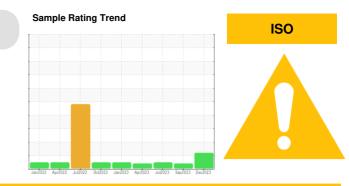


## **OIL ANALYSIS REPORT**

## TUMBLE ROOM [98635792] KR-GF-003169 - TUMBLER 3 (S/N TUMBLE ROOM - 11513089) Component

Gearbox Fluic

## SCHAEFFER 293A SUPREME GEAR LUBE NO TACK 220 (16 QTS)



Sample DateClient Info20 Dec 202327 Sep 202331 Jul 2023Machine AgehrsClient Info000Oil AgehrsClient Info000Oil AgehrsClient Info000Oil ChangedClient InfoNot ChangdN/AN/ASample StatusImate AgeNot ChangdN/AN/ASample StatusImate AgeImate AgeNot ChangdN/AContaminationContaminationCONTAMINATIONMethodImit/basecurrentMaterWC Method0.2NEGNEGNEGWaterWC Method0.2NEGNEGNEGWeter Is a kigh amount of silt (particulates < 14 trons in size) present in the oil.MethodImit/basecurrenthistory1MaterWC Method0.2NEGNEGNEGNEGWeter Is acceptable for this fluid. TheIronppASTM D5185m>2001112<1	DIAGNOSIS	SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
recommend you service the filters on this weak here set were interval to monitor. (2 ustomer Sample miner: 9885792)       20 bec 2023       27 Sep 2023       31 Juli 2023         ar component were rates are normal.       0       0       0       0       0         component were rates are normal.       Chern Info       0       0       0       0       0         component were rates are normal.       Contramination       rendo of all (particulates < 14)	Recommendation	Sample Number		Client Info		PCA0114843	PCA0106500	PCA0101715
propert in applicable. Resample at the network we introvi to motion: C (customer Sample at the network we introvi to motion): C (customer Sample at the network we introvi to motion): C (customer Sample at the network we introvi to motion): C (customer Sample Status at a network we introvi to motion): C (c	Ne recommend you service the filters on this	Sample Date		Client Info		20 Dec 2023	27 Sep 2023	31 Jul 2023
vide interval to monitor. (Customer Sample ar component wear rates are normal.       Oil Apa has a Circlent Info       0       0       0         Contamination rer is a high amount of sill (particulates < 14) is acceptable for this fuid. The dition of the oil is suitable for further service.       CONTAMINATION       method       Immbase       current       Natory1       Natory1       Natory2         Value of acceptable for this fuid. The dition of the oil is suitable for further service.       Year       Work Mathod       Natory2       NEG       NEG       NEG         Value of acceptable for this fuid. The dition of the oil is suitable for further service.       Year       Work Mathod       Natory2       NEG       0       0       1       12       <	component if applicable. Resample at the next	Machine Age	hrs	Client Info		0		0
or         Otil Changed         Client Intro         Not Change         N/A         N/A           component wear rates are normal.         Sontamination         ABNORIMAL         ABNORIMAL         NORIMAL           origin size) present in the oil.         CONTAMINATION         method         limitbase         current         Netary!         Netary!           id Condition         NA were is acceptable for this fuld. The other service.         Norigin Size) present in the oil.         Norigin Size present in th			hrs	Client Info		0	0	0
Component wear rates are normal.         CONTAMINATION         Method         Imitbase         Courternit         Nistory2           State         CONTAMINATION         method         limitbase         current         history2           to condition         axia sey present in the 01.         ide condition         init to 01.         init 01.         init to 01.         init	Comment: 98635792)	Oil Changed		Client Info		Not Changd	N/A	N/A
Contamination pre is a high amount of sit (particulates < 14) ors in size) present in the oil.         CONTAMINATION         method         imitbase         current         history1         history2           Vare         WC Methol         0.0.2         NEG         NEG         NEG           Vare         WC Methol         0.0.2         NEG         NEG         NEG           Vare         WC Methol         0.0.2         NEG         NEG         NEG           Vare         WC Methol         0.0.2         0.0         1         1         2         1           Vare         MC Motions         Silver         ppm         ASTM Distion         0         0         1         1         2         1	Vear	Sample Status				ABNORMAL	ABNORMAL	NORMAL
main       Mater       WC Method       >0.2       NEG       NEG       NEG         A Nieval is acceptable for this fluid. The altition of the oil is suitable for further service.       Imon       ppm       ASTM05185       >200       11       12.2       <1		CONTAMINA	TION	method	limit/base	current	history1	history2
WEAR METALS         method         lumbbase         current         history1         history2           A Ni woll is acceptable for this fluid. The dillion of the oil is suitable for further service.         iron         ppm         ASTM 05885         >200         11         12         <1	There is a high amount of silt (particulates < 14 nicrons in size) present in the oil.			WC Method		-	NEG	
chromium         ppm         ASTILD5186m         >15         0         0         1           Nickel         ppm         ASTILD5186m         >15         0         0         1           Silver         ppm         ASTILD5186m         >25         0         0         3           Aluminum         ppm         ASTILD5186m         >25         0         0         3           Auminum         ppm         ASTILD5186m         >25         0         0         2           Copper         ppm         ASTILD5186m         >200         0         <1	luid Condition	WEAR METAI	LS	method	limit/base	current	history1	history2
dition of the oil is suitable for further service.         Chromium         ppm         ASTM D5185m         >15         0         0         1           Nickel         ppm         ASTM D5185m         >15         0         0         1           Silver         ppm         ASTM D5185m         >25         0         0         3           Aluminum         ppm         ASTM D5185m         >25         0         0         2           Copper         ppm         ASTM D5185m         >25         0         0         2           Vanadium         ppm         ASTM D5185m         >25         0         0         2           Cadmium         ppm         ASTM D5185m         0         0         0         2           Cadmium         ppm         ASTM D5185m         0         0         0         1           ADDITIVES         method         limit/base         current         Nistory?         Nistory?           Boro         ppm         ASTM D5185m         0         0         1         1           ADDITIVES         method         limit/base         current         Nistory?         Nistory?           Barium         ppm         ASTM D5185m		Iron	ppm	ASTM D5185m	>200	11	12	<1
Titanium       ppm       ASTIL D5186m       0       0       1         Silver       ppm       ASTIL D5186m       >0       0       3         Auminum       ppm       ASTIL D5186m       >25       0       0       8         Copper       ppm       ASTIL D5186m       >200       0       <1	ondition of the oil is suitable for further service.	Chromium	ppm	ASTM D5185m	>15	0	0	1
Silver       ppm       ASTM D5185m       ≥0       0       3         Aluminum       ppm       ASTM D5185m       >200       0       0       8         Copper       ppm       ASTM D5185m       >200       0       <1		Nickel	ppm	ASTM D5185m	>15	0	0	1
Silver       ppm       ASTM D5185m       Q       0       3         Aluminum       ppm       ASTM D5185m       >200       Q       Q       Q         Lead       ppm       ASTM D5185m       >200       Q       <1		Titanium		ASTM D5185m		0	0	1
Auminum         ppm         ASTM D5185m         >≥25         0         0         0           Lead         ppm         ASTM D5185m         >200         0         <1		Silver				0	0	3
Lead       ppm       ASTM D5185m<>100       0       0       8         Copper       ppm       ASTM D5185m<>220       0       0       2         Tin       ppm       ASTM D5185m<>225       0       0       2         Vanadium       ppm       ASTM D5185m<		Aluminum		ASTM D5185m	>25	0	0	0
Copper         ppm         ASTM D5185m         >200         0         <1         2           Tin         ppm         ASTM D5185m         >25         0         0         2           Vanadium         ppm         ASTM D5185m         0         0         21           ADDITIVES         method         limit/base         current         history1         history2           Boron         ppm         ASTM D5185m         0         0         1           Marganese         ppm         ASTM D5185m         0         0         1           Marganese         ppm         ASTM D5185m         0         -1         1           Marganese         ppm         ASTM D5185m         0         -1         1           Marganese         ppm         ASTM D5185m         0         -1         1           Calcium         ppm         ASTM D5185m         0         1102         12800         1800           Chorshorus         ppm         ASTM D5185m         0         1800         13805           Suffur         ppm         ASTM D5185m         >20         3         2         3           Sodium         ppm         ASTM D5185m         >20								
Tin         ppm         ASTM D5185n         >25         0         0         2           Vanadium         ppm         ASTM D5185n         0         0         2           Cadmium         ppm         ASTM D5185n         0         0         <1								
Vanadium         ppm         ASTM D5185m         0         0         2           Cadmium         ppm         ASTM D5185m         0         0         <1								
Cadmium         ppm         ASTM D5185m         0         0         <1           ADDITIVES         method         limit/base         current         histony1         histony2           Boron         ppm         ASTM D5185m         0         0         1           Barium         ppm         ASTM D5185m         0         0         1           Manganese         ppm         ASTM D5185m         0         <1					220			
ADDITIVESmethodlimit/basecurrenthistory1history2BoronppmASTM D5185m001BariumppmASTM D5185m0<1								
Boron       ppm       ASTM D5185m       0       0       1         Barium       ppm       ASTM D5185m       0       0       0         Molybdenum       ppm       ASTM D5185m       0       <1       1         Magnese       ppm       ASTM D5185m       0       <1       1         Magnesium       ppm       ASTM D5185m       0       <1       19         Calcium       ppm       ASTM D5185m       0       10       0         Phosphorus       ppm       ASTM D5185m       0       10       0         Sulfur       ppm       ASTM D5185m       250       271       162         Sulfur       ppm       ASTM D5185m       0       18       0         Sulfur       ppm       ASTM D5185m       20       2       3         Sodium       ppm       ASTM D5185m       >20       3       2       3         Sodium       ppm       ASTM D5185m       >20       2       102       102         FLUID CLEANLINESS       method       Imit/base       current       history1       history2         Particles >4µm       ASTM D7647       >1000       \$13034			ррш	AOTIVI DOTODIII			-	
Barium         ppm         ASTM D5185m         0         <1					limit/base	current	history1	history2
Molybdenum       ppm       ASTM D5185m       0       <1       1         Maganese       ppm       ASTM D5185m       0       <1		Boron	ppm			0	0	1
Manganese       ppm       ASTM D5185m       <1       <1       <1       <1         Magnesium       ppm       ASTM D5185m       0       <1			ppm			0	0	0
Magnessium       ppm       ASTM D5185m       0       <1       19         Calcium       ppm       ASTM D5185m       0       10       0         Phosphorus       ppm       ASTM D5185m       250       271       162         Zinc       ppm       ASTM D5185m       0       18       0         Sulfur       ppm       ASTM D5185m       0       180       13805         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m       >20       2       <1		Molybdenum	ppm	ASTM D5185m		0	<1	1
Calcium       ppm       ASTM D5185m       0       10       0         Phosphorus       ppm       ASTM D5185m       250       271       162         Zinc       ppm       ASTM D5185m       0       18       0         Sulfur       ppm       ASTM D5185m       11502       12890       13805         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m       >50       3       2       3         Potassium       ppm       ASTM D5185m       >20       2       <1		Manganese	ppm	ASTM D5185m		<1	<1	<1
Phosphorus       ppm       ASTM D5185m       250       271       162         Zinc       ppm       ASTM D5185m       0       18       0         Sulfur       ppm       ASTM D5185m       11502       12890       13805         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m       >50       3       2       3         Potassium       ppm       ASTM D5185m       >20       2       <1       102         FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       >10000       & 81950           Particles >6µm       ASTM D7647       >2500       13034           Particles >14µm       ASTM D7647       >640       406           Particles >21µm       ASTM D7647       >640       68		Magnesium	ppm	ASTM D5185m		0	<1	19
Zinc       ppm       ASTM D5185m       0       18       0         Sulfur       ppm       ASTM D5185m       11502       12890       13805         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m       >20       3       2       3         Potassium       ppm       ASTM D5185m       >20       2       <1		Calcium	ppm	ASTM D5185m		0	10	0
Sulfur       ppm       ASTM D5185m       11502       12890       13805         CONTAMINANTS       method       limit/base       current       history1       history2         Silicon       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m       >50       3       2       3         Sodium       ppm       ASTM D5185m        4       <1       44         Potassium       ppm       ASTM D5185m       >20       2       <1       102         FLUID CLEANLINESS       method       limit/base       current       history1       history2         Particles >4µm       ASTM D7647       >10000       ▲ 81950           Particles >4µm       ASTM D7647       >2500       ▲ 13034           Particles >14µm       ASTM D7647       >640       406           Particles >21µm       ASTM D7647       >10       0           Particles >21µm       ASTM D7647       >10       0           Particles >71µm       ASTM D7647       >10       0		Phosphorus	ppm	ASTM D5185m		250	271	162
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>50323SodiumppmASTM D5185m4<1		Zinc	ppm	ASTM D5185m		0	18	0
SiliconppmASTM D5185m>50323SodiumppmASTM D5185mC4<144PotassiumppmASTM D5185m>202<1102FLUID CLEANLINESSmethodlimit/basecurrenthistory1history2Particles >4µmASTM D7647>10000& 81950Particles >6µmASTM D7647>2500▲ 13034Particles >6µmASTM D7647>640406Particles >14µmASTM D7647>16068Particles >21µmASTM D7647>16068Particles >38µmASTM D7647>100Particles >71µmASTM D7647>100Oil CleanlinessISO 4406 (c)>20/18/1624/21/16FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2		Sulfur	ppm	ASTM D5185m		11502	12890	13805
Sodium         ppm         ASTM D5185m         4         <1         44           Potassium         ppm         ASTM D5185m         >20         2         <1		CONTAMINA	NTS	method	limit/base	current	history1	history2
Sodium         ppm         ASTM D5185m         4         <1         44           Potassium         pm         ASTM D5185m         >20         2         <1		Silicon	ppm	ASTM D5185m	>50	3	2	3
PotassiumppmASTM D5185m>202<1102FLUID CLEANLINESSmethodlimit/basecurrenthistory1history2Particles >4µmASTM D7647>1000081950Particles >6µmASTM D7647>250013034Particles >14µmASTM D7647>640406Particles >14µmASTM D7647>16068Particles >21µmASTM D7647>16068Particles >38µmASTM D7647>401Particles >71µmASTM D7647>100Oil CleanlinessISO 4406 (c)>20/18/1624/21/16FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2		Sodium		ASTM D5185m			<1	44
Particles >4µm       ASTM D7647       >10000       ▲ 81950           Particles >6µm       ASTM D7647       >2500       ▲ 13034           Particles >14µm       ASTM D7647       >640       406           Particles >14µm       ASTM D7647       >640       406           Particles >21µm       ASTM D7647       >160       68           Particles >38µm       ASTM D7647       >40       1           Particles >71µm       ASTM D7647       >10       0           Oil Cleanliness       ISO 4406 (c)       >20/18/16       ▲ 24/21/16           FLUID DEGRADATION       method       limit/base       current       history1       history2					>20	2	<1	
Particles >6µmASTM D7647>2500 $\land$ 13034Particles >14µmASTM D7647>640406Particles >21µmASTM D7647>16068Particles >38µmASTM D7647>401Particles >71µmASTM D7647>100Oil CleanlinessISO 4406 (c)>20/18/16 $\checkmark$ 24/21/16FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2		FLUID CLEAN	ILINESS	method	limit/base	current	history1	history2
Particles >14 $\mu$ mASTM D7647>640 <b>406</b> Particles >21 $\mu$ mASTM D7647>160 <b>68</b> Particles >38 $\mu$ mASTM D7647>401Particles >71 $\mu$ mASTM D7647>10 <b>0</b> Oil CleanlinessISO 4406 (c)>20/18/16 <b>24/21/16</b> FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2		Particles >4µm		ASTM D7647	>10000	<u> </u>		
Particles >14 $\mu$ mASTM D7647>640 <b>406</b> Particles >21 $\mu$ mASTM D7647>160 <b>68</b> Particles >38 $\mu$ mASTM D7647>401Particles >71 $\mu$ mASTM D7647>10 <b>0</b> Oil CleanlinessISO 4406 (c)>20/18/16 <b>24/21/16</b> FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2				ASTM D7647	>2500	<u> </u>		
Particles >21μm       ASTM D7647       >160       68           Particles >38μm       ASTM D7647       >40       1           Particles >37μm       ASTM D7647       >10       0           Particles >71μm       ASTM D7647       >10       0           Oil Cleanliness       ISO 4406 (c)       >20/18/16       ▲ 24/21/16           FLUID DEGRADATION       method       limit/base       current       history1       history2						406		
Particles >38μm       ASTM D7647       >40       1           Particles >71μm       ASTM D7647       >10       0           Oil Cleanliness       ISO 4406 (c)       >20/18/16       24/21/16           FLUID DEGRADATION       method       limit/base       current       history1       history2								
Particles >71 µm         ASTM D7647         >10         0             Oil Cleanliness         ISO 4406 (c)         >20/18/16 <b>24/21/16</b> FLUID DEGRADATION         method         limit/base         current         history1         history2								
Oil CleanlinessISO 4406 (c)>20/18/1624/21/16FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2								
				ASTM D/647	>10	U		
Acid Number (AN) mg KOH/g ASTM D8045 0.40 0.05 0.43		Particles >71µm						
		Particles >71µm Oil Cleanliness		ISO 4406 (c)	>20/18/16	<b>4</b> 24/21/16		

Report Id: KRAKIR [WUSCAR] 06047760 (Generated: 01/02/2024 09:18:06) Rev: 1

0.40 0.05 0.43 Submitted By: Wilberto Pacheco Garcia



Acid Number

0.50

0.00

400 350

300

10°C1 250

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> 100 50

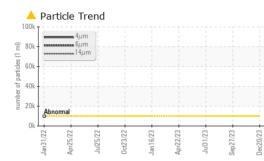
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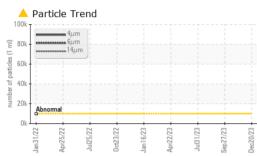
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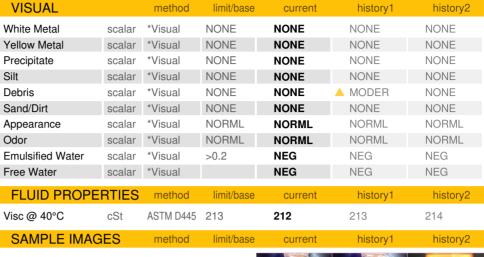
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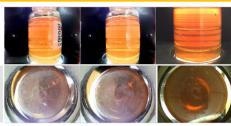
## **OIL ANALYSIS REPORT**





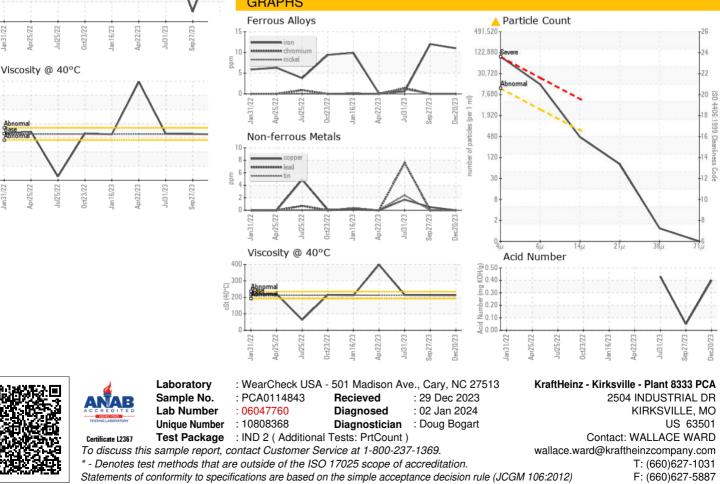


Color



Bottom





Submitted By: Wilberto Pacheco Garcia