

## [PRINCE] TAKEUCHI TB290 185109833

Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION	J

Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

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All component wear rates are normal.

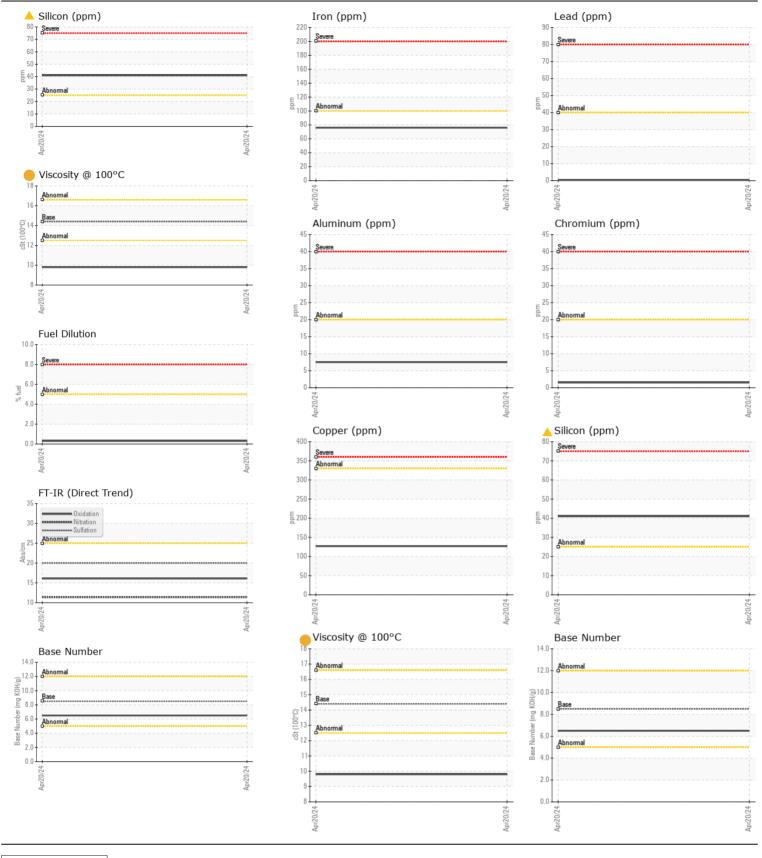
## CONTAMINATION

Sodium and/or potassium levels are high. Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material. Test for glycol is negative.

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The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

Sample Number         Client Info         VCP44551             Sample Date         Client Info         20 Apr 2024             Machine Age         hrs         Client Info         0             Oil Age         hrs         Client Info         0             Oil Changed         Client Info         0             Sample Status         Client Info         Changed             Sample Status         Client Info         Changed             Sample Status         Sample Status          ABNORMA            Nickel         ppm         ASTM D5185m         >100             Nickel         ppm         ASTM D5185m         >20         8             Lead         ppm         ASTM D5185m         >30              Vanadium         ppm         ASTM D5185m         >30              Vanadium         ppm         ASTM D5185m         >30         117 <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>							
Sample Date         Client Info         20 Apr 2024             Machine Age         hrs         Client Info         0             Oil Age         hrs         Client Info         0             Oil Age         hrs         Client Info         0             Oil Changed         Client Info         Changed             Sample Status         Client Info         Changed             Kickel         ppm         ASTM D5185m         >100             Nickel         ppm         ASTM D5185m         >20         2             Silver         ppm         ASTM D5185m         >20         8             Silver         ppm         ASTM D5185m         >20         8             Silver         ppm         ASTM D5185m         >20         4             Yanadium         ppm         ASTM D5185m         >20              Yanadium         ppm         ASTM D5185m	Test	UOM	Method	Limit/Abn	Current	History1	History2
Machine Age         hrs         Client Info         0             Pilter Age         hrs         Client Info         0             Pilter Age         hrs         Client Info         0             Sample Status         Client Info         Changed             Sample Status         Client Info         Changed             Tron         ppm         ASTM D5185m         >100             Nickel         ppm         ASTM D5185m         >20         2             Nickel         ppm         ASTM D5185m         >30         0             Aluminum         ppm         ASTM D5185m         >30         0             Silver         ppm         ASTM D5185m         >30         127             Vanadium         ppm         ASTM D5185m         >30         127             Vanadium         ppm         ASTM D5185m         >25         <1             Vanadium	Sample Number		Client Info		VCP445510		
Oil AgehrsClient Info0Filter AgehrsClient InfoChangedOil ChangedClient InfoChangedSample StatusClient InfoChangedIronppmASTM D5185m>10076ChromiumppmASTM D5185m>202NickelppmASTM D5185m>30NickelppmASTM D5185m>30AluminumppmASTM D5185m>30AluminumppmASTM D5185m>30127CopperppmASTM D5185m>15<1VanadiumppmASTM D5185m>20A11Yellow Metalscalar*VisualNONENONESiliconppmASTM D5185m>20A11SulfationAbs/rm'ASTM D5185m>20A11.4SulfationAbs/rm'ASTM D5185m>20A11.4SulfationAbs/rm'ASTM D7844>30.8SulfationAbs/rm'ASTM D7844>30.8SulfationAbs/rm'ASTM D7858m114S	Sample Date		Client Info		20 Apr 2024		
Filter AgehrsClient Info0Oil ChangedClient InfoChangedSample StatusClient InfoChangedSample StatusSTM D5185m>10076IronppmASTM D5185m>202IronppmASTM D5185m>202NickelppmASTM D5185m>208SilverppmASTM D5185m>208SilverppmASTM D5185m>208CopperppmASTM D5185m>10TinppmASTM D5185m>10127YanadiumppmASTM D5185m>15<1Yellow Metalscalar*VisualNONENONESiliconppmASTM D5185m>25 <b>A</b> 41Yellow Metalscalar*VisualNONENONESiliconppmASTM D5185m>20 <b>A</b> 11.4Solo %%'ASTM D764>30.8Silicon%'ASTM D764>30.8Solo %%'ASTM D764>30.8SolifationAbs/m'NO	Machine Age	hrs	Client Info		1072		
Oil Changed Filter Changed Sample StatusClient Info Client Info Client Info ABNORMALSample StatusClient Info Client Info Sample StatusABNORMALIronppmASTM D5185m ASTM D5185m>202NickelppmASTM D5185m ASTM D5185m>40SilverppmASTM D5185m ASTM D5185m>0AluminumppmASTM D5185m ASTM D5185m>0CopperppmASTM D5185m ASTM D5185m>1-1YanadiumppmASTM D5185m ASTM D5185m>1-1YanadiumppmASTM D5185m ASTM D5185m>1-1YanadiumppmASTM D5185m ASTM D5185m>20A11Yellow Metalscalar*VisualNONENONESiliconppmASTM D5185m ASTM D5185m>20A177Solt %%'ASTM D5185m ASTM D5185m>3020.0SulfationAbs:/m'ASTM D5185m>3020.0Soltscalar'VisualNONENONESulfationAbs:/m'ASTM D5185m>3020.0Soltscalar	Oil Age	hrs	Client Info		0		
Filter Changed         Client Info         Changed          ABNORMAL            Sample Status         Ppm         ASTM D5185m         >100         76             Iron         ppm         ASTM D5185m         >20         2             Nickel         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >20         8             Aluminum         ppm         ASTM D5185m         >20         8             Lead         ppm         ASTM D5185m         >20         8             Vanadium         ppm         ASTM D5185m         >30         127             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >20         MONE             Vellow Metal         scalar         *Visual         NONE             Silicon         ppm         ASTM D5185m         <	Filter Age	hrs	Client Info		0		
Sample Status         ABINORMAL             Iron         ppm         ASTM D5185m<>100         76             Chromium         ppm         ASTM D5185m         >20         2             Nickel         ppm         ASTM D5185m         >4         0             Silver         ppm         ASTM D5185m         >3         0             Aluminum         ppm         ASTM D5185m         >20         8             Copper         ppm         ASTM D5185m         >40         <1             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >20         A         177             Vanadium         ppm         ASTM D5185m         >20         A         177             Solicon         ppm         ASTM D5185m         >20         A	Oil Changed		Client Info		Changed		
Iron         ppm         ASTM D5185m         >100         76             Chromium         ppm         ASTM D5185m         >20         2             Nickel         ppm         ASTM D5185m         >20         2             Silver         ppm         ASTM D5185m         >3         0             Silver         ppm         ASTM D5185m         >30         0             Aluminum         ppm         ASTM D5185m         >20         8             Copper         ppm         ASTM D5185m         >30         127             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >20         A         177             Vellow Metal         scalar         *Visual         NONE         NONE             Solicon         ppm         ASTM D5185m         >20         A         177             Fuelow	Filter Changed		Client Info		Changed		
Drive         ASTM D5185m         >20         2             Nickel         ppm         ASTM D5185m         >20         2             Nickel         ppm         ASTM D5185m         >20         8             Silver         ppm         ASTM D5185m         >30         0             Aluminum         ppm         ASTM D5185m         >30         127             Copper         ppm         ASTM D5185m         >30         127             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >20         A         177             Vallow Metal         scalar         'Visual         NONE              Solicon         ppm         ASTM D5185m         >20         A         11.4             Solicon <td< th=""><th>Sample Status</th><th></th><th></th><th></th><th>ABNORMAL</th><th></th><th></th></td<>	Sample Status				ABNORMAL		
Drive         ASTM D5185m         >20         2             Nickel         ppm         ASTM D5185m         >20         2             Nickel         ppm         ASTM D5185m         >20         8             Silver         ppm         ASTM D5185m         >30         0             Aluminum         ppm         ASTM D5185m         >30         127             Copper         ppm         ASTM D5185m         >30         127             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >20         A         177             Vallow Metal         scalar         'Visual         NONE              Solicon         ppm         ASTM D5185m         >20         A         11.4             Solicon <td< th=""><th>· · · · · · · · · · · · · · · · · · ·</th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	· · · · · · · · · · · · · · · · · · ·						
Nickel         ppm         ASTM D5185m         >4         0             Titanium         ppm         ASTM D5185m         >3         0             Silver         ppm         ASTM D5185m         >20         8             Aluminum         ppm         ASTM D5185m         >20         8             Copper         ppm         ASTM D5185m         >40         <1             Copper         ppm         ASTM D5185m         >40         <1             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >20         ▲ 11             Vanadium         ppm         ASTM D5185m         >20         ▲ 11             Yellow Metal         scalar         *Visual         NONE             Solicon         ppm         ASTM D784         >3         0.8             Solicon         %         *ASTM D784 <td< th=""><th>Iron</th><th>ppm</th><th>ASTM D5185m</th><th>&gt;100</th><th>76</th><th></th><th></th></td<>	Iron	ppm	ASTM D5185m	>100	76		
Titanium         ppm         ASTM D5185m         0             Silver         ppm         ASTM D5185m         >20         8             Aluminum         ppm         ASTM D5185m         >20         8             Lead         ppm         ASTM D5185m         >40         <1             Copper         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >25          41             Yellow Metal         scalar         *Visual         NONE              Silicon         ppm         ASTM D5185m         >20         A177             Glycol         %         *ASTM D7624         >20         NEG             Soti %         %         *ASTM D76	Chromium	ppm	ASTM D5185m	>20	2		
SilverppmASTM D5185m>30AluminumppmASTM D5185m>208LeadppmASTM D5185m>40CopperppmASTM D5185m>330127TinppmASTM D5185m>15VanadiumppmASTM D5185m>10Yellow Metalscalar*VisualNONENONEYellow Metalscalar*VisualNONE177SiliconppmASTM D5185m>20▲ 11Fuel%ASTM D5185m>20▲ 177Glycol%*ASTM D5185m>20NEGSoto %%*ASTM D7624>20NEGSulfationAbs/Imm*ASTM D7624>2011.4SulfationAbs/Imm*ASTM D7624>2011.4SulfationAbs/Imm*ASTM D7624>2011.4SulfationAbs/Imm*ASTM D7624>2011.4SulfationAbs/Imm*ASTM D7624>2011.4SulfationAbs/Imm*ASTM D7624>2011.4SodiumppmASTM D5185m100NORE<	Nickel	ppm	ASTM D5185m	>4	0		
Aluminum         ppm         ASTM D5185m         >20         8             Lead         ppm         ASTM D5185m         >40         <1             Copper         ppm         ASTM D5185m         >330         127             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         >10              Yellow Metal         scalar         *Visual         NONE         NONE             Solicon         ppm         ASTM D5185m         >20         ▲ 11             Fuel         %         ASTM D5185m         >20         ▲ 177             Solicon         %         *ASTM D5185m         >20         NEG             Solot %         %         *ASTM D764         >20         11.4             Solifation         Abs/rm	Titanium	ppm	ASTM D5185m		0		
Lead         ppm         ASTM D5185m         >40         <1	Silver	ppm	ASTM D5185m	>3	0		
Copper         ppm         ASTM D5185m         >330         127             Tin         ppm         ASTM D5185m         >15         <1             Vanadium         ppm         ASTM D5185m         NONE             White Metal         scalar         *Visual         NONE         NONE            Yellow Metal         scalar         *Visual         NONE             Silicon         ppm         ASTM D5185m         >25 <b>4</b> 1            Potassium         ppm         ASTM D5185m         >20 <b>177</b> Fuel         %         ASTM D5185m         >20 <b>NEG</b> Glycol         %         'ASTM D7624         >20 <b>11.4</b> Solt %         %         'ASTM D715         >30         20.0             Sulfation         Abs/:mm         'ASTM D7415         >30         20.0             Sulfation         Abs/:mm         'ASTM D7415         >30	Aluminum	ppm	ASTM D5185m	>20	8		
Tin         ppm         ASTM D5185m         > 15         < 1	Lead	ppm	ASTM D5185m	>40	<1		
Vanadium         ppm         ASTM D5185m         0             White Metal         scalar         *Visual         NONE         NONE             Yellow Metal         scalar         *Visual         NONE         NONE             Silicon         ppm         ASTM D5185m         >20         A 11             Potassium         ppm         ASTM D5185m         >20         A 177             Fuel         %         ASTM D5185m         >20         A 177             Water         WC Method         >0.2         NEG             Soot %         %         *ASTM D7624         >20         N1.4             Sulfation         Abs/.tm         *ASTM D7624         >20         11.4             Sulfation         Abs/.tm         *ASTM D7624         >20         11.4             Sulfation         Abs/.tm         *ASTM D7624         >20         1.4             Sodium         scalar <t< th=""><th>Copper</th><th>ppm</th><th>ASTM D5185m</th><th>&gt;330</th><th>127</th><th></th><th></th></t<>	Copper	ppm	ASTM D5185m	>330	127		
White Metal         scalar         *Visual         NONE         NONE            Yellow Metal         scalar         *Visual         NONE         NONE            Silicon         ppm         ASTM D5185m         >25         A 11            Potassium         ppm         ASTM D5185m         >20         A 177            Fuel         %         ASTM D5185m         >20         A 177            Water         WC Method         >0.2         NEG            Glycol         %         *ASTM D2982         NEG            Soot %         %         *ASTM D7624         >20         11.4            Sulfation         Abs/.mm         *ASTM D7624         >20         10.4            Sulfation         scalar         *Visual         NORE	Tin	ppm	ASTM D5185m	>15	<1		
Yellow Metal         scalar         *Visual         NONE         NONE             Silicon         ppm         ASTM D5185m<>20         ▲ 41             Potassium         ppm         ASTM D5185m<>20         ▲ 177             Fuel         %         ASTM D524<>5         0.3             Water         WC Method         >0.2         NEG             Glycol         %         *ASTM D7844<>3         0.8             Soot %         %         *ASTM D7624<>20         11.4             Sulfation         Abs/.tmm<*ASTM D715<>30         20.0             Sulfation         Abs/.tmm<*ASTM D715<>30         20.0             Sulfation         Abs/.tmm<*ASTM D715<>30         20.0             Sulfation         Abs/.tmm<*ASTM D7185         30         20.0	Vanadium	ppm	ASTM D5185m		0		
Silicon       ppm       ASTM D5185m< >25       ▲ 41           Potassium       ppm       ASTM D5185m       >20       ▲ 177           Fuel       %       ASTM D3524       >5       0.3           Water       WC Method       >0.2       NEG           Glycol       %       *ASTM D2982       NEG           Soot %       %       *ASTM D7624       >20       11.4           Sulfation       Abs/cm       *ASTM D715       >30       20.0           Sulfation       Abs/cm       *ASTM D7141       >30       20.0           Sulfation       scalar       *Visual       NONE       NONE           Appearance       scalar       <	White Metal	scalar	*Visual	NONE	NONE		
Silicon       ppm       ASTM D5185m< >25       ▲ 41           Potassium       ppm       ASTM D5185m       >20       ▲ 177           Fuel       %       ASTM D3524       >5       0.3           Water       WC Method       >0.2       NEG           Glycol       %       *ASTM D2982       NEG           Soot %       %       *ASTM D7624       >20       11.4           Sulfation       Abs/cm       *ASTM D715       >30       20.0           Sulfation       Abs/cm       *ASTM D7141       >30       20.0           Sulfation       scalar       *Visual       NONE       NONE           Appearance       scalar       <	Yellow Metal	scalar	*Visual	NONE	NONE		
Potassium         ppm         ASTM D5185m         >20         ▲ 177             Fuel         %         ASTM D3524         >5         0.3             Water         WC Method         >0.2         NEG             Glycol         %         *ASTM D2982         NEG             Soot %         %         *ASTM D7624         >20         11.4             Sulfation         Abs/cm         *ASTM D7624         >20         10             Sulfation         Abs/cm         *ASTM D7624         >20         11.4             Sulfation         scalar         *Visual         NONE              Sand/Dirt         scalar         *Visual </th <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Fuel         %         ASTM D3524         >5         0.3            Water         WC Method         >0.2         NEG            Glycol         %         *ASTM D2982         NEG            Soot %         %         *ASTM D7844         >3         0.8            Nitration         Abs/cm         *ASTM D7624         >20         11.4            Sulfation         Abs/cm         *ASTM D7614         >30         20.0            Sulfation         scalar         *Visual         NONE             Sand/Dirt         scalar         *Visual         NORM         NORML      <	Silicon	ppm	ASTM D5185m	>25	<b>4</b> 1		
Water         WC Method         >0.2         NEG             Glycol         %         *ASTM D2982         NEG             Soot %         %         *ASTM D7844         >3         0.8             Nitration         Abs/cm         *ASTM D7624         >20         11.4             Sulfation         Abs/cm         *ASTM D7624         >0         0.0             Debris         scalar         *Visual         NONE              Appearance         scalar         *Visual         NORML         NORML             Gdyor         scalar         *Vis	Potassium	ppm	ASTM D5185m	>20	🔺 177		
Glycol         %         *ASTM D2982         NEG             Soot %         %         *ASTM D7844         >3         0.8             Nitration         Abs/cm         *ASTM D7624         >20         11.4             Sulfation         Abs/tmm         *ASTM D7624         >20         11.4             Sulfation         Abs/tmm         *ASTM D7624         >30         20.0             Sulfation         scalar         *Visual         NONE              Sand/Dirt         scalar         *Visual         NORML         NORML             Odor         scalar         *Visual         >0.2         NEG             Sodium <td< th=""><th>Fuel</th><th>%</th><th>ASTM D3524</th><th>&gt;5</th><th>0.3</th><th></th><th></th></td<>	Fuel	%	ASTM D3524	>5	0.3		
Soot %         %         *ASTM D7844         >3         0.8             Nitration         Abs/cm         *ASTM D7624         >20         11.4             Sulfation         Abs/.1mm         *ASTM D7415         >30         20.0             Sulfation         scalar         *Visual         NONE         NONE             Sand/Dirt         scalar         *Visual         NORML         NORML             Odor         scalar         *Visual         NORML         NORML             Sodium         ppm         ASTM D5185m         250         111	Water		WC Method	>0.2	NEG		
NitrationAbs/cm*ASTM D7624>2011.4SulfationAbs/.1mm*ASTM D7415>3020.0Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLCodorscalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLSodiumppmASTM D5185m>108111BoronppmASTM D5185m100143ManganeseppmASTM D5185m100143MagnesiumppmASTM D5185m30002594PhosphorusppmASTM D5185m1150708SulfurppmASTM D5185m1350866SulfurppmASTM D5185m1202708SulfurppmASTM D5185m42502708SulfurppmASTM D5185m25516.1SulfurppmASTM D5185m25516.1	Glycol	%	*ASTM D2982		NEG		
Sulfation         Abs/.1mm         *ASTM D7415         >30         20.0             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             Odor         scalar         *Visual         NORML         NORML             Odor         scalar         *Visual         NORML         NORML             Sodium         ppm         ASTM D5185m         >158         14             Boron         ppm         ASTM D5185m         250         111             Manganese         ppm         ASTM D5185m         100         0             Magnesium <t< th=""><th>Soot %</th><th>%</th><th>*ASTM D7844</th><th>&gt;3</th><th>0.8</th><th></th><th></th></t<>	Soot %	%	*ASTM D7844	>3	0.8		
Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLCodorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185m>15814BoronppmASTM D5185m100111MalganeseppmASTM D5185m100143MagnesiumppmASTM D5185m30002594PhosphorusppmASTM D5185m1350866SulfurppmASTM D5185m1350866SulfurppmASTM D5185m42502708SulfurppmASTM D5185m425016.1SulfurppmASTM D5185m4250516.1SulfurppmASTM D5185m4250516.1SulfurppmASTM D5185m65.5Base Number (BN)mg K0HgASTM D28968.56.5.5	Nitration	Abs/cm	*ASTM D7624	>20	11.4		
Debrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLCodorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185m>15814BoronppmASTM D5185m100111MalganeseppmASTM D5185m100143MagnesiumppmASTM D5185m30002594PhosphorusppmASTM D5185m1350866SulfurppmASTM D5185m1350866SulfurppmASTM D5185m42502708SulfurppmASTM D7414>2516.1Base Number (BN)mg KOH/gASTM D28968.56.5	Sulfation	Abs/.1mm	*ASTM D7415	>30	20.0		
Sand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLIIIIIIIIIIIIIIIIIIOdorscalar*VisualNORMLNORMLNORMLIIIIIIIIIIIIIIIIIIIIIEmulsified Waterscalar*Visual>0.2NEGII	Silt	scalar	*Visual	NONE	NONE		
Appearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185m>15814BoronppmASTM D5185m250111BariumppmASTM D5185m100MolybdenumppmASTM D5185m100143ManganeseppmASTM D5185m45013MagnesiumppmASTM D5185m30002594PhosphorusppmASTM D5185m1350866SulfurppmASTM D5185m1350866SulfurppmASTM D5185m42502708Base Number (BN)mg KOH/gASTM D28968.56.5	Debris	scalar	*Visual	NONE	NONE		
Odorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGSodiumppmASTM D5185m>15814BoronppmASTM D5185m250111BariumppmASTM D5185m100MolybdenumppmASTM D5185m100143ManganeseppmASTM D5185m45013MagnesiumppmASTM D5185m30002594PhosphorusppmASTM D5185m1150708SulfurppmASTM D5185m1350866SulfurppmASTM D5185m42502708OxidationAbs/1mm*ASTM D7414>2516.1Base Number (BN)mg KOH/gASTM D28968.56.5	Sand/Dirt	scalar	*Visual	NONE	NONE		
Barlusified Water         scalar         *Visual         >0.2         NEG            Sodium         ppm         ASTM D5185m         >158         14             Boron         ppm         ASTM D5185m         250         111             Barium         ppm         ASTM D5185m         100         0             Molybdenum         ppm         ASTM D5185m         100         143             Manganese         ppm         ASTM D5185m         100         143             Magnesium         ppm         ASTM D5185m         450         13             Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1250         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm	Appearance	scalar	*Visual	NORML	NORML		
Sodium         ppm         ASTM D5185m         >158         14             Boron         ppm         ASTM D5185m         250         111             Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         143             Manganese         ppm         ASTM D5185m         100         143             Magnesium         ppm         ASTM D5185m         100         143             Magnesium         ppm         ASTM D5185m         450         13             Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1	Odor	scalar	*Visual	NORML	NORML		
Boron         ppm         ASTM D5185m         250         111            Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         143             Manganese         ppm         ASTM D5185m         100         143             Magnesium         ppm         ASTM D5185m         450         13             Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5	Emulsified Water	scalar	*Visual	>0.2	NEG		
Boron         ppm         ASTM D5185m         250         111            Barium         ppm         ASTM D5185m         10         0             Molybdenum         ppm         ASTM D5185m         100         143             Manganese         ppm         ASTM D5185m         100         143             Magnesium         ppm         ASTM D5185m         450         13             Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5							
Barium         ppm         ASTM D5185m         100         0             Molybdenum         ppm         ASTM D5185m         100         143             Manganese         ppm         ASTM D5185m         100         143             Magnesium         ppm         ASTM D5185m         450         1             Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         3000         2594             Zinc         ppm         ASTM D5185m         1150         708             Sulfur         ppm         ASTM D5185m         1350         8666             Oxidation         Abs/.1m         *ASTM D7145         >25         16.1             Base Number (BN)         mg K0H/g         ASTM D2896         8.5         6.5	_						
Molybdenum         ppm         ASTM D5185m         100         143             Manganese         ppm         ASTM D5185m         1             Magnesium         ppm         ASTM D5185m         450         13             Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm         *ASTM D714         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5							
Manganese         ppm         ASTM D5185m         1             Magnesium         ppm         ASTM D5185m         450         13             Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         1350         16.1             Oxidation         Abs/.1mm         *ASTM D286         8.5         6.5	Barium						
Magnesium         ppm         ASTM D5185m         450         13             Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5		ppm		100			
Calcium         ppm         ASTM D5185m         3000         2594             Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5	0	ppm					
Phosphorus         ppm         ASTM D5185m         1150         708             Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5	0	ppm					
Zinc         ppm         ASTM D5185m         1350         866             Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5							
Sulfur         ppm         ASTM D5185m         4250         2708             Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5	·	ppm		1150			
Oxidation         Abs/.1mm         *ASTM D7414         >25         16.1             Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5	Zinc				866		
Base Number (BN)         mg KOH/g         ASTM D2896         8.5         6.5	Sulfur	ppm	ASTM D5185m	4250			
	Oxidation	Abs/.1mm	*ASTM D7414	>25			
Visc @ 100°C cSt ASTM D445 14.4 🤚 9.8 /	Base Number (BN)	mg KOH/g	ASTM D2896	8.5	6.5		
	Visc @ 100°C	cSt	ASTM D445	14.4	9.8 🖉		



ALTA EQUIPMENT/FLAGLER CONSTRUCTION EQUIPMENT LLC Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. Received 8418 PALM RIVER ROAD : VCP445510 : 22 May 2024 Lab Number : 06187260 Tested : 28 May 2024 TAMPA, FL : 28 May 2024 - Jonathan Hester US 33619 Unique Number : 11044012 Diagnosed Test Package : MOB 1 (Additional Tests: FuelDilution, Glycol, PercentFuel, TBN) Contact: KENNY HANEY Certificate L2367 To discuss this sample report, contact Customer Service at 1-800-237-1369. khaney@flaglerce.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (813)630-0077 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: (813)630-2233

Contact/Location: KENNY HANEY - VOLVO0093