

WEAR NORMAL CONTAMINATION NORMAL FLUID CONDITION NORMAL

.....

Machine Id 829057-101295 Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 40 (--- GAL)

	Sample
Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC)	Sample
DIESEL ENGINE OIL SAE 40. Please confirm.	Machin
	Oil Age
	Filter A
	Oil Cha
	Filter C

WEAR

All component wear rates are normal.

RECOMMENDATION

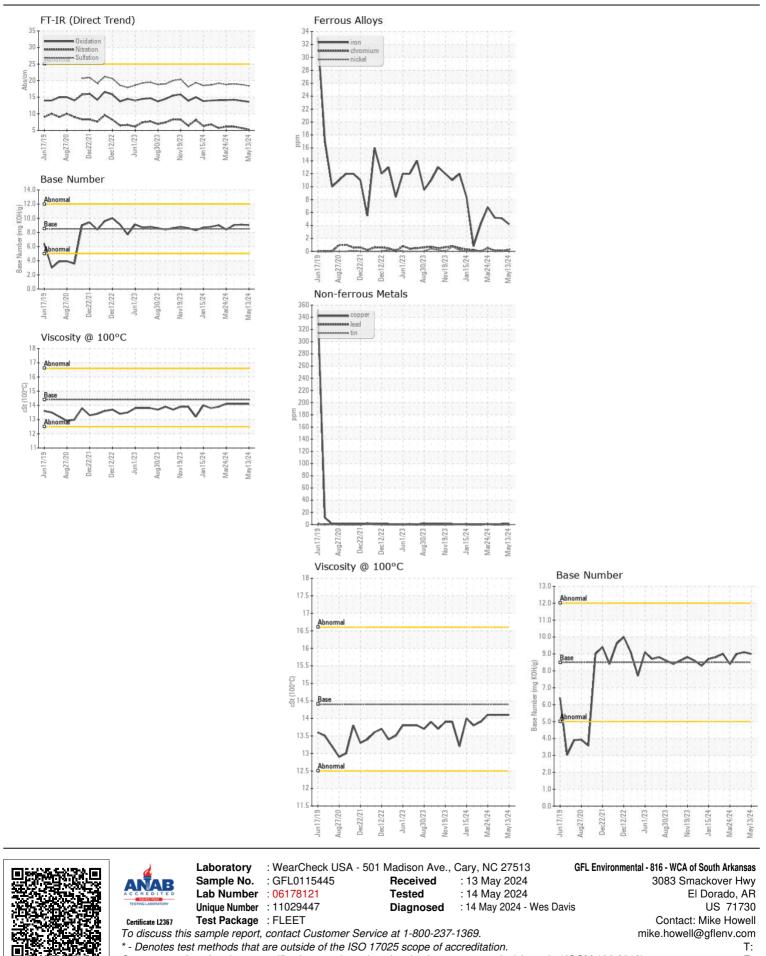
CONTAMINATION

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 suitable for further service.

Sample Number Client Info GFL0115445 GFL0102950 GFL0115445 ST01051557 ST GT GFL0115445 GFL0115445 GFL0115445 GFL0115445 GFL0115445 GFL0115445 GFL0115445 GFL0115457 GFL0115457 GFL0115457 GFL0115457 GFL015557 GFL015557 GFL015557							
Sample Date Client Info 13 May 2024 22 Apr 2024 14 Apr 20 Machine Age hrs Client Info 11757 11645 11592 Oil Age hrs Client Info 0 0 0 0 Filter Age hrs Client Info N/A N/A N/A N/A Filter Changed Client Info N/A N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A N/A Iron ppm ASTM D5185m >100 4 5 5 Chromium ppm ASTM D5185m >20 <1 <1 0 0 Titanium ppm ASTM D5185m >20 2 3 3 1 0	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age hrs Client Info 11757 11645 11592 Oil Age hrs Client Info 0 0 0 0 Filter Age hrs Client Info 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A N/A Iron ppm ASTM D5185m >100 4 5 5 Chromium ppm ASTM D5185m >20 <1 <1 <1 <1 Nickel ppm ASTM D5185m >20 <2 3 3 Titanium ppm ASTM D5185m >20 2 3 3 Auminum ppm ASTM D5185m >20 2 3 3 Copper ppm ASTM D5185m >20 2 3 3 Vanadium	Sample Number		Client Info		GFL0115445	GFL0102950	GFL0102945
Oil Age hrs Client Info 0 0 0 Filter Age hrs Client Info N/A N/A N/A N/A Filter Changed Client Info N/A N/A N/A N/A N/A Filter Changed Client Info N/A N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A N/A Iron ppm ASTM D5185m >100 4 5 5 Chromium ppm ASTM D5185m >20 <1 <1 0 0 Silver ppm ASTM D5185m >20 2 3 3 1 24 0	Sample Date		Client Info		13 May 2024	22 Apr 2024	14 Apr 2024
Filter Age hrs Client Info 0 0 0 0 Oil Changed Client Info N/A N/A N/A N/A N/A Filter Changed Client Info N/A N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A N/A Iron ppm ASTM D5185m >100 4 5 5 Chromium ppm ASTM D5185m >20 <1 <1 0 0 Titanium ppm ASTM D5185m >3 0 0 0 0 Silver ppm ASTM D5185m >30 <1 <1 0 0 Copper ppm ASTM D5185m >15 <1 0 0 0 Vanadium ppm ASTM D5185m >25 5 3 3 0 Valed Wetal scalar *Visual NONE NONE NONE NONE NON	Machine Age	hrs	Client Info		11757	11645	11592
Oil Changed Client Info N/A N/A N/A N/A Filter Changed Client Info N/A N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A N/A Iron ppm ASTM D5185m >100 4 5 5 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >30 0 0 0 Vanadium ppm ASTM D5185m >30 <1 <1 0 0 Vanadium ppm ASTM D5185m >30 <1 <1 0 0 Vanadium ppm ASTM D5185m >20 6 2 0 0 Veltow Metal scalar *Vis	Oil Age	hrs	Client Info		0	0	0
Filter Changed Sample Status Client Info N/A N/A N/A N/A N/A Iron ppm ASTM D5185m >100 4 5 5 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 0 0 Silver ppm ASTM D5185m >3 0 0 0 0 Aluminum ppm ASTM D5185m >30 <1 <1 0 0 Copper ppm ASTM D5185m >30 <1 <1 0 0 Vanadium ppm ASTM D5185m >15 <1 0 0 0 Vanadium ppm ASTM D5185m >25 5 3 3 0 Vellow Metal scalar *Visual NONE NONE NONE NONE <th>Filter Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th>0</th> <th>0</th>	Filter Age	hrs	Client Info		0	0	0
Sample Status NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL Iron ppm ASTM D5185m >100 4 5 5 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >20 <1 <1 0 0 Titanium ppm ASTM D5185m >3 0 0 0 0 Silver ppm ASTM D5185m >30 <1 <1 0 0 Copper ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >20 <1 0 0 Vanadium ppm ASTM D5185m >15 <1 0 0 Vanadium ppm ASTM D5185m >25 5 3 3 Solicon ppm ASTM	Oil Changed		Client Info		N/A	N/A	N/A
Sample Status NORMAL NOR NO	Filter Changed		Client Info		N/A	N/A	N/A
Iron ppm ASTM D5185m >100 4 5 5 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >4 <1 0 0 Titanium ppm ASTM D5185m >3 0 0 0 Silver ppm ASTM D5185m >30 0 0 0 Aluminum ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >40 <1 0 0 Vanadium ppm ASTM D5185m >15 <1 0 0 Vanadium ppm ASTM D5185m >25 5 3 3 Silicon ppm ASTM D5185m >20 6 2 0 Fuel WC Method >0.2 NEG NEG NEG <th></th> <th></th> <th></th> <th></th> <th>NORMAL</th> <th>NORMAL</th> <th>NORMAL</th>					NORMAL	NORMAL	NORMAL
Chromium ppm ASTM D5185m >20 <1	· · · · · · · · · · · · · · · · · · ·						
Nickel ppm ASTM D5185m >4 <1	Iron	ppm	ASTM D5185m	>100	4	5	5
Titanium ppm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Silver ppm ASTM D5185m >3 0 0 0 Aluminum ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >40 <1	Nickel	ppm	ASTM D5185m	>4	<1	0	0
Aluminum ppm ASTM D5185m >20 2 3 3 Lead ppm ASTM D5185m >40 <1 0 0 Copper ppm ASTM D5185m >330 <1 <1 0 0 Tin ppm ASTM D5185m >15 <1 0 0 Vanadium ppm ASTM D5185m <1 0 0 White Metal scalar *Visual NONE NONE NONE NONE Silicon ppm ASTM D5185m >25 5 3 3 Potassium ppm ASTM D5185m >20 6 2 0 Fuel WC Method >0.2 NEG NEG NEG Soot % % *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.mm<*ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.mm<*ASTM D7612 >30 18.4 18.8 19.0	Titanium	ppm	ASTM D5185m		<1	0	0
Lead ppm ASTM D5185m >40 <1	Silver	ppm	ASTM D5185m	>3	0	0	0
Copper ppm ASTM D5185m >330 <1	Aluminum	ppm	ASTM D5185m	>20	2	3	3
TinppmASTM D5185m>15<1	Lead	ppm	ASTM D5185m	>40	<1	0	0
Tin ppm ASTM D5185m >15 <1	Copper	ppm	ASTM D5185m	>330	<1	<1	0
White Metalscalar*VisualNONENONENONENONENONEYellow Metalscalar*VisualNONENONENONENONENONESiliconppmASTM D5185m>25533PotassiumppmASTM D5185m>20620FuelWC Method>5<1.0<1.0<1.0WaterWC Method>0.2NEGNEGNEGGlycolWC Method>0.2NEGNEGNEGSoot %%*ASTM D7844>30.20.30.3NitrationAbs/.mm*ASTM D7624>205.25.76.1SulfationAbs/.lmm*ASTM D7415>3018.418.819.0Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMOdorscalar*VisualNORMLNORMLNORMLNORMGoronppmASTM D5185m>216<101BoronppmASTM D5185m250655762BariumppmASTM D5185m10000MolybdenumppmASTM D5185m100847676			ASTM D5185m	>15	<1	0	0
Yellow Metal scalar *Visual NONE NONE NONE NONE NONE Silicon ppm ASTM D5185m >25 5 3 3 Potassium ppm ASTM D5185m >20 6 2 0 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG NEG Soot % % *ASTM D7844 >3 0.2 0.3 0.3 Nitration Abs/.mm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.imm *ASTM D7415 >30 18.4 18.8 19.0 Silt scalar *Visual NONE NONE NONE NON Debris scalar *Visual NORM NORML NORM NORM Appearance scalar <th>Vanadium</th> <th>ppm</th> <th>ASTM D5185m</th> <th></th> <th><1</th> <th>0</th> <th>0</th>	Vanadium	ppm	ASTM D5185m		<1	0	0
Silicon ppm ASTM D5185m >25 5 3 3 Potassium ppm ASTM D5185m >20 6 2 0 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG Soot % % *ASTM D7844 >3 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.tmm *ASTM D7415 >30 18.4 18.8 19.0 Silt scalar *Visual NONE NONE NONE NON Debris scalar *Visual NONE NONE NONE NON Appearance scalar *Visual NORML NORML NORM NORM Appearance scalar *Visual >0.2 NEG NEG <th>White Metal</th> <th>scalar</th> <th>*Visual</th> <th>NONE</th> <th>NONE</th> <th>NONE</th> <th>NONE</th>	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon ppm ASTM D5185m >25 5 3 3 Potassium ppm ASTM D5185m >20 6 2 0 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG Soot % % *ASTM D7844 >3 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.8 19.0 Silt scalar *Visual NONE NONE NONE NON Debris scalar *Visual NONE NONE NONE NON Appearance scalar *Visual NORML NORML NORM NORM Appearance scalar *Visual >0.2 NEG NEG <th>Yellow Metal</th> <th>scalar</th> <th>*Visual</th> <th>NONE</th> <th>NONE</th> <th>NONE</th> <th>NONE</th>	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Potassium ppm ASTM D5185m >20 6 2 0 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG NEG Soot % % *ASTM D7844 >3 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.1mm *ASTM D7415 >30 18.4 18.8 19.0 Silt scalar *Visual NONE NONE NONE NON Debris scalar *Visual NONE NONE NON NON Appearance scalar *Visual NORML NORML NORM NORM Odor scalar *Visual NORML NORML NORM NOR Emulsified Water scalar <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
Fuel WC Method >5 <1.0	Silicon	ppm	ASTM D5185m	>25			
Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method NEG NEG NEG NEG NEG Soot % % *ASTM D7844 >3 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.tmm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.tmm *ASTM D7415 >30 18.4 18.8 19.0 Silt scalar *Visual NONE NONE NONE NON Debris scalar *Visual NONE NONE NON NON Sand/Dirt scalar *Visual NOR NORML NOR NON Appearance scalar *Visual NORML NORML NOR NOR Emulsified Water scalar *Visual >0.2 NEG NEG NEG Sodium ppm	Potassium	ppm	ASTM D5185m	>20	6		÷
Glycol WC Method NEG NEG NEG Soot % % *ASTM D7844 >3 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.tmm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.tmm *ASTM D7624 >30 18.4 18.8 19.0 Silt scalar *Visual NONE NONE NONE NON Debris scalar *Visual NONE NONE NONE NON Sand/Dirt scalar *Visual NOR NORML NOR NON Appearance scalar *Visual NORML NORML NORM NORM Odor scalar *Visual NORML NORML NORM NOR Emulsified Water scalar *Visual >0.2 NEG NEG NEG Sodium ppm ASTM D5185m <					<1.0		
Soot % % *ASTM D7844 >3 0.2 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.tmm *ASTM D7624 >20 5.2 5.7 6.1 Sulfation Abs/.tmm *ASTM D7624 >30 18.4 18.8 19.0 Silt scalar *Visual NONE NONE NONE NONE Debris scalar *Visual NONE NONE NONE NON Sand/Dirt scalar *Visual NOR NORM NOR NON Appearance scalar *Visual NORML NORML NORML NORM Odor scalar *Visual NORML NORML NORM NOR Emulsified Water scalar *Visual >0.2 NEG NEG NEG Sodium ppm ASTM D5185m >216 <1 0 1 Boron ppm <th>Water</th> <th></th> <th>WC Method</th> <th>>0.2</th> <th>NEG</th> <th>NEG</th> <th>NEG</th>	Water		WC Method	>0.2	NEG	NEG	NEG
NitrationAbs/cm*ASTM D7624>205.25.76.1SulfationAbs/.1mm*ASTM D7415>3018.418.819.0Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m>216<101BoronppmASTM D5185m10000MalybdenumppmASTM D5185m100847676	Glycol		WC Method		NEG	NEG	NEG
SulfationAbs/.1mm*ASTM D7415>3018.418.819.0Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m>216<101BoronppmASTM D5185m10000MolybdenumppmASTM D5185m100847676	Soot %	%	*ASTM D7844	>3	0.2	0.3	0.3
Siltscalar*VisualNONENONENONENONEDebrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>216<101BoronppmASTM D5185m10000MolybdenumppmASTM D5185m100847676	Nitration	Abs/cm	*ASTM D7624	>20	5.2	5.7	6.1
Debrisscalar*VisualNONENONENONENONESand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>216<101BoronppmASTM D5185m250655762BariumppmASTM D5185m10000MolybdenumppmASTM D5185m100847676	Sulfation	Abs/.1mm	*ASTM D7415	>30	18.4	18.8	19.0
Sand/Dirtscalar*VisualNONENONENONENONEAppearancescalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>216<101BoronppmASTM D5185m250655762BariumppmASTM D5185m10000MolybdenumppmASTM D5185m100847676	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearancescalar*VisualNORMLNORMLNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>216<101BoronppmASTM D5185m250655762BariumppmASTM D5185m10000MolybdenumppmASTM D5185m100847676	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Odorscalar*VisualNORMLNORMLNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGSodiumppmASTM D5185m>216<101BoronppmASTM D5185m250655762BariumppmASTM D5185m10000MolybdenumppmASTM D5185m100847676	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Emulsified Water scalar *Visual >0.2 NEG NEG NEG Sodium ppm ASTM D5185m >216 <1 0 1 Boron ppm ASTM D5185m 250 65 57 62 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 84 76 76	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Sodium ppm ASTM D5185m >216 <1	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Boron ppm ASTM D5185m 250 65 57 62 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 84 76 76	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Boron ppm ASTM D5185m 250 65 57 62 Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 84 76 76	· · · · · · · · · · · · · · · · · · ·				·····		
Barium ppm ASTM D5185m 10 0 0 0 Molybdenum ppm ASTM D5185m 100 84 76 76							1
Molybdenum ppm ASTM D5185m 100 84 76 76		ppm					
Manganese ppm ASTM D5185m <1	-			100			
	-			1 - 1			
Magnesium ppm ASTM D5185m 450 843 917 999	•						
Calcium ppm ASTM D5185m 3000 1089 1150 1204							
Phosphorus ppm ASTM D5185m 1150 900 993 1101							
Zinc ppm ASTM D5185m 1350 1100 1195 1291							
Sulfur ppm ASTM D5185m 4250 3203 3428 3768						3428	
Oxidation Abs/.1mm *ASTM D7414 >25 13.6 13.9 14.2							
Base Number (BN) mg KOH/g ASTM D2896 8.5 9.0 9.1 9.0	()	mg KOH/g	ASTM D2896				
Visc @ 100°C cSt ASTM D445 14.4 14.1 14.1 14.1	Visc @ 100°C	cSt	ASTM D445	14.4	14.1	14.1	14.1



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: Mike Howell - GFL816 Page 2 of 2

F: