

Machine Id NOT GIVEN WC0603363 Diesel Engine

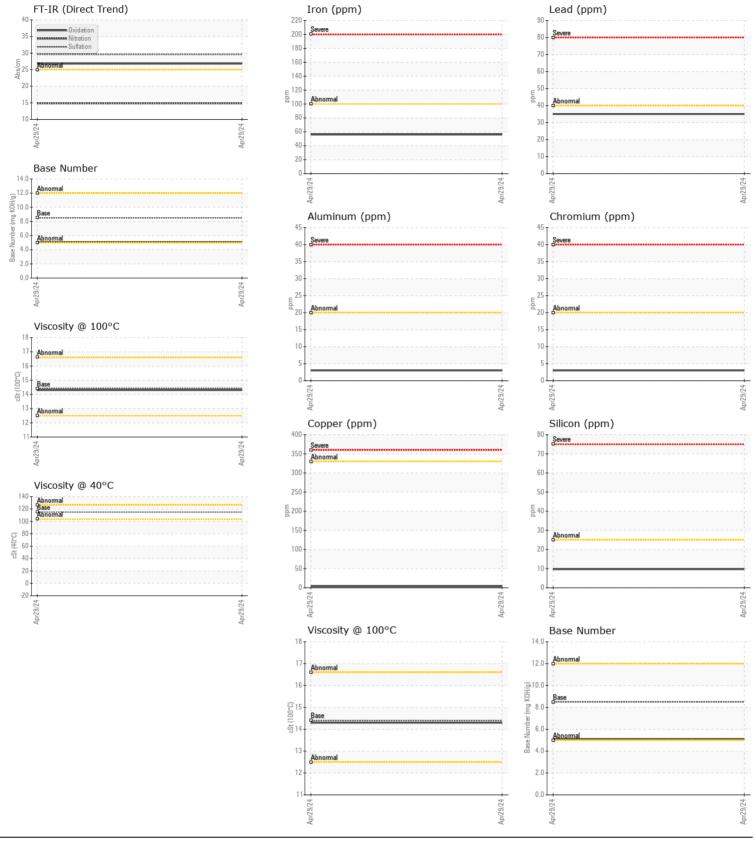
DIESEL ENGINE OIL SAE 15W40 (--- QTS)

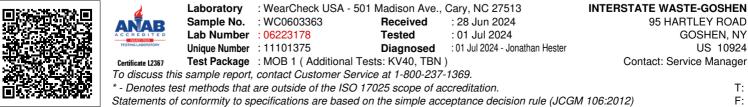
Sample Number Client Info WC603383 Sample Date Client Info 29 Apr 204 Machine Age hrs Client Info 600 Oil Changed Client Info 600 Sample Status Norekal VEAR Iron ppm ASTM DSR5m >100 56 Nickel ppm ASTM DSR5m >20 3 Titanum ppm ASTM DSR5m >20 3 Sliver ppm ASTM DSR5m >20 3 Vanadium ppm ASTM	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
Tesample at the next service interval to monitor. Sample Date Machine Age Inside into into inside into into into into into into into into			0.0101		20007000			
Machine Age frag Client Info 600	Resample at the next service interval to monitor.							
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Filter Changed Sample Status Changed NORMAL Changed 		-	hrs	Client Info		600		
Sample Status NORMA		Oil Changed		Client Info		Changed		
VEAR Iron ppm ASTM D585m >100 56 All component wear rates are normal. ppm ASTM D585m -4 0 Nickel ppm ASTM D585m -4 0 Silver ppm ASTM D585m -20 3 Silver ppm ASTM D585m -20 3 Adminum ppm ASTM D585m -20 3 Copper ppm ASTM D585m -5 1 Vanadium ppm ASTM D585m -5 1 Velow Metal scalar Visual NONE NONE Vanadium ppm ASTM D585m -2 10 Vanadium ppm ASTM D585m -2 10 Valoation of any contam		Filter Changed		Client Info		Changed		
All component wear rates are normal. Chromium ppm ASTM 0585m -20 3 Nickel ppm ASTM 0585m 0 Nickel ppm ASTM 0585m -30 0 Silver ppm ASTM 0585m -30 0 Lead ppm ASTM 0585m -30 0 Vanadium ppm ASTM 0585m -30 4 Vanadium ppm ASTM 0585m -50 10 Vanadium ppm ASTM 0585m -50 10 Vanadium ppm ASTM 0585m -20 5 Vanadium ppm ASTM 0585m -20 10 Vanadium ppm ASTM 0585m -20 10		Sample Status				NORMAL		
All component wear rates are normal. Chromium ppm ASTM 0585m -20 3 Nickel ppm ASTM 0585m 0 Nickel ppm ASTM 0585m -30 0 Silver ppm ASTM 0585m -30 0 Lead ppm ASTM 0585m -30 0 Vanadium ppm ASTM 0585m -30 4 Vanadium ppm ASTM 0585m -50 10 Vanadium ppm ASTM 0585m -50 10 Vanadium ppm ASTM 0585m -20 5 Vanadium ppm ASTM 0585m -20 10 Vanadium ppm ASTM 0585m -20 10	WEAR	Iron	ppm	ASTM D5185m	>100	56		
Notes ppm AstM 0588 br 0 m m m m Silver ppm ASTM 0588 br -3 0 Silver ppm ASTM 0588 br -3 0 Aluminum ppm ASTM 0588 sr -30 0 Lead ppm ASTM 0588 sr -30 4 Copper ppm ASTM 0588 sr -30 4 Vanadium ppm ASTM 0588 sr -30 NONE NONE CONTAMINATION NONE Silicon ppm ASTM 0588 sr -20 16 There is no indication of any c	All component wear rates are normal.	Chromium	ppm	ASTM D5185m	>20	3		
Silver ppm ASTM D5185m >3 0 Aluminum ppm ASTM D5185m >20 3 Lead ppm ASTM D5185m >20 3 Copper ppm ASTM D5185m >300 4 Vanadium ppm ASTM D5185m >300 4		Nickel	ppm	ASTM D5185m	>4	0		
Aluminum ppm ASTM D5185m >20 3 Lead ppm ASTM D5185m >40 35 Copper Tim ppm ASTM D5185m >40 14 Vanadium ppm ASTM D5185m >1 White Metal scalar "Visual NONE SUBCONTAMINATION Silicon ppm ASTM D5185m >25 10 Solicon ppm ASTM D5185m >20 6		Titanium		ASTM D5185m		<1		
Lead pp ASTM D5185m -4.0 35 Copper ppm ASTM D5185m -330 4 Tin ppm ASTM D5185m -15 1 Vanadium ppm ASTM D5185m -10 Vanadium ppm ASTM D5185m -20 6 Vellow Metal scalar Visual NONE NONE Solicon of any contamination in the oil. Silicon ppm ASTM D5185m -20 6		Silver	ppm	ASTM D5185m	>3	0		
Lead pp ASTM D51850 >-00 35 Copper ppm ASTM D51850 >-00 4 Tin ppm ASTM D51850 >1 1 Vanadium ppm ASTM D51850 NONE NONE Vanadium ppm ASTM D51850 NONE NONE Velow Metal scalar Visual NONE NONE Solicon of any contamination in the oil. Silicon of any contamination in the oil. Silicon of any Contamination in the oil. WC Method SOL NEG Glycol WC Method SOL NEG Sol % % MSTM D784 SOL NEG Sulfation Abs/cm Yisual NONE NONE Soldrig scalar Visual NONE NONE		Aluminum		ASTM D5185m	>20	3		
Copper ppm ASTM 05186m >330 4		Lead		ASTM D5185m	>40	35		
Vanadium ppm ASTM D5185m		Copper	ppm	ASTM D5185m	>330	4		
White Metal Yellow Metal scalar 'Visual NONE NONE		Tin	ppm	ASTM D5185m	>15	1		
Vellow Metal scalar *Visual NONE NONE CONTAMINATION Silicon ppm ASTM D5185m >-20 6 Potassium ppm ASTM D5185m >-20 6 Fuel WC Method >-5 <1.0		Vanadium	ppm	ASTM D5185m		<1		
Silicon ppm ASTM D5185m >25 10 Potassium ppm ASTM D5185m >20 6 Fuel WC Method >5 <1.0		White Metal	scalar	*Visual	NONE	NONE		
Potassium ppm ASTM D518sm >20 6		Yellow Metal	scalar	*Visual	NONE	NONE		
Potassium ppm ASTM D518sm >20 6	CONTAMINATION	Silicon	ppm	ASTM D5185m	>25	10		
Water Work Method SO-2 NEG Glycol WC Method SO-2 NEG Glycol WC Method SO-2 NEG Soot % % *ASTM D7844 S-3 0.6 Nitration Abs/(m *ASTM D7844 S-30 29.6 Sulfation Abs/(m *ASTM D7844 S-30 29.6 Sulfation Abs/(m *ASTM D7844 NONE NONE Sulfation Abs/(m *ASTM D7844 NONE NONE Sulfation Abs/(m *ASTM D7844 NONE NONE Sulfation scalar *Visual NONE NONE Odor scalar *Visual NORML NORML The BN result indicates that there is suitable alkalinity remaining in the ilit	There is a fadientian of an extension time in the off	Potassium	ppm	ASTM D5185m	>20	6		
Glycol WC Method NEG Soot %0 %0 '%STM 0784 >30 0.6.6 Nitration Abs/cm '%STM 0784 >30 200 14.8.8 Sulfation Abs/cm '%SIMD 0784 >30 200 14.8.8 Sulfation Abs/cm '%SIMD 0784 >30 200 14.8.8 Sulfation Abs/cm 'ASTM 0784 >30 200 14.8.9 Sulfation Abs/cm 'Visual NONE NONE Sand/Dirt scalar 'Visual NORE NORE Appearance scalar 'Visual NORE NORE	There is no indication of any contamination in the oil.	Fuel		WC Method	>5	<1.0		
Soot % % *ASTM D7844 >3 0.6 Nitration Abs/cm *ASTM D7624 >20 14.8 Sulfation Abs/cm *AStM D7415 >30 29.6 Sulfation scalar *Visual NONE NONE Sand/Dirt scalar *Visual NOR NORML Appearance scalar *Visual NORML NORML Odor scalar *Visual NOR NOR The BN result indicates that there is suitable alkalinity remaining in the pill suitable for further service. Sodium ppm ASTM D5185m 100 0		Water		WC Method	>0.2	NEG		
NitrationAbs/cm*ASTM D7624>2014.8SulfationAbs/cm*ASTM D715>3029.6Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirscalar*VisualNONENONEAppearancescalar*VisualNORMNORMLOdorscalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*VisualNORMLBoronppmASTM D585m-1585BoronppmASTM D585m1000MagnaeseppmASTM D585m10078MagnesiumppmASTM D585m30001646PhosphrouppmASTM D585m1501576Astm D5185m1501576NoterppmASTM D5185m1501576MagnesiumppmASTM D5185m1551576CalciumppmASTM D5185m1501576Astm D5185m1551576<		Glycol				NEG		
SulfationAbs/Im*ASTM D7415>3029.6Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORNOREAppearancescalar*VisualNORNOREOdorscalar*VisualNORNOREOdorscalar*VisualNORNOREOdorscalar*VisualNORNOREDebrisscalar*VisualNORNOREAppearancescalar*VisualNORNORAppearancescalar*VisualNORNOROdorscalar*VisualNORNORBorioppmASTM D5185>1585BariumppmASTM D518510078MaganeseppmASTM D51851001646MagnesiumppmASTM D518511501164MagnesiumppmASTM D518511501164PhosphorusppmASTM D518511501576 <td>Soot %</td> <td>%</td> <td>*ASTM D7844</td> <td>>3</td> <td>0.6</td> <td></td> <td></td>		Soot %	%	*ASTM D7844	>3	0.6		
Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORENONEOdorscalar*VisualNORENORELOdorscalar*VisualNORENOREOdorscalar*VisualNORENOREOdorscalar*VisualNORENOREOdorscalar*VisualNORENOREOdorscalar*VisualNORENOREDebrisscalar*VisualNORENOREOdorscalar*VisualNORENOREOdorscalar*VisualNORENOREDebrisscalar*VisualNORENOREBariumppmASTM D5185m1000MarganeseppmASTM D5185m1001072MarganesiumppmASTM D5185m10501166CalciumppmASTM D5185m13001166PhosphorusppmASTM D5185m13001167 </td <td>Nitration</td> <td>Abs/cm</td> <td>*ASTM D7624</td> <td>>20</td> <td>14.8</td> <td></td> <td></td>		Nitration	Abs/cm	*ASTM D7624	>20	14.8		
Debrisscalar*VisualNONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual		Sulfation	Abs/.1mm	*ASTM D7415	>30	29.6		
Sand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGscalar*Visual>0.2NEGBoronppmASTM D5185m2509BariumppmASTM D5185m100MolybdenumppmASTM D5185m10078MagnesseppmASTM D5185m4501072MagnesiumppmASTM D5185m30.001646PhosphorusppmASTM D5185m11501267PhosphorusppmASTM D5185m13501576SulfurppmASTM D5185m13501576QirationAbr.mAbr.mAbr.mAbr.m4StM D5185m42504052			scalar					
Appearance Odorscalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGFLUID CONDITIONSodiumppmASTM D5185m>1585BoronppmASTM D5185m2509BariumppmASTM D5185m100MolybdenumppmASTM D5185m10078MaganeseeppmASTM D5185m10078MagnesiumppmASTM D5185m30001646PhosphorusppmASTM D5185m11501267SulfurppmASTM D5185m13501576SulfurppmASTM D5185m42504052OxidationAbs/.1mm*ASTM D7414>2526.8			scalar	*Visual	NONE			
Odorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m>1585BoronppmASTM D5185m2509BariumppmASTM D5185m100MolybdenumppmASTM D5185m10078MaganeseppmASTM D5185m10078MagnesiumppmASTM D5185m30001646PhosphorusppmASTM D5185m11501267ZincppmASTM D5185m13501576SulfurppmASTM D5185m13501576SulfurppmASTM D5185m42504052OxidationAbs/:m'ASTM D714'>2526.8			scalar					
Emulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m>1585BoronppmASTM D5185m1000BariumppmASTM D5185m1000MolybdenumppmASTM D5185m10078ManganeseppmASTM D5185m10011MangenesumppmASTM D5185m4501072MangenesumppmASTM D5185m300016466PhosphorusppmASTM D5185m115012677ZincppmASTM D5185m135015766SulfurppmASTM D5185m135015766SulfurppmASTM D5185m42504052OxidationAbs/.1mm*ASTM D7414>2526.8								
Sodium ppm ASTM D5185m >158 5 Boron ppm ASTM D5185m 250 9 Barium ppm ASTM D5185m 10 0 Molybdenum ppm ASTM D5185m 100 78 Maganese ppm ASTM D5185m 450 1072 Magnesium ppm ASTM D5185m 3000 1646 Phosphorus ppm ASTM D5185m 1150 1267 Zinc ppm ASTM D5185m 1350 1576 Sulfur ppm ASTM D5185m 1267 Sulfur ppm ASTM D5185m 1350 1576 Sulfur ppm ASTM D5185m 4250 4052 Oxidation Abs/.1mm *ASTM D7414 >25 26.8			scalar	*Visual				
Boron ppm ASTM D5185m 250 9 Barium ppm ASTM D5185m 10 0 Molybdenum ppm ASTM D5185m 100 78 Manganese ppm ASTM D5185m 450 1072 Magnesium ppm ASTM D5185m 450 1072 Calcium ppm ASTM D5185m 3000 1646 Phosphorus ppm ASTM D5185m 1150 1267 Sulfur ppm ASTM D5185m 1350 1576 Oxidation Abs/.1mm *ASTM D7141 >25 26.8		Emulsified Water	scalar	*Visual	>0.2	NEG		
Boron ppm ASTM D5185m 250 9 Barium ppm ASTM D5185m 10 0 Molybdenum ppm ASTM D5185m 100 78 Manganese ppm ASTM D5185m 450 1072 Magnesium ppm ASTM D5185m 450 1072 Calcium ppm ASTM D5185m 3000 1646 Phosphorus ppm ASTM D5185m 1150 1267 Sulfur ppm ASTM D5185m 1350 1576 Oxidation Abs/.1mm *ASTM D7141 >25 26.8	FLUID CONDITION	Sodium	ppm	ASTM D5185m	>158	5		
The BN result indicates that there is suitable alkalinity remaining in the bil. The condition of the oil is suitable for further service. Barium ppm ASTM D5185m 10 0 Molybdenum ppm ASTM D5185m 100 78 Manganese ppm ASTM D5185m 450 1072 Magnesium ppm ASTM D5185m 3000 1646 Calcium ppm ASTM D5185m 1150 1267 Phosphorus ppm ASTM D5185m 1350 1576 Zinc ppm ASTM D5185m 1350 1576 Oxidation Abs/.1mm *ASTM D7141 >25 26.8								
Molybdenum ppm ASTM D5185m 100 78 Manganese ppm ASTM D5185m 100 1 Magnesium ppm ASTM D5185m 450 1072 Calcium ppm ASTM D5185m 3000 1646 Phosphorus ppm ASTM D5185m 1150 1267 Zinc ppm ASTM D5185m 1350 1576 Sulfur ppm ASTM D5185m 4250 4052 Oxidation Abs/.1mm *ASTM D7414 >25 26.8	The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.							
Manganese ppm ASTM D5185m 1 Magnesium ppm ASTM D5185m 450 1072 Calcium ppm ASTM D5185m 3000 1646 Phosphorus ppm ASTM D5185m 1150 1267 Zinc ppm ASTM D5185m 1350 1576 Sulfur ppm ASTM D5185m 4250 4052 Oxidation Abs/.1mm *ASTM D7414 >25 26.8								
Magnesium ppm ASTM D5185m 450 1072 Calcium ppm ASTM D5185m 3000 1646 Phosphorus ppm ASTM D5185m 1150 1267 Zinc ppm ASTM D5185m 1350 1576 Sulfur ppm ASTM D5185m 4250 4052 Oxidation Abs/.1mm *ASTM D7414 >25 26.8		-						
Calcium ppm ASTM D5185m 3000 1646 Phosphorus ppm ASTM D5185m 1150 1267 Zinc ppm ASTM D5185m 1350 1576 Sulfur ppm ASTM D5185m 4250 4052 Oxidation Abs/.1mm *ASTM D7414 >25 26.8		-			450			
Phosphorus ppm ASTM D5185m 1150 1267 Zinc ppm ASTM D5185m 1350 1576 Sulfur ppm ASTM D5185m 4250 4052 Oxidation Abs/.tmm *ASTM D7414 >25 26.8		-						
Zinc ppm ASTM D5185m 1350 1576 Sulfur ppm ASTM D5185m 4250 4052 Oxidation Abs/.1mm *ASTM D7414 >25 26.8		Phosphorus		ASTM D5185m	1150			
Sulfur ppm ASTM D5185m 4250 4052 Oxidation Abs/.1mm *ASTM D7414 >25 26.8		-						
Oxidation Abs/.1mm *ASTM D7414 >25 26.8								

Visc @ 100°C cSt

ASTM D445 14.4

14.3





Contact/Location: Service Manager - INTGOS Page 2 of 2