

WEAR NORMAL CONTAMINATION NORMAL FLUID CONDITION NORMAL

TRUCK - URBAN

FREIGHTLINER 101

Diesel Engine

SHELL Rotella T5 15W-40 (10 GAL)

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PE0003248	PE0000486	PE0003197
Sample Date		Client Info		15 May 2024	11 Mar 2024	25 Jan 2024
Machine Age	hrs	Client Info		16891	16350	8465
Oil Age	hrs	Client Info		541	485	478
Filter Age	hrs	Client Info		541	485	478
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>80	13	10	19
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	<1	0	0
Aluminum	ppm	ASTM D5185m	>30	5	6	8
Lead	ppm	ASTM D5185m	>30	<1	<1	0
Copper	ppm	ASTM D5185m	>150	<1	1	1
Tin	ppm	ASTM D5185m	>5	0	2	<1
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	6	3	4
Potassium	ppm	ASTM D5185m	>20	1	1	4
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.4	0.4
Nitration	Abs/cm	*ASTM D7624	>20	8.3	8.0	7.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	20.6	20.3	20.1
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
						NORML
		*Visual				NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m		13	2	<1
Boron	ppm	ASTM D5185m		6	13	27
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		66	59	53
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		1035	860	854
Calcium	ppm	ASTM D5185m		1381	1283	1159
Phosphorus	ppm	ASTM D5185m		1188	1005	981
Zinc	ppm	ASTM D5185m		1502	1276	1196
Sulfur	ppm			3984	3662	2800
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.4	16.6	15.8
-	Sample NumberSample DateMachine AgeOil AgeFilter AgeOil ChangedFilter ChangedSample StatusSample StatusIronChromiumNickelTitaniumSilverAluminumLeadCopperTinVanadiumWhite MetalYellow MetalFuelWaterGlycolSoot %NitrationSulfationSiltDebrisSand/DirtAppearanceOdorEmulsified WaterSodiumBariumManganeseMagnesiumCalciumPhosphorusZincSulfur	Sample NumberSample DateMachine AgehrsOil AgehrsFilter AgehrsOil ChangedFilter ChangedFilter Changedsample StatusIronppmChromiumppmNickelppmTitaniumppmSilverppmAluminumppmLeadppmTinppmVanadiumppmVanadiumppmFuelscalarYellow MetalscalarSoot %%NitrationAbs/cmSulfationAbs/limmSiltscalarSoot %%NitrationAbs/limmSiltscalarSand/DirtscalarSodiumppmBoronppmManganeseppmMagnesiumppmCalciumppmSuffurscalarSoliumppmSoliumppmSodiumppmSodiumppmSufficed WaterscalarSodiumppmManganeseppmManganeseppmSuffurppm	Sample NumberClient InfoSample DateClient InfoMachine AgehrsClient InfoOil AgehrsClient InfoFilter AgehrsClient InfoOil ChangedClient InfoFilter ChangedClient InfoSample StatusClient InfoSample StatusNickelppmASTM D5185mASTM D5185mNickelppmASTM D5185mAluminumppmASTM D5185mAluminumppmASTM D5185mLeadppmASTM D5185mCopperppmASTM D5185mVanadiumppmASTM D5185mVanadiumppmASTM D5185mVanadiumppmASTM D5185mFuelwC MethodWhite Metalscalar*VisualSiliconppmASTM D5185mFuelwC MethodWaterwC MethodGlycol%*ASTM D5185mFuelwC MethodSott %%*ASTM D7424SulfationAbs/rm*ASTM D7424SulfationAbs/rm*ASTM D7424Sodi mppmASTM D5185mBoronppmASTM D5185mBariumppmASTM D5185mManganeseppmASTM D5185mManganeseppmASTM D5185mManganeseppmASTM D5185mPhosphorusppmASTM D5185mZincppmASTM D5185mSulfurppmASTM D5185mSulfur<	Sample NumberClient InfoSample DateClient InfoMachine AgehrsClient InfoOil AgehrsClient InfoFilter AgehrsClient InfoFilter ChangedClient InfoFilter ChangedClient InfoSample StatusClient InfoIronppmASTM D5185mNickelppmASTM D5185mSilverppmASTM D5185mVanadiumppmASTM D5185mVanadiumppmASTM D5185mVanadiumppmASTM D5185mVanadiumppmASTM D5185mVanadiumppmASTM D5185mVallow Metalscalar*VisualVolterwC Method>5VaterWC Method>0.2SulfationAbs/cm*ASTM D7624Soot %%*ASTM D7154Sand/Dirtscalar*VisualAppearancescalar*VisualAppearancescalar*VisualAppearancescalar*VisualAdorscalar*VisualMolybdenumppmASTM D5185mBariu	Sample NumberClient InfoPE0003248Sample DateClient Info15 May 2024Machine AgehrsClient Info16891Oil AgehrsClient Info541Filter AgehrsClient Info541Oil ChangedClient InfoChangedFilter ChangedClient InfoChangedSample StatusClient InfoChangedIronppmASTM D5185m>80NickelppmASTM D5185m>2NickelppmASTM D5185m>30SilverppmASTM D5185m>30SilverppmASTM D5185m>30LeadppmASTM D5185m>30CopperppmASTM D5185m>150VanadiumppmASTM D5185m>5VanadiumppmASTM D5185m>20Yellow Metalscalar*VisualNONESiliconppmASTM D5185m>20FuelWC Method>.2NEGSoto %%% ASTM D7624>20SulfationAbs/.tmm*ASTM D7624>20SulfationAbs/.tmm*ASTM D7624>20Soto %%% ASTM D7624>20SulfationAbs/.tmm*ASTM D7624>20Soto %% ASTM D7624>208.3SulfationAbs/.tmm*ASTM D7645>30Corscalar*VisualNONENONEYosualNORENONESodiumppm	Sample Number Client Info PE0003248 PE000486 Sample Date Client Info 15 May 2024 11 Mar 2024 Machine Age hrs Client Info 16 May 18 May 2024 Oil Age hrs Client Info 541 485 Oil Changed Client Info 541 485 Oil Changed Client Info Changed Changed Filter Changed Client Info Changed Changed Sample Status NORMAL NORMAL NORMAL Iron ppm ASTM D5185m >80 13 10 Chromium ppm ASTM D5185m >2 0 <1

Base Number (BN) mg KOH/g ASTM D2896 10

Visc @ 100°C cSt

ASTM D445 14.9

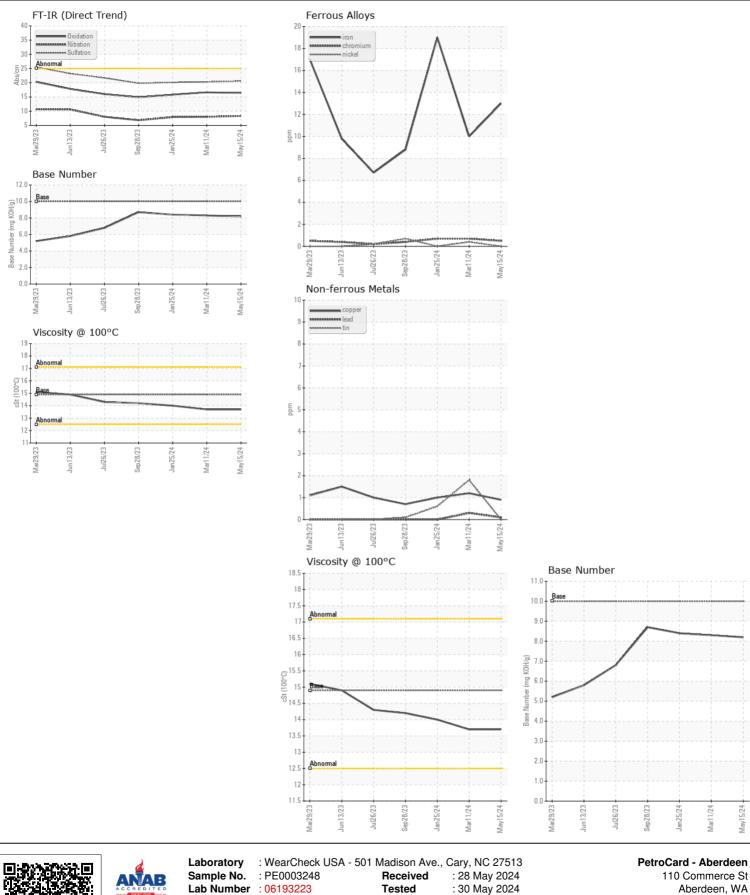
13.7

8.3 8.4

14.0

8.2

13.7



Unique Number
: 101049975
Diagnosed
: 30 May 2024 - Sean Felton

Certificate L2367
Test Package
: CONST (Additional Tests: FT-IR, ICP, KV100, SCREEN, TBN)
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Submitted By: ED ROZMARYN Page 2 of 2

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