# ZIEGLER

### ZIEGLER S-O-S ANALYSIS LAB

901 WEST 94TH STREET MINNEAPOLIS,MN 55420-4299 (952) 888-4121 (800) 352-2812



CROOKSTON MN 56716-0538 ROGER TULIBASKI 720 3RD AVE SW SHOP SAMPLE

> Compartment: Serial #: ENGINE 8530238

Model #: WO #: Unit #: 854 WC53132

> Date Received Sample #: 150606831 6/18/15

Oil Blend:

Oil Brand:

Oil Weight

### C H S AG SERVICES/LAKE

CURI		Date	Taken	6/18/15
RENT	Changed		Qi	_
SAM	nged		Filter	_
PLE IN	Quarts	<u>♀</u>	Added	
CURRENT SAMPLE INFORMATION		Meter	omu Unii Liji	6683
NO	Meter	9	Oil	
		Potassium		ם
		Copper		2
WEA	N	Sodium	PPM	4
WEAR METALS ANALYSIS	Π	iron r	PPM	25
rals ,	S	Chromium	PPM	ω
ANALY	Δ	Aluminum	PPM	4
SIS'	2	Silicon	PPM	7
	DD	Lead	PPM	ш
	NS	<b>3 2</b>	PPM	0
Z	A		Soot	
FRARE	VALYS		Sulfation Oxidation	19
Ö	S			13
0		PQ-Ferrous	Debris	5
PHYS	TEC		Viscosity	15.6
ICAL	TESTS	Anti- Fuel	Freeze Dilu	z
		Jel	ution Water	

#### Interpretation

Recommendation the MILES/HOURS ON OIL data are unknown, we use the full oil change interval to analyze the sample The analysis of the oil sample taken from your ENGINE indicates that Soot is slightly high. When

readings will increase engine wear. Soot level is influenced by fuel system operation, lugging and/or inlet air restriction. High Soot

CUI	6/18/15 U 12/09/08 N 1/21/08 N	l aken Oil	Date Cha	
RENT	ZZC	Filter	Changed	1
SAMPL	PRARIED ANALYSIS	Added	Quarts	
CURRENT SAMPLE IS INCLUDED IN TRENDING	6683 4949 4450	Meter	(F) (C) (C) (C) (C) (C) (C) (C) (C) (C) (C	
JDED IN	UEL DILUTION: Fall	Oil	Meter	
TREND	<b>—</b> — — —	PPM		
ING	232	PPM	Copper	
1	5 6 4	PPM	Sodium	
18	25 38	PPM	light H	
1	ω ω <b>4</b>	PPM	Chromium	
8	4 C C	PPM	Aluminum	A 40 A 40 A
SEE F	7 10 12	PPM	Silicon	9.0
EVERS	2 3 1	PPM	PB	
SEE REVERSE SIDE FOR TEST EXPLANATIONS	EW MELVI	PPM	NS I	
FOR	78 32 39	Soot	A	
TEST	19 18 18	Soot Sulfation Oxidation	ANALTSIS	
EXPL	ដដូដ	xidation	U	ji
NATIO	5 11	Debris Debris		
SN	5 15.6 11 14.0 1 14.8	Viscosity		1000
	ZZZ	Freeze Dilution	ESIS	i
	222	lution Water		

# ZIEGLER

#### ZIEGLER S-O-S ANALYSIS LAB 901 WEST 94TH STREET MINNEAPOLIS,MN 55420-4299 (952) 888-4121 (800) 352-2812





Sample For:

CROOKSTON MN 56716-0538 ROGER TULIBASKI 720 3RD AVE SW SHOP SAMPLE

> Compartment: Serial #: 8530238

WO #: Model #: Unit #: WC53132

HYDRAULIC SYSTEM

Sample #: Date Received:

150606830 6/18/15

Oil Brand: Oil Blend:

Oil Weight

C H S AG SERVICES/LAKE

CURRE	NT S	AMP	LE N	CURRENT SAMPLE INFORMATION	NOI	ō.	WE/	R ME	WEAR METALS ANALYSIS	ANAL	YSIS	8 0	NFR	RARED		PAR	ARTICLE		0	PH	PHYSICAL
	Changed	_	Quarts	11/1	Meter	<u> </u>	H	CR	Δ	2	DB	N	ANA	LYSIS		CO	UNT	1	lin		TESTS
Taken	<u>e</u>		Oil	Meter	<u></u> 9	PPM	PPM	Chromium	PPM	PPM	PPM	PPM	Soot	Oxidation	ISO	ω <u>H</u>	J J J		15m	PQ-Fen	PQ-Fen
6/18/15	_	_	lue.	6683		120	20	0	ъ	10	14	2	0	6	21/16	14327	2130		425	425 7	425 7 8.2

### Interpretation

slightly high. When the MILES/HOURS ON OIL data are unknown, we use the full oil change interval to analyze the sample. The analysis of the oil sample taken from your Hydraulic System indicates that Copper and Iron are

### Recommendation

If the filter is clean and the readings don't increase with future sampling, no action is required.

	6/18/15 12/09/08 1/21/08	Taken	Date	INENE
CUR	220	Oil Fitr	Changed	JING O
RENI	- 170 - 170	-	8	AWIT
SAN	DOT: Indi	Oil	light.	
CURRENT SAMPLE IS INCLUDED IN TRENDING	6683 4949 4450	Meter	VIII 3014 7 11	INCHUING SAMPLE INFORMATION
INCLUD	valter: Coo	<u></u> 29	Meter	CZ
ED	120 210 170	PPM	S	
TREND	20 26 29	PPM	E.	2
ING	O O O	PPM	SR	WEAK ME ALS ANALYSIS
	HASICAL TEST	PPM	₽	ALG
H	10 4 5	PPM	S	ANAL
H	14 25 26	PPM	PB	U.
1	FICOM 5 2	PPM	NA	
SEE I	0 0	Soot	ANA	277
REVERS	0 0	Oxidation	ALYSIS	ZAZIII.
REVERSE SIDE FOR TEST EXPLANATIONS	21/16 22/15 20/13	ISO Code		
FOR TE	14327 26390 5621	5 hm	CO	TAX
ST EXPL	2130 1631 103	4m	COUNT	CAR
ANATION	425 213 42	Hm 15	ileb	
S	7 15 2 2	PQ-Ferrous Debris	uni a t	0
	8.2 8.8 6.7	Viscosity	ESTS	
1	ZZZ	Anti- Freeze	i	-
	ZZZ	Water		



#### ZIEGLER S-O-S ANALYSIS LAB MINNEAPOLIS, MN 55420-4299 (952) 888-4121 (800) 352-2812 901 WEST 94TH STREET



Sample For: ROGER TULIBASKI SHOP SAMPLE

CROOKSTON MN 720 3RD AVE SW 56716-0538

> Unit #: Compartment: 8530238 RADIATOR

Model #:

C # AG SERVICES/LAKE WC53132

> Hours on Sample: Date Taken Service Meter: Date Received: Sample #: 150690488 6/17/15 6/18/15 6683 ACTION

Glycol Concentration (%)
Ethylene Glycol Assumed
Unless Specified Otherwise Freeze Point (°F) Boil Point (°F) 0.0 psi 219 36% . 5 (30 - 65%)Conductivity (µmhos/cm) 무 Coolant Properties 3190 8.9 (<7500) (7.0 - 11.0)Supplemental Coolant Additive (ppm) Visua Contamination Color

CLOUDY GREEN See Back Charts DEAC

410

Test result for Interpretation supplemental coolant additive is low and coolant is cloudy.

additive. If you don't use supplemental system, refill with new 50/50 antifreeze water mix with recommended You need to add supplemental coolant additive. Recommendation coolant additive every 250 hours, we strongly recommend If coolant is more

than 3 years old drain and flush amount of supplemental coolant

using long life coolant

TRENDING SAMPLE INFORMATION 12/09/08 1/21/08 6/17/15 Date Taken Changed Filter Reading Meter 4949 6683 4450 Hours Cool 9 000 GLYC 54 44 36 - 44 - 20 Ŧ 219 223 229 BP CONDUCT 2400 2680 3190 9.4 무 545 950 410 COOLANT ANALYSIS SCA GREEN GREEN Color DEAC CLOUDY SLIGHTLY CLOUDY CLEAR Visual Contamination

CURRENT SAMPLE IS INCLUDED IN TRENDING

SEE REVERSE SIDE FOR TEST EXPLANATIONS