Y2K FILTRATION

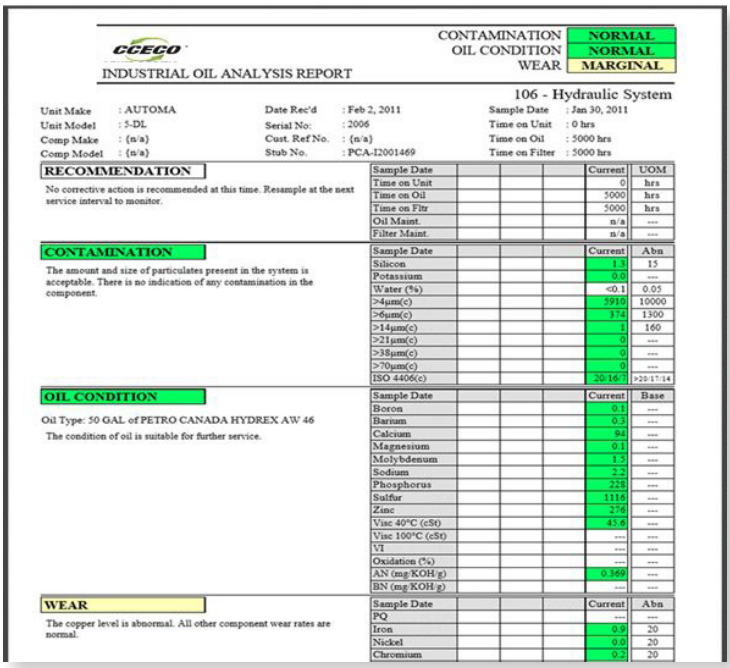
A DIVISION OF DAKOTA FLUID POWER, INC.

OIL ANALYSIS PACKAGE

We know how important accuracy is in testing. That's why our lab has the highest quality level attainable by a testing laboratory, ISO 17025 A2LA accreditation. This means every aspect of the analysis of your oil is held tot he highest standards.

Our Advanced Oil Analysis Package Includes:

- **24 Metals** by ICP (Inductively-Coupled Plasma). ASTM D5185. This test measures 24 metals in oil. Measuring these metals help determine the type and severity of wear occurring within the unit. This test also measures some oil additives.
- **Soot** by percent of mass, ASTM E4212. Soot is a byproduct of combustion. High concentrations of soot in engine oil cause the oil to thicken. This causes cold start problems and an increased risk of oil starvation.
- **Water** by crackle percent, Y2K & CCECO testing method. Water ruins the lubricating properties of oil, increases wear and damages the vehicle or equipment.
- **Viscosity** at 40C or 100C ASTM D445. The most important property of oil is viscosity. This test ensures the oil has retained its lubricating properties.
- **TAN** (Total Acid Number), ASTM D664. This test measures the acid content in hydraulic oil. Increased acid concentration in oil causes many problems including corrosion.
- **TBN** (Total Base Number), ASTM D4739. Used for engine oils, this test measures the oil's ability to neutralize acid.
- **Oxidation**, ASTM E2412. Oxidation measures the breakdown of oil caused by operating conditions and age. If left unchecked oxidation leads to the buildup of sludge, varnish and the formation of acids.
- **Nitration** ASTM E2412. Nitration in engines is usually caused by excessive "blow by" from cylinder walls and piston rings. It is an indicator of nitric acid and accelerates oxidation.
- **Particle Count**, ISO 4406:99. The particle count is the best way to measure overall oil cleanliness. An ISO code of three numbers is given based on the number of particles larger than 4 um, 6 um and 14 um.



CCECO

INDUSTRIAL OIL ANALYSIS REPORT

CONTAMINATION NORMAL
OIL CONDITION NORMAL
WEAR MARGINAL

106 - Hydraulic System

Unit Make	: AUTOMA	Date Rec'd	: Feb 2, 2011	Sample Date	: Jan 30, 2011	
Unit Model	: 5-DL	Serial No:	: 2006	Time on Unit	: 0 hrs	
Comp Make	: {n/a}	Cust. Ref No.	: {n/a}	Time on Oil	: 5000 hrs	
Comp Model	: {n/a}	Stub No.	: PCA-I2001469	Time on Filter	: 5000 hrs	

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Sample Date	Current	UOM
Time on Unit	0	hrs
Time on Oil	5000	hrs
Time on Fltr	5000	hrs
Oil Maint.	n/a	---
Filter Maint.	n/a	---

CONTAMINATION

The amount and size of particulates present in the system is acceptable. There is no indication of any contamination in the component.

Sample Date	Current	Abn
Silicon	1.3	15
Potassium	0.0	---
Water (%)	<0.1	0.05
>4µm(c)	3910	10000
>6µm(c)	374	1300
>14µm(c)	1	160
>21µm(c)	0	---
>38µm(c)	0	---
>70µm(c)	0	---
ISO 4406(c)	20/16/7	>20/17/14

OIL CONDITION

Oil Type: 50 GAL of PETRO CANADA HYDREX AW 46

The condition of oil is suitable for further service.

Sample Date	Current	Base
Boron	0.1	---
Barium	0.2	---
Calcium	94	---
Magnesium	0.1	---
Molybdenum	1.5	---
Sodium	2.2	---
Phosphorus	228	---
Sulfur	1116	---
Zinc	276	---
Visc 40°C (cSt)	45.6	---
Visc 100°C (cSt)	---	---
VI	---	---
Oxidation (%)	---	---
AN (mg/KOH/g)	0.349	---
BN (mg/KOH/g)	---	---

WEAR

The copper level is abnormal. All other component wear rates are normal.

Sample Date	Current	Abn
PQ	---	---
Iron	0.9	20
Nickel	0.0	20
Chromium	0.2	20

Sample Report

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