

PROBLEM SUMMARY

Sample Rating Trend

VISCOSITY



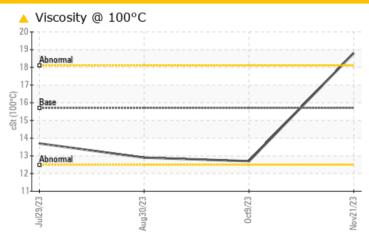
KENWORTH 775

Component

Diesel Engine

SHELL ROTELLA T 15W40 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS								
Sample Status				ABNORMAL	NORMAL	NORMAL		
Visc @ 100°C	cSt	ASTM D445	15.7	18.8	12.7	12.9		

Customer Id: KGRCHO Sample No.: WC06014698 Lab Number: 06014698 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 jhester@wearcheckusa.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid			?	Oil and filter change at the time of sampling has been noted.
Change Filter			?	Oil and filter change at the time of sampling has been noted.

HISTORICAL DIAGNOSIS

09 Oct 2023 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.



30 Aug 2023 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

29 Jul 2023 Diag: Doug Bogart

DIRT



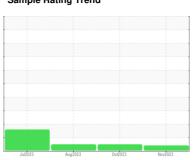
No corrective action is recommended at this time. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. Elemental level of silicon (Si) above normal indicating ingress of seal material. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY



KENWORTH 775

Component

Diesel Engine

SHELL ROTELLA T 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. 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.

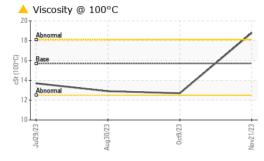
Fluid Condition

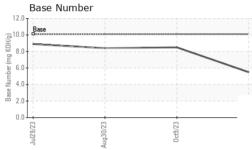
The oil viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil.

Client Info			Jul202	3 Aug2023	Oct2023 No	v2023	
Client Info	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age mis Client Info 908250 896042 884075 Oil Age mis Client Info O O O O O O O O O	Sample Number		Client Info		WC06014698	WC0838310	WC0724732
Oil Changed	Sample Date		Client Info		21 Nov 2023	09 Oct 2023	30 Aug 2023
Contamed Client Info Changed Changed Changed NORMAL NORMAL NORMAL	Machine Age	mls	Client Info		908250	896042	884075
ABNORMAL NORMAL NORMAL NORMAL	Oil Age	mls	Client Info		0	0	0
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0	Oil Changed		Client Info		Changed	Changed	Changed
Fuel	Sample Status				ABNORMAL	NORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 2 5 9 Chromium ppm ASTM D5185m >20 <1	CONTAMINATION	V	method	limit/base	current	history1	history2
MEG NEG NEG NEG NEG	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	2	5	9
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	1
Silver	Nickel	ppm	ASTM D5185m	>4	0	0	0
Aluminum	Titanium	ppm	ASTM D5185m		<1	<1	<1
Lead	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 2 2 2 Tin ppm ASTM D5185m >15 <1	Aluminum	ppm	ASTM D5185m	>20	1	2	2
Tin	Lead	ppm	ASTM D5185m	>40	2	1	<1
Vanadium ppm ASTM D5185m 0 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 316 81 45 46 Barium ppm ASTM D5185m 0.0 0 12 0 Molybdenum ppm ASTM D5185m 0.0 0 12 0 Molybdenum ppm ASTM D5185m 1.2 10 54 56 Manganese ppm ASTM D5185m 0 <1	Copper	ppm	ASTM D5185m	>330	2	2	2
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 316 81 45 46 Barium ppm ASTM D5185m 0.0 0 12 0 Molybdenum ppm ASTM D5185m 1.2 10 54 56 Manganese ppm ASTM D5185m 0 <1	Tin	ppm	ASTM D5185m	>15	<1	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 316 81 45 46 Barium ppm ASTM D5185m 0.0 0 12 0 Molybdenum ppm ASTM D5185m 1.2 10 54 56 Manganese ppm ASTM D5185m 0 -1 -1 Magnesium ppm ASTM D5185m 24 86 558 625 Calcium ppm ASTM D5185m 2292 1702 1638 1737 Phosphorus ppm ASTM D5185m 1064 704 770 863 Zinc ppm ASTM D5185m 1160 942 947 1023 Sulfur ppm ASTM D5185m 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 22 3	Vanadium	ppm	ASTM D5185m		0	<1	<1
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0.0 0 12 0 Molybdenum ppm ASTM D5185m 1.2 10 54 56 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 24 86 558 625 Calcium ppm ASTM D5185m 2292 1702 1638 1737 Phosphorus ppm ASTM D5185m 1064 704 770 863 Zinc ppm ASTM D5185m 1160 942 947 1023 Sulfur ppm ASTM D5185m 4996 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m >20 4 <td< th=""><th>ADDITIVES</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td<>	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 1.2 10 54 56 Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 24 86 558 625 Calcium ppm ASTM D5185m 2292 1702 1638 1737 Phosphorus ppm ASTM D5185m 1064 704 770 863 Zinc ppm ASTM D5185m 1160 942 947 1023 Sulfur ppm ASTM D5185m 4996 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m 20 4 3 0 INFRA-RED method limit/base current history1 <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>316</td> <th>81</th> <td>45</td> <td>46</td>	Boron	ppm	ASTM D5185m	316	81	45	46
Manganese ppm ASTM D5185m 0 <1 <1 Magnesium ppm ASTM D5185m 24 86 558 625 Calcium ppm ASTM D5185m 2292 1702 1638 1737 Phosphorus ppm ASTM D5185m 1064 704 770 863 Zinc ppm ASTM D5185m 1160 942 947 1023 Sulfur ppm ASTM D5185m 4996 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cmm *ASTM D7415 >30	Barium	ppm	ASTM D5185m	0.0	0	12	0
Magnesium ppm ASTM D5185m 24 86 558 625 Calcium ppm ASTM D5185m 2292 1702 1638 1737 Phosphorus ppm ASTM D5185m 1064 704 770 863 Zinc ppm ASTM D5185m 1160 942 947 1023 Sulfur ppm ASTM D5185m 4996 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/.1mm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7414 <td>Molybdenum</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1.2</td> <th>10</th> <td>54</td> <td>56</td>	Molybdenum	ppm	ASTM D5185m	1.2	10	54	56
Calcium ppm ASTM D5185m 2292 1702 1638 1737 Phosphorus ppm ASTM D5185m 1064 704 770 863 Zinc ppm ASTM D5185m 1160 942 947 1023 Sulfur ppm ASTM D5185m 4996 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/:nm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base cu	Manganese	ppm	ASTM D5185m		0	<1	<1
Phosphorus ppm ASTM D5185m 1064 704 770 863 Zinc ppm ASTM D5185m 1160 942 947 1023 Sulfur ppm ASTM D5185m 4996 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base	Magnesium	ppm	ASTM D5185m	24	86	558	625
Zinc ppm ASTM D5185m 1160 942 947 1023 Sulfur ppm ASTM D5185m 4996 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25<	Calcium	ppm	ASTM D5185m	2292	1702	1638	1737
Sulfur ppm ASTM D5185m 4996 2711 2482 3266 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	Phosphorus	ppm	ASTM D5185m	1064	704	770	863
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	Zinc	ppm	ASTM D5185m	1160	942	947	1023
Silicon ppm ASTM D5185m >25 5 10 15 Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	Sulfur	ppm	ASTM D5185m	4996	2711	2482	3266
Sodium ppm ASTM D5185m 2 3 5 Potassium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	CONTAMINANTS	i	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 3 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	Silicon	ppm	ASTM D5185m	>25	5	10	15
INFRA-RED	Sodium	ppm	ASTM D5185m		2	3	5
Soot % % *ASTM D7844 >3 0.1 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	Potassium	ppm	ASTM D5185m	>20	4	3	0
Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	INFRA-RED		method	limit/base	current	history1	history2
Nitration Abs/cm *ASTM D7624 >20 8.0 7.5 8.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
Sulfation Abs/.1mm *ASTM D7415 >30 20.6 21.7 20.9 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	Nitration	Abs/cm	*ASTM D7624	>20		7.5	8.9
Oxidation Abs/.1mm *ASTM D7414 >25 17.1 20.5 19.5	Sulfation						
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	17.1	20.5	19.5
	Base Number (BN)	mg KOH/g	ASTM D2896	10.1	5.5	8.5	8.4



OIL ANALYSIS REPORT

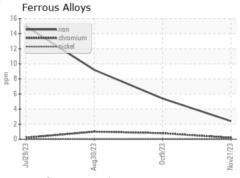


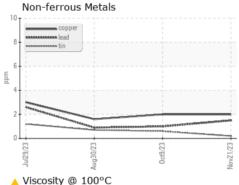


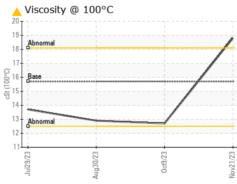
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

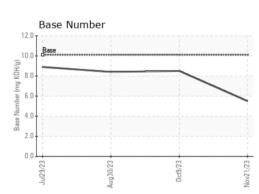
FLUID PROPERTIES		method	iiiiii/base	current	riistory i	riistory	
Visc @ 100°C	cSt	ASTM D445	15.7	18.8	12.7	12.9	

GRAPHS













Laboratory Sample No. Lab Number Unique Number : 10753842

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC06014698 : 06014698

Received Diagnosed

: 22 Nov 2023 : 30 Nov 2023 Diagnostician : Jonathan Hester

KGR TRANSPORT 742 HWY 145 CHOUDRANT, LA US 71227 Contact: CHAD REEVES CHADREEVES98@GMAIL.COM

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)

T:

F: