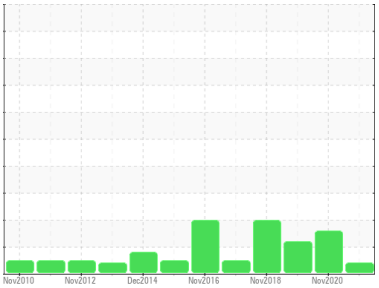
DIAMOND WTG ENGINEERING & SERVICES, INC.
a group company of MITSUBISHI HEAVY INDUSTRIES, LTD.

PROBLEM SUMMARY

Sample Rating Trend

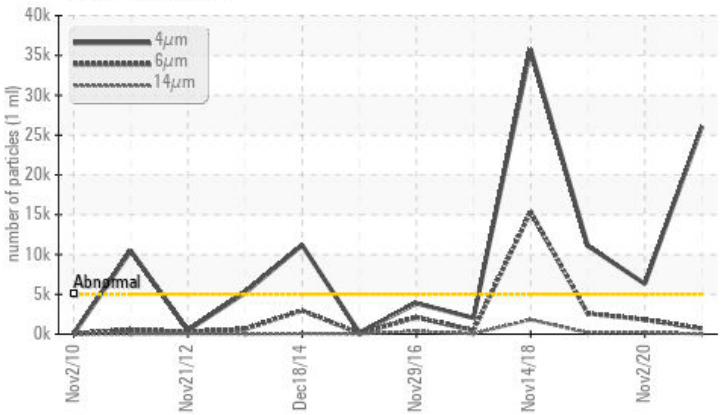


ISO

Machine Id
B-16 (S/N 7459)
Component
Hydraulic System
Fluid
MOBIL DTE 10 EXCEL 32 (--- GAL)

COMPONENT CONDITION SUMMARY

Particle Trend



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).

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Particles >4µm		ASTM D7647	>5000	▲ **26078**	▲ 6314	▲ 11090
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **22/17/12**	▲ 20/18/15	▲ 21/19/15

Customer Id: MITODO
Sample No.: MHI017281
Lab Number: 05400235
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).

HISTORICAL DIAGNOSIS

02 Nov 2020 Diag: Don Baldridge

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 high amount of particulates present in the oil. The AN level is acceptable for this fluid.

view report

07 Oct 2019 Diag: Don Baldridge

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 high amount of particulates present in the oil. The AN level is acceptable for this fluid.

view report

14 Nov 2018 Diag: Don Baldridge

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 high amount of particulates present in the oil. The AN level is acceptable for this fluid.

view report

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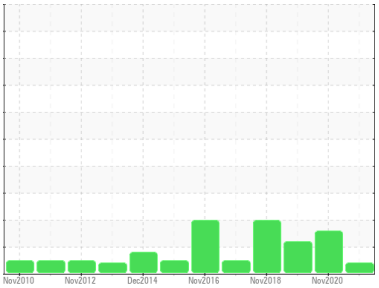
OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
B-16 (S/N 7459)
Component
Hydraulic System
Fluid
MOBIL DTE 10 EXCEL 32 (--- 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).

Wear
All component wear rates are normal.

Contamination
There is a high amount of silt (particulates < 6 microns in size) present in the oil.

Fluid Condition
The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**MHI017281**	MHI025310	MHI009281
Sample Date		Client Info		**08 Nov 2021**	02 Nov 2020	07 Oct 2019
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**90059**	83333	75826
Oil Changed		Client Info		**N/A**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	**26**	25	16
Chromium	ppm	ASTM D5185m		**0**	<1	0
Nickel	ppm	ASTM D5185m		**6**	8	6
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m		**<1**	<1	<1
Aluminum	ppm	ASTM D5185m		**<1**	<1	0
Lead	ppm	ASTM D5185m		**0**	<1	<1
Copper	ppm	ASTM D5185m		**2**	2	3
Tin	ppm	ASTM D5185m		**<1**	<1	0
Antimony	ppm	ASTM D5185m		**0**	0	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		**<1**	0	<1
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**<1**	<1	<1
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**2**	4	1
Calcium	ppm	ASTM D5185m	120	**86**	84	98
Phosphorus	ppm	ASTM D5185m	475	**372**	351	409
Zinc	ppm	ASTM D5185m		**336**	297	316
Sulfur	ppm	ASTM D5185m	1275	**3649**	3381	2206

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>+30	**1**	2	<1
Sodium	ppm	ASTM D5185m		**2**	5	3
Potassium	ppm	ASTM D5185m	>20	**0**	<1	<1
Water	%	ASTM D6304	>0.1	**0.013**	0.016	0.013
ppm Water	ppm	ASTM D6304	>1000	**135.5**	162.3	138.4

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **26078**	▲ 6314	▲ 11090
Particles >6µm		ASTM D7647	>1300	**700**	▲ 1822	▲ 2587
Particles >14µm		ASTM D7647	>160	**38**	▲ 188	▲ 179
Particles >21µm		ASTM D7647	>40	**9**	▲ 56	37
Particles >38µm		ASTM D7647	>10	**0**	1	2
Particles >71µm		ASTM D7647	>3	**0**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **22/17/12**	▲ 20/18/15	▲ 21/19/15

FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		**0.728**	0.711	0.497

OIL ANALYSIS REPORT

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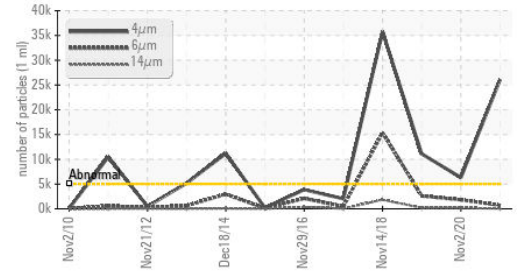
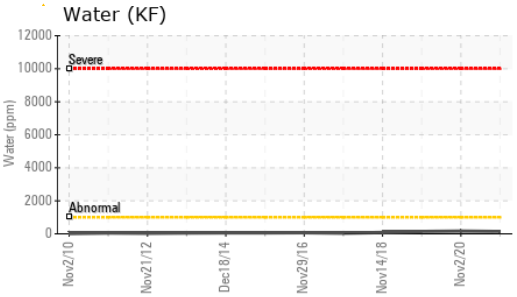
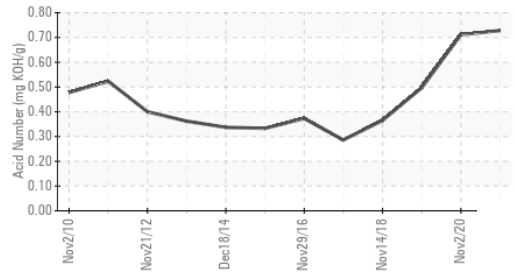
Particle Trend



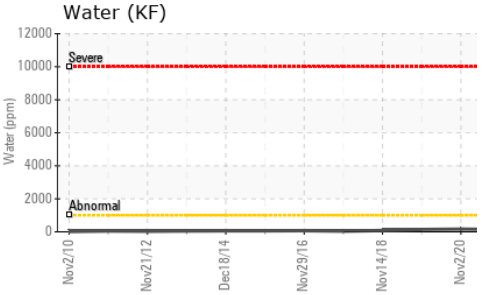
Water (KF)



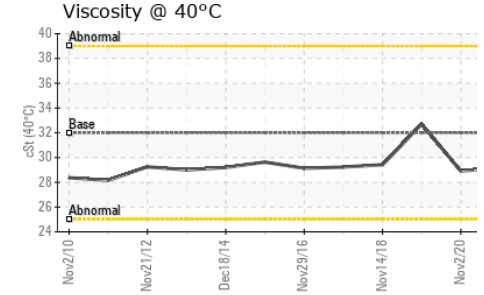
Acid Number



Water (KF)

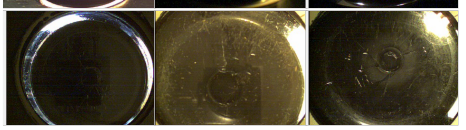


Viscosity @ 40°C



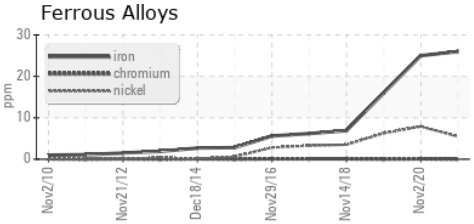
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	LIGHT
Sand/Dirt	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	**29.2**	28.9	32.7

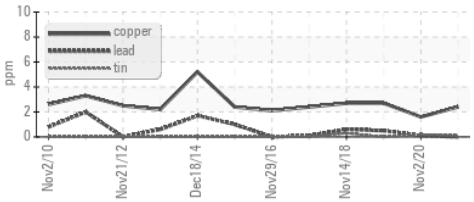
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

GRAPHS

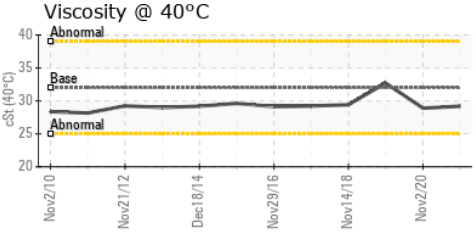
Ferrous Alloys



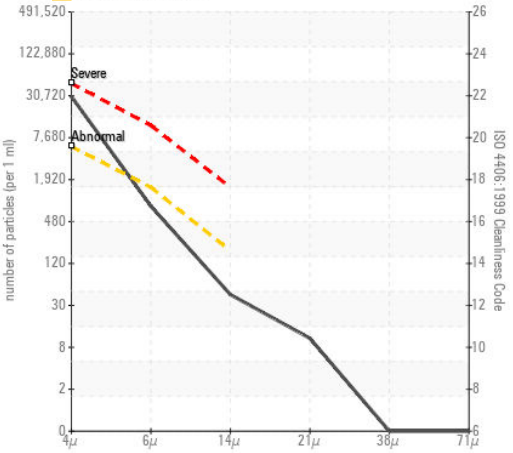
Non-ferrous Metals



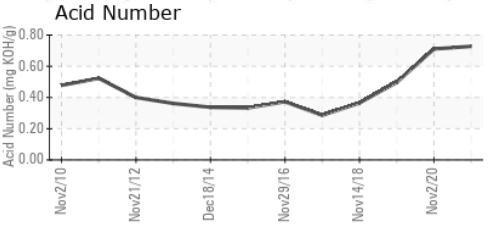
Viscosity @ 40°C



Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MHI017281 **Received** : 15 Nov 2021
Lab Number : 05400235 **Diagnosed** : 16 Nov 2021
Unique Number : 9739385 **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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