Příloha 4: Protokoly jednotlivých vozidel z částicové analýzy LNF

4/29/2011 1:27 PM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-NOVY OLEJ
Notes:

Overall Summary:

Sample Date: 4/29/2011
Analysis Date: 4/29/2011 1:26:20 PM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

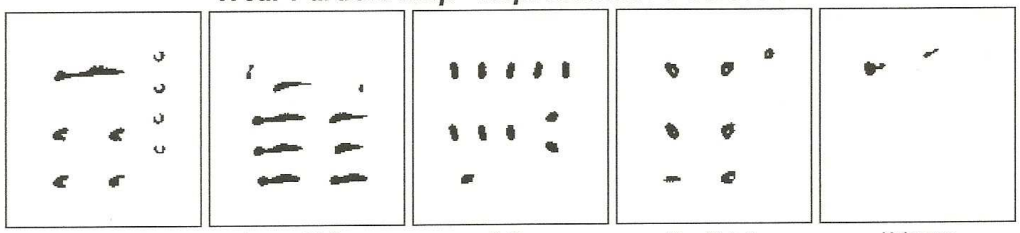
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml		11	Part/100 ml		>6
>4um(c): 12,403.7	21	5-15um 6-14um(c):	460,879	11	5-10um 6-10um(c):	369,014	>6
>6um(c): 4,807.7	19	15-25um 14-21um(c):	15,627	9	10-25um 10-21um(c):	107,492	>6
>14um(c): 198.9	15	25-50um 21-38um(c):	4,262	10	25-50um 21-38um(c):	4,262	6
		50-100um 38-70um(c):		00	50-100um 38-70um(c):		0
		>100um >70um(c):		00	>100um >70um(c):		0

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	14.2	120.2	36.6	6.3	6.3	0.0	1.6
Severe Sliding Wear	48.9	90.5	40.7	17.4	18.9	12.6	0.0
Fatigue Wear	86.8	38.7	25.1	48.9	37.9	0.0	0.0
Non Metallic Wear	11.0	30.9	26.8	1.6	9.5	0.0	0.0
Unclassified Wear	3.2	34.4	32.1	0.0	3.2	0.0	0.0

Free Water (ppm) 0 **Viscosity (cP)** 95.95

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/29/2011 9:59 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-056-2
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/29/2011 9:57:59 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 1
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

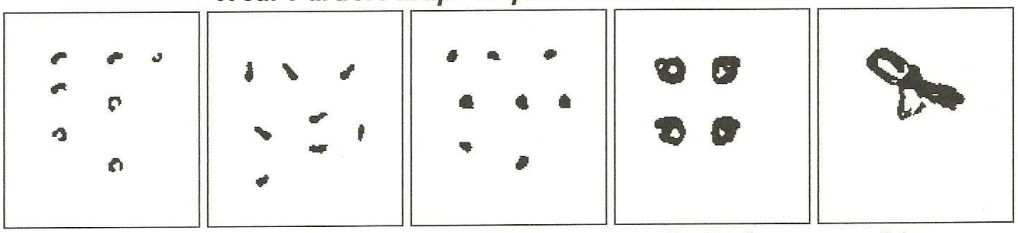
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml			Part/100 ml		
>4um(c): 13,391.5	21	5-15um	6-14um(c): 483,868	11	5-10um	6-10um(c): 411,871	>6
>6um(c): 5,313.7	20	15-25um	14-21um(c): 39,286	10	10-25um	10-21um(c): 111,283	>6
>14um(c): 475.0	16	25-50um	21-38um(c): 6,739	10	25-50um	21-38um(c): 6,739	>6
		50-100um	38-70um(c): 822	10	50-100um	38-70um(c): 822	6
		>100um	>70um(c): 658	12	>100um	>70um(c): 658	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	11.5	28.8	26.5	1.6	9.9	0.0	0.0
Severe Sliding Wear	62.5	39.9	27.2	26.3	36.2	0.0	0.0
Fatigue Wear	167.7	38.6	24.8	105.2	62.5	0.0	0.0
Non Metallic Wear	80.5	181.2	33.3	32.9	36.2	9.9	1.6
Unclassified Wear	4.9	181.4	179.7	0.0	0.0	0.0	4.9

Free Water (ppm) 0 **Viscosity (cP)** 94.34

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/29/2011 11:08 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-059-6
Notes:

Overall Summary:

Sample Date: 4/29/2011
Analysis Date: 4/29/2011 11:05:08 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

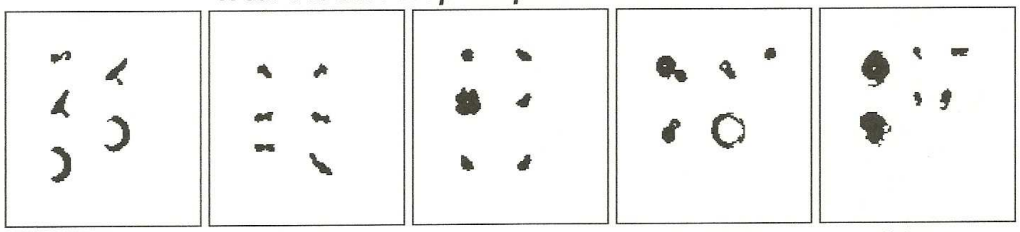
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	12	Part/100 ml	>6
>4um(c): 147,314.8	24	5-15um 6-14um(c): 3,043,717	12	5-10um 6-10um(c): 1,981,578	>6
>6um(c): 34,921.6	22	15-25um 14-21um(c): 375,738	12	10-25um 10-21um(c): 1,437,877	>6
>14um(c): 4,484.4	19	25-50um 21-38um(c): 70,927	12	25-50um 21-38um(c): 70,927	>6
		50-100um 38-70um(c): 1,596	11	50-100um 38-70um(c): 1,596	>6
		>100um >70um(c): 177	10	>100um >70um(c): 177	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	17.7	56.2	38.7	1.8	12.4	3.5	0.0
Severe Sliding Wear	70.9	87.3	37.4	3.5	63.8	3.5	0.0
Fatigue Wear	1,207.5	65.8	25.9	610.0	590.5	7.1	0.0
Non Metallic Wear	35.5	100.3	37.3	1.8	28.4	3.5	1.8
Unclassified Wear	10.6	61.0	38.8	3.5	3.5	3.5	0.0

Free Water (ppm) 91 **Viscosity (cP)** 82.98

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 9:32 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-060
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 9:31:37 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

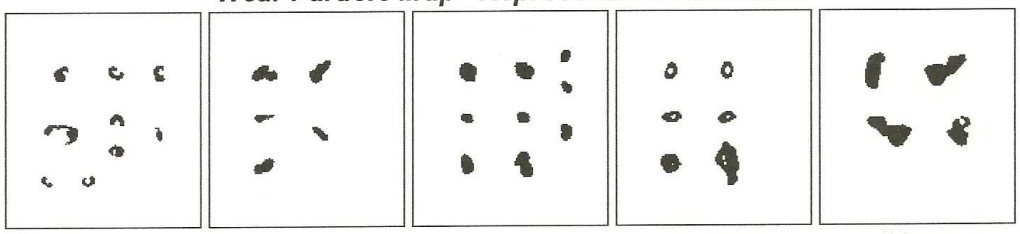
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	12	Part/100 ml	>6
>4um(c): 32,018.1	22	5-15um 6-14um(c): 1,136,032	12	5-10um 6-10um(c): 877,114	>6
>6um(c): 13,941.3	21	15-25um 14-21um(c): 147,813	12	10-25um 10-21um(c): 406,731	>6
>14um(c): 2,581.0	19	25-50um 21-38um(c): 88,916	12	25-50um 21-38um(c): 88,916	>6
		50-100um 38-70um(c): 18,599	12	50-100um 38-70um(c): 18,599	>6
		>100um >70um(c): 2,774	12	>100um >70um(c): 2,774	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	62.0	60.6	30.3	13.1	47.3	1.6	0.0
Severe Sliding Wear	155.0	97.4	40.8	19.6	106.0	29.4	0.0
Fatigue Wear	1,489.6	161.5	32.9	531.9	806.0	132.2	19.6
Non Metallic Wear	280.6	115.8	38.7	39.2	195.8	42.4	3.3
Unclassified Wear	27.7	87.3	53.9	1.6	9.8	16.3	0.0

Free Water (ppm) 0 **Viscosity (cP)** 78.05

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 9:39 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-254
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 9:37:53 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

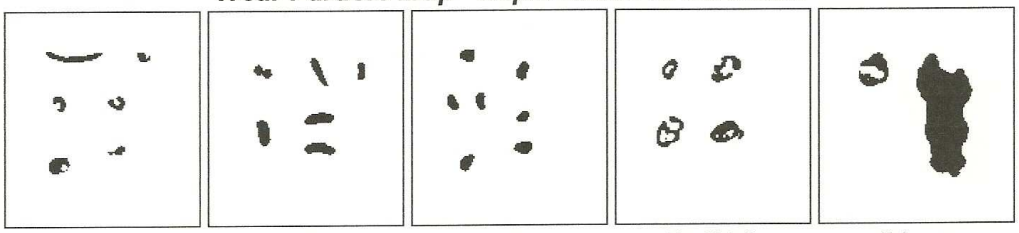
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml			Part/100 ml		
>4um(c): 38,835.3	22	5-15um 6-14um(c): 1,369,123		12	5-10um 6-10um(c): 1,074,253		>6
>6um(c): 16,983.5	21	15-25um 14-21um(c): 179,634		12	10-25um 10-21um(c): 474,504		>6
>14um(c): 3,292.3	19	25-50um 21-38um(c): 119,550		12	25-50um 21-38um(c): 119,550		>6
		50-100um 38-70um(c): 28,039		12	50-100um 38-70um(c): 28,039		>6
		>100um >70um(c): 2,003		12	>100um >70um(c): 2,003		>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	103.2	175.0	37.0	29.3	60.1	10.8	3.1
Severe Sliding Wear	132.5	159.3	46.4	16.9	80.1	27.7	7.7
Fatigue Wear	1,757.8	199.1	32.8	627.0	945.9	177.2	7.7
Non Metallic Wear	610.1	123.1	37.8	106.3	406.7	90.9	6.2
Unclassified Wear	20.0	203.7	58.9	4.6	7.7	6.2	1.5

Free Water (ppm) 0 **Viscosity (cP)** 77.23

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/29/2011 9:40 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-275-8
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/29/2011 9:38:45 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 2
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

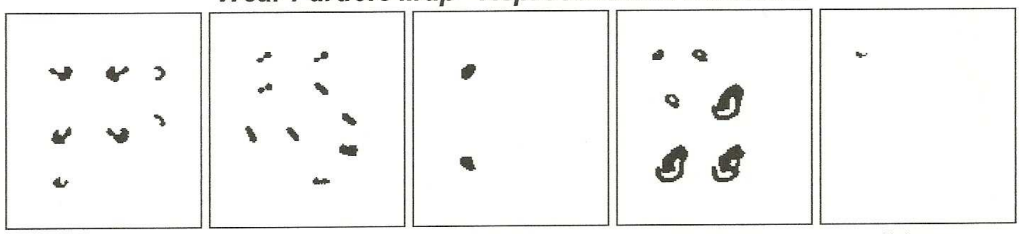
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml		12	Part/100 ml		>6
>4um(c): 36,511.1	22	5-15um	6-14um(c): 1,200,232	12	5-10um	6-10um(c): 1,071,421	>6
>6um(c): 12,477.5	21	15-25um	14-21um(c): 36,206	10	10-25um	10-21um(c): 165,017	>6
>14um(c): 475.2	16	25-50um	21-38um(c): 9,922	11	25-50um	21-38um(c): 9,922	>6
		50-100um	38-70um(c): 1,393	10	50-100um	38-70um(c): 1,393	>6
		>100um	>70um(c):	00	>100um	>70um(c):	0

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	12.2	38.4	32.5	1.7	10.4	0.0	0.0
Severe Sliding Wear	43.5	29.8	25.0	20.9	22.6	0.0	0.0
Fatigue Wear	214.1	38.6	25.4	127.1	87.0	0.0	0.0
Non Metallic Wear	106.2	100.9	34.3	41.8	48.7	13.9	1.7
Unclassified Wear	1.7	20.4	20.4	1.7	0.0	0.0	0.0

Free Water (ppm) 0 **Viscosity (cP)** 98.19

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 10:30 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-290
Notes:

Overall Summary: -L

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 10:29:44 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

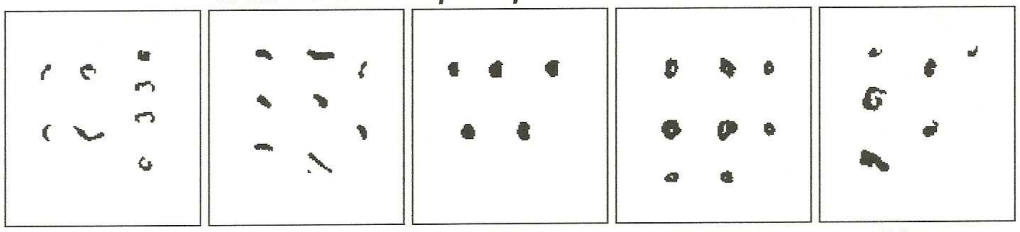
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	12	Part/100 ml	>6
>4um(c): 20,111.1	22	5-15um 6-14um(c): 683,203	12	5-10um 6-10um(c): 536,350	>6
>6um(c): 8,156.4	20	15-25um 14-21um(c): 75,747	11	10-25um 10-21um(c): 222,600	>6
>14um(c): 1,324.3	18	25-50um 21-38um(c): 48,730	12	25-50um 21-38um(c): 48,730	>6
		50-100um 38-70um(c): 7,459	12	50-100um 38-70um(c): 7,459	>6
		>100um >70um(c): 497	11	>100um >70um(c): 497	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	44.8	57.0	29.0	13.3	28.2	3.3	0.0
Severe Sliding Wear	101.1	128.7	35.5	23.2	69.6	5.0	3.3
Fatigue Wear	754.2	119.8	31.3	278.5	427.6	43.1	5.0
Non Metallic Wear	180.7	89.3	36.0	39.8	112.7	28.2	0.0
Unclassified Wear	11.6	57.6	35.0	1.7	8.3	1.7	0.0

Free Water (ppm) 0 **Viscosity (cP)** 62.84

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/29/2011 11:30 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-296
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/29/2011 11:28:44 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 1
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address
Phone:
Fax:

Wear Debris

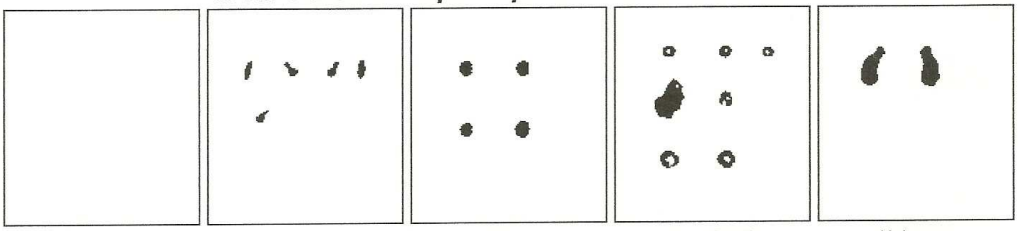
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	11	Part/100 ml	>6
>4um(c): 16,796.9	21	5-15um 6-14um(c): 505,322	11	5-10um 6-10um(c): 429,675	>6
>6um(c): 5,524.4	20	15-25um 14-21um(c): 38,636	10	10-25um 10-21um(c): 114,284	>6
>14um(c): 471.2	16	25-50um 21-38um(c): 7,763	10	25-50um 21-38um(c): 7,763	>6
		50-100um 38-70um(c): 722	10	50-100um 38-70um(c): 722	6
		>100um >70um(c):	00	>100um >70um(c):	0

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Severe Sliding Wear	9.0	32.1	29.9	0.0	9.0	0.0	0.0
Fatigue Wear	131.8	43.8	26.1	63.2	68.6	0.0	0.0
Non Metallic Wear	32.5	67.5	32.5	12.6	18.1	1.8	0.0
Unclassified Wear	3.6	67.5	67.0	0.0	0.0	3.6	0.0

Free Water (ppm) 6 **Viscosity (cP)** 78.74

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 9:26 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-297
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 9:25:05 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

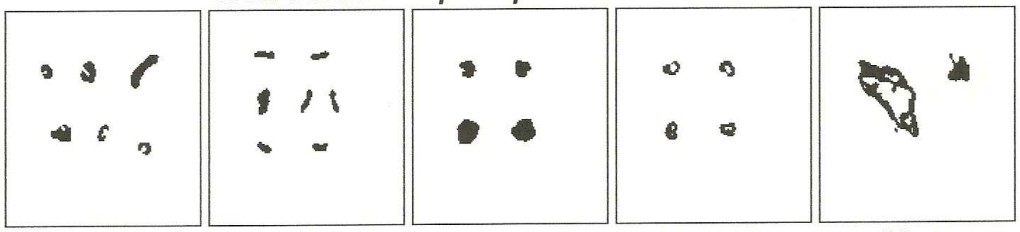
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	12	Part/100 ml	>6
>4um(c): 12,810.2	21	5-15um 6-14um(c): 456,569	11	5-10um 6-10um(c): 346,338	>6
>6um(c): 5,859.2	20	15-25um 14-21um(c): 70,917	11	10-25um 10-21um(c): 181,148	>6
>14um(c): 1,293.5	17	25-50um 21-38um(c): 46,096	12	25-50um 21-38um(c): 46,096	>6
		50-100um 38-70um(c): 10,175	12	50-100um 38-70um(c): 10,175	>6
		>100um >70um(c): 2,158	12	>100um >70um(c): 2,158	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	26.2	68.7	32.1	9.3	13.9	3.1	0.0
Severe Sliding Wear	87.9	191.5	45.7	9.3	60.1	12.3	6.2
Fatigue Wear	720.0	190.3	33.9	229.7	417.8	61.7	10.8
Non Metallic Wear	160.3	122.2	39.7	29.3	95.6	32.4	3.1
Unclassified Wear	13.9	159.7	75.3	0.0	3.1	7.7	3.1

Free Water (ppm) 0 **Viscosity (cP)** 80.95

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 9:52 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-325
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 9:51:30 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

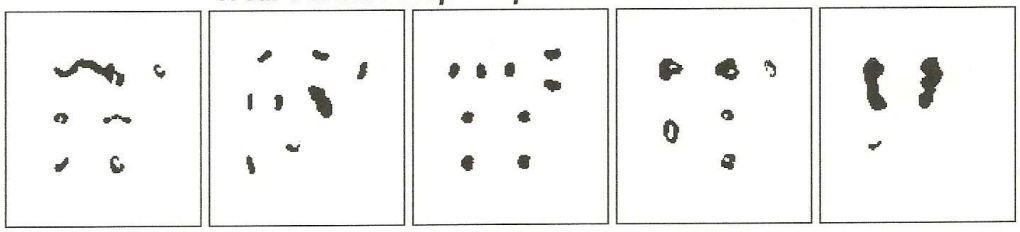
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	12	Part/100 ml	>6
>4um(c): 5,780.5	20	5-15um 6-14um(c): 249,073	10	5-10um 6-10um(c): 193,873	>6
>6um(c): 3,049.0	19	15-25um 14-21um(c): 30,962	10	10-25um 10-21um(c): 86,163	>6
>14um(c): 558.3	16	25-50um 21-38um(c): 19,860	12	25-50um 21-38um(c): 19,860	>6
		50-100um 38-70um(c): 4,691	12	50-100um 38-70um(c): 4,691	>6
		>100um >70um(c): 313	11	>100um >70um(c): 313	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	15.6	121.6	41.4	3.1	9.4	1.6	1.6
Severe Sliding Wear	89.1	91.5	33.9	26.6	54.7	7.8	0.0
Fatigue Wear	292.4	96.5	32.0	115.7	145.4	31.3	0.0
Non Metallic Wear	98.5	95.0	37.1	9.4	75.1	14.1	0.0
Unclassified Wear	4.7	86.3	65.9	0.0	1.6	3.1	0.0

Free Water (ppm) 0 **Viscosity (cP)** 75.99

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 10:43 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-326
Notes:

Overall Summary: -L

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 10:42:34 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

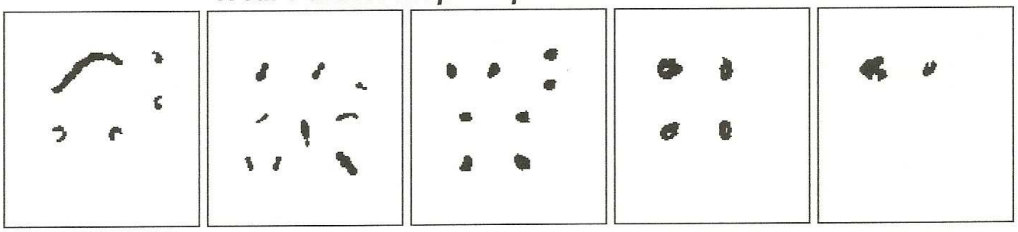
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml		11	Part/100 ml		>6
>4um(c): 13,307.4	21	5-15um	6-14um(c): 263,522	11	5-10um	6-10um(c): 234,261	>6
>6um(c): 2,934.0	19	15-25um	14-21um(c): 17,711	9	10-25um	10-21um(c): 46,972	>6
>14um(c): 298.8	15	25-50um	21-38um(c): 10,626	11	25-50um	21-38um(c): 10,626	>6
		50-100um	38-70um(c): 1,540	11	50-100um	38-70um(c): 1,540	>6
		>100um	>70um(c):	00	>100um	>70um(c):	0

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	15.4	130.5	39.3	3.1	10.8	0.0	1.5
Severe Sliding Wear	27.7	50.9	34.4	6.2	20.0	1.5	0.0
Fatigue Wear	141.7	51.4	28.1	60.1	80.1	1.5	0.0
Non Metallic Wear	53.9	92.8	40.7	4.6	35.4	13.9	0.0
Unclassified Wear	3.1	51.6	40.9	0.0	1.5	1.5	0.0

Free Water (ppm) 0 **Viscosity (cP)** 80.37

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/29/2011 11:50 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-339
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/29/2011 11:49:00 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 1
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

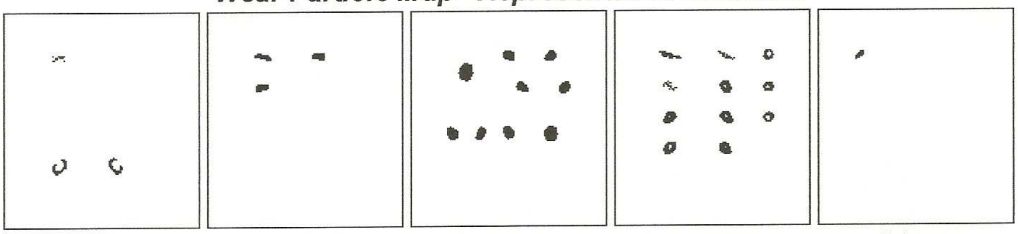
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	11	Part/100 ml	>6
>4um(c): 11,632.3	21	5-15um 6-14um(c): 320,024	11	5-10um 6-10um(c): 260,956	>6
>6um(c): 3,421.5	19	15-25um 14-21um(c): 17,900	9	10-25um 10-21um(c): 76,968	>6
>14um(c): 221.3	15	25-50um 21-38um(c): 4,231	10	25-50um 21-38um(c): 4,231	6
		50-100um 38-70um(c):	00	50-100um 38-70um(c):	0
		>100um >70um(c):	00	>100um >70um(c):	0

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	4.9	30.2	26.8	1.6	3.3	0.0	0.0
Severe Sliding Wear	4.9	31.2	27.0	1.6	3.3	0.0	0.0
Fatigue Wear	78.1	34.8	26.4	34.2	43.9	0.0	0.0
Non Metallic Wear	21.2	37.5	26.4	8.1	13.0	0.0	0.0
Unclassified Wear	1.6	21.0	21.0	1.6	0.0	0.0	0.0

Free Water (ppm) 0 **Viscosity (cP)** 81.26

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 9:08 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-458-0
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 9:07:04 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

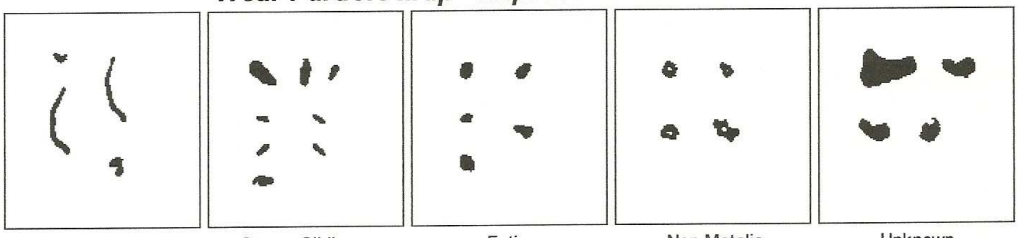
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml		12	Part/100 ml		>6
>4um(c): 28,272.7	22	5-15um	6-14um(c): 905,997	12	5-10um	6-10um(c): 653,576	>6
>6um(c): 12,432.1	21	15-25um	14-21um(c): 164,714	12	10-25um	10-21um(c): 417,135	>6
>14um(c): 3,372.1	19	25-50um	21-38um(c): 134,722	12	25-50um	21-38um(c): 134,722	>6
		50-100um	38-70um(c): 32,424	12	50-100um	38-70um(c): 32,424	>6
		>100um	>70um(c): 5,350	12	>100um	>70um(c): 5,350	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	84.3	114.3	38.8	24.3	42.2	11.3	6.5
Severe Sliding Wear	228.6	98.0	36.9	43.8	145.9	38.9	0.0
Fatigue Wear	1,960.0	177.0	35.6	559.3	1,117.0	249.7	34.0
Non Metallic Wear	541.5	140.4	38.6	77.8	374.5	84.3	4.9
Unclassified Wear	22.7	97.9	49.7	1.6	9.7	11.3	0.0

Free Water (ppm) 0 **Viscosity (cP)** 79.52

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

5/10/2011 10:53 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-513-2-28.4
Notes:

Overall Summary:

Sample Date: 5/10/2011
Analysis Date: 5/10/2011 10:52:46 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

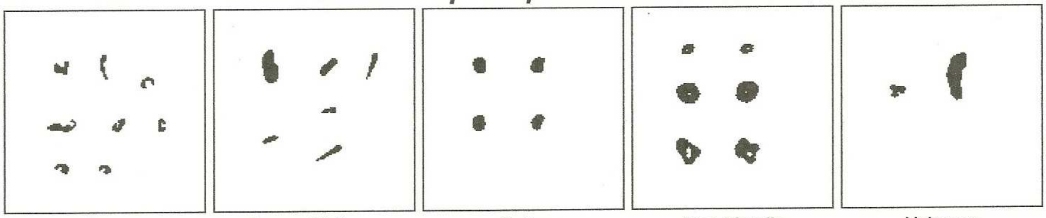
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml		12	Part/100 ml		>6
>4um(c): 16,893.6	21	5-15um	6-14um(c): 504,100	11	5-10um	6-10um(c): 412,705	>6
>6um(c): 5,811.6	20	15-25um	14-21um(c): 40,125	10	10-25um	10-21um(c): 131,520	>6
>14um(c): 770.6	17	25-50um	21-38um(c): 27,387	12	25-50um	21-38um(c): 27,387	>6
		50-100um	38-70um(c): 9,076	12	50-100um	38-70um(c): 9,076	>6
		>100um	>70um(c): 478	11	>100um	>70um(c): 478	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	23.9	50.9	32.1	3.2	19.1	1.6	0.0
Severe Sliding Wear	73.2	78.9	39.3	17.5	36.6	19.1	0.0
Fatigue Wear	410.8	91.4	34.0	109.9	245.2	55.7	0.0
Non Metallic Wear	132.2	101.2	40.3	27.1	74.8	28.7	1.6
Unclassified Wear	15.9	159.3	59.0	4.8	1.6	8.0	1.6

Free Water (ppm) 0 **Viscosity (cP)** 82.34

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

5/10/2011 10:25 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-513-2-31.3
Notes:

Overall Summary:

Sample Date: 5/10/2011
Analysis Date: 5/10/2011 10:24:32 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

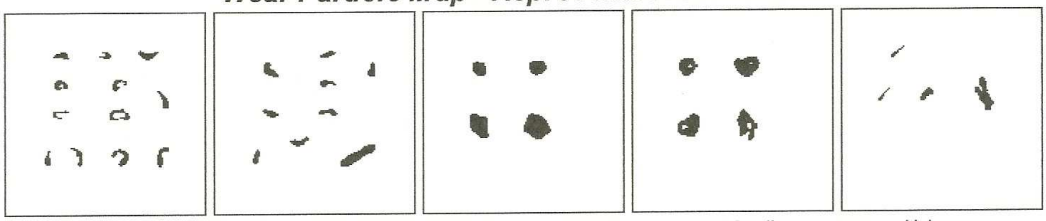
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml			Part/100 ml		
>4um(c): 16,466.3	21	5-15um 6-14um(c): 566,741		12	5-10um 6-10um(c): 455,735		>6
>6um(c): 6,412.6	20	15-25um 14-21um(c): 46,845		11	10-25um 10-21um(c): 157,852		>6
>14um(c): 745.2	17	25-50um 21-38um(c): 21,645		12	25-50um 21-38um(c): 21,645		>6
		50-100um 38-70um(c): 4,484		12	50-100um 38-70um(c): 4,484		>6
		>100um >70um(c): 1,546		12	>100um >70um(c): 1,546		>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	26.3	38.7	29.4	7.7	18.6	0.0	0.0
Severe Sliding Wear	63.4	82.1	40.4	10.8	32.5	20.1	0.0
Fatigue Wear	400.4	125.0	32.3	180.9	177.8	34.0	7.7
Non Metallic Wear	116.0	143.4	38.1	27.8	69.6	15.5	3.1
Unclassified Wear	6.2	59.4	36.8	0.0	4.6	1.5	0.0

Free Water (ppm) 0 **Viscosity (cP)** 85.69

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/29/2011 12:55 PM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-541-3
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/29/2011 12:53:49 PM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 1
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

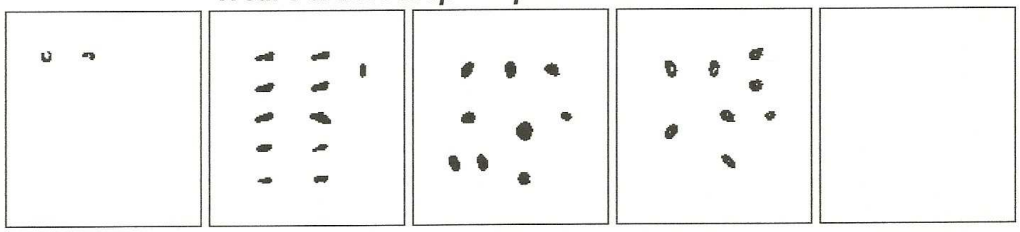
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml		11	Part/100 ml		>6
>4um(c): 9,143.2	20	5-15um	6-14um(c): 293,625	11	5-10um	6-10um(c): 247,709	>6
>6um(c): 3,096.1	19	15-25um	14-21um(c): 14,261	9	10-25um	10-21um(c): 60,177	>6
>14um(c): 159.8	14	25-50um	21-38um(c): 1,724	8	25-50um	21-38um(c): 1,724	5
		50-100um	38-70um(c):	00	50-100um	38-70um(c):	0
		>100um	>70um(c):	00	>100um	>70um(c):	0

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	3.1	23.4	22.3	3.1	0.0	0.0	0.0
Severe Sliding Wear	17.2	39.9	29.8	1.6	15.7	0.0	0.0
Fatigue Wear	50.1	42.3	26.3	21.9	28.2	0.0	0.0
Non Metallic Wear	12.5	31.6	25.6	4.7	7.8	0.0	0.0
Unclassified Wear	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Free Water (ppm) 0 **Viscosity (cP)** 80.99

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 9:58 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-576-9
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 9:57:19 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

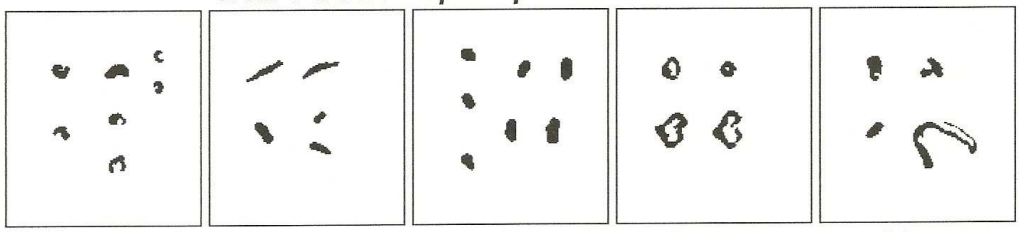
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml			Part/100 ml		
>4um(c): 16,173.5	21	5-15um 6-14um(c): 497,162		11	5-10um 6-10um(c): 398,053		>6
>6um(c): 6,024.7	20	15-25um 14-21um(c): 58,162		11	10-25um 10-21um(c): 157,270		>6
>14um(c): 1,053.1	17	25-50um 21-38um(c): 39,085		12	25-50um 21-38um(c): 39,085		>6
		50-100um 38-70um(c): 6,979		12	50-100um 38-70um(c): 6,979		>6
		>100um >70um(c): 1,086		12	>100um >70um(c): 1,086		>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	29.5	100.8	32.1	7.8	20.2	0.0	1.6
Severe Sliding Wear	71.3	67.9	35.6	15.5	49.6	6.2	0.0
Fatigue Wear	572.3	131.3	32.9	184.6	333.5	45.0	9.3
Non Metallic Wear	175.3	94.2	35.4	29.5	121.0	24.8	0.0
Unclassified Wear	9.3	115.0	56.3	1.6	4.7	1.6	1.6

Free Water (ppm) 0 **Viscosity (cP)** 77.02

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 10:24 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-578-5
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 10:23:48 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

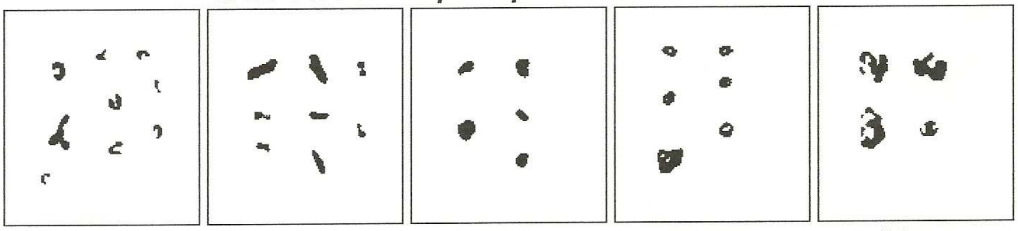
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	12	Part/100 ml	>6
>4um(c): 10,744.9	21	5-15um 6-14um(c): 387,987	11	5-10um 6-10um(c): 302,980	>6
>6um(c): 4,618.9	19	15-25um 14-21um(c): 41,655	10	10-25um 10-21um(c): 126,662	>6
>14um(c): 739.0	17	25-50um 21-38um(c): 25,610	12	25-50um 21-38um(c): 25,610	>6
		50-100um 38-70um(c): 6,171	12	50-100um 38-70um(c): 6,171	>6
		>100um >70um(c): 463	11	>100um >70um(c): 463	>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	13.9	58.9	28.3	7.7	4.6	1.5	0.0
Severe Sliding Wear	44.7	76.3	36.6	12.3	24.7	7.7	0.0
Fatigue Wear	444.3	91.7	33.0	149.6	245.3	49.4	0.0
Non Metallic Wear	72.5	77.5	37.3	10.8	49.4	12.3	0.0
Unclassified Wear	6.2	67.8	55.3	0.0	1.5	4.6	0.0

Free Water (ppm) 0 **Viscosity (cP)** 73.49

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/29/2011 1:08 PM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-617
Notes:

Overall Summary:

Sample Date: 4/29/2011
Analysis Date: 4/29/2011 1:07:55 PM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

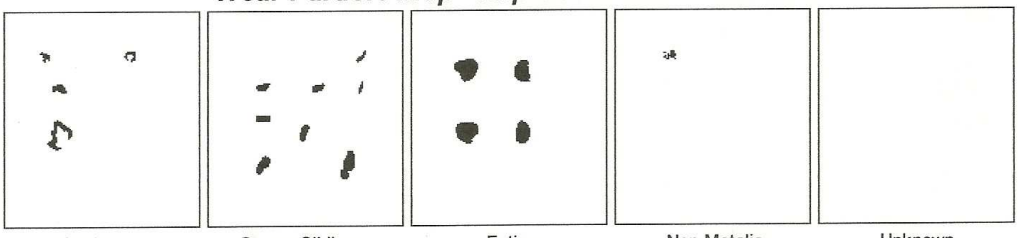
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml		11	Part/100 ml		>6
>4um(c): 10,750.7	21	5-15um	6-14um(c): 291,076	11	5-10um	6-10um(c): 255,780	>6
>6um(c): 3,114.0	19	15-25um	14-21um(c): 15,687	9	10-25um	10-21um(c): 50,982	>6
>14um(c): 203.2	15	25-50um	21-38um(c): 4,278	10	25-50um	21-38um(c): 4,278	6
		50-100um	38-70um(c): 357	8	50-100um	38-70um(c): 357	5
		>100um	>70um(c):	00	>100um	>70um(c):	0

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	7.1	49.7	30.2	3.6	3.6	0.0	0.0
Severe Sliding Wear	12.5	48.7	30.0	3.6	8.9	0.0	0.0
Fatigue Wear	105.2	55.7	26.4	60.6	42.8	1.8	0.0
Non Metallic Wear	32.1	48.5	27.7	12.5	19.6	0.0	0.0
Unclassified Wear	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Free Water (ppm) 0 **Viscosity (cP)** 7.14

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/29/2011 1:21 PM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-618
Notes:

Overall Summary:

Sample Date: 4/29/2011
Analysis Date: 4/29/2011 1:19:53 PM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

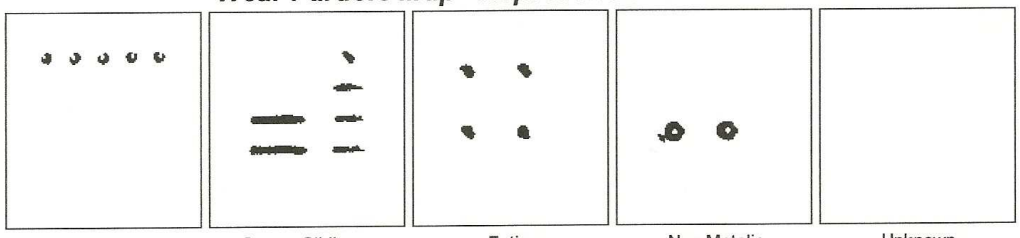
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638		NAVAIR 01-1A-17	
Part/1 ml		Part/100 ml	12	Part/100 ml	>6
>4um(c): 22,241.9	22	5-15um 6-14um(c): 667,115	12	5-10um 6-10um(c): 575,272	>6
>6um(c): 7,042.9	20	15-25um 14-21um(c): 29,737	10	10-25um 10-21um(c): 121,580	>6
>14um(c): 371.7	16	25-50um 21-38um(c): 7,434	10	25-50um 21-38um(c): 7,434	>6
		50-100um 38-70um(c):	00	50-100um 38-70um(c):	0
		>100um >70um(c):	00	>100um >70um(c):	0

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	7.7	22.1	21.6	7.7	0.0	0.0	0.0
Severe Sliding Wear	52.7	97.5	33.1	17.0	31.0	4.6	0.0
Fatigue Wear	137.8	45.5	26.1	74.3	63.5	0.0	0.0
Non Metallic Wear	55.8	54.7	30.4	13.9	38.7	3.1	0.0
Unclassified Wear	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Free Water (ppm) 0 **Viscosity (cP)** 84.05

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown

4/27/2011 9:20 AM

Customer / Site: LOKOMOTIVA
Machine: 810
Equipment Name:
Port Sample Loc: 810-665
Notes:

Overall Summary:

Sample Date: 4/27/2011
Analysis Date: 4/27/2011 9:19:00 AM
Sample #:
Operator: 2011LAIFR
Fluid Type: MOTOROVY OLEJ
Seq#: 0
Operating Hrs/miles: 0
Hrs/mile Overhaul: 0
Hrs/mile oil Change: 0

Address

Phone:
Fax:

Wear Debris

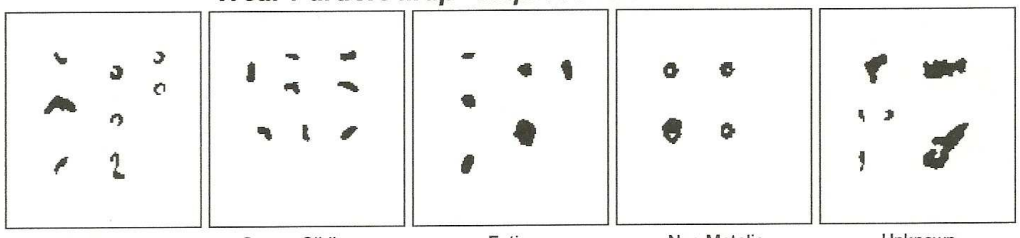
Wear Debris Summary: Particle Count Nominal

ISO 4406 (1999)		NAS 1638			NAVAIR 01-1A-17		
Part/1 ml		Part/100 ml			Part/100 ml		
>4um(c): 33,450.2	22	5-15um 6-14um(c): 1,157,029		12	5-10um 6-10um(c): 893,083		>6
>6um(c): 13,091.4	21	15-25um 14-21um(c): 102,666		12	10-25um 10-21um(c): 366,612		>6
>14um(c): 1,521.1	18	25-50um 21-38um(c): 37,219		12	25-50um 21-38um(c): 37,219		>6
		50-100um 38-70um(c): 11,148		12	50-100um 38-70um(c): 11,148		>6
		>100um >70um(c): 1,079		12	>100um >70um(c): 1,079		>6

Max Diameter Method	(Part/ml)	Max(um)	Mean(um)	20-25um	25-50um	50-100um	>100um
Cutting Wear	89.9	118.6	36.1	59.3	18.0	3.6	9.0
Severe Sliding Wear	138.4	131.7	37.0	39.6	73.7	21.6	3.6
Fatigue Wear	704.8	156.6	33.4	278.7	334.4	82.7	9.0
Non Metallic Wear	124.1	101.7	32.3	66.5	43.2	12.6	1.8
Unclassified Wear	12.6	103.4	46.8	5.4	3.6	1.8	1.8

Free Water (ppm) 0 **Viscosity (cP)** 73.07

Wear Particle Map - Representative Selection



Cutting | Severe Sliding | Fatigue | Non Metalic | Unknown