

## WEAR NORMAL CONTAMINATION ABNORMAL FLUID CONDITION ATTENTION

## Machine Id 813107 Component Diesel Engine

## PETRO CANADA DURON SHP 15W40 (--- GAL)

Test         UCM         Method         Unitary         Hatory								
No corrective action is recommended at this time. Resample at the next service interval to monitor.         Sample Date         Client Info         Statute	RECOMMENDATION	Test	UOM	Method	Limit/Abn	Current	History1	History2
next service interval to monitor.         Sa und 20         Pay und 20 <th rowspan="3">No corrective action is recommended at this time. Resample at the</th> <th>Sample Number</th> <th></th> <th>Client Info</th> <th></th> <th></th> <th></th> <th></th>	No corrective action is recommended at this time. Resample at the	Sample Number		Client Info				
Machine Age         Ints         Clind into         634         Image		Sample Date		Client Info		25 Jun 2024		
Filter Age         Ins         Clent Info         Not		Machine Age	hrs	Client Info		634		
Filter Age         Ins         Clent Info         Not		Oil Age	hrs	Client Info		634		
Filter Changed Samle Status         Client Indo         NA		-	hrs	Client Info		0		
Filter Changed Samle Status         Client Indo         NA		J				Not Changd		
Sample Status         ABX07.00         Pit		-		Client Info		Ű.		
WEAR         Iron         ppm         ASTM 0515m         >90         50             Metal levels are typical for a new component breaking in.         Promium         ppm         ASTM 0515m         >20         12             Nickel         ppm         ASTM 0515m         >20         16             Silver         ppm         ASTM 0515m         >20         1             Aluminum ppm         ASTM 0515m         >20         1              Auminum ppm         ASTM 0515m         >40		-						
Metal levels are typical for a new component breaking in.         Of momium         ppm         ASTM Diskin         >20         22          I           Nickel         ppm         ASTM Diskin         >20         1             Nickel         ppm         ASTM Diskin         >20         1             Silver         ppm         ASTM Diskin         >20         1             Silver         ppm         ASTM Diskin         >20         1             Comport         ppm         ASTM Diskin         >40             Comport         ppm         ASTM Diskin         >40             Vanadum         ppm         ASTM Diskin         >40             Vanadum         ppm         ASTM Diskin         >25         4             Vanadum         ppm         ASTM Diskin         >25         4         70             Vanadum         ppm         ASTM Diskin         >25         4         70								
Mickel         ppm         ATM 0585m         2         16             Thanium         ppm         ASTM 0585m         2         1             Aluminum         ppm         ASTM 0585m         2         1             Aluminum         ppm         ASTM 0585m         20         8             Aluminum         ppm         ASTM 0585m         20         8             Aluminum         ppm         ASTM 0585m         300         189             Comper         ppm         ASTM 0585m         -51         4             Vandium         ppm         ASTM 0585m         -51         4             Vandium         ppm         ASTM 0585m         -51         4             Vanduum         ppm         ASTM 0585m         -20         10.3             Vanduum         ppm         ASTM 0585m         -20         10.3             Fuel ontent negligible. Elemental level of silicon (Si) above normal		Iron	ppm	ASTM D5185m	>90	50		
Nicker         ppm         AstroBisism         >2         10 <th10< th=""> <th10< th=""> <th10< th=""></th10<></th10<></th10<>		Chromium	ppm	ASTM D5185m	>20	2		
Silver         pp         ASTM 05185n         -2         1             Aluminum         pp         ASTM 05185n         -20         8             Lead         ppm         ASTM 05185n         -20         8             Copper         ppm         ASTM 05185n         -300         189             Vanadium         ppm         ASTM 05185n		Nickel	ppm	ASTM D5185m	>2	16		
Aluminum         ppm         ASTM D5185n         >20         8             Lead         ppm         ASTM D5185n         >300         10             Copper         ppm         ASTM D5185n         >30         14             Vanadium         ppm         ASTM D5185n         >15         4             Vanadium         ppm         ASTM D5185n         >10         NONE         NONE            Visual         NONE         NONE         NONE         NONE             Valiow Metal         scalar         'Visual         NONE         NONE             Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.         Silicon         ppm         ASTM D5851         >-0         0.2             Glycol         Wolter         %0         ASTM D7842         >-0             Sot %         %6         'ASTM D7845         >              Solutian         Abscim< 'ASTM D7845         >		Titanium	ppm	ASTM D5185m	>2	<1		
Lead         ppm         ASTM D518m         >40		Silver	ppm	ASTM D5185m	>2	1		
Lead         ppm         ASTN D518m         >A0         C1         Grap         Grap           Tin         ppm         ASTN D518m         >ASIN         BSIN		Aluminum		ASTM D5185m	>20	8		
Copper In         ppm         ASTM D585m         3.30         189             Tin         ppm         ASTM D585m         <1              Vanadum         ppm         ASTM D585m         <1              White Metal         scalar         'Visual         NONE         NONE             Content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.         Silicon         ppm         ASTM D585m         20         12             Fuel         %         ASTM D585m         20         0.2              Glycol         WCM Method         >.0.2         NEG              Glycol         WC Method         NO.2         NEG              Sott %         %         // STM D784         >.0         0.5             Sott %         %         %         NONE         NONE         NONE             Sott %         %         %         NONE		Lead		ASTM D5185m	>40	<1		
Tin         ppm         ASTM D5185m         >15         4             Varadium         ppm         ASTM D5185m         -              White Wetal         scalar         Visual         NONE         NONE         NONE             CONTAMINATION         Silicon         ppm         ASTM D5185m         >-20         12             Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.         Silicon         ppm         ASTM D5185m         >-20         NEG             Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.         Silicon         ppm         ASTM D5185m         >-20         NEG             Sulfation         %         MSTIM D744         Sed         0.5		Copper		ASTM D5185m	>330	189		
Vanadium         ppm         ASTM D5185m          <1				ASTM D5185m	>15	4		
White Metal Yellow Metal         scalar         'Visual         NONE         NONE         Initial NONE         Initial NONE         Initia         Initial NONE         Ini		Vanadium		ASTM D5185m		<1		
Yellow Metal         scalar         *Visual         NONE             CONTAMINATION         pp         ASTM D5155n         >25         70             Potassium         ppm         ASTM D5155n         >20         12             Potassium         ppm         ASTM D5155n         >20         12             Puel         %         ASTM D5155n         >20         10.2             Water         W         Workehod         0.2         Ince             Water         W         Workehod         NEG              Glycol         WC Method         NEG               Solf %         %         YSIM D784         >6         0.5		White Metal		*Visual	NONE	NONE		
CONTAMINATION         Silicon         ppm         ASTM D5185m         ≥20         ▲ 70             Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.         Potassium         ppm         ASTM D5185m         ≥20         12             Fuel         %         ASTM D5185m         >20         0.2             Water         WC Method         0.2         NEG              Water         WC Method         0.2         NEG              Glycol         WC Method         0.2         NEG              Silf atom Ask Inm         YGNUH          NEG              Sulfation         Ask Inm         YSINUB NOTE4         >30         23.1              Sulfation         AskIm         YSINUB NOTE4         >30         23.1             Debris         scalar         YVisual         NONE         NONE             Appearance         scalar         YVisual <th></th> <th>Yellow Metal</th> <th>scalar</th> <th>*Visual</th> <th>NONE</th> <th></th> <th></th> <th></th>		Yellow Metal	scalar	*Visual	NONE			
Fuel content negligible. Elemental level of silicon (Si) above normal indicating ingress of seal material.         Potassium         ppm         ASTM D5165m         >20         12            Fuel         %         ASTM D51624         >3.0         0.2         NEG            Glycol         WC Method         >0.2         NEG             Glycol         WC Method         >0.2         NEG             Solt %         %         MSTM D7644         >6         0.5             Solt %         %         MSTM D7644         >6         0.5             Silt         scalar         "Visual         NONE         23.1             Silt         scalar         "Visual         NONE         NONE             Debris         scalar         "Visual         NORE         NONE             Silt         scalar         "Visual         NORM         NORM             Debris         scalar         "Visual         NORM         NORM             The oi								
Fuel         %         ASTM D3524         >3.0         0.2            Water         W         WC Method         >0.2         NEG            Water         W         WC Method         >0.2         NEG            Glycol         WC Method         >0.2         NEG            Soft %         %         ASTM D744         6         0.5            Nitration         Abs/tm         *XIM D744         5.0         23.1             Sulfation         Abs/tm         *XIM D741         5.30         23.1             Sulfation         Abs/tm         *XIM D741         5.30         23.1             Sulfation         Abs/tm         *XIM D741         5.30         23.1             Sulfation         Abs/tm         *XIM D741         5.00         RONE             Sulfation         Scalar         *Visual         NONE         NONE             Sand/Dirt         Scalar         *Visual         NORM         NORM        <	CONTAMINATION	Silicon	ppm	ASTM D5185m	>25	<b>A</b> 70		
indicating ingress of seal material.       Fuel       %       ASIM 0552       \$3.0       0.2       1.2       1.2       1.2         Water       Worker       WcMehod       \$0.2       NEG          Glycol       WCMethod       \$0.2       NEG           Soot %       %       ASIM 0784       \$6       0.5           Soot %       %       ASIM 0764       \$20       10.3           Sulfation       Abs/cm       ASIM 0764       \$3.0       23.1           Sulfation       Abs/cm       Yisual       NONE       NONE       NONE           Debris       scalar       'Visual       NONE       NONE            Sand/Dit       scalar       'Visual       NORML       NORML            The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirmoil type.       Sodium       pm       ASTM 05185       0       2           Magnesium       pm       ASTM 05185       0       3.5	Fuel content negligible. Elemental level of silicon (Si) above normal	Potassium	ppm	ASTM D5185m	>20	12		
FLUID CONDITION         Sodi Water         Witer         Witer </th <th>Fuel</th> <th>%</th> <th>ASTM D3524</th> <th>&gt;3.0</th> <th>0.2</th> <th></th> <th></th>		Fuel	%	ASTM D3524	>3.0	0.2		
Sott %         %         *ASTM D7844         >6         0.5             Nitration         Abs/cm         *ASTM D7624         >20         10.3             Sulfation         Abs/lm         *Visual         NONE         NONE             Sulfation         Abs/lm         *Visual         NONE         NONE             Sand/Dirt         scalar         *Visual         NOR         NORM             Appearance         scalar         *Visual         NORM         NORML             The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.         Sodium         ppm         ASTM D5185m         0         154             Manganese         ppm         ASTM D51		Water		WC Method	>0.2	NEG		
Nitration         Abs/cm         *ASTM D7624         >20         10.3            Sulfation         Abs/tm         *ASTM D7415         >30         23.1            Silt         scalar         *Visual         NONE         NONE            Debris         scalar         *Visual         NONE         NONE            Sand/Dit         scalar         *Visual         NONE         NONE            Appearance         scalar         *Visual         NORM         NORML            Odor         scalar         *Visual         NORML             Odor         scalar         *Visual         NORML             Odor         scalar         *Visual         NORML             Broin         ppm         ASTM D5185m         0         154            Broin         ppm         ASTM D5185m         0         154            Manganese         ppm         ASTM D5185m         0         154		Glycol		WC Method		NEG		
Sulfation         Abs/Imm         *ASTM D7415         >30         23.1             Silt         scalar         *Visual         NONE         NONE             Debris         scalar         *Visual         NONE         NONE             Sand/Dirt         scalar         *Visual         NONE         NONE             Appearance         scalar         *Visual         NORM         NORM             Odor         scalar         *Visual         NORM         NORM		Soot %	%	*ASTM D7844	>6	0.5		
Siltscalar*VisualNONENONEDebrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMNORMLOdorscalar*VisualNORMLNORMLDebrisscalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*VisualsolaNORMLBoronppmASTM D5185m0154BariumppmASTM D5185m0113MolybdenumppmASTM D5185m05MaganeseppmASTM D5185m1010732CalciumppmASTM D5185m10701304PhosphorusppmASTM D5185m10701304SulfurppmASTM D5185m1150679SulfurppmASTM D5185m1150619SulfurppmASTM D5185m1270859SulfurppmASTM D5185m12708539SulfurppmASTM D5185m12708539Sulfurppm <t< th=""><th></th><th>Nitration</th><th>Abs/cm</th><th>*ASTM D7624</th><th>&gt;20</th><th>10.3</th><th></th><th></th></t<>		Nitration	Abs/cm	*ASTM D7624	>20	10.3		
Debrisscalar*VisualNONENONESand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLNORMLOdorscalar*VisualNORMLNORMLOdorscalar*VisualNORMLNORMLThe oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.SodiumppmASTM D5185m0154BariumppmASTM D5185m0113 <td< th=""><th></th><th>Sulfation</th><th>Abs/.1mm</th><th>*ASTM D7415</th><th>&gt;30</th><th>23.1</th><th></th><th></th></td<>		Sulfation	Abs/.1mm	*ASTM D7415	>30	23.1		
Sand/Dirtscalar*VisualNONENONEAppearancescalar*VisualNORMNORMLOdorscalar*VisualNORMNORMLEmulsified Waterscalar*Visual>0.2NEGFLUID CONDITIONSodiumppmASTM D5185m0154BoronppmASTM D5185m0154BariumppmASTM D5185m02MolybdenumppmASTM D5185m05MagneseppmASTM D5185m0113MagnesiumppmASTM D5185m1010732CalciumppmASTM D5185m10701304PhosphorusppmASTM D5185m15156679SulfurppmASTM D5185m12708599SulfurppmASTM D5185m1270859SulfurppmASTM D5185m20602191OxidationAbs/Imm*ASTM D714>2521.5Base Number (BN)mgKWgASTM D28699.88.3		Silt	scalar	*Visual	NONE	NONE		
Appearancescalar*VisualNORMLOdorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGSodiumppmASTM D5185m3FLUID CONDITIONSodiumppmASTM D5185m0154BoronppmASTM D5185m0154BariumppmASTM D5185m0113MolybdenumppmASTM D5185m05MagnesiumppmASTM D5185m05PhosphorusppmASTM D5185m1010732QalcumppmASTM D5185m1150607PhosphorusppmASTM D5185m1150679QalcumppmASTM D5185m1270859QuitorioAbs/immASTM D5185m1270859QuitorioAbs/immASTM D5185m20602191QuitorioAbs/immASTM D5185m206021.50QuitorioAbs/immASTM D5185m<		Debris	scalar	*Visual	NONE	NONE		
Odorscalar*VisualNORMLNORMLEmulsified Waterscalar*Visual>0.2NEGNEGNEGNEGFLUID CONDITIONSodiumppmASTM D5185m0154BoronppmASTM D5185m0154BariumppmASTM D5185m0113MolybdenumppmASTM D5185m0113MaganeseeppmASTM D5185m05MagnesiumppmASTM D5185m1010732CalciumppmASTM D5185m11506079PhosphorusppmASTM D5185m1150679SulfurppmASTM D5185m1270859SulfurppmASTM D5185m12002191OxidationAbs/1m'ASTM D5185m12062191Base Number (BN)mgK0fgASTM D286g9.88.3		Sand/Dirt	scalar	*Visual	NONE	NONE		
Odor         scalar         *Visual         NORML         NORML             Emulsified Water         scalar         *Visual         >0.2         NEG            FLUID CONDITION         Sodium         ppm         ASTM D5185m         0         154            Boron         ppm         ASTM D5185m         0         154             Barium         ppm         ASTM D5185m         0         2             Molybdenum         ppm         ASTM D5185m         0         2             Maganesse         ppm         ASTM D5185m         0         5             Magnesium         ppm         ASTM D5185m         1010         7322             Phosphorus         ppm         ASTM D5185m         1150         679             Sulfur         ppm         ASTM D5185m         1200         679             Sulfur         ppm         ASTM D5185m         1200         679        Sulfur         ppm         ASTM D5185m <th></th> <th>Appearance</th> <th>scalar</th> <th>*Visual</th> <th>NORML</th> <th>NORML</th> <th></th> <th></th>		Appearance	scalar	*Visual	NORML	NORML		
Sodium       ppm       ASTM D5185m       0       154          Boron       ppm       ASTM D5185m       0       154           Barium       ppm       ASTM D5185m       0       113           Molybdenum       ppm       ASTM D5185m       0       113           Manganese       ppm       ASTM D5185m       0       5           Magnesium       ppm       ASTM D5185m       1010       732           Phosphorus       ppm       ASTM D5185m       1010       732           Inc       ppm       ASTM D5185m       1010       732           Sulfur       ppm       ASTM D5185m       1010       732		Odor	scalar	*Visual	NORML	NORML		
BoronppmASTM D5185m0154BariumppmASTM D5185m02BariumppmASTM D5185m02MolybdenumppmASTM D5185m60113ManganeseppmASTM D5185m05MagnesiumppmASTM D5185m1010732CalciumppmASTM D5185m10101304PhosphorusppmASTM D5185m1150679ZincppmASTM D5185m1270859SulfurppmASTM D5185m20602191OxidationAbs/1mm*ASTM D7141>2521.55Base Number (BN)mg KOHgASTM D28869.88.3		Emulsified Water	scalar	*Visual	>0.2	NEG		
BoronppmASTM D5185m0154BariumppmASTM D5185m02BariumppmASTM D5185m02MolybdenumppmASTM D5185m60113ManganeseppmASTM D5185m05MagnesiumppmASTM D5185m1010732CalciumppmASTM D5185m10101304PhosphorusppmASTM D5185m1150679ZincppmASTM D5185m1270859SulfurppmASTM D5185m20602191OxidationAbs/1mm*ASTM D7141>2521.55Base Number (BN)mg KOHgASTM D28869.88.3								
BariumppmASTM D5185m02MolybdenumppmASTM D5185m60113ManganeseppmASTM D5185m05MagnesiumppmASTM D5185m1010732CalciumppmASTM D5185m10101304PhosphorusppmASTM D5185m1150679ZincppmASTM D5185m1270859SulfurppmASTM D5185m20602191OxidationAbs/1mm*ASTM D7141>2521.5Base Number (BN)mg KOHgASTM D28969.88.3	FLUID CONDITION		ppm					
Barlum       ppm       ASIM DS188m       0       2           Molybdenum       ppm       ASIM DS185m       60       113           Manganese       ppm       ASIM DS185m       0       5           Magnesium       ppm       ASIM DS185m       1010       732           Calcium       ppm       ASIM DS185m       1010       1304           Phosphorus       ppm       ASIM D5185m       1150       679           Zinc       ppm       ASIM D5185m       1270       8599           Sulfur       ppm       ASIM D5185m       1270       859           Oxidation       Abs/1mm       *ASIM D5185m       1270       859           Base Number (BN)       mg KOHg       ASIM D5185m       1270       859           Oxidation       Abs/1mm       *ASIM D5185m       1270       859           Base Number (BN)       mg KOHg       ASIM D5185m       9.8       8.3	The oil viscosity is lower than normal. The BN result indicates that	Boron	ppm			154		
Molybdenum       ppm       ASIM D5185m       60       113          Manganese       ppm       ASTM D5185m       0       5          Magnesium       ppm       ASTM D5185m       1010       732          Calcium       ppm       ASTM D5185m       1010       732          Calcium       ppm       ASTM D5185m       1070       1304          Phosphorus       ppm       ASTM D5185m       1150       679          Zinc       ppm       ASTM D5185m       1270       859          Sulfur       ppm       ASTM D5185m       2060       2191          Oxidation       Abs/1mm       *ASTM D7414       >25       21.55          Base Number (BN)       mg K0Hg       ASTM D2896       9.8       8.3		Barium	ppm					
Magnesium       ppm       ASTM D5185m       1010       732           Calcium       ppm       ASTM D5185m       1070       1304           Phosphorus       ppm       ASTM D5185m       1150       679           Zinc       ppm       ASTM D5185m       1270       859           Sulfur       ppm       ASTM D5185m       2060       2191           Oxidation       Abs/.tmm       *ASTM D7414       >25       21.55           Base Number (BN)       mg KOHg       ASTM D2896       9.8       8.3		Molybdenum	ppm	ASTM D5185m	60	113		
Calcium       ppm       ASTM D5185m       1070       1304          Phosphorus       ppm       ASTM D5185m       1150       679           Zinc       ppm       ASTM D5185m       1270       859           Sulfur       ppm       ASTM D5185m       2060       2191           Oxidation       Abs/.tmm       *ASTM D7414       >25       21.5           Base Number (BN)       mg KOHg       ASTM D2896       9.8       8.3		Manganese	ppm			5		
Phosphorus       ppm       ASTM D5185m       1150       679          Zinc       ppm       ASTM D5185m       1270       859          Sulfur       ppm       ASTM D5185m       2060       2191          Oxidation       Abs/.tmm       *ASTM D7414       >25       21.5          Base Number (BN)       mg KOH/g       ASTM D2896       9.8       8.3		•	ppm	ASTM D5185m	1010	732		
Zinc       ppm       ASTM D5185m       1270       859           Sulfur       ppm       ASTM D5185m       2060       2191           Oxidation       Abs/.tmm       *ASTM D7414       >25       21.5           Base Number (BN)       mg KOH/g       ASTM D2896       9.8       8.3		Calcium	ppm					
Sulfur         ppm         ASTM D5185m         2060         2191             Oxidation         Abs/.1mm         *ASTM D7414         >25         21.5             Base Number (BN)         mg KOH/g         ASTM D2896         9.8         8.3		Phosphorus	ppm	ASTM D5185m	1150	679		
Oxidation         Abs/.1mm         *ASTM D7414         >25         21.5            Base Number (BN)         mg KOH/g         ASTM D2896         9.8         8.3		Zinc	ppm	ASTM D5185m	1270	859		
Base Number (BN)         mg KOH/g         ASTM D2896         9.8         8.3		Sulfur	ppm	ASTM D5185m	2060	2191		
		Oxidation	Abs/.1mm	*ASTM D7414	>25	21.5		
Visc @ 100°C cSt ASTM D445 15.4 🥚 10.4 /		Base Number (BN)	mg KOH/g	ASTM D2896	9.8	8.3		
		Visc @ 100°C	cSt	ASTM D445	15.4	10.4		



