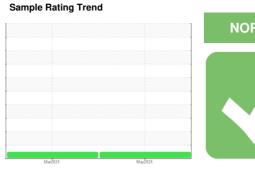


OIL ANALYSIS REPORT

Machine Id **CASE FPT** Component

Diesel Engine ALPHA 15W40 (--- QTS)



NORMAL

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

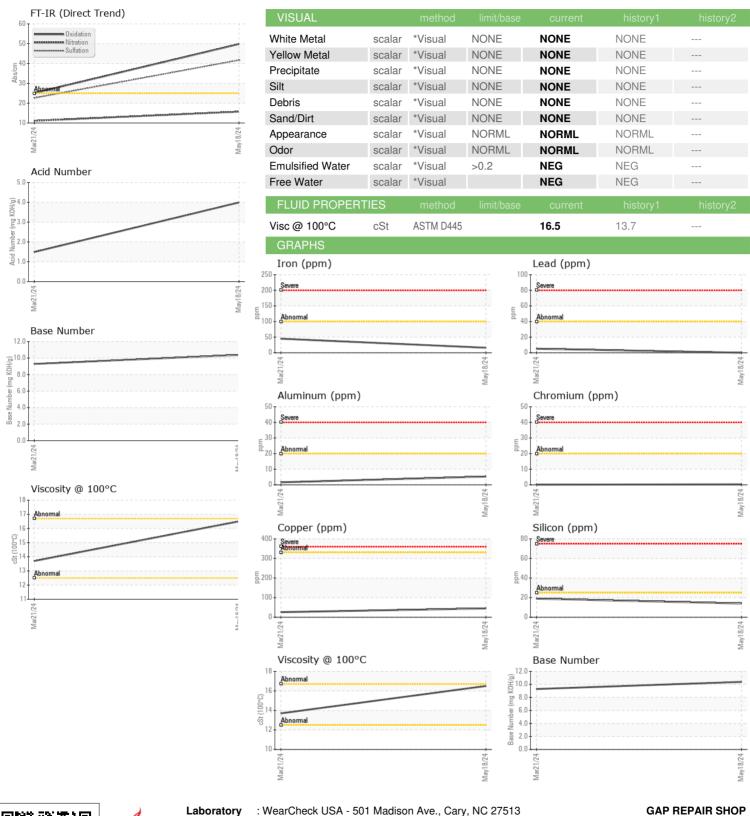
Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2	S)			Mar2024	May2024		
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date Client Info 140 May 2024 21 Mar 2024 Machine Age hrs Client Info 1400 1495 Coll Age hrs Client Info 800 654 Changed Changed Changed Changed Changed	Sample Number		Client Info		WC0676290	WC0676298	
Oil Age hrs Client Info 800 654			Client Info		18 May 2024	21 Mar 2024	
Oil Changed Client Info Changed NORMAL NORMAL		hrs	Client Info		1400	1495	
Sample Status	Oil Age	hrs	Client Info		800	654	
CONTAMINATION method imil/base current history1 history2 Fuel WC Method >5 <1.0 <1.0	Oil Changed		Client Info		Changed	Changed	
Fuel	Sample Status				NORMAL	NORMAL	
Water WC Method >0.2 NEG NEG Glycol WC Method Imitibase current history1 history2 WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 16 45 Chromium ppm ASTM D5185m >4 0 0 Nickel ppm ASTM D5185m >4 0 0 Silver ppm ASTM D5185m >0 0 Silver ppm ASTM D5185m >3 0 0 Aluminum ppm ASTM D5185m >40 0 5 Lead ppm ASTM D5185m >330 45 26 Tin ppm ASTM D5185m 0 0 Tin ppm ASTM D5185m 0 0 Vanadium	CONTAMINATION	٧	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 16 45 Chromium ppm ASTM D5185m >20 <1 <1 Nickel ppm ASTM D5185m >20 0 0 Titanium ppm ASTM D5185m 3 0 0 Aluminum ppm ASTM D5185m >3 0 0 Lead ppm ASTM D5185m >40 0 5 Lead ppm ASTM D5185m >40 0 5 Copper ppm ASTM D5185m >15 2 0 Vanadium ppm ASTM D5185m 0 0 Vanadium ppm ASTM D5185m 0 0 Vanadium ppm ASTM D5185m 10 43	Water		WC Method	>0.2	NEG	NEG	
Iron	Glycol		WC Method		NEG	NEG	
Chromium ppm ASTM D5185m >20 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>100	16	45	
Titanium	Chromium	ppm	ASTM D5185m	>20	<1	<1	
Silver ppm ASTM D5185m >3 0 0	Nickel	ppm	ASTM D5185m	>4	0	0	
Aluminum ppm ASTM D5185m >20 5 2 Lead ppm ASTM D5185m >40 0 5 Copper ppm ASTM D5185m >330 45 26 Tin ppm ASTM D5185m >15 2 0 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 Boron ppm ASTM D5185m 10 43 Barium ppm ASTM D5185m 10 Molybdenum ppm ASTM D5185m 255 11	Titanium	ppm	ASTM D5185m		0	0	
Lead	Silver	ppm	ASTM D5185m	>3	0	0	
Copper ppm ASTM D5185m >330 45 26 Tin ppm ASTM D5185m >15 2 0 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 43 Barium ppm ASTM D5185m <1 0 Molybdenum ppm ASTM D5185m 255 11 Magnesium ppm ASTM D5185m 2 <1 Magnesium ppm ASTM D5185m 28 81 Calcium ppm ASTM D5185m 4533 2629 Phosphorus ppm ASTM D5185m 1113 1125 Sulfur ppm ASTM D5185m 4281	Aluminum	ppm	ASTM D5185m	>20	5	2	
Tin ppm ASTM D5185m >15 2 0 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 43 Barium ppm ASTM D5185m <1	Lead	ppm	ASTM D5185m	>40	0	5	
Vanadium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 43 Barium ppm ASTM D5185m 21 0 Molybdenum ppm ASTM D5185m 255 11 Manganese ppm ASTM D5185m 2 1 Magnesium ppm ASTM D5185m 28 81 Calcium ppm ASTM D5185m 4533 2629 Phosphorus ppm ASTM D5185m 1113 1125 Zinc ppm ASTM D5185m 1117 1404 Sulfur ppm ASTM D5185m 4281 4700 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >20 0	Copper	ppm	ASTM D5185m	>330	45	26	
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 10 43 Barium ppm ASTM D5185m 1 0 Molybdenum ppm ASTM D5185m 255 11 Magnesium ppm ASTM D5185m 28 81 Magnesium ppm ASTM D5185m 28 81 Calcium ppm ASTM D5185m 4533 2629 Phosphorus ppm ASTM D5185m 1113 1125 Zinc ppm ASTM D5185m 1117 1404 Sulfur ppm ASTM D5185m 4281 4700 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 4 6	Tin	ppm	ASTM D5185m	>15	2	0	
ADDITIVES	Vanadium	ppm	ASTM D5185m		0	0	
Boron ppm ASTM D5185m 10 43	Cadmium	ppm	ASTM D5185m		0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 255 11 Manganese ppm ASTM D5185m 2 <1	Boron	ppm	ASTM D5185m		10	43	
Manganese ppm ASTM D5185m 2 <1	Barium	ppm	ASTM D5185m		<1	0	
Magnesium ppm ASTM D5185m 28 81 Calcium ppm ASTM D5185m 4533 2629 Phosphorus ppm ASTM D5185m 11113 1125 Zinc ppm ASTM D5185m 11117 1404 Sulfur ppm ASTM D5185m 4281 4700 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 19 Sodium ppm ASTM D5185m >20 0 8 Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/:mm *ASTM D7415 >30 41.7 22.6 <th>Molybdenum</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>255</th> <th>11</th> <th></th>	Molybdenum	ppm	ASTM D5185m		255	11	
Calcium ppm ASTM D5185m 4533 2629 Phosphorus ppm ASTM D5185m 1113 1125 Zinc ppm ASTM D5185m 1117 1404 Sulfur ppm ASTM D5185m 4281 4700 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 19 Sodium ppm ASTM D5185m 4 6 Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/.mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2	Manganese	ppm	ASTM D5185m		2	<1	
Phosphorus ppm ASTM D5185m 1113 1125 Zinc ppm ASTM D5185m 1117 1404 Sulfur ppm ASTM D5185m 4281 4700 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 19 Sodium ppm ASTM D5185m >20 0 8 Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current <td< th=""><th>Magnesium</th><th>ppm</th><th>ASTM D5185m</th><th></th><th>28</th><th>81</th><th></th></td<>	Magnesium	ppm	ASTM D5185m		28	81	
Zinc ppm ASTM D5185m 1117 1404 Sulfur ppm ASTM D5185m 4281 4700 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 19 Sodium ppm ASTM D5185m 4 6 Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 <th>Calcium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th>4533</th> <th>2629</th> <th></th>	Calcium	ppm	ASTM D5185m		4533	2629	
Sulfur ppm ASTM D5185m 4281 4700 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 19 Sodium ppm ASTM D5185m 4 6 Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99	Phosphorus	ppm	ASTM D5185m		1113	1125	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 14 19 Sodium ppm ASTM D5185m 4 6 Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	Zinc	ppm	ASTM D5185m		1117	1404	
Silicon ppm ASTM D5185m >25 14 19 Sodium ppm ASTM D5185m 4 6 Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	Sulfur	ppm	ASTM D5185m		4281	4700	
Sodium ppm ASTM D5185m 4 6 Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 8 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	Silicon	ppm	ASTM D5185m	>25	14	19	
INFRA-RED	Sodium	ppm	ASTM D5185m		4	6	
Soot % % *ASTM D7844 >3 0.1 0.2 Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	Potassium	ppm	ASTM D5185m	>20	0	8	
Nitration Abs/cm *ASTM D7624 >20 15.7 11.1 Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 41.7 22.6 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	Soot %	%	*ASTM D7844	>3	0.1	0.2	
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	Nitration	Abs/cm	*ASTM D7624	>20	15.7	11.1	
Oxidation Abs/.1mm *ASTM D7414 >25 49.8 25.1 Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	Sulfation	Abs/.1mm	*ASTM D7415	>30	41.7	22.6	
Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Acid Number (AN) mg KOH/g ASTM D8045 3.99 1.49	Oxidation	Abs/.1mm	*ASTM D7414	>25	49.8	25.1	
	Acid Number (AN)	mg KOH/g	ASTM D8045		3.99		
	Base Number (BN)		ASTM D2896			9.29	



OIL ANALYSIS REPORT





Certificate 12367

Laboratory Sample No.

Lab Number : 06195619 Unique Number : 11057742

: WC0676290

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Test Package : MOB 2

Received : 30 May 2024 **Tested** : 31 May 2024 Diagnosed

: 03 Jun 2024 - Sean Felton

Contact: EMANUEL ZOOK jchapman959@gmail.com T:

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)

F: (717)442-9670

994 GAP RD

KINZERS, PA

US 17535