



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ATTENTION

Machine Id
HYUNDAI E-1
Component
Diesel Engine
Fluid
FLEETLINE SUPERFLEET XHD 15W40 (14 GAL)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LP0002086	PCA0109958	LP0001200
Sample Date		Client Info		20 Jun 2024	03 May 2024	10 Apr 2024
Machine Age	hrs	Client Info		6295	5957	5932
Oil Age	hrs	Client Info		363	25	300
Filter Age	hrs	Client Info		363	25	300
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ATTENTION	NORMAL	ATTENTION

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	5	4	9
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	<1	<1
Silver	ppm	ASTM D5185m	>3	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	3	2	4
Lead	ppm	ASTM D5185m	>40	0	<1	2
Copper	ppm	ASTM D5185m	>330	6	21	67
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

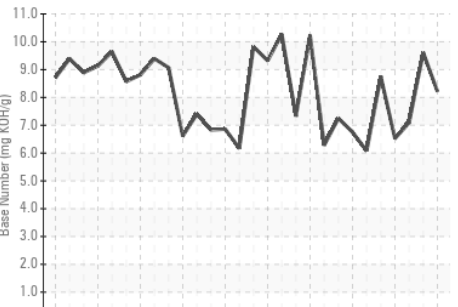
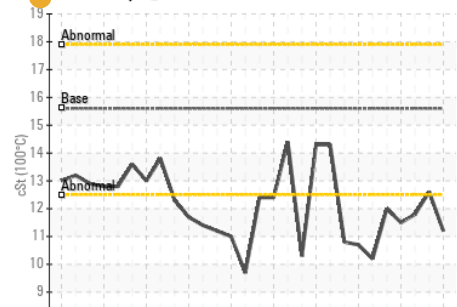
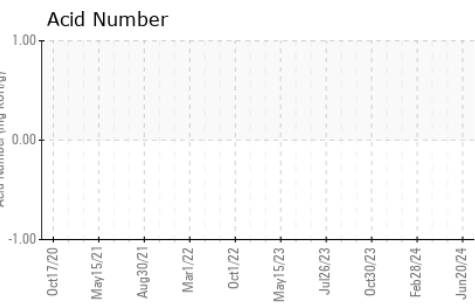
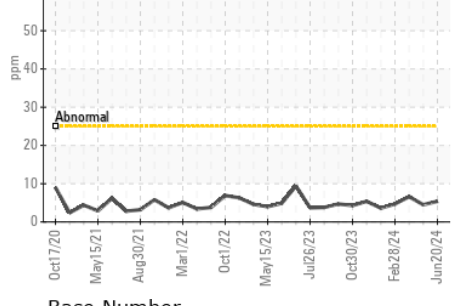
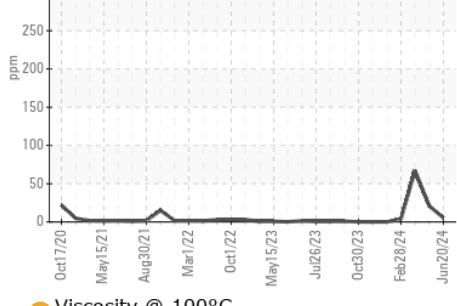
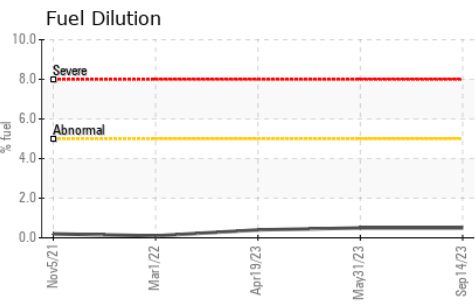
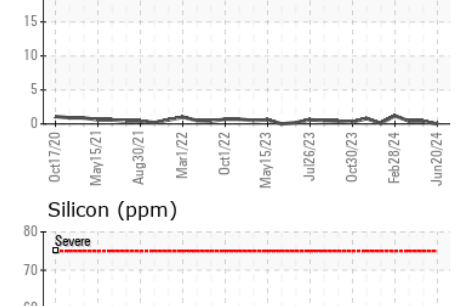
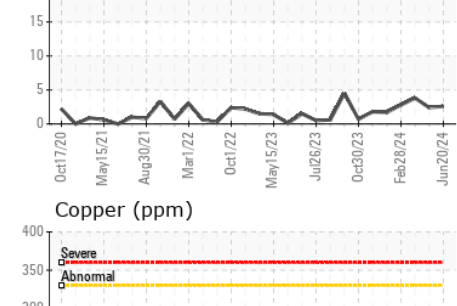
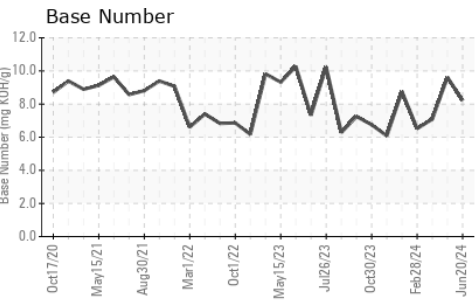
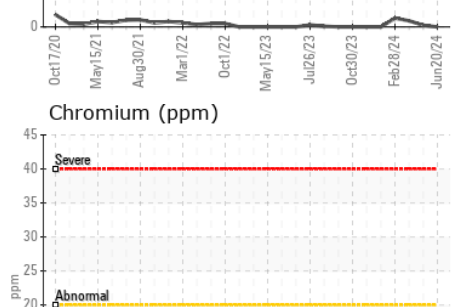
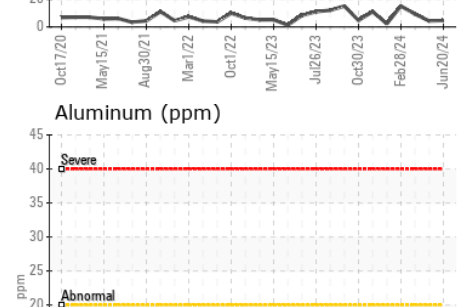
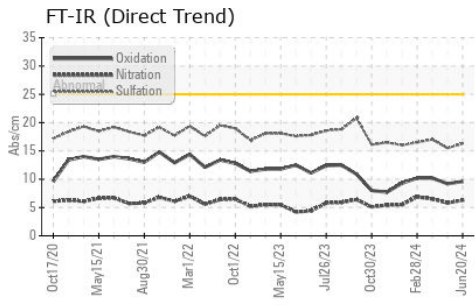
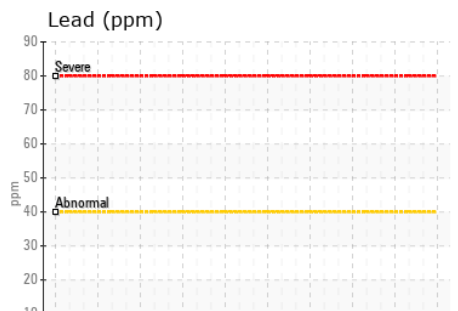
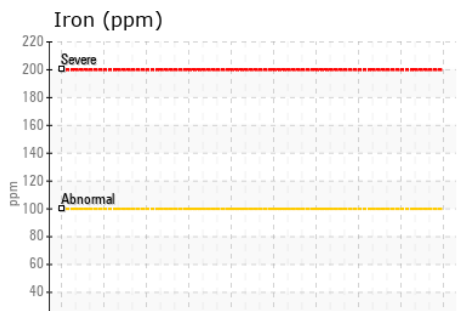
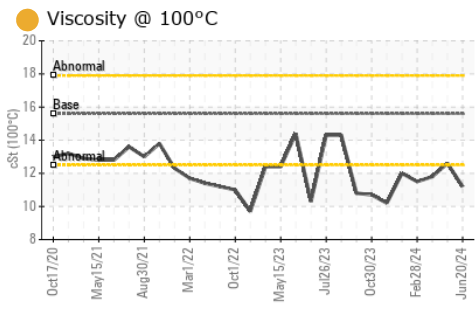
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	5	4	7
Potassium	ppm	ASTM D5185m	>20	<1	2	3
Fuel	%	ASTM D3524	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	6.3	5.8	6.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	16.3	15.5	17.0
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	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	>0.2	NEG	NEG	NEG

FLUID CONDITION

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sodium	ppm	ASTM D5185m		2	1	1
Boron	ppm	ASTM D5185m		8	16	10
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		25	20	21
Manganese	ppm	ASTM D5185m		0	0	<1
Magnesium	ppm	ASTM D5185m		250	120	123
Calcium	ppm	ASTM D5185m		1847	1967	1895
Phosphorus	ppm	ASTM D5185m		907	1003	851
Zinc	ppm	ASTM D5185m		1028	1070	1035
Sulfur	ppm	ASTM D5185m		3496	4120	3621
Oxidation	Abs/.1mm	*ASTM D7414	>25	9.6	9.2	10.2
Base Number (BN)	mg KOH/g	ASTM D2896		8.22	9.61	7.09
Visc @ 100°C	cSt	ASTM D445	15.6	11.2	12.6	11.8



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LP0002086 **Received** : 01 Jul 2024
Lab Number : 06225340 **Tested** : 02 Jul 2024
Unique Number : 11103537 **Diagnosed** : 02 Jul 2024 - Jonathan Hester
Test Package : MOB 2 (Additional Tests: FuelDilution, KV40, TAN Man)

S.M. LORUSSO & SONS
 221 NORFOLK ST.
 WALPOLE, MA
 US 02081
 Contact: PAUL BECKMAN
 pbeckman@smlorusso.com
 T: (508)668-2603
 F: (508)660-0232

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)