

#### Machine Id **26141** Component **Right Final Drive** Fluid **CHEVRON DELO GEAR ESI OIL 80W90 (--- QTS)**

#### RECOMMENDATION

We advise that you check all areas where dirt can enter the system. The oil change at the time of sampling has been noted. We advise that you inspect for the source(s) of wear. We recommend an early resample to monitor this condition.

### WEAR

The iron, chrome and nickel levels are severe. Gear wear is indicated.

## CONTAMINATION

Elemental levels of silicon (Si) and aluminum (AI) indicate aluminasilicate (coarse dirt) ingress.

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# FLUID CONDITION

The oil viscosity is higher than normal. The oil is no longer serviceable due to the presence of contaminants.

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-	Fest	UOM	Method	Limit/Abn	Current	History1	History2
;	Sample Number		Client Info		WC0950529	WC0786526	WC0689270
;	Sample Date		Client Info		05 Jul 2024	14 Mar 2023	13 Jun 2022
I	Machine Age	hrs	Client Info		3828	2626	2142
(	Dil Age	hrs	Client Info		500	500	1000
I	Filter Age	hrs	Client Info		500	500	0
(	Dil Changed		Client Info		Changed	Changed	Changed
I	Filter Changed		Client Info		Changed	Changed	N/A
;	Sample Status				SEVERE	SEVERE	ABNORMAL
1	ron	ppm	ASTM D5185m	>500	<b>19923</b>	4091	629
(	Chromium	ppm	ASTM D5185m	>10	<b>A</b> 220	▲ 32	8
1	Nickel	ppm	ASTM D5185m	>10	<b>1</b> 11	<b>▲</b> 17	6
	Fitanium	ppm	ASTM D5185m		76	11	2
;	Silver	ppm	ASTM D5185m		<1	0	<1
1	Aluminum	ppm	ASTM D5185m	>25	<b>015</b>	120	29
1	_ead	ppm	ASTM D5185m	>25	4	0	<1
(	Copper	ppm	ASTM D5185m	>50	27	4	1
1	Гin	ppm	ASTM D5185m	>10	1	0	0
'	/anadium	ppm	ASTM D5185m		4	1	<1
1	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Ì	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
:	Silicon	ppm	ASTM D5185m	>75	<b>7102</b>	▲ 882	<b>9</b> 0
:	Silicon Potassium	ppm ppm	ASTM D5185m ASTM D5185m	>75 >20	▲ 7102 258	▲ 882 19	▲ 90 5
:	Silicon Potassium Water	ppm ppm	ASTM D5185m ASTM D5185m WC Method	>75 >20 >0.2	▲ 7102 258 NEG	▲ 882 19 NEG	▲ 90 5 NEG
	Silicon Potassium Water Silt	ppm ppm scalar	ASTM D5185m ASTM D5185m WC Method *Visual	>75 >20 >0.2 NONE	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> </ul>	▲ 882 19 NEG NONE	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> </ul>
	Silicon Potassium Water Silt Debris	ppm ppm scalar scalar	ASTM D5185m ASTM D5185m WC Method *Visual *Visual	>75 >20 >0.2 NONE NONE	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> </ul>	▲ 882 19 NEG NONE NONE	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> </ul>
	Silicon Potassium Water Silt Debris Sand/Dirt	ppm ppm scalar scalar scalar	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual	>75 >20 >0.2 NONE NONE	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> </ul>
	Silicon Potassium Water Silt Debris Sand/Dirt Appearance	ppm ppm scalar scalar scalar scalar	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual	>75 >20 >0.2 NONE NONE NORL	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> </ul>
	Silicon Potassium Water Silt Debris Sand/Dirt Appearance Ddor	ppm ppm scalar scalar scalar scalar	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual	>75 >20 >0.2 NONE NONE NORE NORML	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> </ul>
	Silicon Potassium Water Silt Debris Sand/Dirt Appearance Ddor Emulsified Water	ppm ppm scalar scalar scalar scalar scalar	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual	>75 >20 >0.2 NONE NONE NORM NORML >0.2	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> </ul>
	Silicon Potassium Water Silt Debris Sand/Dirt Appearance Ddor Emulsified Water	ppm ppm scalar scalar scalar scalar scalar scalar	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual	>75 >20 >0.2 NONE NONE NONE NORML >0.2	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NEG</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NEG</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> </ul>
	Silicon Potassium Vater Silt Debris Sand/Dirt Appearance Ddor Emulsified Water	ppm ppm scalar scalar scalar scalar scalar scalar	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m	>75 >20 >0.2 NONE NONE NORML NORML >0.2	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>20</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>3</li> </ul>
	Silicon Potassium Water Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron	ppm ppm scalar scalar scalar scalar scalar scalar ppm	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NONE NORML NORML >0.2	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>3</li> <li>163</li> <li>0</li> </ul>
: 	Silicon Potassium Water Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron Barium	ppm ppm scalar scalar scalar scalar scalar scalar ppm	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NONE NORML >0.2 15 0	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NORE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> <li>4</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>3</li> <li>163</li> <li>0</li> </ul>
	Silicon Potassium Vater Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron Barium	ppm pm scalar scalar scalar scalar scalar ppm ppm	ASTM D5185m ASTM D5185m VC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NONE NORML >0.2 15 0	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> <li>4</li> <li>39</li> <li>104</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> <li>12</li> <li>20</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>3</li> <li>163</li> <li>0</li> <li>12</li> </ul>
	Silicon Potassium Vater Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron Barium Molybdenum Manganese	ppm pm scalar scalar scalar scalar scalar ppm ppm ppm	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NONE NORML >0.2 15 0 0	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> <li>39</li> <li>194</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> <li>12</li> <li>29</li> <li>21</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>3</li> <li>163</li> <li>0</li> <li>12</li> <li>5</li> <li>41</li> </ul>
	Silicon Potassium Nater Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	ppm pm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m WC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NONE NONE NORML >0.2 15 0 0 0	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> <li>4</li> <li>39</li> <li>194</li> <li>84</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> <li>12</li> <li>29</li> <li>31</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>3</li> <li>163</li> <li>0</li> <li>12</li> <li>5</li> <li>41</li> </ul>
	Silicon Potassium Vater Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium	ppm pm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m VC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NONE NORML >0.2 15 0 0 0 5 5	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NORML</li> <li>109</li> <li>154</li> <li>4</li> <li>39</li> <li>194</li> <li>84</li> <li>130</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> <li>12</li> <li>29</li> <li>31</li> <li>89</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>3</li> <li>163</li> <li>0</li> <li>12</li> <li>5</li> <li>41</li> <li>147</li> <li>042</li> </ul>
	Silicon Potassium Vater Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium	ppm pm scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m VC Method *Visual *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NORM NORM >0.2 15 0 0 0 5 600	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> <li>4</li> <li>39</li> <li>194</li> <li>84</li> <li>130</li> <li>1671</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> <li>12</li> <li>29</li> <li>31</li> <li>89</li> <li>1090</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NORML</li> <li>163</li> <li>0</li> <li>12</li> <li>5</li> <li>41</li> <li>147</li> <li>942</li> </ul>
	Silicon Potassium Nater Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m VC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NONE NONE NORML >0.2 15 0 0 0 0 5 600 0 0	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> <li>4</li> <li>39</li> <li>194</li> <li>84</li> <li>130</li> <li>1671</li> <li>45</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> <li>12</li> <li>29</li> <li>31</li> <li>89</li> <li>1090</li> <li>70</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NORML</li> <li>163</li> <li>0</li> <li>12</li> <li>5</li> <li>41</li> <li>147</li> <li>942</li> <li>149</li> </ul>
	Silicon Potassium Vater Silt Debris Sand/Dirt Appearance Ddor Emulsified Water Sodium Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm scalar scalar scalar scalar scalar scalar ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m VC Method *Visual *Visual *Visual *Visual *Visual ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	>75 >20 >0.2 NONE NONE NORM >0.2 15 0 0 0 0 5 600 0 22000	<ul> <li>7102</li> <li>258</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>109</li> <li>154</li> <li>4</li> <li>39</li> <li>194</li> <li>84</li> <li>130</li> <li>1671</li> <li>45</li> <li>22902</li> </ul>	<ul> <li>882</li> <li>19</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NORML</li> <li>NEG</li> <li>10</li> <li>86</li> <li>0</li> <li>12</li> <li>29</li> <li>31</li> <li>89</li> <li>1090</li> <li>70</li> <li>25849</li> </ul>	<ul> <li>90</li> <li>5</li> <li>NEG</li> <li>NONE</li> <li>NORML</li> <li>NORML</li> <li>NORML</li> <li>163</li> <li>0</li> <li>12</li> <li>5</li> <li>41</li> <li>147</li> <li>942</li> <li>149</li> <li>17150</li> </ul>

Contact/Location: SCOTT SULLIVAN - MSCDUR



SULLIVAN EASTERN INC 2860 C SLATER RD MORRISVILLE, NC : 13 Jul 2024 - Don Baldridge US 27560 Contact: SCOTT SULLIVAN ssullivan@sullivaneastern.com T: (919)484-8993 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (919)484-2136



Certificate L2367

Lab Number : 06233624

Unique Number : 11117117

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.

Test Package : CONST

Contact/Location: SCOTT SULLIVAN - MSCDUR Page 2 of 2

: 12 Jul 2024

Tested

Diagnosed