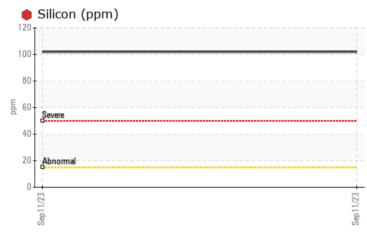
## **PROBLEM SUMMARY**

FILTRATION TECHNOLOGY

#### Machine Id HAIDA TANK 2 Component

Hydraulic System Fluid SHELL TELLUS 32 (50 GAL)

#### COMPONENT CONDITION SUMMARY



#### RECOMMENDATION

We advise that you check all areas where dirt can enter the system. Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue.

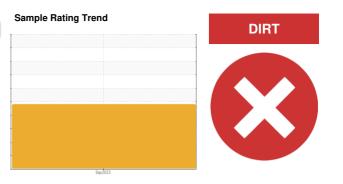
PROBLEMATIC TEST RESULTS								
Sample Status				SEVERE				
Silicon	ppm	ASTM D5185m	>15	🛑 102				

#### Customer Id: STEFORFL Sample No.: ST38057 Lab Number: 05961745 Test Package: IND 2

To manage this report scan the QR code

*To discuss the diagnosis or test data:* Don Baldridge +1 <u>don.b505@comcast.net</u>

*To change component or sample information:* Customer Service +1 1-800-237-1369 <u>customerservice@wearcheck.com</u>



RECOMMENDED ACTIONS						
Action	Status	Date	Done By	Description		
Contact Required			?	Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue.		
Check Dirt Access			?	We advise that you check all areas where dirt can enter the system.		

HISTORICAL DIAGNOSIS



### **OIL ANALYSIS REPORT**

Sample Rating Trend

DIRT

# HAIDA TANK 2

Hydraulic System Fluid SHELL TELLUS 32 (50 GAL)

#### DIAGNOSIS

#### Recommendation

We advise that you check all areas where dirt can enter the system. Due to an abnormal test result it is recommended to contact Stauff Corp at (201)-444-7800 for help resolving the issue.

#### Wear

All component wear rates are normal.

#### Contamination

Elemental level of silicon (Si) above normal indicating ingress of dirt/seal material. The amount and size of particulates present in the system are acceptable.

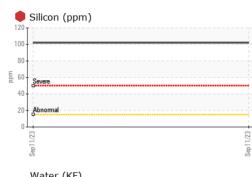
#### Fluid Condition

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

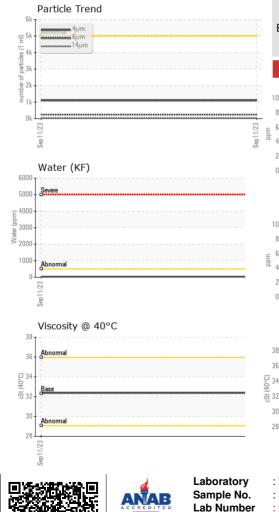
Sample Number       Client Info       ST38057           Sample Date       Client Info       0           Oil Age       hrs       Client Info       0           Oil Age       hrs       Client Info       0           Oil Changed       Client Info       N/A           WEAR METALS       method       Imit/base       current       history          Nickel       ppm       ASTM 05185m       >20       <1           Nickel       ppm       ASTM 05185m       >20       0           Silver       ppm       ASTM 05185m       >20       3           Aluminum       ppm       ASTM 05185m       >20       6           Aluminum       ppm       ASTM 05185m       >20       61           Copper       ppm       ASTM 05185m       >20       61           Aluminum       ppm       ASTM 05185m       >20       61	SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Machine Age         hrs         Client Info         0             Oil Ghanged         Client Info         0             Sample Status         Imit/base         current         history1         history1           WEAR METALS         method         Imit/base         current         history1         history1           Iron         ppm         ASTM 05185m         >20         <1             Nickel         ppm         ASTM 05185m         >20         0             Silver         ppm         ASTM 05185m         >20         3             Copper         ppm         ASTM 05185m         >20         6             Lead         ppm         ASTM 05185m         >20         6             ADDITIVES         method         Imit/base         current         history1         history2           Vanadium         ppm         ASTM 05185m         <1              ADDITIVES         method         Imit/base         current         history1         history2          Barium	Sample Number		Client Info		ST38057		
Oil Age         hrs         Client Info         NA             Sample Status         Client Info         NA             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         <1             Nickel         ppm         ASTM D5185m         >20         0             Nickel         ppm         ASTM D5185m         >20         0             Aluminum         ppm         ASTM D5185m         >20         3             Aluminum         ppm         ASTM D5185m         >20         6             Adadium         ppm         ASTM D5185m         >20         -1             Vanadium         ppm         ASTM D5185m         >20         -1             Adamium         ppm         ASTM D5185m         0              Adamium         ppm         ASTM D5185m         0	Sample Date		Client Info		11 Sep 2023		
Oil Changed Sample Status         Client Info         N/A             WEAR METALS         method         Imit/base         current         history1         history2           Iron         ppm         ASTM D5185m         >20         <1             Othormium         ppm         ASTM D5185m         >20         <1             Nickel         ppm         ASTM D5185m         >20         0             Silver         ppm         ASTM D5185m         >20         3             Lead         ppm         ASTM D5185m         >20         5             Copper         ppm         ASTM D5185m         >20         6             Lead         ppm         ASTM D5185m         >20         6             Cadmium         ppm         ASTM D5185m         >20         6             ADDITVES         method         Imit/base         current         history1         history2           Barum         ppm         ASTM D5185m         0 <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>0</th> <th></th> <th></th>	Machine Age	hrs	Client Info		0		
Sample Status         Nethod         SEVERE             WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM D5185n         >20         <1             Nickel         ppm         ASTM D5185n         >20         <1             Nickel         ppm         ASTM D5185n         >20         0             Silver         ppm         ASTM D5185n         >20         3             Aluminum         ppm         ASTM D5185n         >20         6             Copper         ppm         ASTM D5185n         >20         6             Cadmium         ppm         ASTM D5185n         >20         1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185n         0             Magnaese         ppm         ASTM D5185n         11         -1	Oil Age	hrs	Client Info		0		
WEAR METALS         method         limit/base         current         history1         history2           Iron         ppm         ASTM 05185m         >20         <1             Nickel         ppm         ASTM 05185m         >20         0             Nickel         ppm         ASTM 05185m         >20         0             Silver         ppm         ASTM 05185m         >20         3             Aluminum         ppm         ASTM 05185m         >20         6             Lead         ppm         ASTM 05185m         >20         6             Copper         ppm         ASTM 05185m         >20         1             Cadmium         ppm         ASTM 05185m         0              ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM 05185m         0              Maganesse         ppm         ASTM 05185m         0	Oil Changed		Client Info		N/A		
Iron         ppm         ASTM D5185m         >20         <1	Sample Status				SEVERE		
Dromium         ppm         ASTM D5185m         >20         <1	WEAR METALS		method	limit/base	current	history1	history2
Nickel         ppm         ASTM D5185m         >20         0             Titanium         ppm         ASTM D5185m         0             Silver         ppm         ASTM D5185m         >20         3             Aluminum         ppm         ASTM D5185m         >20         4             Lead         ppm         ASTM D5185m         >20         6             Copper         ppm         ASTM D5185m         >20         6             Vanadium         ppm         ASTM D5185m         >20         1             Cadmium         ppm         ASTM D5185m         <1              ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Magnesium         ppm         ASTM D5185m         0	Iron	ppm	ASTM D5185m	>20	<1		
Titanium         ppm         ASTM D5185m         <1	Chromium	ppm	ASTM D5185m	>20	<1		
Silver         ppm         ASTM D5185m         0             Aluminum         ppm         ASTM D5185m         >20         3             Lead         ppm         ASTM D5185m         >20         6             Copper         ppm         ASTM D5185m         >20         <1             Vanadium         ppm         ASTM D5185m         >20         <1             Vanadium         ppm         ASTM D5185m         <1              Vanadium         ppm         ASTM D5185m         <1              ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Marganese         ppm         ASTM D5185m         1         <1             Marganese         ppm         ASTM D5185m         11         <1             Calcium         ppm         ASTM D5185m         277         348 <td>Nickel</td> <td>ppm</td> <td>ASTM D5185m</td> <td>&gt;20</td> <th>0</th> <td></td> <td></td>	Nickel	ppm	ASTM D5185m	>20	0		
Atuminum         ppm         ASTM D5185m         >20         3             Lead         ppm         ASTM D5185m         >20         <1             Copper         ppm         ASTM D5185m         >20         <1             Vanadium         ppm         ASTM D5185m         >20         <1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Molybdenum         ppm         ASTM D5185m         0             Manganese         ppm         ASTM D5185m         0             Manganese         ppm         ASTM D5185m         287             Phosphorus         ppm         ASTM D5185m         259         287             Sulfur         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         22	Titanium	ppm	ASTM D5185m		<1		
Lead         ppm         ASTM D5185m         >20         <1	Silver	ppm	ASTM D5185m		0		
Copper         ppm         ASTM D5185m         >20         6             Tin         ppm         ASTM D5185m         >20         <1             Vanadium         ppm         ASTM D5185m         >20         <1             Cadmium         ppm         ASTM D5185m         <1             ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0             Molybdenum         ppm         ASTM D5185m         0             Magnesium         ppm         ASTM D5185m         0             Calcium         ppm         ASTM D5185m         25         287             Calcium         ppm         ASTM D5185m         259         287             Sulfur         ppm         ASTM D5185m         25         102             Sulfur         ppm         ASTM D5185m         >15         102	Aluminum	ppm	ASTM D5185m	>20	3		
Tin         ppm         ASTM D5185m         >20         <1	Lead	ppm	ASTM D5185m	>20	<1		
Tin       ppm       ASTM D5185m       >20       <1	Copper		ASTM D5185m	>20	6		
Cadmium         ppm         ASTM D5185m         <1	Tin	ppm	ASTM D5185m	>20	<1		
Cadmium         ppm         ASTM D5185m         <1	Vanadium		ASTM D5185m		<1		
Boron         ppm         ASTM D5185m         0            Barium         ppm         ASTM D5185m         0            Molybdenum         ppm         ASTM D5185m         0            Manganese         ppm         ASTM D5185m         0            Magnesium         ppm         ASTM D5185m         11             Calcium         ppm         ASTM D5185m         35         38             Calcium         ppm         ASTM D5185m         259         287             Zinc         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         102             Sodium         ppm         ASTM D5185m         2             Vater         %         ASTM D5185m         20         <1             Particles >4µm         ASTM D6304         >500         30.3	Cadmium	ppm	ASTM D5185m		<1		
Barium         ppm         ASTM D5185m         0            Manganese         ppm         ASTM D5185m         0            Magnesium         ppm         ASTM D5185m         11         <1            Calcium         ppm         ASTM D5185m         11         <1            Calcium         ppm         ASTM D5185m         35         38            Calcium         ppm         ASTM D5185m         259         287            Zinc         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         1865         807             Sodium         ppm         ASTM D5185m         15         102             Sodium         ppm         ASTM D5185m         20         <1             Yeater         %         ASTM D5185m         >20         <1             Water         %         ASTM D504         >0.05         0.003             Particles >4µm         ASTM D7647	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum         ppm         ASTM D5185m         0             Manganese         ppm         ASTM D5185m         1             Magnesium         ppm         ASTM D5185m         11         <1             Calcium         ppm         ASTM D5185m         35         38             Calcium         ppm         ASTM D5185m         259         287             Zinc         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         1865         807             Sodium         ppm         ASTM D5185m         20         <1             Yeater         %         ASTM D6304         >0.05         0.003             ppm Water         pm         ASTM D647         >5000         1099	Boron	ppm	ASTM D5185m		0		
Marganese       ppm       ASTM D5185m       <1	Barium	ppm	ASTM D5185m		0		
Manganese         ppm         ASTM D5185m         <1	Molybdenum	ppm	ASTM D5185m		0		
Calcium         ppm         ASTM D5185m         35         38             Phosphorus         ppm         ASTM D5185m         259         287             Zinc         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         1865         807             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         102             Sodium         ppm         ASTM D5185m         >20         <1             Potassium         ppm         ASTM D5185m         >20         <1             Water         %         ASTM D6304         >0.05         0.003             Particles >4µm         ASTM D7647         >5000         1099             Particles >4µm         ASTM D7647         >1300         245             Particles >4µm         ASTM D7647         >160 <t< th=""><td>Manganese</td><td>ppm</td><td>ASTM D5185m</td><td></td><th>&lt;1</th><td></td><td></td></t<>	Manganese	ppm	ASTM D5185m		<1		
Phosphorus         ppm         ASTM D5185m         259         287             Zinc         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         1865         807             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         102             Sodium         ppm         ASTM D5185m         >15         2             Potassium         ppm         ASTM D5185m         >20         <1             Water         %         ASTM D504         >0.05         0.003             ppm Water         ppm         ASTM D7647         >5000         1099             Particles >4µm         ASTM D7647         >160         26             Particles >14µm         ASTM D7647         >10         1             Particles >21µm         ASTM D7647         >10         1	Magnesium	ppm	ASTM D5185m	11	<1		
Zinc         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         1865         807             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         102             Sodium         ppm         ASTM D5185m         >20         <1             Potassium         ppm         ASTM D5185m         >20         <1             Water         %         ASTM D6304         >0.05         0.003             ppm Water         ppm         ASTM D7647         >500         30.3             Particles >4µm         ASTM D7647         >1300         245             Particles >6µm         ASTM D7647         >160         26             Particles >1µm         ASTM D7647         >10         1             Particles >38µm         ASTM D7647         3         1	Calcium	ppm	ASTM D5185m	35	38		
Zinc         ppm         ASTM D5185m         277         348             Sulfur         ppm         ASTM D5185m         1865         807             CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         102             Sodium         ppm         ASTM D5185m         >15         102             Potassium         ppm         ASTM D5185m         >20         <1             Water         %         ASTM D6304         >0.05         0.003             ppm Water         ppm         ASTM D6304         >500         30.3             Particles >4µm         ASTM D7647         >5000         1099             Particles >6µm         ASTM D7647         >1300         245             Particles >14µm         ASTM D7647         >160         26             Particles >21µm         ASTM D7647         >10         1 </th <td>Phosphorus</td> <td>ppm</td> <td>ASTM D5185m</td> <td>259</td> <th>287</th> <td></td> <td></td>	Phosphorus	ppm	ASTM D5185m	259	287		
CONTAMINANTS         method         limit/base         current         history1         history2           Silicon         ppm         ASTM D5185m         >15         102             Sodium         ppm         ASTM D5185m         >15         102             Potassium         ppm         ASTM D5185m         >20         <1             Water         %         ASTM D6304         >0.05         0.003             ppm Water         ppm         ASTM D6304         >500         30.3             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         1099             Particles >6µm         ASTM D7647         >1300         245             Particles >14µm         ASTM D7647         >160         26             Particles >21µm         ASTM D7647         >10         1             Particles >71µm         ASTM D7647         >3         1 <td< th=""><td></td><td></td><td>ASTM D5185m</td><td>277</td><th>348</th><td></td><td></td></td<>			ASTM D5185m	277	348		
Silicon       ppm       ASTM D5185m       >15<       102           Sodium       ppm       ASTM D5185m       20       <1           Potassium       ppm       ASTM D5185m       >20       <1           Water       %       ASTM D6304       >0.05       0.003           ppm Water       ppm       ASTM D6304       >500       30.3           FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       >5000       1099           Particles >6µm       ASTM D7647       >1300       245           Particles >14µm       ASTM D7647       >160       26           Particles >21µm       ASTM D7647       >40       7           Particles >38µm       ASTM D7647       >3       1           Particles >71µm       ASTM D7647       >3       1           Oil Cleanliness       ISO 4406 (c)       >19/17/14       17/15/12 <td>Sulfur</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1865</td> <th>807</th> <td></td> <td></td>	Sulfur	ppm	ASTM D5185m	1865	807		
Sodium         ppm         ASTM D5185m         2             Potassium         ppm         ASTM D5185m         >20         <1             Water         %         ASTM D6304         >0.05         0.003             ppm Water         ppm         ASTM D6304         >500         30.3             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         1099             Particles >6µm         ASTM D7647         >1300         245             Particles >14µm         ASTM D7647         >160         26             Particles >21µm         ASTM D7647         >10         1             Particles >38µm         ASTM D7647         >3         1             Particles >71µm         ASTM D7647         >3         1             Oil Cleanliness         ISO 4406 (c)         >19/17/14         17/15/12 <t< th=""><th>CONTAMINANTS</th><th></th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></t<>	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium         ppm         ASTM D5185m         >20         <1	Silicon	ppm	ASTM D5185m	>15	<b>1</b> 02		
Water         %         ASTM D6304         >0.05         0.003             ppm Water         ppm         ASTM D6304         >500         30.3             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         1099             Particles >6µm         ASTM D7647         >1300         245             Particles >14µm         ASTM D7647         >160         26             Particles >21µm         ASTM D7647         >10         1             Particles >38µm         ASTM D7647         >10         1             Particles >71µm         ASTM D7647         >3         1             Oil Cleanliness         ISO 4406 (c)         >19/17/14         17/15/12             FLUID DEGRADATION         method         limit/base         current         history1         history2	Sodium	ppm	ASTM D5185m		2		
ppm Water         ppm         ASTM D6304         >500         30.3             FLUID CLEANLINESS         method         limit/base         current         history1         history2           Particles >4µm         ASTM D7647         >5000         1099             Particles >6µm         ASTM D7647         >1300         245             Particles >14µm         ASTM D7647         >160         26             Particles >21µm         ASTM D7647         >40         7             Particles >38µm         ASTM D7647         >10         1             Particles >38µm         ASTM D7647         >3         1             Particles >71µm         ASTM D7647         >3         1             Oil Cleanliness         ISO 4406 (c)         >19/17/14         17/15/12             FLUID DEGRADATION         method         limit/base         current         history1         history2	Potassium	ppm	ASTM D5185m	>20	<1		
FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       >5000       1099           Particles >6µm       ASTM D7647       >1300       245           Particles >6µm       ASTM D7647       >160       26           Particles >14µm       ASTM D7647       >160       26           Particles >21µm       ASTM D7647       >40       7           Particles >38µm       ASTM D7647       >10       1           Particles >71µm       ASTM D7647       >3       1           Oil Cleanliness       ISO 4406 (c)       >19/17/14       17/15/12           FLUID DEGRADATION       method       limit/base       current       history1       history2	Water	%	ASTM D6304	>0.05	0.003		
Particles >4μm       ASTM D7647       >5000       1099           Particles >6μm       ASTM D7647       >1300       245           Particles >14μm       ASTM D7647       >160       26           Particles >21μm       ASTM D7647       >40       7           Particles >21μm       ASTM D7647       >40       7           Particles >38μm       ASTM D7647       >10       1           Particles >71μm       ASTM D7647       >3       1           Oil Cleanliness       ISO 4406 (c)       >19/17/14       17/15/12           FLUID DEGRADATION       method       limit/base       current       history1       history2	ppm Water	ppm	ASTM D6304	>500	30.3		
Particles >6μm         ASTM D7647         >1300         245             Particles >14μm         ASTM D7647         >160         26             Particles >21μm         ASTM D7647         >40         7             Particles >21μm         ASTM D7647         >40         7             Particles >38μm         ASTM D7647         >10         1             Particles >38μm         ASTM D7647         >3         1             Particles >71μm         ASTM D7647         >3         1             Oil Cleanliness         ISO 4406 (c)         >19/17/14         17/15/12             FLUID DEGRADATION         method         limit/base         current         history1         history2	FLUID CLEANLIN	ESS	method	limit/base	current	history1	history2
Particles >14μm       ASTM D7647       >160       26           Particles >21μm       ASTM D7647       >40       7           Particles >38μm       ASTM D7647       >10       1           Particles >38μm       ASTM D7647       >10       1           Particles >71μm       ASTM D7647       >3       1           Oil Cleanliness       ISO 4406 (c)       >19/17/14       17/15/12           FLUID DEGRADATION       method       limit/base       current       history1       history2	Particles >4µm		ASTM D7647	>5000	1099		
Particles >21μm         ASTM D7647         >40         7             Particles >38μm         ASTM D7647         >10         1             Particles >371μm         ASTM D7647         >3         1             Oil Cleanliness         ISO 4406 (c)         >19/17/14         17/15/12             FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >6µm		ASTM D7647	>1300	245		
Particles >38μm         ASTM D7647         >10         1             Particles >71μm         ASTM D7647         >3         1             Oil Cleanliness         ISO 4406 (c)         >19/17/14         17/15/12             FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >14µm		ASTM D7647	>160	26		
Particles >71μm         ASTM D7647         >3         1             Oil Cleanliness         ISO 4406 (c)         >19/17/14         17/15/12             FLUID DEGRADATION         method         limit/base         current         history1         history2	Particles >21µm		ASTM D7647	>40	7		
Oil Cleanliness       ISO 4406 (c) >19/17/14       17/15/12           FLUID DEGRADATION       method       limit/base       current       history1       history2	Particles >38µm		ASTM D7647	>10	1		
FLUID DEGRADATION method limit/base current history1 history2	Particles >71µm		ASTM D7647	>3	1		
	Oil Cleanliness		ISO 4406 (c)	>19/17/14	17/15/12		
Acid Number (AN) mg KOH/g ASTM D8045 0.32 0.46	FLUID DEGRADA		method	limit/base	current	history1	history2
	Acid Number (AN)	mg KOH/g	ASTM D8045	0.32	0.46		

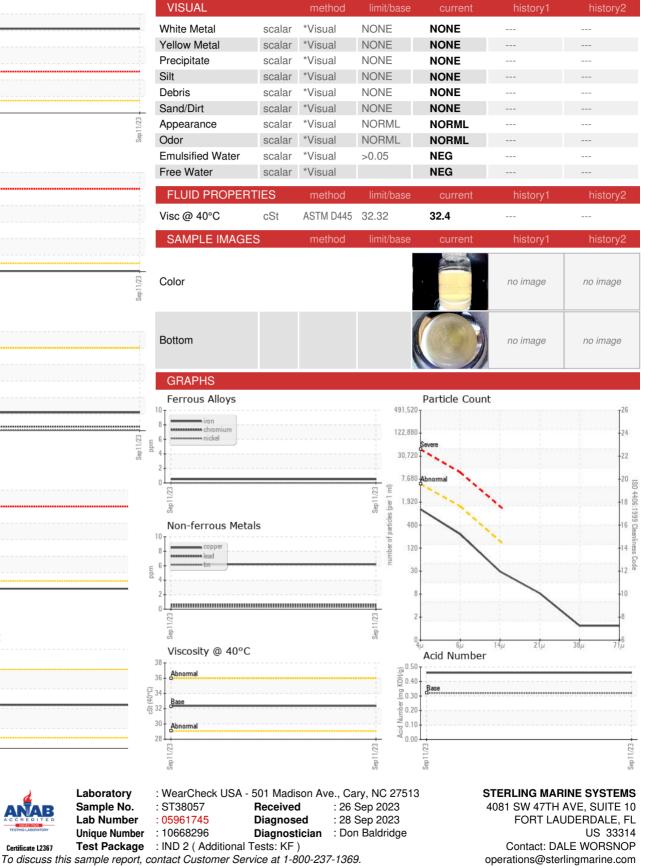


## **OIL ANALYSIS REPORT**









\* - 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)

Certificate L2367

Unique Number

T:

F: