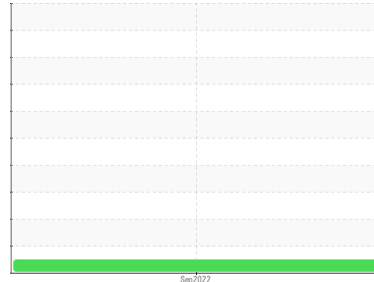




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
NX4099-L04

Component
Gasoline Engine

Fluid
SUPERTECH 5W20 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please note that this is a corrected copy for laboratory data updates.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. The water content is negligible. There is no indication of any contamination in the oil.

Fluid Condition

The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

SAMPLE INFORMATION

| | method | limit/base | current | history 1 | history 2 |
|---------------|-------------|-------------|--------------------|-----------|-----------|
| Sample Number | Client Info | | WC0751542 | --- | --- |
| Sample Date | Client Info | | 29 Sep 2022 | --- | --- |
| Machine Age | kms | Client Info | 39225 | --- | --- |
| Oil Age | kms | Client Info | 23976 | --- | --- |
| Oil Changed | Client Info | | Not Changed | --- | --- |
| Sample Status | | | NORMAL | --- | --- |

CONTAMINATION

| | method | limit/base | current | history 1 | history 2 |
|--------|-----------|------------|------------|-----------|-----------|
| Glycol | WC Method | | NEG | --- | --- |

WEAR METALS

| | method | limit/base | current | history 1 | history 2 |
|----------|--------|------------------|--------------|-----------|-----------|
| Iron | ppm | ASTM D5185m >150 | 15 | --- | --- |
| Chromium | ppm | ASTM D5185m >20 | <1 | --- | --- |
| Nickel | ppm | ASTM D5185m >5 | <1 | --- | --- |
| Titanium | ppm | ASTM D5185m | 6 | --- | --- |
| Silver | ppm | ASTM D5185m >2 | 0 | --- | --- |
| Aluminum | ppm | ASTM D5185m >40 | 6 | --- | --- |
| Lead | ppm | ASTM D5185m >50 | 0 | --- | --- |
| Copper | ppm | ASTM D5185m >155 | 9 | --- | --- |
| Tin | ppm | ASTM D5185m >10 | <1 | --- | --- |
| Vanadium | ppm | ASTM D5185m | <1 | --- | --- |
| Cadmium | ppm | ASTM D5185m | 0 | --- | --- |

ADDITIVES

| | method | limit/base | current | history 1 | history 2 |
|------------|--------|-------------|--------------|-----------|-----------|
| Boron | ppm | ASTM D5185m | 35 | --- | --- |
| Barium | ppm | ASTM D5185m | 0 | --- | --- |
| Molybdenum | ppm | ASTM D5185m | 93 | --- | --- |
| Manganese | ppm | ASTM D5185m | <1 | --- | --- |
| Magnesium | ppm | ASTM D5185m | 423 | --- | --- |
| Calcium | ppm | ASTM D5185m | 1236 | --- | --- |
| Phosphorus | ppm | ASTM D5185m | 644 | --- | --- |
| Zinc | ppm | ASTM D5185m | 857 | --- | --- |
| Sulfur | ppm | ASTM D5185m | 3034 | --- | --- |

CONTAMINANTS

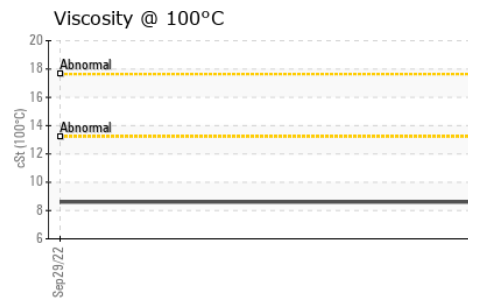
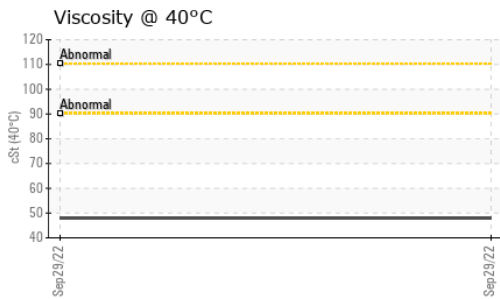
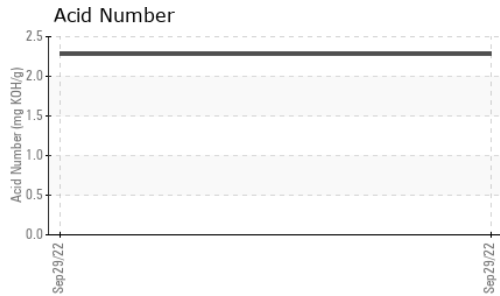
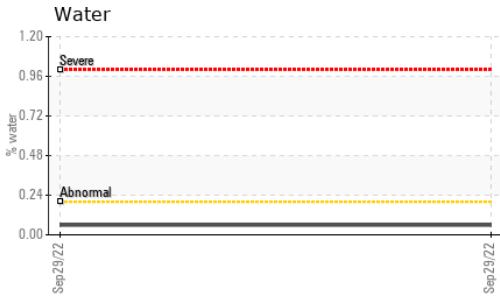
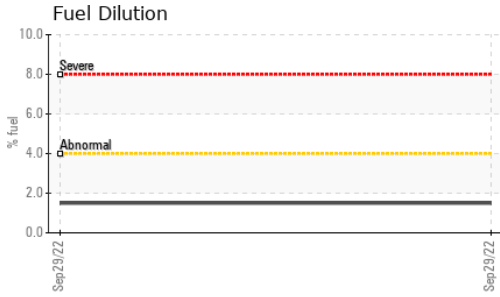
| | method | limit/base | current | history 1 | history 2 |
|-----------|--------|------------------|--------------|-----------|-----------|
| Silicon | ppm | ASTM D5185m >30 | 32 | --- | --- |
| Sodium | ppm | ASTM D5185m >400 | 2 | --- | --- |
| Potassium | ppm | ASTM D5185m >20 | 0 | --- | --- |
| Fuel | % | ASTM D3524 >4.0 | 1.5 | --- | --- |
| Water | % | ASTM D6304 >0.2 | 0.059 | --- | --- |
| ppm Water | ppm | ASTM D6304 >2000 | 590.0 | --- | --- |

INFRA-RED

| | method | limit/base | current | history 1 | history 2 |
|-----------|----------|-----------------|-------------|-----------|-----------|
| Soot % | % | *ASTM D7844 | 0.1 | --- | --- |
| Nitration | Abs/cm | *ASTM D7624 >20 | 10.7 | --- | --- |
| Sulfation | Abs./1mm | *ASTM D7415 >30 | 25 | --- | --- |



OIL ANALYSIS REPORT

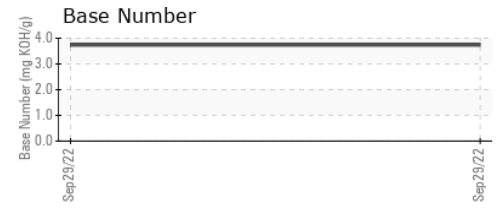
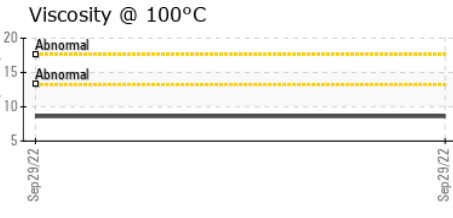
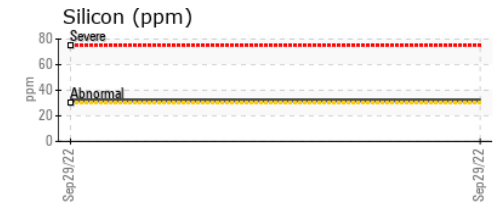
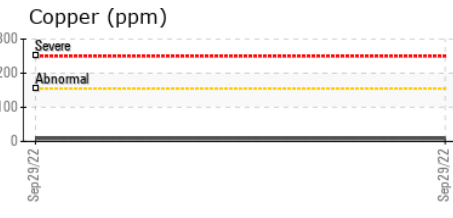
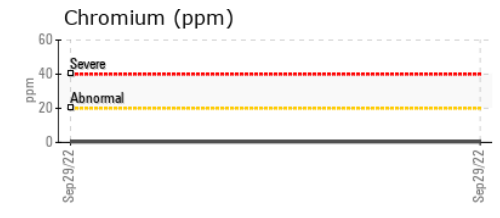
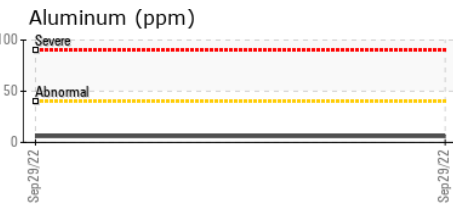
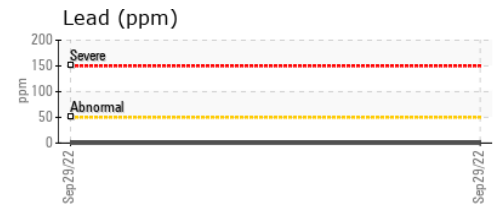
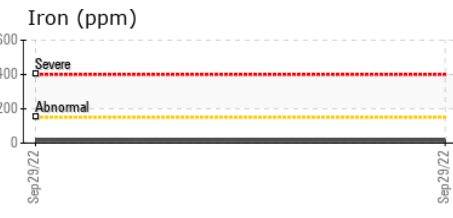


| FLUID DEGRADATION | | method | limit/base | current | history 1 | history 2 |
|-------------------|----------|-------------|------------|-------------|-----------|-----------|
| Oxidation | Abs./1mm | *ASTM D7414 | >25 | 21.4 | --- | --- |
| Acid Number (AN) | mg KOH/g | ASTM D8045 | | 2.28 | --- | --- |
| Base Number (BN) | mg KOH/g | ASTM D2896 | | 3.74 | --- | --- |

| VISUAL | | method | limit/base | current | history 1 | history 2 |
|------------------|--------|---------|------------|--------------|-----------|-----------|
| White Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Yellow Metal | scalar | *Visual | NONE | NONE | --- | --- |
| Precipitate | scalar | *Visual | NONE | NONE | --- | --- |
| Silt | scalar | *Visual | NONE | NONE | --- | --- |
| Debris | scalar | *Visual | NONE | NONE | --- | --- |
| Sand/Dirt | scalar | *Visual | NONE | NONE | --- | --- |
| Appearance | scalar | *Visual | NORML | NORML | --- | --- |
| Odor | scalar | *Visual | NORML | NORML | --- | --- |
| Emulsified Water | scalar | *Visual | >0.2 | NEG | --- | --- |
| Free Water | scalar | *Visual | | NEG | --- | --- |

| FLUID PROPERTIES | | method | limit/base | current | history 1 | history 2 |
|----------------------|-------|------------|------------|-------------|-----------|-----------|
| Visc @ 40°C | cSt | ASTM D445 | | 48.0 | --- | --- |
| Visc @ 100°C | cSt | ASTM D445 | | 8.6 | --- | --- |
| Viscosity Index (VI) | Scale | ASTM D2270 | | 158 | --- | --- |

GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0751542 **Received** : 09 Nov 2022
Lab Number : 05689733 **Diagnosed** : 15 Nov 2022
Unique Number : 10214306 **Diagnostician** : Jonathan Hester
Test Package : MOB 2 (Additional Tests: fueldilution, KF, KV40, PercentFuel, TBN, VI)

AVL POWERTRAIN ENGINEERING INC
 47519 HALYARD DRIVE
 PLYMOUTH, MI
 US 48170-2438
 Contact: Service Manager

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)