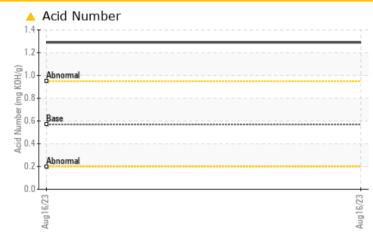


Area AO Smith - A09200 A2308069

Component Hydraulic System Fluid AW HYDRAULIC OIL ISO 68 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

This is a baseline read-out on the submitted sample.

PROBLEMATIC 1	TEST RESULTS			
Sample Status			ABNORMAL	
Acid Number (AN)	ma KOH/a ASTM D974*	0.57	1.29	

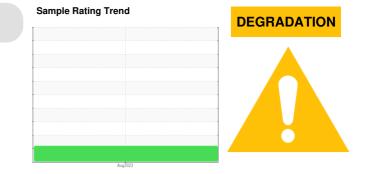
Customer Id: CHECOB Sample No.: E30000089 Lab Number: 02576770 Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data: Tatiana Sorkina +1 (800)263-3939 tsorkina@e360s.ca

To change component or sample information: Gloria Gonzalez +1 (289)291-4643 x4643 gloria.gonzalez@wearcheck.com



There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS



OIL ANALYSIS REPORT

Area AO Smith - A09200 A2308069

Hydraulic System AW HYDRAULIC OIL ISO 68 (--- GAL)

DIAGNOSIS

A Recommendation

This is a baseline read-out on the submitted sample.

Wear

Copper and iron ppm levels are noted.

Contamination

{not applicable}

Fluid Condition

Acid Number (AN) is abnormally high. Phosphorus ppm levels are notably high. Sulfur ppm levels are notably high.

				Aug2023		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		E30000089		
Sample Date		Client Info		16 Aug 2023		
Machine Age	hrs	Client Info		0		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				ABNORMAL		
WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		0		
Iron	ppm	ASTM D5185(m)	>20	421		
Chromium	ppm	ASTM D5185(m)	>20	1		
Nickel	ppm	ASTM D5185(m)	>20	<1		
Titanium	ppm	ASTM D5185(m)		<1		
Silver	ppm	ASTM D5185(m)		0		
Aluminum	ppm	ASTM D5185(m)	>20	4		
Lead	ppm	ASTM D5185(m)	>20	12		
Copper	ppm	ASTM D5185(m)	>20	238		
Tin	ppm	ASTM D5185(m)	>20	11		
Antimony	ppm	ASTM D5185(m)		0		
Vanadium	ppm	ASTM D5185(m)		1		
Beryllium	ppm	ASTM D5185(m)		0		
Cadmium	ppm	ASTM D5185(m)		1		
		× 7	11			
ADDITIVES		method	limit/base	current	history1	history2
			-	-		
Boron	ppm	ASTM D5185(m)	5	<1		
Barium	ppm ppm	ASTM D5185(m) ASTM D5185(m)		<1 3		
Barium		ASTM D5185(m) ASTM D5185(m)				
Barium Molybdenum	ppm	ASTM D5185(m)	5	3		
Barium Molybdenum Manganese	ppm ppm	ASTM D5185(m) ASTM D5185(m)	5	3 0		
Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25	3 0 8	 	
Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25	3 0 8 58		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300	3 0 8 58 97		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300	3 0 8 58 97 660	 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370	3 0 8 58 97 660 421	 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370	3 0 8 58 97 660 421 7581	 	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500	3 0 8 58 97 660 421 7581 <1		
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500	3 0 8 58 97 660 421 7581 <1 <1	 history1	
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500 limit/base >15	3 0 8 58 97 660 421 7581 <1 <1 current 3	 history1	 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500 2500 limit/base >15 >20	3 0 8 58 97 660 421 7581 <1 <1 current 3 25	 history1	 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500 2500 limit/base >15 >20	3 0 8 58 97 660 421 7581 <1 <1 current 3 25 36	 history1	 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500 2500 limit/base >15 >20 >20 >0.05	3 0 8 58 97 660 421 7581 <1 current 3 25 36 0.019	 history1	 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water opm Water FLUID CLEANLIN	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 200 300 370 2500 2500 limit/base >15 >20 >20 >0.05 >500	3 0 8 58 97 660 421 7581 <1 current 3 25 36 0.019 198.1	 history1 	 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5185(m)	5 5 25 200 300 370 2500 bimit/base >15 >20 >0.05 >500 bimit/base	3 0 8 58 97 660 421 7581 <1 current 3 25 36 0.019 198.1 current	 history1 history1	history2 history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D6304* ASTM D6304*	5 5 200 300 370 2500 limit/base >15 >20 >0.05 >500 limit/base >5000	3 0 8 58 97 660 421 7581 <1 current 3 25 36 0.019 198.1 current 121	 history1 history1	 history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >14µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D6304* ASTM D6304* ASTM D6304* ASTM D7647 ASTM D7647	5 5 200 300 370 2500 2500 imit/base >15 >0.05 >500 imit/base >5000 >1300 >160	3 0 8 58 97 660 421 7581 <1 current 3 25 36 0.019 198.1 current 121 43	 history1 history1	 history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >6µm Particles >14µm Particles >21µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D7647 ASTM D7647 ASTM D7647	5 5 200 300 370 2500 2500 imit/base >15 >0.05 >500 imit/base >5000 >1300 >160	3 0 8 58 97 660 421 7581 <1 current 3 25 36 0.019 198.1 current 121 43 8	 history1 history1	history2 history2
Silicon Sodium Potassium Water ppm Water	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5047 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	5 5 200 300 370 2500 imit/base >15 >20 >0.05 >500 imit/base >5000 >1300 >160 >160 >10	3 0 8 58 97 660 421 7581 <1 current 3 25 36 0.019 198.1 current 121 43 8 4	history1	history2 history2 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Lithium CONTAMINANTS Silicon Sodium Potassium Water ppm Water FLUID CLEANLIN Particles >4µm Particles >14µm Particles >21µm Particles >38µm	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185(m) ASTM D5047 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647 ASTM D7647	5 5 200 300 370 2500 imit/base >15 >20 >0.05 >500 imit/base >5000 >1300 >160 >160 >10	3 0 8 58 97 660 421 7581 <1 current 3 25 36 0.019 198.1 current 121 43 8 8 4 1	 history1 <	

Sample Rating Trend

DEGRADATION



OIL ANALYSIS REPORT

cid Number (AN) VISUAL /hite Metal ellow Metal recipitate ilt ebris and/Dirt ppearance	mg KOH/g scalar scalar scalar scalar scalar scalar	ASTM D974* method Visual* Visual* Visual* Visual* Visual*	0.57 / / / / / / / / / / / / / / / / / / /	1.29 current NONE NONE NONE NONE	 history1 	 history
/hite Metal ellow Metal recipitate ilt ebris and/Dirt	scalar scalar scalar scalar	Visual* Visual* Visual* Visual*	NONE NONE NONE	NONE NONE NONE		history
/hite Metal ellow Metal recipitate ilt ebris and/Dirt	scalar scalar scalar scalar	Visual* Visual* Visual*	NONE NONE	NONE NONE		
ellow Metal recipitate ilt ebris and/Dirt	scalar scalar scalar scalar	Visual* Visual* Visual*	NONE NONE	NONE NONE		
recipitate ilt ebris and/Dirt	scalar scalar scalar	Visual* Visual*	NONE NONE	NONE		
ilt ebris and/Dirt	scalar			NONE		
and/Dirt		Visual*	NONE			
	scalar		NONE	NONE		
ppearance	ooului	Visual*	NONE	NONE		
	scalar	Visual*	NORML	NORML		
dor	scalar	Visual*	NORML	NORML		
mulsified Water	scalar	Visual*	>0.05	NEG		
ree Water	scalar	Visual*		NEG		
FLUID PROPERT	IES	method	limit/base	current	history1	histor
isc @ 40°C	cSt	ASTM D7279(m)	68	66.8		
isc @ 100°C	cSt	ASTM D7279(m)	8.6	9.4		
iscosity Index (VI)	Scale	ASTM D2270*	96	119		
SAMPLE IMAGES	6	method	limit/base	current	history1	history
- l				v		
olor					no image	no imag
ottom					no image	no imag
GRAPHS						
Ferrous Alloys				Particle Count		
iron						
chromium nickel				Severe		

16/23			16/23 I6/23	Abnormal		
Aug			Bry ad 1,920			
Non-ferrous Metals	s		d	· · · ·		
copper			120			
tin			튙 30			
J16/23			2 16/23		-	
			Aug Aug	μμ 6μ 1·	4μ 21μ	38µ 7
, =			[®]	Acid Number		
Abnormal Base			(₿/▲ ₩1.5 ₩1.0	Abnormal		
			· 문 0.5	Base		
			E 0.9	Abnom-1		
Abnormal				Abnormal		
			Aug 16/23	Abnormal P (2/3) Bnoy		
	ee Water FLUID PROPERT sc @ 40°C sc @ 100°C scosity Index (VI) SAMPLE IMAGES blor ottom GRAPHS Ferrous Alloys Won-ferrous Metals Copper Index In	ee Water scalar FLUID PROPERTIES sc @ 40°C cSt scosity Index (VI) Scale SAMPLE IMAGES blor comperent of the second se	ee Water scalar Visual* FLUID PROPERTIES method sc @ 40°C cSt ASTM D7279(m) scosity Index (VI) Scale ASTM D2270* SAMPLE IMAGES method olor ottom GRAPHS Ferrous Alloys Viscosity @ 40°C	ee Water scalar Visual* FLUID PROPERTIES method limit/base sc @ 40°C cSt ASTM D7279(m) 68 sc @ 100°C cSt ASTM D7279(m) 8.6 scosity Index (VI) Scale ASTM D2270* 96 SAMPLE IMAGES method limit/base olor	ee Water scalar Visual* NEG FLUID PROPERTIES method limit/base current sc @ 40°C cSt ASTM D7279(m) 68 66.8 sc @ 100°C cSt ASTM D7279(m) 8.6 9.4 scosity Index (VI) Scalae ASTM D7279(m) 8.6 9.4 scosity Index (VI) Scale ASTM D7279(m) 8.6 9.4 SAMPLE IMAGES method limit/base current olor Imit/base current Imit/base current otom Imit/base current Imit/base current olor Imit/base current Imit/base current olor Imit/base Imit/base current Imit/base Imit/base olor Imit/base Imit/base Imit/base Imit/base Imit/base <t< td=""><td>ee Water scalar Visual* NEG FLUID PROPERTIES method limit/base current history1 sc @ 40°C cSt ASTM D7279(m) 68 66.8 sc @ 100°C cSt ASTM D7279(m) 8.6 9.4 scosity Index (VI) Scale ASTM D2270* 96 119 SAMPLE IMAGES method limit/base current history1 olor imit/base current history1 olor imit/base no image ottom imit/base current history1 ottom imit/base cur</td></t<>	ee Water scalar Visual* NEG FLUID PROPERTIES method limit/base current history1 sc @ 40°C cSt ASTM D7279(m) 68 66.8 sc @ 100°C cSt ASTM D7279(m) 8.6 9.4 scosity Index (VI) Scale ASTM D2270* 96 119 SAMPLE IMAGES method limit/base current history1 olor imit/base current history1 olor imit/base no image ottom imit/base current history1 ottom imit/base cur