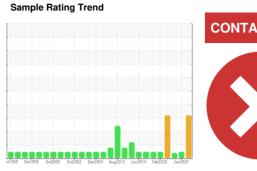


OIL ANALYSIS REPORT

Caster/Segment Drives B - Strand 2 - 2 Gear Box Roll # 70 Bottom Gearbox

SHELL OMALA 220 (45 GAL)





DIAGNOSIS

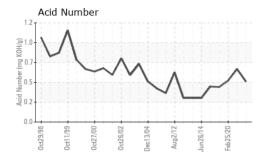
▲ Recommendation

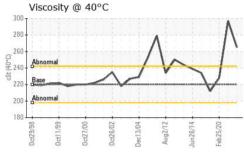
Technician was unable to draw sample from the machine. Suspect the unit has a very low oil level. We recommend that you check the oil level and top up as required.

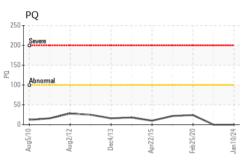
Water WC Method >5 NEG NEG NEG WEAR METALS method limit/base current history1 history1 PQ ASTM D8184* >DFLT 0 0 Iron ppm ASTM D5185(m) >200 11 7 Chromium ppm ASTM D5185(m) >15 0 0 Nickel ppm ASTM D5185(m) >15 0 0 Titanium ppm ASTM D5185(m) >15 0 0 Silver ppm ASTM D5185(m) >25 0 2 Aluminum ppm ASTM D5185(m) >25 <1					method		
Machine Age hrs Client Info 0 0 0 Oil Age hrs Client Info 0 0 0 Oil Changed Client Info N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A CONTAMINATION method limit/base current history1 history1 WEAR METALS method limit/base current history1 history1 PQ ASTM D8184* >DFLT 0 0 Iron ppm ASTM D5185(m) >200 11 7 Chromium ppm ASTM D5185(m) >15 0 0 Nickel ppm ASTM D5185(m) >15 0 0 Silver ppm ASTM D5185(m) >25 <1	ul 2023	C0898678 W	0968472 W	W	Client Info		Sample Number
Oil Age hrs Client Info N/A N/A N/A N/A Oil Changed Client Info N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A CONTAMINATION method limit/base current history1 history WEAR METALS method limit/base current history1 history PQ ASTM D8184* >DFLT 0 0 Iron ppm ASTM D8185(m) >200 11 7 Chromium ppm ASTM D5185(m) >15 0 0 Nickel ppm ASTM D5185(m) >15 0 0 Silver ppm ASTM D5185(m) >25 0 0 Aluminum ppm ASTM D5185(m) >25 <1) Jan 2024 13	Jul 2024 10	17	Client Info		Sample Date
Oil Changed Status Client Info N/A N/A N/A N/A Sample Status SEVERE NORMAL ABNORM CONTAMINATION method limit/base current history1 history Water WC Method >5 NEG NEG NEG WEAR METALS method limit/base current history1 history PQ ASTM D8184* >DFLT 0 0 Iron ppm ASTM D8185(m) >200 11 7 Chromium ppm ASTM D5185(m) >15 0 0 Nickel ppm ASTM D5185(m) >15 0 0 Silver ppm ASTM D5185(m) >25 <1 <1 Lead ppm ASTM D5185(m) >20 <1 <1 Copper ppm ASTM D5185(m) >20 <1 <1 Tin		0	0	0	Client Info	hrs	Machine Age
Sample Status		0	0	0	Client Info	hrs	-
CONTAMINATION method limit/base current history1 history1 Water WC Method >5 NEG NEG NEG WEAR METALS method limit/base current history1 history1 PQ ASTM D8184* >DFLT 0 0 Iron ppm ASTM D5185(m) >200 11 7 Chromium ppm ASTM D5185(m) >15 0 0 Nickel ppm ASTM D5185(m) >15 0 0 Silver ppm ASTM D5185(m) 0 2 Aluminum ppm ASTM D5185(m) >25 <1		/A N/A	. N	N/A	Client Info		Oil Changed
Water WC Method >5 NEG NEG NEG WEAR METALS method limit/base current history1 history1 PQ ASTM D8184* >DFLT 0 0 Iron ppm ASTM D5185(m) >200 11 7 Chromium ppm ASTM D5185(m) >15 0 0 0 Nickel ppm ASTM D5185(m) >15 0	ORMAL	ORMAL AB	/ERE N	SE			Sample Status
WEAR METALS method limit/base current history1 history1 PQ ASTM D8184* >DFLT 0 0 Iron ppm ASTM D5185(m) >200 11 7 Chromium ppm ASTM D5185(m) >15 0 0 Nickel ppm ASTM D5185(m) >15 0 0 Titanium ppm ASTM D5185(m) >15 0 0 Silver ppm ASTM D5185(m) >25 0 0 Silver ppm ASTM D5185(m) >25 <1	history2	history1	current	limit/base	method	J	CONTAMINATION
PQ ASTM D8184* >DFLT 0 0 Iron ppm ASTM D5185(m) >200 11 7 Chromium ppm ASTM D5185(m) >15 0 0 Nickel ppm ASTM D5185(m) >15 0 0 Titanium ppm ASTM D5185(m) 0 0 2 Aluminum ppm ASTM D5185(m) >25 <1 <1 Lead ppm ASTM D5185(m) >100 <0 0 Copper ppm ASTM D5185(m) >200 <1 <1 Tin ppm ASTM D5185(m) >25 0 0 Antimony ppm ASTM D5185(m) >5 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 ADDITIVES method Imiti/base current history1 <td>EG</td> <td>NEG</td> <td>IEG</td> <td>>5</td> <td>WC Method</td> <td></td> <td>Water</td>	EG	NEG	IEG	>5	WC Method		Water
Iron	history2	history1	current	limit/base	method		WEAR METALS
Chromium ppm ASTM D5185(m) >15 0 0 Nickel ppm ASTM D5185(m) >15 0 0 Titanium ppm ASTM D5185(m) 0 0 2 Silver ppm ASTM D5185(m) 0 2 2 Aluminum ppm ASTM D5185(m) >25 <1 <1 Lead ppm ASTM D5185(m) >100 0 0 Copper ppm ASTM D5185(m) >200 <1 <1 Tin ppm ASTM D5185(m) >25 0 0 Antimony ppm ASTM D5185(m) >5 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current		0		DFLT	ASTM D8184*		PQ
Nickel ppm ASTM D5185(m) >15 0 0 Titanium ppm ASTM D5185(m) 0 0 Silver ppm ASTM D5185(m) 0 2 Aluminum ppm ASTM D5185(m) >25 <1		11		>200	ASTM D5185(m)	ppm	Iron
Titanium ppm ASTM D5185(m) 0 0 Silver ppm ASTM D5185(m) 0 2 Aluminum ppm ASTM D5185(m) >25 <1 <1 Lead ppm ASTM D5185(m) >100 0 0 Copper ppm ASTM D5185(m) >200 <1 <1 Tin ppm ASTM D5185(m) >25 0 0 Antimony ppm ASTM D5185(m) >5 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 Beryllium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0.0 0		0	-	·15	ASTM D5185(m)	ppm	Chromium
Silver ppm ASTM D5185(m) 0 2 Aluminum ppm ASTM D5185(m) >25 <1		0	-	·15	ASTM D5185(m)	ppm	Nickel
Aluminum ppm ASTM D5185(m) >25 <1 <1 Lead ppm ASTM D5185(m) >100 0 0 Copper ppm ASTM D5185(m) >200 <1 <1 Tin ppm ASTM D5185(m) >25 0 0 Antimony ppm ASTM D5185(m) >5 0 0 Vanadium ppm ASTM D5185(m) -5 0 0 Beryllium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current history1 history Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0.0 0 0		0			ASTM D5185(m)	ppm	Titanium
Lead ppm ASTM D5185(m) >100 0 0 Copper ppm ASTM D5185(m) >200 <1		0			ASTM D5185(m)	ppm	Silver
Copper ppm ASTM D5185(m) >200 <1 <1 Tin ppm ASTM D5185(m) >25 0 0 Antimony ppm ASTM D5185(m) >5 0 0 Vanadium ppm ASTM D5185(m) 0 0 Beryllium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185(m) 4.4 12 20 Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0	1	<1		-25	ASTM D5185(m)	ppm	Aluminum
Tin ppm ASTM D5185(m) >25 0 0 Antimony ppm ASTM D5185(m) >5 0 0 Vanadium ppm ASTM D5185(m) 0 0 Beryllium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185(m) 4.4 12 20 Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0		0		>100	ASTM D5185(m)	ppm	Lead
Antimony ppm ASTM D5185(m) >5 0 0 Vanadium ppm ASTM D5185(m) 0 0 Beryllium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185(m) 4.4 12 20 Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0	1	<1		>200	ASTM D5185(m)	ppm	Copper
Vanadium ppm ASTM D5185(m) 0 0 Beryllium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185(m) 4.4 12 20 Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0		0		>25	ASTM D5185(m)	ppm	Tin
Beryllium ppm ASTM D5185(m) 0 0 Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current history1 history Boron ppm ASTM D5185(m) 4.4 12 20 Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0		0		>5	ASTM D5185(m)	ppm	Antimony
Cadmium ppm ASTM D5185(m) 0 0 ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185(m) 4.4 12 20 Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0		0	-		ASTM D5185(m)	ppm	Vanadium
ADDITIVES method limit/base current history1 history1 Boron ppm ASTM D5185(m) 4.4 12 20 Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0		0	-		ASTM D5185(m)	ppm	Beryllium
Boron ppm ASTM D5185(m) 4.4 12 20 Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0		0			ASTM D5185(m)	ppm	Cadmium
Barium ppm ASTM D5185(m) 0.0 0 0 Molybdenum ppm ASTM D5185(m) 0 0 0	history2	history1	current	limit/base	method		ADDITIVES
Molybdenum ppm ASTM D5185(m) 0 0 0)	12		1.4	ASTM D5185(m)	ppm	Boron
, , , , , , , , , , , , , , , , , , , ,		0		0.0	ASTM D5185(m)	ppm	Barium
Manganese ppm ASTM D5185(m) 0)	ASTM D5185(m)	ppm	Molybdenum
3		0			ASTM D5185(m)	ppm	Manganese
Magnesium ppm ASTM D5185(m) 0 1 <1	1		-)	ASTM D5185(m)	ppm	Magnesium
Calcium ppm ASTM D5185(m) 0 3 3			-		ASTM D5185(m)	ppm	Calcium
Phosphorus ppm ASTM D5185(m) 215 303 346	46		-		. ,		
Zinc ppm ASTM D5185(m) 0 3 2			-			ppm	-
Sulfur ppm ASTM D5185(m) 7039 10405 11223					ASTM D5185(m)	ppm	Sulfur
Lithium ppm ASTM D5185(m) <1 <1	1	<1	-		ASTM D5185(m)	ppm	Lithium
CONTAMINANTS method limit/base current history1 history	history2	history1	current	limit/base	method		CONTAMINANTS
Silicon ppm ASTM D5185(m) >50 1 2		1		>50	ASTM D5185(m)	ppm	Silicon
Sodium ppm ASTM D5185(m) <1 <1	1	<1	-		ASTM D5185(m)	ppm	Sodium
Potassium ppm ASTM D5185(m) >20 <1 <1		4	_	>20	ASTM D5185(m)	mag	Potassium



OIL ANALYSIS REPORT







FLUID CLEANLIN	NESS	method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647			147979	69320
Particles >6µm		ASTM D7647	>10240000		29294	16630
Particles >14µm		ASTM D7647	>10240000		862	1031
Particles >21µm		ASTM D7647	>2560000		106	272
Particles >38µm		ASTM D7647	>640000		3	8
Particles >71µm		ASTM D7647	>160000		0	0
Oil Cleanliness		ISO 4406 (c)	>/30/30		24/22/17	23/21/17
FLUID DEGRADA	ATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*			0.49	0.64
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE		NONE	NONE
Yellow Metal	scalar	Visual*	NONE		NONE	NONE
Precipitate	scalar	Visual*	NONE		NONE	NONE
Silt	scalar	Visual*	NONE		NONE	NONE
Debris	scalar	Visual*	NONE		NONE	NONE
Sand/Dirt	scalar	Visual*	NONE		VLITE	NONE
Appearance	scalar	Visual*	NORML	▲ NOOIL	NORML	NORML
Odor	scalar	Visual*	NORML		NORML	NORML
Emulsified Water	scalar	Visual*	>5		NEG	NEG
Free Water	scalar	Visual*			NEG	NEG
FLUID PROPER	ΓIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	220		265	△ 297
SAMPLE IMAGE	S	method	limit/base	current	history1	history2
Color				no image		
Bottom				no image		100 E



CALA ISO 17025:2017 Accredited Laboratory

Laboratory

Sample No. Lab Number : 02648545 Unique Number : 5814097

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : WC0968472

Received : 17 Jul 2024 **Tested** : 17 Jul 2024

Diagnosed

: 18 Jul 2024 - Kevin Marson

STELCO - BOSC - Basic Oxygen Slab Caster 2330 Regional Road #3, Door: BOSC8

NANTICOKE, ON CA NOA 1L0

Test Package: TEST (Additional Tests: ICP, KV40, PQ, PrtCount, Spat, TAN Auto, TAN Man) Contact: Tom Walden To discuss this sample report, contact Customer Service at 1-800-268-2131.

Thomas.Walden@stelco.com T: (519)587-4541

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.

F: (519)587-7702 Submitted By: Bob Melanson