

OIL ANALYSIS REPORT

Sample Rating Trend

ISO

Area METRO Machine Id METRO 25008 Component Front Differential

Fluid {not provided} (--- GAL)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a moderate amount of silt (particulates < 6 microns in size) present in the oil.

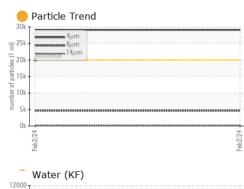
Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

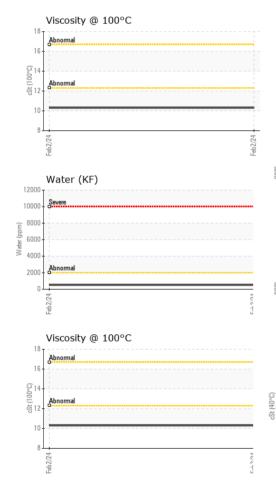
Sample Date Client Info 02 Feb 2024 Machine Age mis Client Info 11 Oil Age mis Client Info 0 Sample Status Client Info N/A WEAR METALS method Imit/base Current History1 History2 from ppm ASTM D5185m >10 <1 Nickel ppm ASTM D5185m >10 <1 Aluminum ppm ASTM D5185m >10 <1 Lead ppm ASTM D5185m >25 2 Capper ppm ASTM D5185m >10 <1 Vanadium ppm ASTM D5185m <1 Capper ppm ASTM D5185m <1 ADDTIVES method Im	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age mis Client Info 11 Oil Age mis Client Info 0 Sample Status Client Info N/A WEAR METALS method Imit/base current history1 history2 Iron ppm ASTM D5185m >500 6 Nickel ppm ASTM D5185m >10 <1 Silver ppm ASTM D5185m >10 <1 Agminium ppm ASTM D5185m >25 2 Copper ppm ASTM D5185m >10 <1 Agminum ppm ASTM D5185m >10 <1 Cadmium ppm ASTM D5185m 11 ADDITIVES method Imit/base current history1 history2	Sample Number		Client Info		WC0934535		
Oil Age mils Client Info 0 Oil Changed Client Info N/A Sample Status Imil/bass Current History1 History2 Iron ppm ASTM D5185m >500 6 Nickel ppm ASTM D5185m >10 <1 Aluminum ppm ASTM D5185m >10 <1 Aluminum ppm ASTM D5185m >25 2 Auminum ppm ASTM D5185m >25 <1 Auminum ppm ASTM D5185m >10 <1 Auminum ppm ASTM D5185m >10 <1 Append ASTM D5185m >10 <1 Capper ppm ASTM D5185m 11	Sample Date		Client Info		02 Feb 2024		
Oil Changed Client Info N/A Sample Status method limit/base current history1 history2 Iron ppm ASTM D5185m >500 6 Nickel ppm ASTM D5185m >10 <1 Nickel ppm ASTM D5185m >10 <1 Atuminum ppm ASTM D5185m >25 2 Auminum ppm ASTM D5185m >25 <1 Lead ppm ASTM D5185m >25 <1 Vanadium ppm ASTM D5185m <10 <1 Vanadium ppm ASTM D5185m <1 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m <1	Machine Age	mls	Client Info		11		
Sample Status Attention Attention Attention WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5165m >500 6 Nickel ppm ASTM D5165m >10 <1 Nickel ppm ASTM D5165m <1 Aluminum ppm ASTM D5165m <2 Auminum ppm ASTM D5165m >25 <1 Copper ppm ASTM D5165m >100 <1	Oil Age	mls	Client Info		0		
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >500 6 Nickel ppm ASTM D5185m >10 <1 Nickel ppm ASTM D5185m <1 Silver ppm ASTM D5185m <1 Aluminum ppm ASTM D5185m >25 2 Lead ppm ASTM D5185m >25 <1 Vanadium ppm ASTM D5185m >100 <1 Vanadium ppm ASTM D5185m 100 <1 ADDITIVES method limit/base current history1 history2 Barium ppm ASTM D5185m 317 Maganese ppm ASTM D5185m 0	Oil Changed		Client Info		N/A		
Iron ppm ASTM D5185m >500 6 Chromium ppm ASTM D5185m >10 <1 Nickel ppm ASTM D5185m >10 <1 Silver ppm ASTM D5185m <1 Aluminum ppm ASTM D5185m >25 2 Aluminum ppm ASTM D5185m >25 <1 Copper ppm ASTM D5185m >100 <1 Vanadium ppm ASTM D5185m <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m <1 Magnese ppm ASTM D5185m <1 Magneseium ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m <th>Sample Status</th> <th></th> <th></th> <th></th> <th>ATTENTION</th> <th></th> <th></th>	Sample Status				ATTENTION		
Dromium ppm ASTM D5165m >10 <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >10 <1 Titanium ppm ASTM D5185m <1 Silver ppm ASTM D5185m >25 <1 Aluminum ppm ASTM D5185m >25 <1 Copper ppm ASTM D5185m >10 <1 Copper ppm ASTM D5185m >10 <1 Vanadium ppm ASTM D5185m >10 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 Molybdenum pm ASTM D5185m <1 Magnesium ppm ASTM D5185m <1 Magnesium pm ASTM D5185m <1 Sulfur ppm ASTM D518	Iron	ppm	ASTM D5185m	>500	6		
Titanium ppm ASTM D5185m <1	Chromium	ppm	ASTM D5185m	>10	<1		
Silver ppm ASTM D5185m <1	Nickel	ppm	ASTM D5185m	>10	<1		
Aluminum ppm ASTM D5185m >25 2 Lead ppm ASTM D5185m >25 <1 Copper ppm ASTM D5185m >100 <1 Vanadium ppm ASTM D5185m >10 <1 Vanadium ppm ASTM D5185m >10 <1 Cadmium ppm ASTM D5185m <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m <1 Magnesee ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Sulfur ppm ASTM D5185m <2 <tr< th=""><th>Titanium</th><td>ppm</td><td>ASTM D5185m</td><td></td><th><1</th><td></td><td></td></tr<>	Titanium	ppm	ASTM D5185m		<1		
Lead ppm ASTM D5185m >25 <1	Silver	ppm	ASTM D5185m		<1		
Copper ppm ASTM D5185m >100 <1	Aluminum	ppm	ASTM D5185m	>25	2		
Copper ppm ASTM D5185m >100 <1	Lead	ppm	ASTM D5185m	>25	<1		
Tin ppm ASTM D5185m >10 <1	Copper		ASTM D5185m	>100	<1		
Vanadium ppm ASTM D5185m <1				>10	<1		
Cadmium ppm ASTM D5185m <1	Vanadium		ASTM D5185m				
Boron ppm ASTM D5185m 317 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m <1 Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1731 Stinc ppm ASTM D5185m 0 Sulfur ppm ASTM D5185m 30236 Sulfur ppm ASTM D5185m >75 2 Sulfur ppm ASTM D5185m >75 2 Sulfur ppm ASTM D5185m >20 1 Sodium ppm ASTM D5185m							
Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m <1 Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Phosphorus ppm ASTM D5185m 0 Sulfur ppm ASTM D5185m 0 Sulfur ppm ASTM D5185m >75 2 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20	ADDITIVES		method	limit/base	current	history1	history2
Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m <1 Maganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Zinc ppm ASTM D5185m 0 Sulfur ppm ASTM D5185m 30236 Sulfur ppm ASTM D5185m 20 1 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 Water % ASTM D540 >2000 <	Boron	ppm	ASTM D5185m		317		
Molybdenum ppm ASTM D5185m <1	Barium		ASTM D5185m		0		
Manganese ppm ASTM D5185m <1	Molybdenum				<1		
Magnesium ppm ASTM D5185m <1			ASTM D5185m		<1		
Calcium ppm ASTM D5185m <1	Magnesium		ASTM D5185m		<1		
Phosphorus ppm ASTM D5185m 1731 Zinc ppm ASTM D5185m 0 Sulfur ppm ASTM D5185m 30236 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >75 2 Sodium ppm ASTM D5185m >75 2 Sodium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 Water % ASTM D6304 >.2 0.0500 ppm Water ppm ASTM D7647 >20000 508 Particles >4µm ASTM D7647 >20000 29092 Particles >6µm ASTM D7647 >640 185	Calcium	ppm	ASTM D5185m		<1		
Zinc ppm ASTM D5185m 0 Sulfur ppm ASTM D5185m 30236 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >75 2 Sodium ppm ASTM D5185m >75 2 Potassium ppm ASTM D5185m >20 1 Potassium ppm ASTM D5185m >20 1 Water % ASTM D6304 >.2 0.050 ppm Water ppm ASTM D640 >2000 508 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >20000 29092 Particles >14µm ASTM D7647 >640 185 <	Phosphorus	ppm	ASTM D5185m		1731		
SulfurppmASTM D5185m30236CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>752SodiumppmASTM D5185m>201PotassiumppmASTM D5185m>201Water%ASTM D6304>.20.050ppm WaterppmASTM D6304>2000508FLUID CLEANLINESSmethodlimit/basecurrenthistory1history2Particles >4µmASTM D7647>2000029092Particles >6µmASTM D7647>640185Particles >14µmASTM D7647>16034Particles >38µmASTM D7647>100Particles >71µmASTM D7647>100Oil CleanlinessISO 4406 (c)>21/19/1622/19/15FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2	Zinc		ASTM D5185m		0		
Silicon ppm ASTM D5185m >75 2 Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 1 Water % ASTM D6304 >.2 0.050 ppm Water ppm ASTM D6304 >.2 0.050 ppm Water ppm ASTM D6304 >.2 0.050 Particles >4µm ASTM D7647 >2000 508 Particles >6µm ASTM D7647 >2000 29092 Particles >6µm ASTM D7647 >640 185 Particles >14µm ASTM D7647 >640 185 Particles >21µm ASTM D7647 >160 34 Particles >38µm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15	Sulfur		ASTM D5185m		30236		
Sodium ppm ASTM D5185m 0 Potassium ppm ASTM D5185m >20 1 Water % ASTM D6304 >.2 0.050 ppm Water ppm ASTM D6304 >.2 0.050 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >20000 29092 Particles >6µm ASTM D7647 >5000 4630 Particles >14µm ASTM D7647 >640 185 Particles >14µm ASTM D7647 >160 34 Particles >38µm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2 <th>CONTAMINANTS</th> <th></th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 1 Water % ASTM D6304 >.2 0.050 ppm Water ppm ASTM D6304 >.2000 508 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >20000 29092 Particles >6µm ASTM D7647 >5000 4630 Particles >6µm ASTM D7647 >640 185 Particles >14µm ASTM D7647 >160 34 Particles >38µm ASTM D7647 >10 0 Particles >71µm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method Imit/base current history1 hist	Silicon	ppm	ASTM D5185m	>75	2		
Water % ASTM D6304 >.2 0.050 ppm Water ppm ASTM D6304 >2000 508 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >2000 29092 Particles >6µm ASTM D7647 >5000 4630 Particles >6µm ASTM D7647 >640 185 Particles >14µm ASTM D7647 >640 185 Particles >21µm ASTM D7647 >160 34 Particles >38µm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method Imit/base current history1 history2	Sodium	ppm	ASTM D5185m		0		
ppm Water ppm ASTM D6304 >2000 508 FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >20000 29092 Particles >6µm ASTM D7647 >5000 4630 Particles >6µm ASTM D7647 >640 185 Particles >14µm ASTM D7647 >640 185 Particles >21µm ASTM D7647 >160 34 Particles >38µm ASTM D7647 >10 0 Particles >71µm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) 21/19/16 22/19/15 FLUID DEGRADATION method Imit/base current history1 history2	Potassium	ppm	ASTM D5185m	>20	1		
FLUID CLEANLINESS method limit/base current history1 history2 Particles >4µm ASTM D7647 >20000 29092 Particles >6µm ASTM D7647 >5000 4630 Particles >6µm ASTM D7647 >640 185 Particles >14µm ASTM D7647 >640 185 Particles >21µm ASTM D7647 >160 34 Particles >38µm ASTM D7647 >40 1 Particles >71µm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2	Water	%	ASTM D6304	>.2	0.050		
Particles >4μm ASTM D7647 >20000 29092 Particles >6μm ASTM D7647 >5000 4630 Particles >14μm ASTM D7647 >640 185 Particles >14μm ASTM D7647 >160 34 Particles >21μm ASTM D7647 >160 34 Particles >38μm ASTM D7647 >40 1 Particles >71μm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2	ppm Water	ppm	ASTM D6304	>2000	508		
Particles >6μm ASTM D7647 >5000 4630 Particles >14μm ASTM D7647 >640 185 Particles >14μm ASTM D7647 >160 34 Particles >21μm ASTM D7647 >160 34 Particles >38μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >10 0 Particles >71μm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14µm ASTM D7647 >640 185 Particles >21µm ASTM D7647 >160 34 Particles >38µm ASTM D7647 >40 1 Particles >38µm ASTM D7647 >40 1 Particles >71µm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >4µm		ASTM D7647	>20000	e 29092		
Particles >21μm ASTM D7647 >160 34 Particles >38μm ASTM D7647 >40 1 Particles >38μm ASTM D7647 >40 1 Particles >71μm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >6µm		ASTM D7647	>5000	4630		
Particles >38μm ASTM D7647 >40 1 Particles >71μm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >14µm		ASTM D7647	>640	185		
Particles >71μm ASTM D7647 >10 0 Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >21µm		ASTM D7647	>160	34		
Oil Cleanliness ISO 4406 (c) >21/19/16 22/19/15 FLUID DEGRADATION method limit/base current history1 history2	Particles >38µm		ASTM D7647	>40	1		
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>10	0		
	Oil Cleanliness		ISO 4406 (c)	>21/19/16	e 22/19/15		
Acid Number (AN) mg KOH/g ASTM D8045 2.65	FLUID DEGRADA		method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045		2.65		



OIL ANALYSIS REPORT







	VISUAL		method	limit/base	current	history1	history2
	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal	scalar	*Visual	NONE	NONE		
	Precipitate	scalar	*Visual	NONE	NONE		
	Silt	scalar	*Visual	NONE	NONE		
	Debris	scalar	*Visual	NONE	NONE		
	Sand/Dirt	scalar	*Visual	NONE	NONE		
Feb2/24	Appearance	scalar	*Visual	NORML	NORML		
цар Цар	Odor	scalar	*Visual	NORML	NORML		
	Emulsified Water	scalar	*Visual	>.2	NEG		
	Free Water	scalar	*Visual		NEG		
	FLUID PROPERT	IES	method	limit/base	current	history1	history2
	Visc @ 40°C	cSt	ASTM D445		58.4		
	Visc @ 100°C	cSt	ASTM D445		10.3		
	Viscosity Index (VI)	Scale	ASTM D2270		166		
						la la tanun 1	la interne C
Feb2/24 -	SAMPLE IMAGES	2	method	limit/base	current	history1	history2
Fet	Color				e Fez code upt	no image	no image
	Bottom					no image	no image
	GRAPHS						
4	Ferrous Alloys				Particle Count		
Feb2/24	10 8			491,520	Severe		T ²
_	chromium			122,880			-2
	E 6 4			30,720	Abnormal		-2
	2			7,680			2
	Feb 2/24			(per 1 ml)		•	
	Feb			월 <u>광</u> 1,920	· ``		-18
	Non-ferrous Metals	5		480 H			
				1,000 1,0000 1,0000 1,0000 1,0000 1,00000000			-14
	6 - Copper			quin			12
2 C	E 4			= 30	1		-12
C-H-3/	2			8	-		-10
	24 L 0			4Z 2	-		
	Feb2/24			Feb2/24			
	Viscosity @ 40°C			0 4	μ 6μ Acid Number	14μ 21μ	38µ 71µ
	140 Abnormal			<u>9</u> 3.0	Acid Number		
	120			KOH			
	() 100 - 아 아 아 아 아 아 아 아 아 아 아 아 아 아 아 아 아 아 아			(B) 3.0 (B) 403 (B) 403 (B) 2.0 (B) 403 (B) 1.0 (B) 403 (B) 40	1		
	₹3 80 -			4 1.0	-		
	40			0.0 Acid	l		
	Feb2/24			Feb2/24	Feb 2/24		
2	- B			a.	тай L		
יעריים							

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

Report Id: bastarhd [WUSCAR] 06180650 (Generated: 05/18/2024 16:55:03) Rev: 1

Contact/Location: GIANNA CREDAROLI - BASTARHD

F: