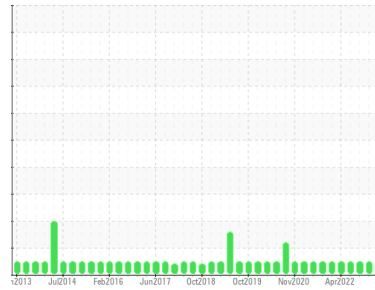




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
HOWDEN TYSWAL HS-2 (S/N MKIA/WRV163/18026/533)

Component
Refrigeration Compressor
Fluid
USPI ALT-68 SC (85 GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil. 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 suitable for further service.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		USP0000379	USP243504	USP233761
Sample Date	Client Info		26 Aug 2023	13 May 2023	25 Oct 2022
Machine Age	hrs	Client Info	118137	116532	116197
Oil Age	hrs	Client Info	0	0	0
Oil Changed	Client Info		N/A	N/A	N/A
Sample Status			NORMAL	NORMAL	NORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >8	0	0	0
Chromium	ppm	ASTM D5185m >2	0	0	0
Nickel	ppm	ASTM D5185m	0	<1	0
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m >2	0	0	0
Aluminum	ppm	ASTM D5185m >3	0	<1	0
Lead	ppm	ASTM D5185m >2	0	0	0
Copper	ppm	ASTM D5185m >8	0	0	0
Tin	ppm	ASTM D5185m >4	0	<1	0
Vanadium	ppm	ASTM D5185m	0	0	0
Cadmium	ppm	ASTM D5185m	0	0	0

ADDITIVES

	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	0
Barium	ppm	ASTM D5185m	0	0	0
Molybdenum	ppm	ASTM D5185m	0	0	0
Manganese	ppm	ASTM D5185m	0	<1	0
Magnesium	ppm	ASTM D5185m	0	0	0
Calcium	ppm	ASTM D5185m	0	0	0
Phosphorus	ppm	ASTM D5185m	1	1	0
Zinc	ppm	ASTM D5185m	0	0	0
Sulfur	ppm	ASTM D5185m 50	136	172	206

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >15	2	1	1
Sodium	ppm	ASTM D5185m	0	<1	0
Potassium	ppm	ASTM D5185m >20	<1	<1	0
Water	%	ASTM D6304 >0.01	0.003	0.004	0.008
ppm Water	ppm	ASTM D6304 >100	39.2	44.6	86.1

FLUID CLEANLINESS

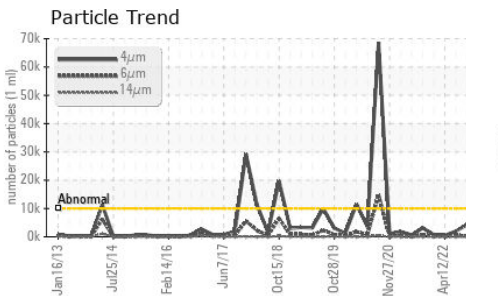
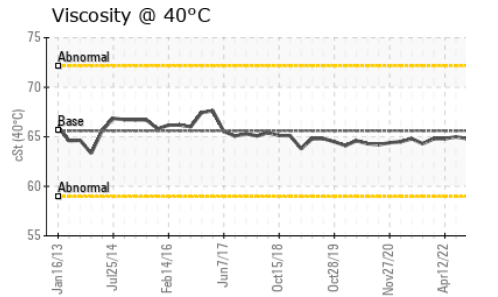
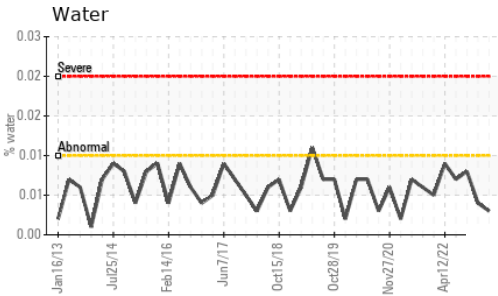
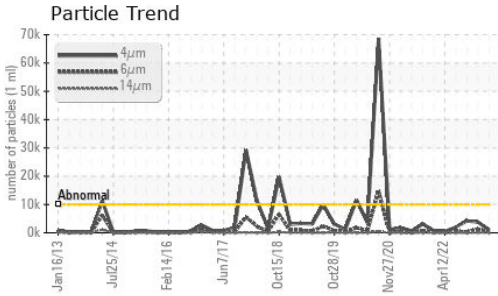
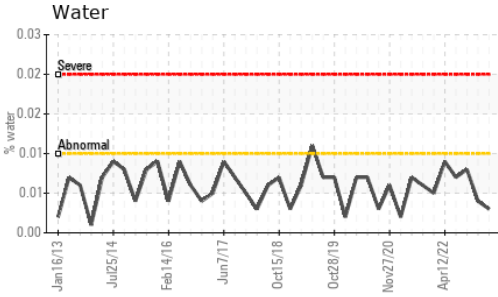
	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>10000	1062	3763	4235
Particles >6µm	ASTM D7647	>2500	236	1279	274
Particles >14µm	ASTM D7647	>320	30	104	10
Particles >21µm	ASTM D7647	>80	12	23	3
Particles >38µm	ASTM D7647	>20	1	1	0
Particles >71µm	ASTM D7647	>4	0	0	0
Oil Cleanliness	ISO 4406 (c)	>20/18/15	17/15/12	19/17/14	19/15/10

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974 0.005	0.015	0.013	0.014



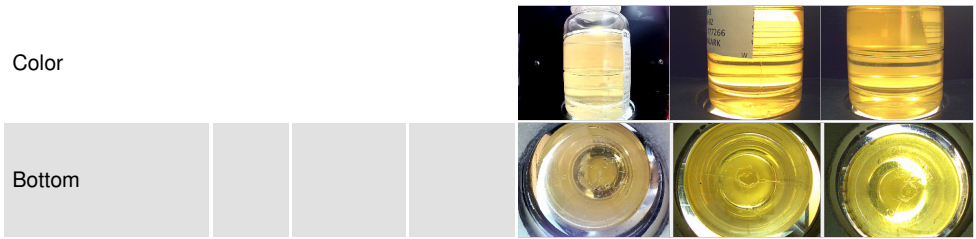
OIL ANALYSIS REPORT



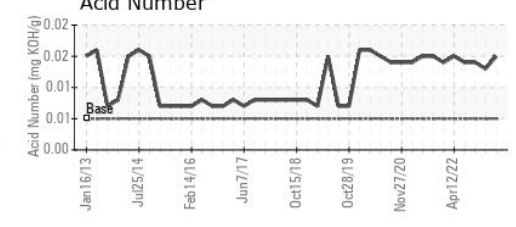
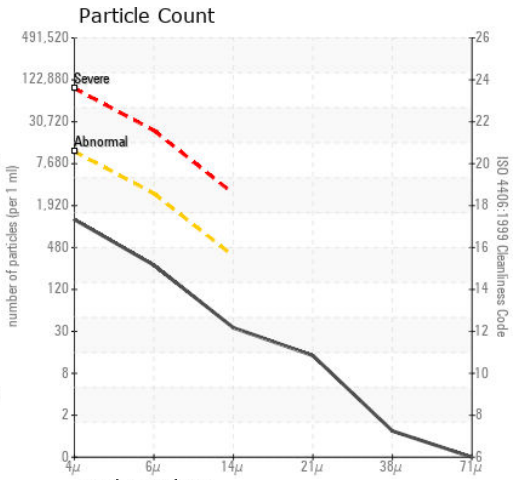
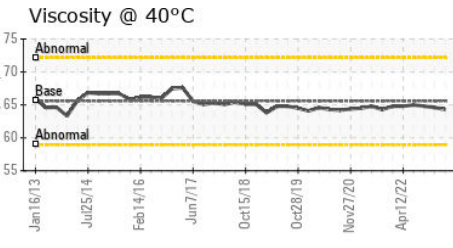
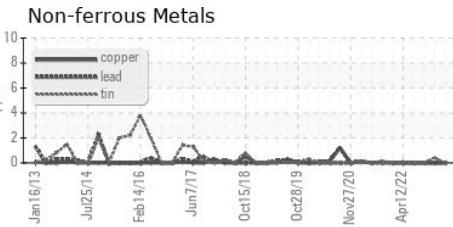
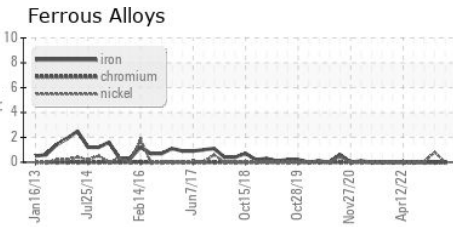
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.01	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	65.6	64.3	64.6

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : USP0000379 **Received** : 30 Aug 2023
Lab Number : 05938959 **Diagnosed** : 31 Aug 2023
Unique Number : 10629571 **Diagnostician** : Doug Bogart
Test Package : IND 2

TYSON - WALDRON- USP
 WALDRON, AR
 US
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 T: (479)637-2121
 F: (479)637-5602

Certificate L2367
 To discuss this sample report, contact Customer Service at 1-800-237-1369.
 * - 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)