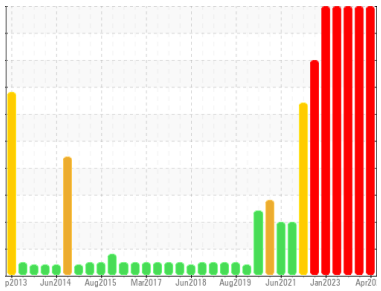
PROBLEM SUMMARY

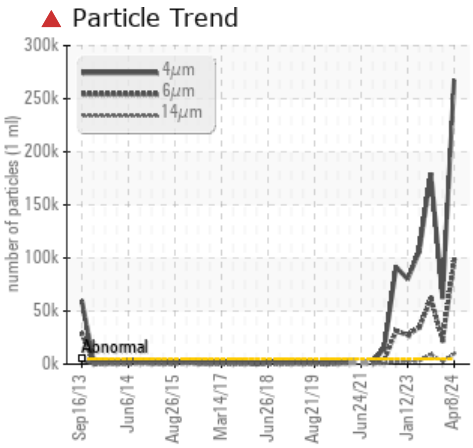
Sample Rating Trend

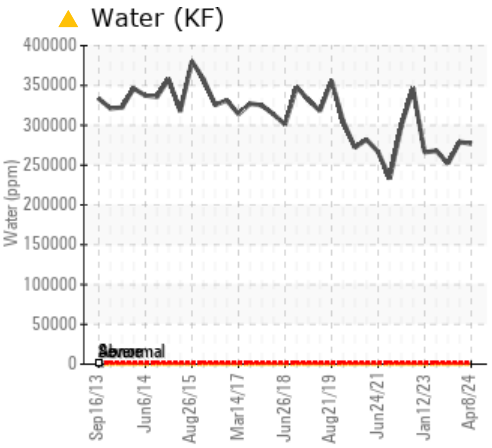


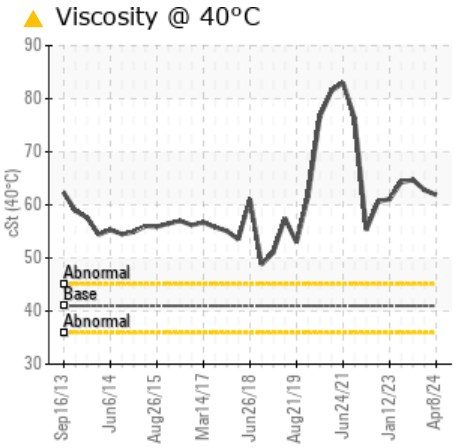
ISO

Area
[8068460]
Machine Id
MONORAIL SYSTEM PH83500 MONO RAIL MOLD CARRIER
Component
Hydraulic System
Fluid
CITGO CITGO GLYCOL FR-40 XD (65 GAL)

COMPONENT CONDITION SUMMARY







RECOMMENDATION

We advise that you check all areas where contaminants can enter the system. We advise that you add water to increase the water concentration level to 40%. Ensure that only distilled water or boiler feed water condensate are used for make-up. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	SEVERE
Water	%	ASTM D6304*	>50	▲ **27.7**	▲ 27.9	▲ 25.2
ppm Water	ppm	ASTM D6304*		▲ **277000**	▲ 279000	▲ 252000
Particles >4µm		ASTM D7647	>5000	▲ **267548**	▲ 62339	▲ 179506
Particles >6µm		ASTM D7647	>1300	▲ **97410**	▲ 22863	▲ 61939
Particles >14µm		ASTM D7647	>160	▲ **9794**	▲ 2656	▲ 9229
Particles >21µm		ASTM D7647	>40	▲ **2511**	▲ 696	▲ 3119
Particles >38µm		ASTM D7647	>10	▲ **181**	▲ 38	▲ 269
Particles >71µm		ASTM D7647	>3	▲ **16**	2	▲ 32
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **25/24/20**	▲ 23/22/19	▲ 25/23/20
Visc @ 40°C	cSt	ASTM D7279(m)	41	▲ **61.9**	▲ 62.8	▲ 64.7

Customer Id: ESCPOR
Sample No.: WC0885271
Lab Number: 02645666
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
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Kevin.Marson@wearcheck.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Service/change Fluid	---	---	?	We advise that you add water to increase the water concentration level to 40%. Ensure that only distilled water or boiler feed water condensate are used for make-up.
Change Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	Resample in 30-45 days to monitor this situation.
Check Breathers	---	---	?	The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather.
Check Dirt Access	---	---	?	We advise that you check all areas where contaminants can enter the system.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

ISO

15 Dec 2023 Diag: Kevin Marson

We advise that you check all areas where contaminants can enter the system. We advise that you add water to increase the water concentration level to 40%. Ensure that only distilled water or boiler feed water condensate are used for make-up. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. The water concentration level is lower than acceptable for this fluid. Viscosity of sample indicates oil is within ISO 68 range, advise investigate. The AN level is acceptable for this fluid. The pH level of this fluid is within the acceptable limits. The reserve alkalinity of this fluid is acceptable. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

ISO

21 Aug 2023 Diag: Kevin Marson

We advise that you check all areas where contaminants can enter the system. We advise that you add water to increase the water concentration level to 40%. Ensure that only distilled water or boiler feed water condensate are used for make-up. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. The water concentration level is lower than acceptable for this fluid. The pH is low indicating a high acidity of the fluid. Viscosity of sample indicates oil is within ISO 68 range, advise investigate. The AN level is acceptable for this fluid. The reserve alkalinity of this fluid is acceptable.

view report

ISO

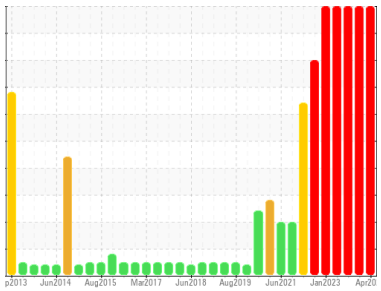
01 May 2023 Diag: Kevin Marson

We advise that you check all areas where contaminants can enter the system. We advise that you add water to increase the water concentration level to 40%. Ensure that only distilled water or boiler feed water condensate are used for make-up. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the oil. The water concentration level is lower than acceptable for this fluid. Viscosity of sample indicates oil is within ISO 68 range, advise investigate. The AN level is acceptable for this fluid. The pH level of this fluid is within the acceptable limits. The reserve alkalinity of this fluid is acceptable. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Area
[8068460]
Machine Id
MONORAIL SYSTEM PH83500 MONO RAIL MOLD CARRIER
Component
Hydraulic System
Fluid
CITGO CITGO GLYCOL FR-40 XD (65 GAL)

DIAGNOSIS

Recommendation
We advise that you check all areas where contaminants can enter the system. We advise that you add water to increase the water concentration level to 40%. Ensure that only distilled water or boiler feed water condensate are used for make-up. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation.

Wear
All component wear rates are normal.

Contamination
There is a high amount of particulates (2 to 100 microns in size) present in the oil.

Fluid Condition
The water concentration level is lower than acceptable for this fluid. Viscosity of sample indicates oil is within ISO 68 range, advise investigate. The AN level is acceptable for this fluid. The pH level of this fluid is within the acceptable limits. The reserve alkalinity of this fluid is acceptable. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**WC0885271**	WC0741314	WC0741320
Sample Date		Client Info		**08 Apr 2024**	15 Dec 2023	21 Aug 2023
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
Sample Status				**SEVERE**	SEVERE	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	**3**	0	0
Chromium	ppm	ASTM D5185(m)	>20	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>20	**0**	0	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**<1**	<1	<1
Aluminum	ppm	ASTM D5185(m)	>20	**0**	0	0
Lead	ppm	ASTM D5185(m)	>20	**0**	0	0
Copper	ppm	ASTM D5185(m)	>20	**4**	0	0
Tin	ppm	ASTM D5185(m)	>20	**0**	0	0
Antimony	ppm	ASTM D5185(m)		**0**	0	<1
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

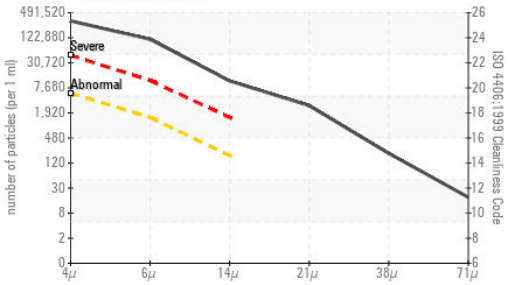
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**3**	4	0
Barium	ppm	ASTM D5185(m)		**0**	<1	<1
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**0**	0	0
Magnesium	ppm	ASTM D5185(m)		**1**	<1	<1
Calcium	ppm	ASTM D5185(m)		**17**	<1	<1
Phosphorus	ppm	ASTM D5185(m)		**2**	<1	<1
Zinc	ppm	ASTM D5185(m)		**15**	11	13
Sulfur	ppm	ASTM D5185(m)		**4**	52	56
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>15	**<1**	<1	<1
Sodium	ppm	ASTM D5185(m)		**11**	10	13
Potassium	ppm	ASTM D5185(m)	>20	**45**	38	36
Water	%	ASTM D6304*	>50	▲ **27.7**	▲ 27.9	▲ 25.2
ppm Water	ppm	ASTM D6304*		▲ **277000**	▲ 279000	▲ 252000

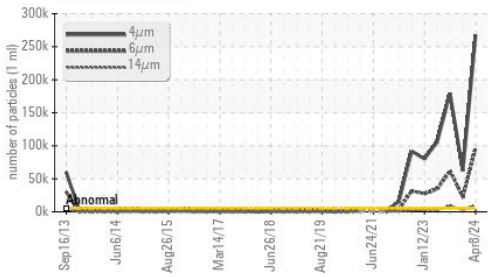
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **267548**	▲ 62339	▲ 179506
Particles >6µm		ASTM D7647	>1300	▲ **97410**	▲ 22863	▲ 61939
Particles >14µm		ASTM D7647	>160	▲ **9794**	▲ 2656	▲ 9229
Particles >21µm		ASTM D7647	>40	▲ **2511**	▲ 696	▲ 3119
Particles >38µm		ASTM D7647	>10	▲ **181**	▲ 38	▲ 269
Particles >71µm		ASTM D7647	>3	▲ **16**	2	▲ 32
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **25/24/20**	▲ 23/22/19	▲ 25/23/20

OIL ANALYSIS REPORT

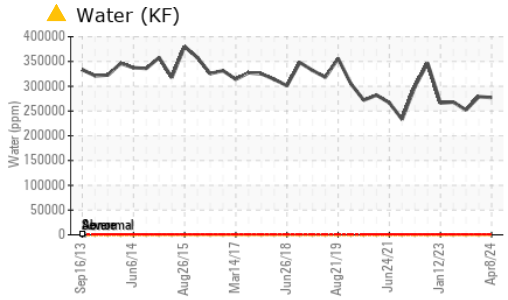
Particle Count



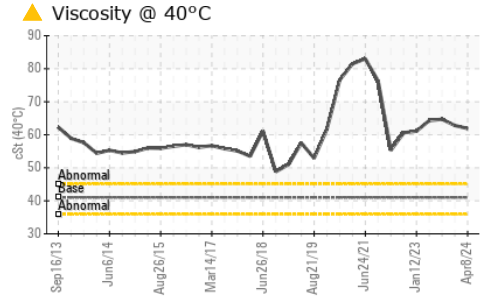
Particle Trend



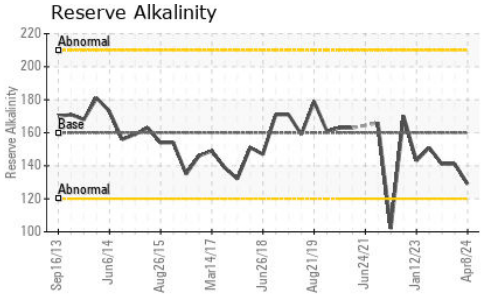
Water (KF)



Viscosity @ 40°C



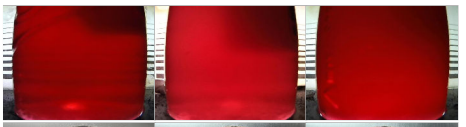
Reserve Alkalinity



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**7.46**	6.74	7.04
Alkiline Reserve (Oils)	ml KOH/g	ASTM D1121*	160	**129**	141	141

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**VLITE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**NONE**	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	**LIGHT**	NONE	LIGHT
Appearance	scalar	Visual*	NORML	**FRGLY**	FRGLY	NORML
Odor	scalar	Visual*	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	Visual*	>50	**>10%**	>10%	>10%
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
pH	Scale 0-14	ASTM D1287*		**8.56**	8.55	▲ 8.35
Visc @ 40°C	cSt	ASTM D7279(m)	41	▲ **61.9**	▲ 62.8	▲ 64.7

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					
PrtFilter			*no image*	*no image*	*no image*

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : WC0885271
Lab Number : 02645666
Unique Number : 5803205
Test Package : IND 2 (Additional Tests: Bottom, FilterPatch, KF, pH, ReserveAlk, TAN Man)

Received : 04 Jul 2024
Tested : 10 Jul 2024
Diagnosed : 11 Jul 2024 - Kevin Marson

To discuss this sample report, contact Customer Service at 1-800-268-2131.
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.

Weir ESCO
P.O.BOX 270, 185 HOPE STREET SOUTH
PORT HOPE, ON
CA L1A 3W4
Contact: Paul Dundas
paul.dundas@mail.weir
T: (647)725-8153
F: (905)885-7600

Report Id: ESCPOR [WCAMIS] 02645666 (Generated: 07/11/2024 08:17:14) Rev: 1

Contact/Location: Paul Dundas - ESCPOR