WEAR CONTAMINATION FLUID CONDITION

NORMAL MARGINAL ABNORMAL

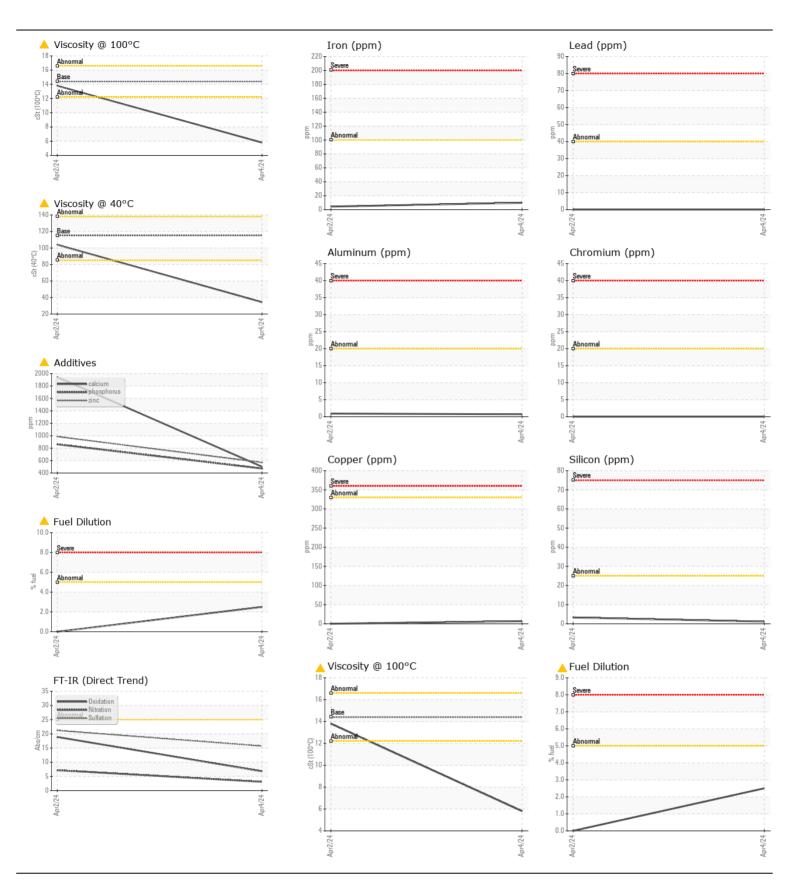
Machine Id

CASE 450 2190605

Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- GAL)

Test   Client Info   Changed   Client Info   Changed   Client Info   Changed   Client Info   Changed   Changed   Changed   Client Info   Changed   Changed   Client Info   Changed   Changed   Changed   Changed   Changed   Changed   Client Info   Changed   Chang	DIESEL ENGINE OIL SAE 15W	40 ( GAL)						
Sample Date   Client Info   Sample Machine Age   Inst   Client Info   Sample Date   Client Info   Sample Date   Client Info   Sample Date   Client Info   Solo   Solo   Color   Client Info   Solo   Solo   Color   Client Info   Changed   Client Info   Changed   Changed   Client Info   Changed   Changed   Changed   Client Info   Changed   Changed   Changed   Changed   Changed   Client Info   Changed   Ch	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Date		Sample Number		Client Info		PC0088642	PC0088644	
		Sample Date		Client Info		04 Apr 2024	02 Apr 2024	
Filter Age		Machine Age	hrs	Client Info		3323	3323	
Cilent Info		Oil Age	hrs	Client Info		500	500	
Filter Changed   Manual Patter   Manual Patt		Filter Age	hrs	Client Info		500	500	
No		Oil Changed		Client Info		Changed	Changed	
Note		Filter Changed		Client Info		Changed	Changed	
Chromium   ppm   ASTM D5185/m   2-0   0   0   0   0   0   0   0   0   0						ABNORMAL	-	
Chromium   ppm   ASTM D5185m   2-0   0   0   0   0   0   0   0   0   0								
Nickel   ppm   ASTM DS185m   3	WEAR	Iron	ppm	ASTM D5185(m)	>100	10	4	
Titanium   ppm   ASTMDSISE(m)   >3   0   0   0	All component wear rates are normal.	Chromium	ppm	ASTM D5185(m)	>20	0	0	
Silver   ppm   ASTM DS185/m   >3   0   0       Aluminum   ppm   ASTM DS185/m   >20   <1   <1       Lead   ppm   ASTM DS185/m   >40   0   0   0       Copper   ppm   ASTM DS185/m   >40   0   0   0       Tin   ppm   ASTM DS185/m   >15   0   0   0       Tin   ppm   ASTM DS185/m   >15   0   0   0       Tin   ppm   ASTM DS185/m   >15   0   0   0       Tin   ppm   ASTM DS185/m   >20   <1   4       Tin   ppm   ASTM DS185/m   >20   NEG   NEG       Tin   ppm   ASTM DS185/m   >20   NEG   NEG       Tin   ppm   ASTM DS185/m   ASTM DS185/m   >20   NEG   NEG       Tin   ppm   ASTM DS185/m   >20   NEG   NEG       Tin   ppm   ASTM DS185/m   >20   NEG   NEG       Tin   ppm   ASTM DS185/m   >20   NEG       Tin   ppm   ASTM DS185/m	·	Nickel	ppm	ASTM D5185(m)	>4	0	0	
Aluminum   ppm   ASTIN D6185m   >20   <1   <1		Titanium	ppm	ASTM D5185(m)		0	0	
Lead		Silver	ppm	ASTM D5185(m)	>3	0	0	
Copper		Aluminum	ppm	ASTM D5185(m)	>20	<1	<1	
Tin		Lead	ppm	ASTM D5185(m)	>40	0	0	
Vanadium   Ppm   ASTM D5185 m   Value   Val		Copper	ppm	ASTM D5185(m)	>330	7	<1	
Silicon   ppm   ASTM D5185[m]   >25   1   3		Tin	ppm	ASTM D5185(m)	>15	0	0	
Potassium   ppm   ASTM D5185(m)   >20   <1   4		Vanadium	ppm	ASTM D5185(m)		0	0	
Potassium   ppm   ASTM D5185(m)   >20   <1   4	CONTABBINATION	O'''		AOTH DE (OF ( )	05			
Fuel % ASTM D7593* >5	CONTAMINATION							
Water   WC Method   So.2   NEG   NEG   So.2   NEG   So.2   NEG   NEG   So.2   NEG   S	Light fuel dilution occurring.			( )				
Glycol   WC Method   NEG   NEG			%					
Soot %					>0.2			
Nitration   Abs/cm   ASTM D7624*   >20   3.1   7.2       Sulfation   Abs/.tmm   ASTM D7415*   >30   15.7   21.2       Emulsified Water   scalar   Visual*   >0.2   NEG   NEG       FLUID CONDITION     Calcium ppm levels are abnormally low. Phosphorus ppm levels are abnormally low. Zinc ppm levels are abnormally low. Visc @ 100°C is abnormally low. Visc @ 40°C is abnormally low. Fuel is present in the oil and is lowering the viscosity.     Manganese   ppm   ASTM D5185(m)   250   16   125       Manganese   ppm   ASTM D5185(m)   100   2   17       Manganese   ppm   ASTM D5185(m)   00   0       Manganese   ppm   ASTM D5185(m)   450   27   216       Calcium   ppm   ASTM D5185(m)   3000   502   1943       Calcium   ppm   ASTM D5185(m)   1150   472   862       Zinc   ppm   ASTM D5185(m)   4250   3739   2566       Cxidation   Abs/.tmm   ASTM D7414*   >25   6.8   18.9       Visc @ 40°C   CST   ASTM D7279(m)   115   434.4   104       Visc @ 100°C   CST   ASTM D7279(m)   11.5   434.4   104			21		0			
Sulfation   Abs/.tmm   ASTM D7415*   >30   15.7   21.2								
Emulsified Water   scalar   Visual*   >0.2   NEG   NEG								
Sodium   ppm   ASTM D5185(m)   >158   <1   2								
Calcium ppm levels are abnormally low. Phosphorus ppm levels are abnormally low. Visc @ 100°C is abnormally low. Visc @ 40°C is abnormally low. Fuel is present in the oil and is lowering the viscosity.    Boron   ppm   ASTM D5185(m)   100   2   17		Emulsified Water	scalar	Visual <sup>^</sup>	>0.2	NEG	NEG	
Barium   ppm   ASTM D5185(m)   10   <1   0	FLUID CONDITION	Sodium	ppm	ASTM D5185(m)	>158	<1	2	
abnormally low. Zinc ppm levels are abnormally low. Visc @ 100°C is abnormally low. Visc @ 40°C is abnormally low. Fuel is present in the oil and is lowering the viscosity.    Molybdenum   ppm   ASTM D5185(m)   100   2   17       Manganese   ppm   ASTM D5185(m)   450   27   216       Calcium   ppm   ASTM D5185(m)   3000   4502   1943       Phosphorus   ppm   ASTM D5185(m)   1150   472   862       Zinc   ppm   ASTM D5185(m)   1350   4569   986       Sulfur   ppm   ASTM D5185(m)   4250   3739   2566       Oxidation   Abs/.imm   ASTM D7414*   >25   6.8   18.9       Visc @ 40°C   cSt   ASTM D7279(m)   115   434.4   104       Visc @ 100°C   cSt   ASTM D7279(m)   14.4   5.8   13.8	abnormally low. Zinc ppm levels are abnormally low. Visc @ 100°C is abnormally low. Visc @ 40°C is abnormally low. Fuel is present in the	Boron	ppm	ASTM D5185(m)	250	16	125	
abnormally low. Visc @ 40°C is abnormally low. Fuel is present in the oil and is lowering the viscosity.  Manganese ppm ASTM D5185(m) 0 0 0  Magnesium ppm ASTM D5185(m) 450 27 216  Calcium ppm ASTM D5185(m) 3000 ▲ 502 1943  Phosphorus ppm ASTM D5185(m) 1150 ▲ 472 862  Zinc ppm ASTM D5185(m) 1350 ▲ 569 986  Sulfur ppm ASTM D5185(m) 4250 3739 2566  Oxidation Abs/.1mm ASTM D714* >25 6.8 18.9  Visc @ 40°C cSt ASTM D7279(m) 115 ▲ 34.4 104  Visc @ 100°C cSt ASTM D7279(m) 14.4 ▲ 5.8 13.8		Barium	ppm	ASTM D5185(m)	10	<1	0	
Manganese       ppm       ASTM D5185(m)       450       27       216          Calcium       ppm       ASTM D5185(m)       3000       ▲ 502       1943          Phosphorus       ppm       ASTM D5185(m)       1150       ▲ 472       862          Zinc       ppm       ASTM D5185(m)       1350       ▲ 569       986          Sulfur       ppm       ASTM D5185(m)       4250       3739       2566          Oxidation       Abs/.1mm       ASTM D7414*       >25       6.8       18.9          Visc @ 40°C       cSt       ASTM D7279(m)       115       ▲ 34.4       104          Visc @ 100°C       cSt       ASTM D7279(m)       14.4       ▲ 5.8       13.8		Molybdenum				2	17	
Magnesium       ppm       ASTM D5185(m)       450       27       216          Calcium       ppm       ASTM D5185(m)       3000       ▲ 502       1943          Phosphorus       ppm       ASTM D5185(m)       1150       ▲ 472       862          Zinc       ppm       ASTM D5185(m)       1350       ▲ 569       986          Sulfur       ppm       ASTM D5185(m)       4250       3739       2566          Oxidation       Abs/.1mm       ASTM D7414*       >25       6.8       18.9          Visc @ 40°C       cSt       ASTM D7279(m)       115       ▲ 34.4       104          Visc @ 100°C       cSt       ASTM D7279(m)       14.4       ▲ 5.8       13.8						0	0	
Calcium       ppm       ASTM D5185(m)       3000       ▲ 502       1943          Phosphorus       ppm       ASTM D5185(m)       1150       ▲ 472       862          Zinc       ppm       ASTM D5185(m)       1350       ▲ 569       986          Sulfur       ppm       ASTM D5185(m)       4250       3739       2566          Oxidation       Abs/.1mm       ASTM D7414*       >25       6.8       18.9          Visc @ 40°C       cSt       ASTM D7279(m)       115       ▲ 34.4       104          Visc @ 100°C       cSt       ASTM D7279(m)       14.4       ▲ 5.8       13.8		Magnesium	ppm	ASTM D5185(m)	450	27	216	
Phosphorus         ppm         ASTM D5185(m)         1150         ▲ 472         862            Zinc         ppm         ASTM D5185(m)         1350         ▲ 569         986            Sulfur         ppm         ASTM D5185(m)         4250         3739         2566            Oxidation         Abs/.1mm         ASTM D7414*         >25         6.8         18.9            Visc @ 40°C         cSt         ASTM D7279(m)         115         ▲ 34.4         104            Visc @ 100°C         cSt         ASTM D7279(m)         14.4         ▲ 5.8         13.8		Calcium	ppm	ASTM D5185(m)	3000		1943	
Zinc       ppm       ASTM D5185(m)       1350       ▲ 569       986          Sulfur       ppm       ASTM D5185(m)       4250       3739       2566          Oxidation       Abs/.1mm       ASTM D7414*       >25       6.8       18.9          Visc @ 40°C       cSt       ASTM D7279(m)       115       ▲ 34.4       104          Visc @ 100°C       cSt       ASTM D7279(m)       14.4       ▲ 5.8       13.8		Phosphorus		ASTM D5185(m)			862	
Sulfur         ppm         ASTM D5185(m)         4250         3739         2566            Oxidation         Abs/.1mm         ASTM D7414*         >25         6.8         18.9            Visc @ 40°C         cSt         ASTM D7279(m)         115         ▲ 34.4         104            Visc @ 100°C         cSt         ASTM D7279(m)         14.4         ▲ 5.8         13.8		Zinc		ASTM D5185(m)	1350		986	
Oxidation       Abs/.1mm       ASTM D7414*       >25       6.8       18.9          Visc @ 40°C       cSt       ASTM D7279(m)       115       ▲ 34.4       104          Visc @ 100°C       cSt       ASTM D7279(m)       14.4       ▲ 5.8       13.8		Sulfur						
Visc @ 40°C       cSt       ASTM D7279(m)       115       ▲ 34.4       104          Visc @ 100°C       cSt       ASTM D7279(m)       14.4       ▲ 5.8       13.8								
Visc @ 100°C cSt ASTM D7279(m) 14.4 ▲ 5.8 13.8								
						109	133	





CALA
Length 19981

ISO 17025:2017
Accredited

 Laboratory
 : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9

 Sample No.
 : PC0088642
 Received
 : 17 May 2024

 Lab Number
 : 02636271
 Tested
 : 21 May 2024

o 17025:2017
Accredited Laboratory

Lab Number : 02636271
Tested : 21 May 2024
Unique Number : 5785433
Diagnosed : 21 May 2024 - Wes Davis
Test Package : MOB 1 (Additional Tests: FuelDilution, KV40, PercentFuel, VI)

To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (\*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

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