

TRUCK - URBAN WESTERN STAR M127

Diesel Engine

WEAR

SHELL Rotella T5 15W-40 (7 GAL)

RECOMMENDATION

All component wear rates are normal.

We advise that you check for the source of the coolant leak. Check for low coolant level. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

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Sodium and/or potassium levels are high.

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil.

Sample DateClient InfoImageNew 2023Machine AgeNrsClient InfoZ50962457024283Oil AgehrsClient Info526287513S13	lest	UOM	Method	Limit/Abn	Current	History1	History2
Machine AgehrsClient Info5202457024283Oil AgehrsClient Info526287513Filter AgehrsClient Info526287513Oil ChangedClient Info526ChangedChangedChangedFilter ChangedClient InfoChangedChangedChangedChangedSample Status	Sample Number		Client Info		PE0003328	PE0003279	PE0002383
Oil AgehrsClient Info526287513Filter AgehrsClient Info526287513Oil ChangedClient InfoChangedChangedChangedSilter ChangedClient InfoManoration Mathematican Mathamatican Mathamatican Mathamatican Mathamatican Mathamatican Mathamatican	Sample Date		Client Info		20 May 2024	08 Mar 2024	28 Nov 2023
Filter AgehrsClient Info526287513Oil ChangedClient InfoChangedChang	Machine Age	hrs	Client Info		25096	24570	24283
Oil ChangedClient InfoChangedChange	Oil Age	hrs	Client Info		526	287	513
Oil ChangedClient InfoChangedChange	Filter Age	hrs	Client Info		526	287	513
Filter Changed Sample StatusClient InfoChanged ABNORMALChanged ABNORMALChanged ABNORMALChanged ABNORMALIronppmASTM D5185m>10091146ChromiumppmASTM D5185m>20<12<1NickelppmASTM D5185m>44020TitaniumppmASTM D5185m>30<1<10SilverppmASTM D5185m>30583LeadppmASTM D5185m>30110CopperppmASTM D5185m>3012<1TinppmASTM D5185m>50<110VanadiumppmASTM D5185m>25698Pellow MetalscalarVisualNONENONENONENONEVellow MetalscalarVisualNONENONENONENONESiliconppmASTM D5185m>20A1051.0VaterWC Method5.2AENEGNEGGlycol%'ASTM D5185m>20AI3.03.0SiliconppmASTM D5185m\$20AI1.0NONEVellow Metalscalar'VisualNONENEGNEGNEGSiliconppmASTM D5185m\$20AI3.03.03.0SiliconppmASTM D5185m\$20NEGNEGNEGS	Oil Changed				Changed	Changed	Changed
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Titanium pm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>20	<1	2	<1
SilverppmASTM D5185m>3<1	Nickel	ppm	ASTM D5185m	>4	0	2	0
Aluminum ppm ASTM D5185m >20 5 8 3 Lead ppm ASTM D5185m >40 1 1 0 Copper ppm ASTM D5185m >330 1 2 <1 Tin ppm ASTM D5185m >15 <1 1 0 Vanadium ppm ASTM D5185m >15 <1 <1 0 Vanadium ppm ASTM D5185m >15 <1 <1 0 Visual NONE NONE NONE NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Silicon ppm ASTM D5185m<>20 6 9 8 135 Fuel WC Method >0.2 NEG NEG NEG NEG Soto % % *ASTM D784 >3 0.3 0.3 0.3 Sulfation Abs/rm *ASTM D784 >30	Titanium	ppm	ASTM D5185m		<1	<1	0
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Vanadium ppm ASTM D5185m <1							
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Fuel WC Method >5 <1.0	Potassium		ASTM D5185m	>20		1 29	1 35
Glycol%*ASTM D2982NEGNEGNEGSoot %%*ASTM D7844>30.30.30.3NitrationAbs/cm*ASTM D7624>209.39.38.0SulfationAbs/tm*ASTM D7415>3019.518.816.8Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMNORMLNORMLNORMLOdorscalar*VisualNORMNORMLNORMLNORMLCodorscalar*VisualNORMNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m46420BariumppmASTM D5185m00220ManganeseppmASTM D5185m241835CalciumppmASTM D5185m232422211929PhosphorusppmASTM D5185m10391141906ZincppmASTM D5185m121312371065SulfurppmASTM D5185m15.314.112.2Base Number (BN)mg KHgASTM D286106.24.7	Fuel		WC Method	>5	<1.0	<1.0	<1.0
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Odorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m464BoronppmASTM D5185m182320BariumppmASTM D5185m002MolybdenumppmASTM D5185m1680089979ManganeseppmASTM D5185m14110MagnesiumppmASTM D5185m241835CalciumppmASTM D5185m241835PhosphorusppmASTM D5185m1031141906ZincppmASTM D5185m1121312371065SulfurppmASTM D5185m5441503851OxidationAbs/1mm*ASTM D714>2515.314.112.2Base Number (BN)mg KOHgASTM D2896106.24.7	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m464BoronppmASTM D5185m182320BariumppmASTM D5185m002MolybdenumppmASTM D5185m6089979ManganeseppmASTM D5185m<110MagnesiumppmASTM D5185m<141835CalciumppmASTM D5185m232422211929PhosphorusppmASTM D5185m10391141906ZincppmASTM D5185m121312371065SulfurppmASTM D5185m415043333851OxidationAbs/.1mm*ASTM D7414>2515.314.112.2Base Number (BN)mg KOHgASTM D2896106.24.7		scalar	*Visual		NORML	NORML	NORML
Sodium ppm ASTM D5185m 4 6 4 Boron ppm ASTM D5185m 18 23 20 Barium ppm ASTM D5185m 0 0 2 Molybdenum ppm ASTM D5185m 80 89 79 Manganese ppm ASTM D5185m 11 0 Magnesium ppm ASTM D5185m 24 18 35 Calcium ppm ASTM D5185m 2324 2221 1929 Phosphorus ppm ASTM D5185m 1039 1141 906 Zinc ppm ASTM D5185m 1213 1237 1065 Sulfur ppm ASTM D5185m 4150 4333 3851 Oxidation Abs/.1mm *ASTM D7414<>25 15.3 14.1 12.2 Base Number (BN) mg KOHg ASTM D2896 10 6.2 4.7	Emulsified Water	scalar		>0.2	NEG	NEG	NEG
Boron ppm ASTM D5185m 18 23 20 Barium ppm ASTM D5185m 0 0 2 Molybdenum ppm ASTM D5185m 80 89 79 Manganese ppm ASTM D5185m <1 1 0 Magnesium ppm ASTM D5185m <24 18 35 Calcium ppm ASTM D5185m 2324 2221 1929 Phosphorus ppm ASTM D5185m 1039 1141 906 Zinc ppm ASTM D5185m 1213 1237 1065 Sulfur ppm ASTM D5185m 4150 4333 3851 Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 4.7							
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Molybdenum ppm ASTM D5185m 80 89 79 Manganese ppm ASTM D5185m <1 0 Magnesium ppm ASTM D5185m <1 0 Magnesium ppm ASTM D5185m 24 18 35 Calcium ppm ASTM D5185m 2324 2221 1929 Phosphorus ppm ASTM D5185m 1039 1141 906 Zinc ppm ASTM D5185m 1213 1237 1065 Sulfur ppm ASTM D5185m 4150 4333 3851 Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 4.7							
Manganese ppm ASTM D5185m <1		ppm				0	2
Magnesium ppm ASTM D5185m 24 18 35 Calcium ppm ASTM D5185m 2324 2221 1929 Phosphorus ppm ASTM D5185m 1039 1141 906 Zinc ppm ASTM D5185m 1213 1237 1065 Sulfur ppm ASTM D5185m 4150 4333 3851 Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 4.7		ppm			80		
Calcium ppm ASTM D5185m 2324 2221 1929 Phosphorus ppm ASTM D5185m 1039 1141 906 Zinc ppm ASTM D5185m 1213 1237 1065 Sulfur ppm ASTM D5185m 4150 4333 3851 Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 6.2 4.7	Manganese	ppm	ASTM D5185m				
Phosphorus ppm ASTM D5185m 1039 1141 906 Zinc ppm ASTM D5185m 1213 1237 1065 Sulfur ppm ASTM D5185m 4150 4333 3851 Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 4.2 4.7	Magnesium	ppm	ASTM D5185m		24	18	35
Zinc ppm ASTM D5185m 1213 1237 1065 Sulfur ppm ASTM D5185m 4150 4333 3851 Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 4.2 4.7	Calcium	ppm	ASTM D5185m		2324	2221	1929
Sulfur ppm ASTM D5185m 4150 4333 3851 Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 4.7	Phosphorus	ppm	ASTM D5185m		1039	1141	906
Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 4.7	Zinc	ppm	ASTM D5185m		1213	1237	1065
Oxidation Abs/.1mm *ASTM D7414 >25 15.3 14.1 12.2 Base Number (BN) mg KOH/g ASTM D2896 10 6.2 4.7	Sulfur	ppm	ASTM D5185m		4150	4333	3851
	Oxidation		*ASTM D7414	>25	15.3	14.1	12.2
	Base Number (BN)	mg KOH/g	ASTM D2896	10	6.2	6.2	4.7
	Visc @ 100°C		ASTM D445	14.9	14.9		14.5

Limit/Abn **Current**

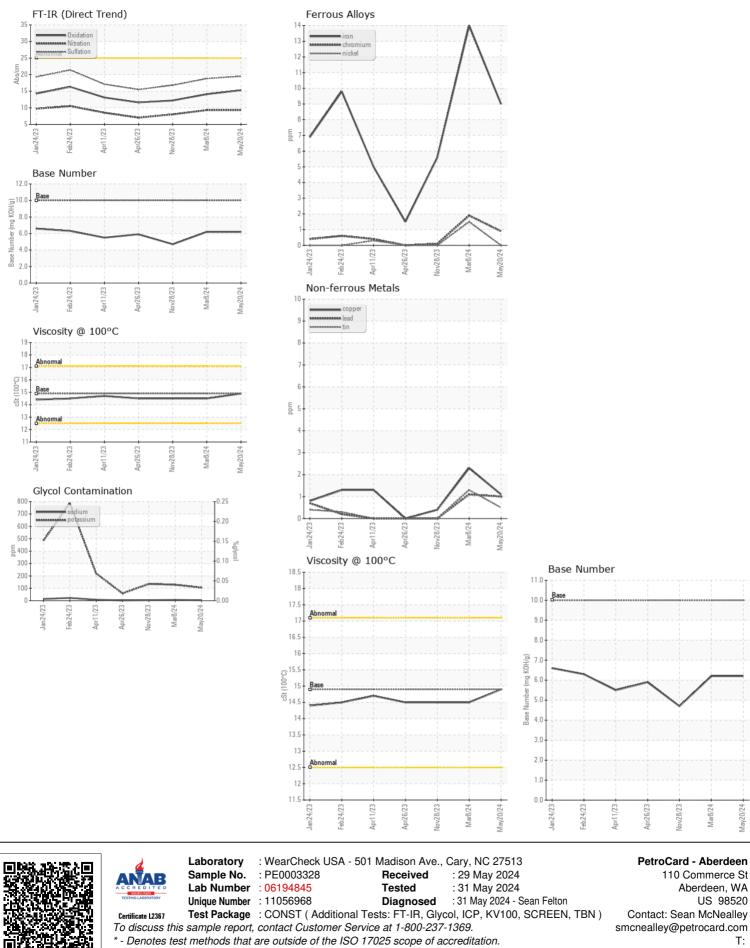
History1

History2

Test

UOM

Method



* - 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)

Submitted By: ED ROZMARYN Page 2 of 2

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