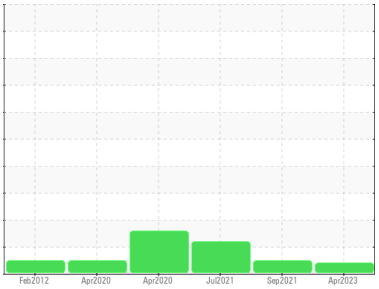
DIAMOND WTG ENGINEERING & SERVICES, INC.
a group company of MITSUBISHI HEAVY INDUSTRIES, LTD.

PROBLEM SUMMARY

Sample Rating Trend



VIS DEBRIS

Machine Id
F-06
Component
Hydraulic System
Fluid
MOBIL DTE 10 EXCEL 32 (45 GAL)

COMPONENT CONDITION SUMMARY

No relevant graphs to display

RECOMMENDATION

Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s). We were unable to perform a particle count due to a high concentration of particles present in this sample.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	NORMAL	ABNORMAL
Debris	scalar	*Visual	NONE	▲ **MODER**	NONE	NONE

Customer Id: MITWHI
Sample No.: MHI021630
Lab Number: 06016392
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Jonathan Hester +1 919-379-4092 x4092
jhester@wearcheckusa.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	---	---	?	Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s).
Resample	---	---	?	Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s).
Alert	---	---	?	We were unable to perform a particle count due to a high concentration of particles present in this sample.

HISTORICAL DIAGNOSIS

03 Sep 2021 Diag: Jonathan Hester

NORMAL

Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

21 Jul 2021 Diag: Jonathan Hester

ISO

Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s).All component wear rates are normal. There is a moderate amount of particulates present in the oil. The AN level is acceptable for this fluid.

view report

16 Apr 2020 Diag: Doug Bogart

VISUAL METAL

Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s). We advise that you inspect for the source(s) of metal. We were unable to perform a particle count due to a high concentration of particles present in this sample.Moderate concentration of visible metal present. All component wear rates are normal. Light concentration of visible dirt/debris present in the oil. The AN level is acceptable for this fluid.

view report

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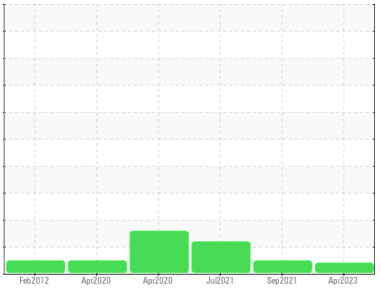
OIL ANALYSIS REPORT

Sample Rating Trend



VIS DEBRIS

Machine Id
F-06
Component
Hydraulic System
Fluid
MOBIL DTE 10 EXCEL 32 (45 GAL)

DIAGNOSIS

Recommendation
Re-sample to verify the actual oil condition. Replace filter elements. Change oil if cleanliness level does not improve after replacing the filter(s). We were unable to perform a particle count due to a high concentration of particles present in this sample.

Wear
All component wear rates are normal.

Contamination
Moderate concentration of visible dirt/debris present in the oil.

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		**MHI021630**	MHI017361	MHI019382
Sample Date		Client Info		**20 Apr 2023**	03 Sep 2021	21 Jul 2021
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				**ABNORMAL**	NORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	**2**	1	1
Chromium	ppm	ASTM D5185m	>20	**<1**	0	0
Nickel	ppm	ASTM D5185m	>20	**<1**	<1	0
Titanium	ppm	ASTM D5185m		**<1**	0	0
Silver	ppm	ASTM D5185m		**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**2**	0	0
Lead	ppm	ASTM D5185m	>20	**0**	<1	<1
Copper	ppm	ASTM D5185m	>20	**<1**	0	0
Tin	ppm	ASTM D5185m	>20	**0**	0	0
Antimony	ppm	ASTM D5185m		**---**	<1	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**<1**	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		**<1**	0	0
Manganese	ppm	ASTM D5185m		**0**	0	0
Magnesium	ppm	ASTM D5185m		**<1**	0	0
Calcium	ppm	ASTM D5185m	120	**110**	120	129
Phosphorus	ppm	ASTM D5185m	475	**425**	472	516
Zinc	ppm	ASTM D5185m		**<1**	0	0
Sulfur	ppm	ASTM D5185m	1275	**1469**	1156	1227

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+30	**<1**	<1	<1
Sodium	ppm	ASTM D5185m		**0**	<1	<1
Potassium	ppm	ASTM D5185m	>20	**<1**	<1	0
Water	%	ASTM D6304	>0.1	**0.008**	0.003	0.005
ppm Water	ppm	ASTM D6304	>1000	**86**	36.8	56.1

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	**---**	3510	▲ 5105
Particles >6µm		ASTM D7647	>1300	**---**	719	▲ 1510
Particles >14µm		ASTM D7647	>160	**---**	25	▲ 166
Particles >21µm		ASTM D7647	>40	**---**	7	39
Particles >38µm		ASTM D7647	>10	**---**	0	1
Particles >71µm		ASTM D7647	>3	**---**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	**---**	19/17/12	▲ 20/18/15

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.093**	0.121	0.102

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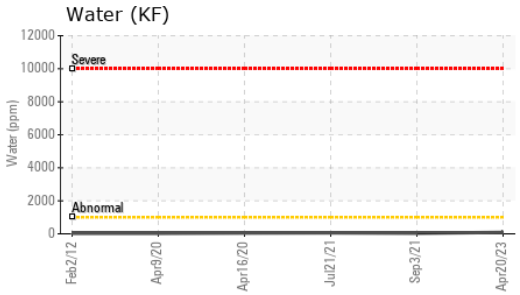
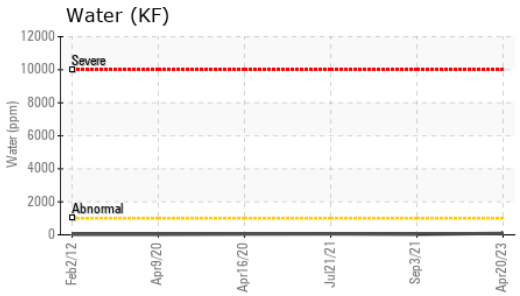
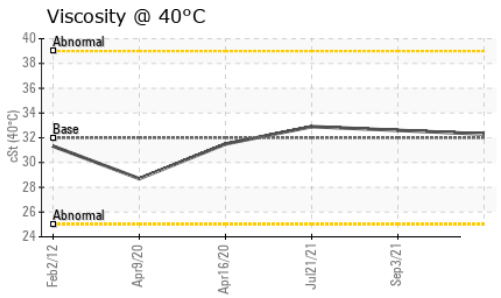
OIL ANALYSIS REPORT

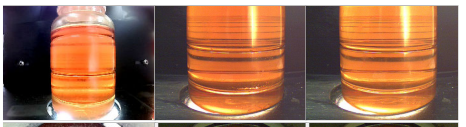




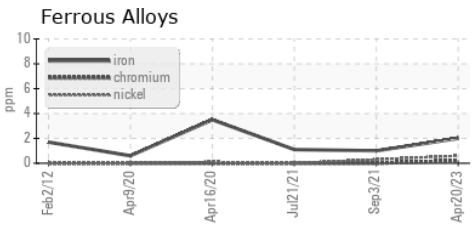


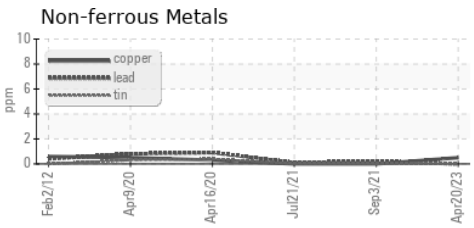
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	LIGHT	LIGHT
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	▲ **MODER**	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Appearance	scalar	*Visual	NORML	**NORML**	NORML	NORML
Odor	scalar	*Visual	NORML	**NORML**	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	**NEG**	NEG	NEG
Free Water	scalar	*Visual		**NEG**	NEG	NEG

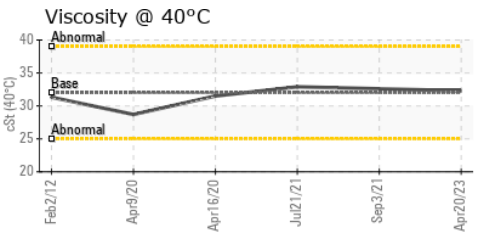
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	32	**32.3**	32.6	32.9

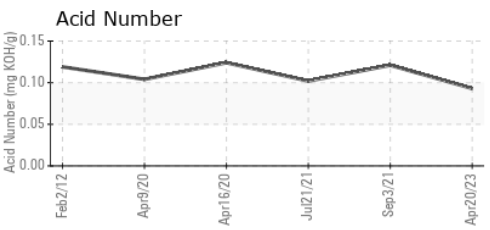
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS









Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MHI021630 **Received** : 24 Nov 2023
Lab Number : 06016392 **Diagnosed** : 28 Nov 2023
Unique Number : 10755536 **Diagnostician** : Jonathan Hester
Test Package : IND 2 (Additional Tests: KF)

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)

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