

WEAR CONTAMINATION FLUID CONDITION

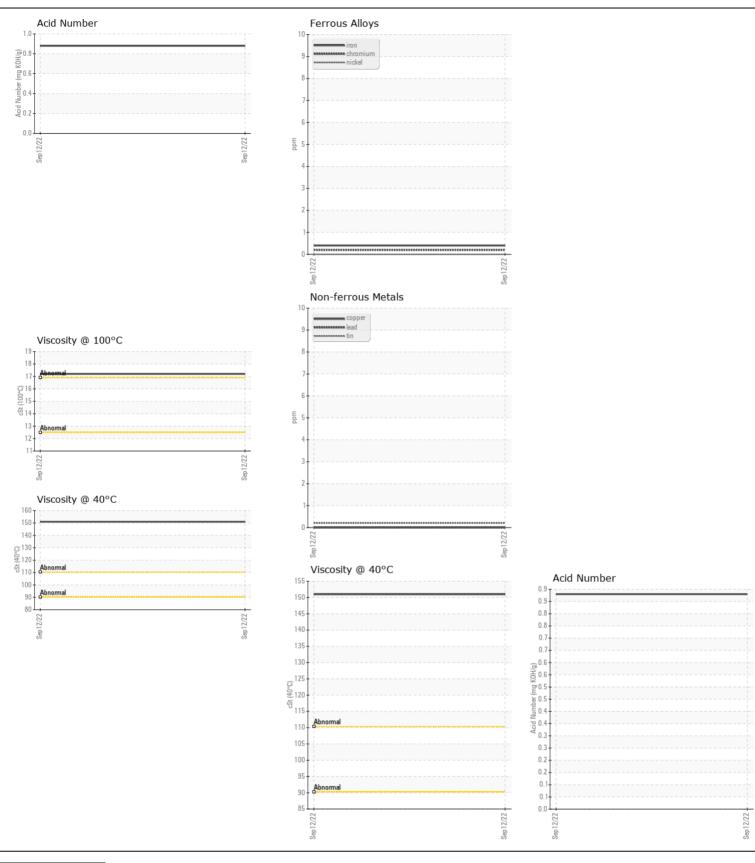
NORMAL NORMAL

Machine Id

22J0901 GL-115

New (Unused) Oil

| Test UOM Method Limit/Abn Current History: Sample Number Client Info HPL0001978 Sample Date Client Info 0 Machine Age hrs Client Info 0 Filter Age hrs Client Info 0 Silter Changed Client Info Not Changd Sample Status NORMAL | New (Unused) Oil | | | | | | | |
|--|--|---|--------|-------------|-----------|-------------|----------|----------|
| Sample Number Client Info Sample Date Client Info Sample Date Client Info Sample Date Client Info O O O O O O O O O | {not provided} (GAL) | | | | | | | |
| Sample Date Machine Age hrs Client Info 0 2 Sep 2022 | RECOMMENDATION | Test | UOM | Method | Limit/Abn | Current | History1 | History2 |
| Sample Date Client Info 12 Sep 222 Machine Age hrs Client Info 0 | This is a baseline read-out on the submitted sample. | · | | Client Info | | | | |
| Client Info | | • | | | | 12 Sep 2022 | | |
| Filter Age | | - | hrs | Client Info | | 0 | | |
| Oil Changed Client Info | | Oil Age | hrs | Client Info | | 0 | | |
| Filter Changed Sample Status | | Filter Age | hrs | Client Info | | 0 | | |
| Iron | | Oil Changed | | Client Info | | Not Changd | | |
| VEAR | | Filter Changed | | Client Info | | N/A | | |
| Chromium ppm ASTM D5185m <1 Nickel ppm ASTM D5185m 0 Titanium ppm ASTM D5185m 0 Silver ppm ASTM D5185m <1 Aluminum ppm ASTM D5185m <1 Aluminum ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m 0 Copper ppm ASTM D5185m 0 Copper ppm ASTM D5185m 0 Copper ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Valuer Visual NONE NONE Valuer % ASTM D5185m 0 Valuer % ASTM D5185m 0 Valuer % ASTM D5185m 0 Valuer % ASTM D5185m NONE NONE Valuer % ASTM D5185m NONE NONE Appearance Scalar Visual NONE NONE Appearance Scalar Visual NONE NONE Appearance Scalar Visual NORM NORM NORM NORM Emulsified Water Scalar Visual NORM NORM NORM Eluid Condition ppm ASTM D5185m 0 Eluid Condition ppm ASTM D5185m 0 Eluid Condition ppm ASTM D5185m 0 | | Sample Status | | | | NORMAL | | |
| Chromium ppm ASTM D5185m <1 Nickel ppm ASTM D5185m 0 Titanium ppm ASTM D5185m 0 Silver ppm ASTM D5185m <1 Aluminum ppm ASTM D5185m <1 Aluminum ppm ASTM D5185m 0 Aluminum ppm ASTM D5185m 0 Copper ppm ASTM D5185m 0 Copper ppm ASTM D5185m 0 Copper ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Vanadium ppm ASTM D5185m 0 Valuer Visual NONE NONE Valuer % ASTM D5185m 0 Valuer % ASTM D5185m 0 Valuer % ASTM D5185m 0 Valuer % ASTM D5185m NONE NONE Valuer % ASTM D5185m NONE NONE Appearance Scalar Visual NONE NONE Appearance Scalar Visual NONE NONE Appearance Scalar Visual NORM NORM NORM NORM Emulsified Water Scalar Visual NORM NORM NORM Eluid Condition ppm ASTM D5185m 0 Eluid Condition ppm ASTM D5185m 0 Eluid Condition ppm ASTM D5185m 0 | WEAR | Iron | ppm | ASTM D5185m | | <1 | | |
| Nickel ppm ASTM DS185m 0 Titanium ppm ASTM DS185m 0 Aluminum ppm ASTM DS185m 1 Aluminum ppm ASTM DS185m 2 Aluminum ppm ASTM DS185m 2 Copper ppm ASTM DS185m 0 Tin ppm ASTM DS185m 0 Tin ppm ASTM DS185m 0 Tin ppm ASTM DS185m 0 Vanadium ppm ASTM DS185m 0 White Metal scalar "Visual NONE NONE Yellow Metal scalar "Visual NONE NONE Water % ASTM DS185m 20 -1 Water % ASTM DS185m >20 <1 NONE Debris scalar "Visual NONE NONE Debris scalar "Visual NONE NONE Appearance scalar | | Chromium | | ASTM D5185m | | <1 | | |
| Titanium | | | | | | 0 | | |
| Silver | | | | | | | | |
| Aluminum ppm ASTM D5185m 2 Lead ppm ASTM D5185m 0 Copper ppm ASTM D5185m 0 Tin ppm ASTM D5185m -1 White Metal scalar Visual NONE NONE Yellow Metal scalar Visual NONE NONE Yellow Metal scalar Visual NONE NONE Water % ASTM D5185m 0 Water % ASTM D5185m 0 Water % ASTM D5185m NONE NONE Water % ASTM D5185m NONE NONE Debris scalar Visual NONE NONE Debris scalar Visual NONE NONE Appearance scalar Visual NONE NONE Appearance scalar Visual NORML NORML NORML Appearance scalar Visual NORML NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML NORML Appearance scalar Visual NORML | | | | | | | | |
| Lead ppm ASTM D5185m 0 Copper ppm ASTM D5185m 0 Tin ppm ASTM D5185m <1 Vanadium ppm ASTM D5185m <1 White Metal scalar *Visual NONE NONE White Metal scalar *Visual NONE NONE White Metal scalar *Visual NONE NONE Water % ASTM D5185m >20 -1 Water % ASTM D5185m NONE NONE Silt scalar *Visual NONE NONE Debris scalar *Visual NONE NONE Appearance scalar *Visual NONE NONE Appearance scalar *Visual NORML | | Aluminum | | | | 2 | | |
| Copper ppm ASTM D5185m c1 c2 c3 c4 c3 c4 c3 c4 c4 c4 | | | | | | 0 | | |
| Tin | | Copper | | ASTM D5185m | | 0 | | |
| Vanadium ppm ASTM D5185m <1 White Metal scalar *Visual NONE NONE Yellow Metal scalar *Visual NONE NONE Potassium ppm ASTM D5185m >20 <1 Water % ASTM D5185m >20 <1 Water % ASTM D5185m >20 <1 Water % ASTM D5185m >20 <1 Silt scalar *Visual NONE NONE NONE Debris scalar *Visual NONE NONE NONE Appearance scalar *Visual NORML NORML NORML NORML NORML NORML Appearance scalar *Visual NORML NORML NORML NORML NORML Debris Scalar *Visual NORML NORML NORML NORML NORML NORML NORML NORML ASTM D5185m 0 Debris Scalar *Visual NORML NORML NORML NORML NORML Debris Scalar *Visual NORML NORML ASTM D5185m 0 Debris Scalar *Visual NORML NORML NORML NORML NORML Debris Scalar *Visual NORML NORML NORML NORML NORML Debris Scalar *Visual NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML NORML | | , , | | | | <1 | | |
| White Metal Scalar *Visual NONE NO | | Vanadium | | ASTM D5185m | | <1 | | |
| Yellow Metal Scalar *Visual NONE Silicon ppm ASTM D5185m 20 <1 Water % ASTM D5185m >20 <1 Water % ASTM D6304 NEG Silt Scalar *Visual NONE NONE Sand/Dirt Scalar *Visual NONE NONE Sand/Dirt Scalar *Visual NONE NONE Appearance Scalar *Visual NORML NO | | | | | NONE | NONE | | |
| Potassium ppm ASTM D5185m >20 <1 Water % ASTM D6304 NEG Sitt scalar *Visual NONE NONE Debris scalar *Visual NONE NONE Damidia Scalar *Visual NONE NONE Appearance scalar *Visual NORML NORML NORML Appearance scalar *Visual NORML NORML NORML Debris scalar *Visual NONE NORM NORML Appearance scalar *Visual NORML NORML NORML Debris scalar *Visual NORM NORM NORML Debris scalar *Visual NORM NO | | Yellow Metal | scalar | *Visual | NONE | | | |
| Potassium ppm ASTM D5185m >20 <1 Water % ASTM D6304 NEG Sitt scalar *Visual NONE NONE Debris scalar *Visual NONE NONE Damidia Scalar *Visual NONE NONE Appearance scalar *Visual NORML NORML NORML Appearance scalar *Visual NORML NORML NORML Debris scalar *Visual NONE NORM NORML Appearance scalar *Visual NORML NORML NORML Debris scalar *Visual NORM NORM NORML Debris scalar *Visual NORM NO | CONTAMINATION | | | 40714 05405 | | | | |
| Water % ASTM D6304 NEG Silt scalar *Visual NONE NONE Debris scalar *Visual NONE NONE Sand/Dirt scalar *Visual NONE NONE Appearance scalar *Visual NORML NO | CONTAMINATION | | | | 00 | | | |
| Silt | | | | | >20 | | | |
| Debris Scalar *Visual NONE NONE Sand/Dirt Scalar *Visual NONE NONE Sand/Dirt Scalar *Visual NONE NORML Scalar *Visual NORML NORML NORML Scalar *Scalar *Visual NORML NORML NORML Scalar *Scalar *Scalar *Visual NORML NORML Scalar *Scalar | | | | | NONE | | | |
| Sand/Dirt Scalar *Visual NONE NONE Appearance Scalar *Visual NORML NORML NORML Odor Scalar *Visual NORML NORML NORML Emulsified Water Scalar *Visual NORML NORML Emulsified Water Scalar *Visual NEG Sodium ppm ASTM D5185m 0 Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m 0 Manganese ppm ASTM D5185m <1 Manganese ppm ASTM D5185m <1 Calcium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m 2 Phosphorus ppm ASTM D5185m 189 Zinc ppm ASTM D5185m 189 Zinc ppm ASTM D5185m 2 Sulfur ppm ASTM D5185m 2 Acid Number (AN) mg KOHig ASTM D8045 0.88 Visc @ 40°C CSt ASTM D445 151 Visc @ 100°C CSt ASTM D445 17.2 | | | | | | | | |
| Appearance | | | | | | | | |
| Odor Scalar *Visual NORML NORML Fmulsified Water Scalar *Visual NEG | | | | | | | | |
| Emulsified Water scalar *Visual NEG | | • | | | | _ | | |
| Sodium ppm ASTM D5185m 0 | | | | | NORML | | | |
| Boron ppm ASTM D5185m 0 Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m <1 Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m 2 Phosphorus ppm ASTM D5185m 189 Zinc ppm ASTM D5185m 2 Sulfur ppm ASTM D5185m 2 Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | Littuisitieu vvatei | | Visuai | | | | |
| Barium ppm ASTM D5185m 0 Molybdenum ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m 2 Phosphorus ppm ASTM D5185m 189 Zinc ppm ASTM D5185m 2 Sulfur ppm ASTM D5185m 2 Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C CSt ASTM D445 151 Visc @ 100°C CSt ASTM D445 17.2 | FLUID CONDITION | Sodium | ppm | ASTM D5185m | | 0 | | |
| Molybdenum ppm ASTM D5185m <1 Manganese ppm ASTM D5185m <1 | | Boron | ppm | ASTM D5185m | | 0 | | |
| Manganese ppm ASTM D5185m <1 Magnesium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m 2 Phosphorus ppm ASTM D5185m 189 Zinc ppm ASTM D5185m 2 Sulfur ppm ASTM D5185m 2 Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | Barium | ppm | ASTM D5185m | | 0 | | |
| Magnesium ppm ASTM D5185m <1 Calcium ppm ASTM D5185m 2 Phosphorus ppm ASTM D5185m 189 Zinc ppm ASTM D5185m 2 Sulfur ppm ASTM D5185m 20604 Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | Molybdenum | ppm | ASTM D5185m | | <1 | | |
| Calcium ppm ASTM D5185m 2 Phosphorus ppm ASTM D5185m 189 Zinc ppm ASTM D5185m 2 Sulfur ppm ASTM D5185m 20604 Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | Manganese | ppm | ASTM D5185m | | <1 | | |
| Phosphorus ppm ASTM D5185m 189 Zinc ppm ASTM D5185m 2 Sulfur ppm ASTM D5185m 20604 Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | Magnesium | ppm | ASTM D5185m | | <1 | | |
| Zinc ppm ASTM D5185m 2 Sulfur ppm ASTM D5185m 20604 Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | Calcium | ppm | ASTM D5185m | | 2 | | |
| Sulfur ppm ASTM D5185m 20604 Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | Phosphorus | ppm | ASTM D5185m | | 189 | | |
| Acid Number (AN) mg KOH/g ASTM D8045 0.88 Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | | ppm | | | 2 | | |
| Visc @ 40°C cSt ASTM D445 151 Visc @ 100°C cSt ASTM D445 17.2 | | Sulfur | ppm | ASTM D5185m | | 20604 | | |
| Visc @ 100°C cSt ASTM D445 17.2 | | | | | | | | |
| | | | cSt | ASTM D445 | | 151 | | |
| Viscosity Index (VI) Scale ASTM D2270 123 | | Visc @ 100°C | cSt | | | 17.2 | | |
| | | Viscosity Index (VI) | Scale | ASTM D2270 | | 123 | | |







Certificate L2367

Laboratory Sample No.

: HPL0001978 Lab Number : 05645249 Unique Number: 10139788

: WearCheck USA - 501 Madison Ave., Cary, NC 27513

Tested Diagnosed Test Package : MOB 2 (Additional Tests: FT-IR, KF, KV100, PrtCount, VI)

Received

: 19 Sep 2022 : 21 Sep 2022 : 21 Sep 2022 - Jonathan Hester

HIGH PERFORMANCE LUBRICANTS LLC 500 S SPRUCE ST MANTENO, IL

US 60950 Contact: DAVID WARD sampledata@hplubricants.com

* - 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)

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

T: (815)468-3535 F: x:

Submitted By: DAVID WARD