	ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7624 *ASTM D7415	ppm ppm ppm % Abs/cm Abs/.1mm	Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation
Calcium ppm ASTM D5185m 2292 1855 2181 2278 Phosphorus ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1064 936 981 950 Zinc ppm ASTM D5185m 1160 1148 1257 1260 Sulfur ppm ASTM D5185m 4996 3007 3991 3726 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 6 7 Sodium ppm ASTM D5185m >20 9 6 10 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >6 0.8 0.5 0.8 Nitration Abs/cm *ASTM D7624 >20 11.5 12.6 12.7 Sulfation Abs/.1mm *ASTM D7415 </th <th>history1 6 3 6 history1 0.5 12.6 26.4 history1</th> <th>current 5 0 9 current 0.8 11.5 28.1 current</th> <th>>25 >20 limit/base >6 >20 >30 limit/base</th> <th>ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415</th> <th>ppm ppm ppm % Abs/cm Abs/cm Abs/1mm</th> <th>Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA</th>	history1 6 3 6 history1 0.5 12.6 26.4 history1	current 5 0 9 current 0.8 11.5 28.1 current	>25 >20 limit/base >6 >20 >30 limit/base	ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844 *ASTM D7624 *ASTM D7624 *ASTM D7415	ppm ppm ppm % Abs/cm Abs/cm Abs/1mm	Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA



OIL ANALYSIS REPORT



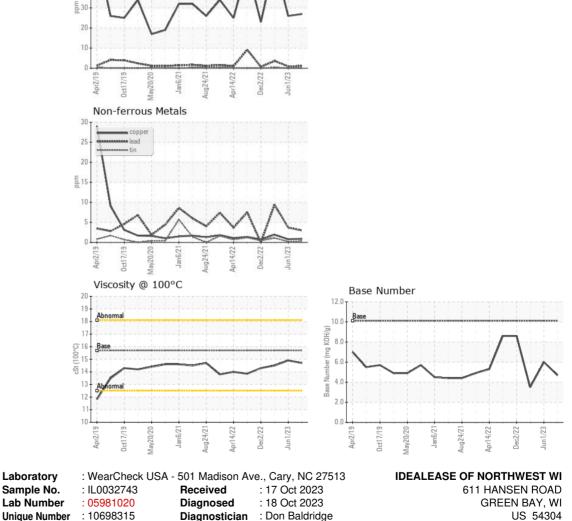


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.7	14.7	14.9	14.5
CDADUS						



60

50



Diagnostician : Don Baldridge



Test Package : FLEET Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Unique Number