

PROBLEM SUMMARY

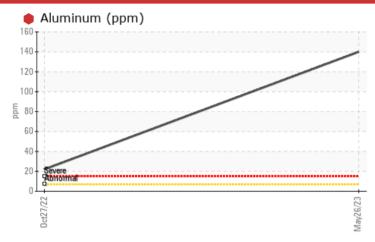
BAE SYSTEM **B2012 HYDROENGINEERING STEAMER**

Component Pump Fluid

CASTROL NON-DETERGENT SAE 30 (--- GAL)

Sample Rating Trend **WEAR**

COMPONENT CONDITION SUMMARY



RECOMMENDATION

We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS							
Sample Status				SEVERE	ABNORMAL		
Aluminum	ppm	ASTM D5185m	>7	140	<u>^</u> 22		

Customer Id: MOTYOR **Sample No.:** WC0802170 Lab Number: 05863648 Test Package: IND 2 To manage this report scan the QR code To discuss the diagnosis or test data: Don Baldridge +1 don.b505@comcast.net To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Resample			?	We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

27 Oct 2022 Diag: Doug Bogart

WEAR



No corrective action is recommended at this time. Resample at the next service interval to monitor. The aluminum level is abnormal. All other component wear rates are normal. There is no indication of any contamination in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.



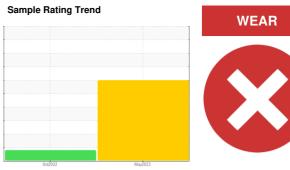


OIL ANALYSIS REPORT

BAE SYSTEM **B2012 HYDROENGINEERING STEAMER**

Pump Fluid

CASTROL NON-DETERGENT SAE 30 (--- G



DIAGNOSIS

Recommendation

We recommend an early resample to monitor this condition.

Wear

The aluminum level is severe.

Contamination

There is no indication of any contamination in the oil.

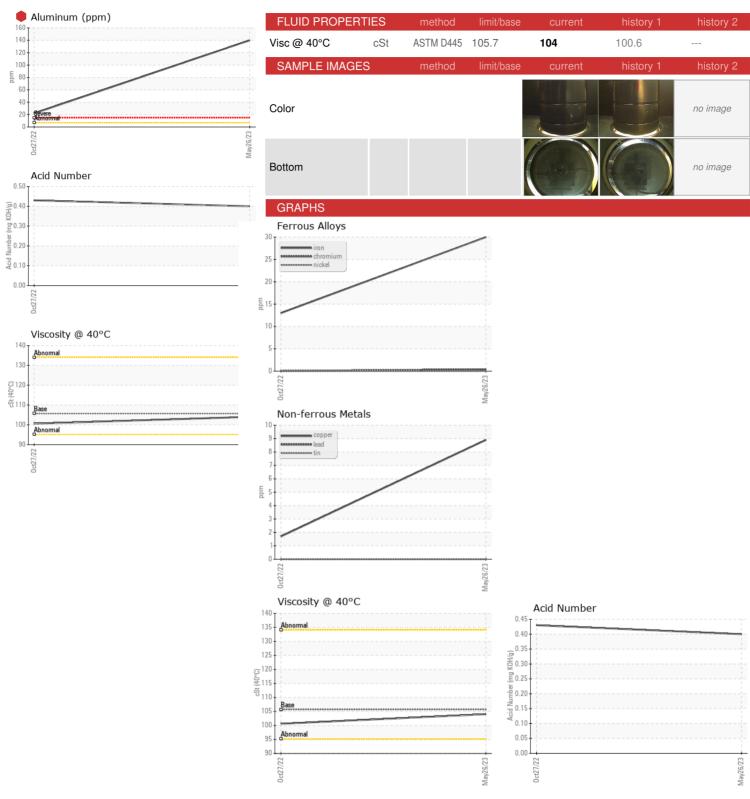
Fluid Condition

The AN level is acceptable for this fluid. The condition of the oil is acceptable for the time in

Machine Age hrs Client Info 0 0	AL)			0ct2022	May2023		
Sample Date Client Info 26 May 2023 27 Oct 2022	SAMPLE INFOR	MATION	method	limit/base	current	history 1	history 2
Sample Date Client Info 26 May 2023 27 Oct 2022 Machine Age hrs Client Info 0 0 Oil Age hrs Client Info 0 0 Oil Changed Client Info Not Changd N/A Sample Status method Imitibase current history 1 history 2 Iron ppm ASTM D5185m >5 <1	Sample Number		Client Info		WC0802170	WC0749757	
Oil Age hrs Client Info Not Changed N/A	Sample Date		Client Info		26 May 2023	27 Oct 2022	
Cilichanged Cilichanged Sample Status SEVERE ABNORMAL	Machine Age	hrs	Client Info		0	0	
SEVERE	Oil Age	hrs	Client Info		0	0	
WEAR METALS	Oil Changed		Client Info		Not Changd	N/A	
Irron	Sample Status				SEVERE	ABNORMAL	
Chromium ppm ASTM D5185m >5 <1 0 Nickel ppm ASTM D5185m >5 0 0 Tittanium ppm ASTM D5185m >3 0 <1	WEAR METALS		method	limit/base	current	history 1	history 2
Nickel	Iron	ppm	ASTM D5185m	>90	30	13	
Titanium	Chromium	ppm	ASTM D5185m	>5	<1	0	
Silver	Nickel	ppm	ASTM D5185m	>5	0	0	
Aluminum	Titanium	ppm	ASTM D5185m	>3	0	<1	
Lead	Silver	ppm	ASTM D5185m	>3	0	<1	
Copper ppm ASTM D5185m >30 9 2	Aluminum	ppm	ASTM D5185m	>7	140	<u>^</u> 22	
Copper ppm ASTM D5185m >30 9 2 Tin ppm ASTM D5185m >9 0 0 Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history 1 history 2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m <1	Lead	ppm	ASTM D5185m	>12	0	0	
Vanadium ppm ASTM D5185m 0 <1 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history 1 history 2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m <1 1 Manganese ppm ASTM D5185m 0 3 Magnesium ppm ASTM D5185m 42 30 Magnesium ppm ASTM D5185m 317 339 Calcium ppm ASTM D5185m 350 423 Zinc ppm ASTM D5185m 1588 1597 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >60 20 <t< td=""><td>Copper</td><td>ppm</td><td>ASTM D5185m</td><td>>30</td><td>9</td><td>2</td><td></td></t<>	Copper	ppm	ASTM D5185m	>30	9	2	
Vanadium ppm ASTM D5185m 0 <1 ADDITIVES method limit/base current history 1 history 2 Boron ppm ASTM D5185m 0 0 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m <1	Tin	ppm	ASTM D5185m	>9	0	0	
ADDITIVES	Vanadium		ASTM D5185m		0	<1	
Boron ppm ASTM D5185m 0 0 0 0 0 0	Cadmium	ppm	ASTM D5185m		0	0	
Barium	ADDITIVES		method	limit/base	current	history 1	history 2
Molybdenum ppm ASTM D5185m <1 1 Manganese ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		0	0	
Molybdenum ppm ASTM D5185m <1 1 Manganese ppm ASTM D5185m <1	Barium	ppm	ASTM D5185m		0	0	
Manganese ppm ASTM D5185m <1 1 Magnesium ppm ASTM D5185m 0 3 Calcium ppm ASTM D5185m 42 30 Phosphorus ppm ASTM D5185m 317 339 Zinc ppm ASTM D5185m 350 423 Sulfur ppm ASTM D5185m 1588 1597 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >60 20 3 Sodium ppm ASTM D5185m >20 0 Potassium ppm ASTM D5185m >20 0 FLUID DEGRADATION method limit/base current history 1 history 2 Acid Number (AN) mg KOHg ASTM D8045 0.40 0.43 VISUAL method limit/base	Molybdenum	ppm	ASTM D5185m		<1	1	
Magnesium ppm ASTM D5185m 0 3 Calcium ppm ASTM D5185m 42 30 Phosphorus ppm ASTM D5185m 317 339 Zinc ppm ASTM D5185m 350 423 Sulfur ppm ASTM D5185m 1588 1597 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m 2 0 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m 20 0 0 FLUID DEGRADATION method limit/base current history 1 history 2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.43 VISUAL method limit/base	Manganese		ASTM D5185m		<1	1	
Calcium ppm ASTM D5185m 42 30 Phosphorus ppm ASTM D5185m 317 339 Zinc ppm ASTM D5185m 350 423 Sulfur ppm ASTM D5185m 1588 1597 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >60 20 3 Sodium ppm ASTM D5185m >20 0 Potassium ppm ASTM D5185m >20 0 Potassium ppm ASTM D5185m >20 0 0 FLUID DEGRADATION method limit/base current history 1 history 2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.43 VISUAL method limit/base current history 1 history 2 White Metal <td>-</td> <td></td> <td>ASTM D5185m</td> <td></td> <td>0</td> <td>3</td> <td></td>	-		ASTM D5185m		0	3	
Phosphorus ppm ASTM D5185m 317 339 Zinc ppm ASTM D5185m 350 423 Sulfur ppm ASTM D5185m 1588 1597 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >60 20 3 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 0 0 FLUID DEGRADATION method limit/base current history 1 history 2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.43 VISUAL method limit/base current history 1 history 2 White Metal scalar *Visual NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE Yell	Calcium	ppm	ASTM D5185m		42	30	
Zinc	Phosphorus		ASTM D5185m		317	339	
Sulfur ppm ASTM D5185m 1588 1597 CONTAMINANTS method limit/base current history 1 history 2 Silicon ppm ASTM D5185m >60 20 3 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 0 0 FLUID DEGRADATION method limit/base current history 1 history 2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.43 VISUAL method limit/base current history 1 history 2 White Metal scalar *Visual NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE Yellow Metal scalar *Visual NONE NONE NONE Precipitate scalar *Visual NONE NONE NONE <			ASTM D5185m		350	423	
Silicon	Sulfur		ASTM D5185m		1588	1597	
Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 0 0 FLUID DEGRADATION method limit/base current history 1 history 2 VISUAL method limit/base current history 1 history 2 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 NORML NORML NORML Appearance scalar *Visual NORML NORML NORML Emulsified Water <td>CONTAMINANTS</td> <td>3</td> <td>method</td> <td>limit/base</td> <td>current</td> <td>history 1</td> <td>history 2</td>	CONTAMINANTS	3	method	limit/base	current	history 1	history 2
Potassium ppm ASTM D5185m >20 0 0 FLUID DEGRADATION method limit/base current history 1 history 2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.43 VISUAL method limit/base current history 1 history 2 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 NORML NORML NORML Appearance scalar *Visual NORML NORML NORML Emulsified Water	Silicon	ppm	ASTM D5185m	>60	20	3	
FLUID DEGRADATION method limit/base current history 1 history 2 Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.43 VISUAL method limit/base current history 1 history 2 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 Silt scalar *Visual NONE NONE NONE Debris scalar *Visual NONE NONE NONE Appearance scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NORML NORML NORML	Sodium	ppm	ASTM D5185m		2	0	
VISUAL method limit/base current history 1 history 2 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 NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NORML NEG	Potassium	ppm	ASTM D5185m	>20	0	0	
VISUAL method limit/base current history 1 history 2 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 NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NORML NEG NEG	FLUID DEGRADA	ATION	method	limit/base	current	history 1	history 2
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 NORML NORML NORML Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NORML NEG	Acid Number (AN)	mg KOH/g	ASTM D8045		0.40	0.43	
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 NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NEG	VISUAL		method	limit/base	current	history 1	history 2
Precipitate scalar *Visual NONE NONE NONE Silt scalar *Visual NONE NONE NONE Debris scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NORML NEG NEG	White Metal	scalar	*Visual	NONE	NONE	NONE	
Silt scalar *Visual NONE NONE NONE Debris scalar *Visual NONE NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NORML NEG NEG	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Debris scalar *Visual NONE NONE Sand/Dirt scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NEG NEG	Precipitate	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NEG NEG	Silt	scalar	*Visual	NONE	NONE	NONE	
Appearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*VisualNEGNEG	Debris	scalar	*Visual	NONE	NONE	NONE	
Odor scalar *Visual NORML NORML NORML Emulsified Water scalar *Visual NEG NEG	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Emulsified Water scalar *Visual NEG NEG	Appearance	scalar	*Visual	NORML	NORML	NORML	
	Odor	scalar	*Visual	NORML	NORML	NORML	
Free Water scalar *Visual NEG NEG	Emulsified Water	scalar	*Visual		NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	



OIL ANALYSIS REPORT







Laboratory Sample No. Lab Number Unique Number : 10498113 Test Package : IND 2

: WC0802170 : 05863648

To discuss this sample report, contact Customer Service at 1-800-237-1369.

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received Diagnosed

Diagnostician : Don Baldridge

: 02 Jun 2023 : 06 Jun 2023

US 17406 Contact: Bill Trimmer btrimmer@motortechnologyinc.com T: (717)266-4045

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: MOTYOR [WUSCAR] 05863648 (Generated: 07/10/2023 13:33:39) Rev: 1

Submitted By: KEN SECHRIST

MOTOR TECHNOLOGY INC

515 WILLOW SPRINGS LN

YORK, PA