Appendix K – Ferrograms Introduction

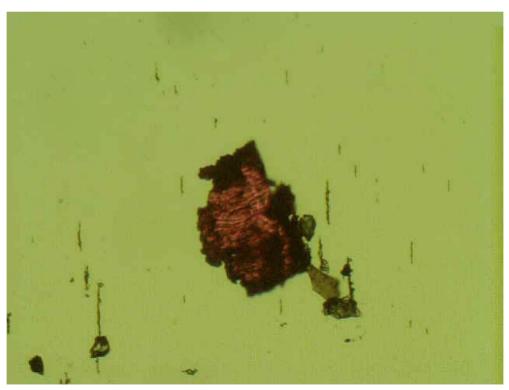
- The eight sets of Ferrograms presented in this appendix are grouped by test stage and bus:
 - K-1. Bus 73432 Ferrograms: 5,000 miles (29 pages)
 - K-2. Bus 73432 Ferrograms: 400 hours (18 pages)
 - K-3. Bus 73432 Ferrograms: 800 hours (22 pages)
 - K-4. Bus 73432 Ferrograms: 1,000 hours (17 pages)
 - K-5. Bus 73433 Ferrograms: 5,000 miles (24 pages)
 - K-6. Bus 73433 Ferrograms: 400 hours (10 pages)
 - K-7. Bus 73433 Ferrograms: 800 hours (21 pages)
 - K-8. Bus 73433 Ferrograms: 1,000 hours (19 pages)

Each Ferrogram (PowerPoint slide) includes the following information:

- Bus number
- Oil source, which includes:
 - Used engine oil
 - Bypass filter
 - Full-flow filter
 - Bypass residual oil
 - Full-flow residual oil
- Sample date
- NTS sample number
- Test stage, which includes
 - 5,000 miles
 - 400 hours
 - 800 hours
 - 1,000 hours
- Total miles and hours on the oil
- Magnification
- Photograph number
- Region of slide
- Comments
- Special features

Appendix K-1. Ferrograms - 5,000 miles Bus 73432

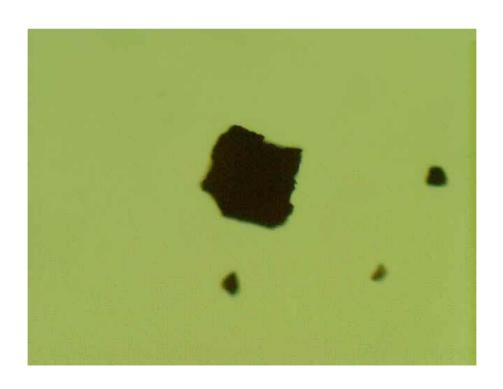
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide			
73432	Used Oil	ged Oil 5/5/05 89517 @5000 6597 miles 100x 73432 Entry miles									
Comments	Ferrogram indicates a sever wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 350 microns were noted. The severe wear appeared to be recently generated. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (30 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (90 microns) particles was noted. Please see attached images.										
Special Features	95 micron ferrous severe sliding wear particle with soot particles.										



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Used Oil	ed Oil 5/5/05 89517 @5000 6597 miles 100x 73432 Entry miles									
Comments	Ferrogram indicates a sever wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 350 microns were noted. The severe wear appeared to be recently generated. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (30 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (90 microns) particles was noted. Please see attached images.										
Special Features	300 micron ferrous fatigue particle with sand/dirt/filter particles.										



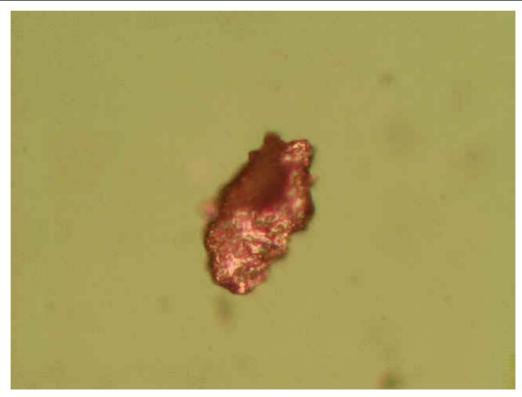
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Used Oil	miles 89571									
Comments	Ferrogram indicates a sever wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 350 microns were noted. The severe wear appeared to be recently generated. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (30 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (90 microns) particles was noted. Please see attached images.										
Special Features	90 micron sand particle and small debris										



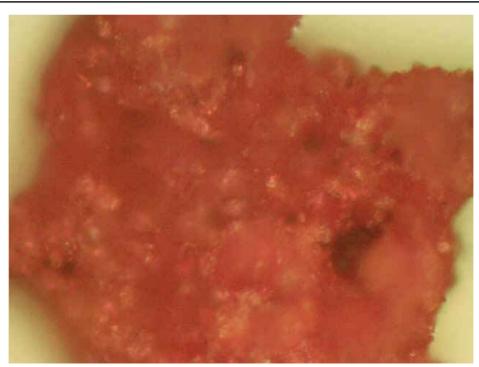
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnificatio n	Photograph Number	Region of Slide			
73432	Used Oil	miles 89517									
Comments	Ferrogram indicates a sever wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 350 microns were noted. The severe wear appeared to be recently generated. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (30 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (90 microns) particles was noted. Please see attached images.										
Special Features	Slight amount of fine ferrous particulate with larger debris particles										



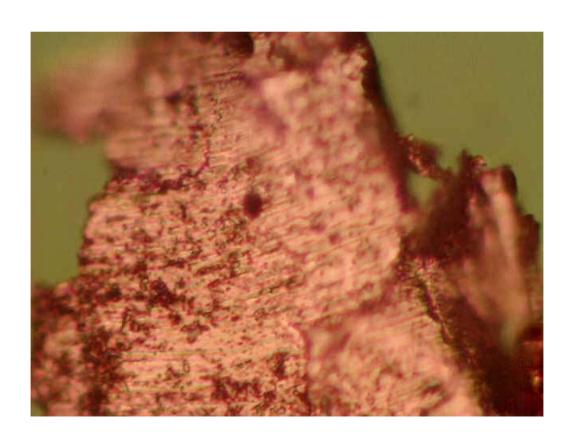
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Used Oil	d Oil 5/5/05 89517 @5000 6597 miles 500x 73432 Entry									
Comments	of severe ferrecently gene	Ferrogram indicates a sever wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 350 microns were noted. The severe wear appeared to be recently generated. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (30 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (90 microns) particles was noted. Please see attached images.									
Special Features	30 micron fe	30 micron ferrous fatigue particle									



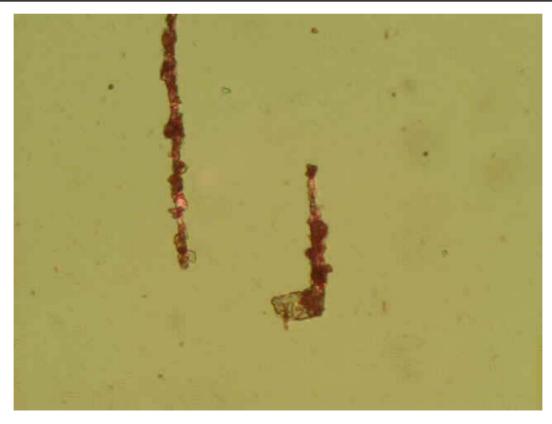
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Used Oil	ed Oil 5/5/05 89517 @5000 miles 6597 miles 100x 73432 Entry 89517									
Comments	Ferrogram indicates a sever wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 350 microns were noted. The severe wear appeared to be recently generated. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (30 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (90 microns) particles was noted. Please see attached images.										
Special Features	Out of focus 90 micron sand particle										



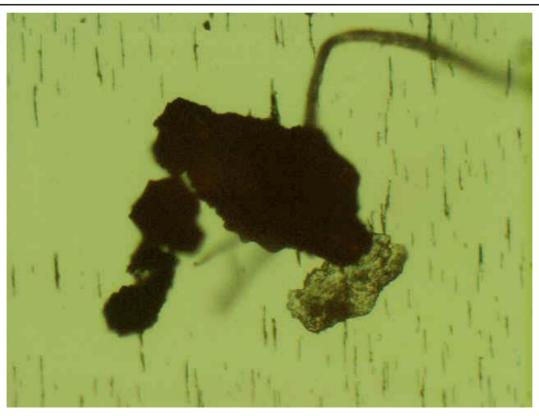
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Used Oil	Oil 5/5/05 89517 @5000 miles 6597 miles 500x 73432 89517 Entry									
Comments	severe ferrou recently gene	Ferrogram indicates a sever wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 350 microns were noted. The severe wear appeared to be recently generated. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (30 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (90 microns) particles was noted. Please see attached images.									
Special Features	95 micron se	95 micron severe sliding wear particle									



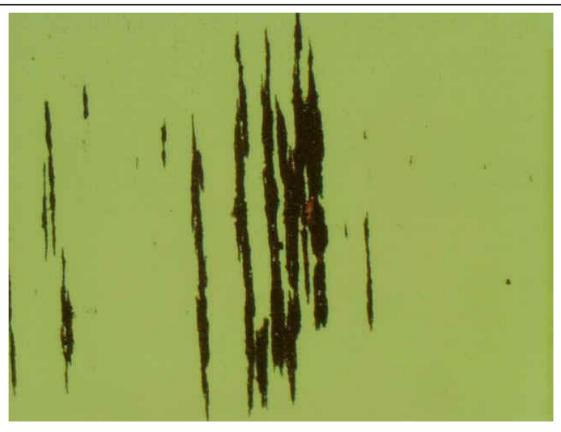
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Used Oil	89517									
Comments	severe ferrou recently gene	Ferrogram indicates a sever wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 350 microns were noted. The severe wear appeared to be recently generated. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (30 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (90 microns) particles was noted. Please see attached images.									
Special Features	Rubbing wear with sand particle										



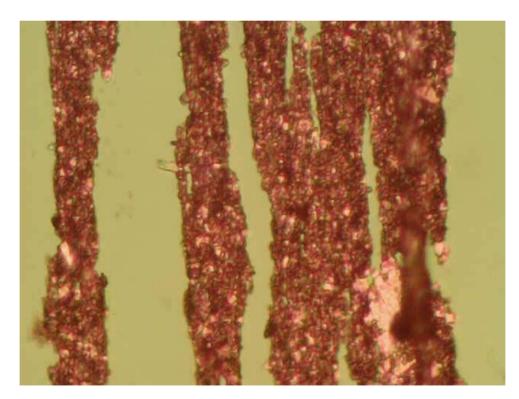
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Bypass Filter											
Comments	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 200 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (35 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (60 microns) particles was noted. Please see attached images.											
Special Features	Fiber debris and ferrous fatigue particle											



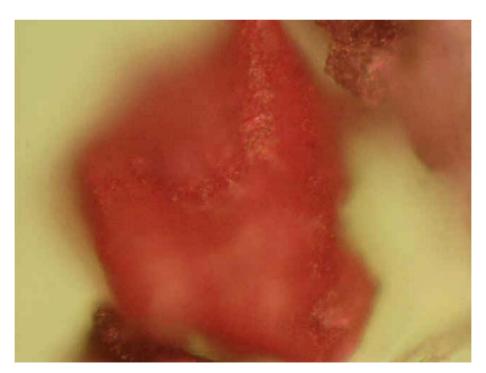
Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter										
Comments	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue articles, major diameters up to 200 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (35 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (60 microns) particles was noted. Please see attached images.										
Special Features	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear.										



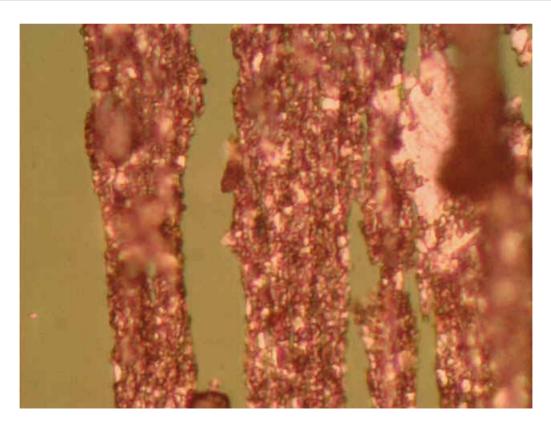
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter										
Comments	fatigue article (35 microns),	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue articles, major diameters up to 200 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (35 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (60 microns) particles was noted. Please see attached images.									
Special Features	Ferrogram sh	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear.									



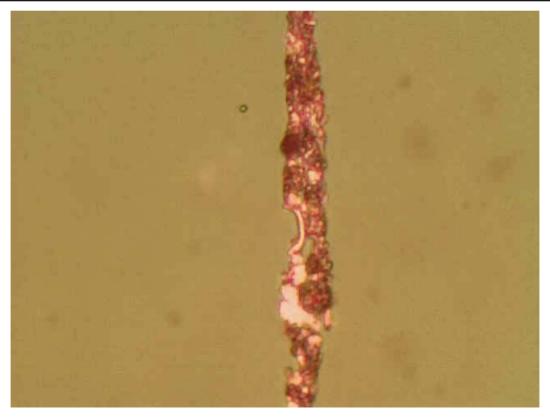
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter										
Comments	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue articles, major diameters up to 200 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (35 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (60 microns) particles was noted. Please see attached images.										
Special Features	Out of focus	Out of focus sand particle									



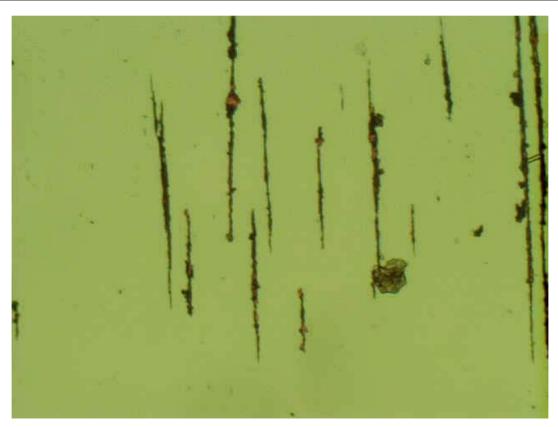
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter										
Comments	ferrous fatigu particulate (3	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue articles, major diameters up to 200 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (35 microns), soot particles dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (60 microns) particles was noted. Please see attached images.									
Special Features	Ferrogram sh	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear.									



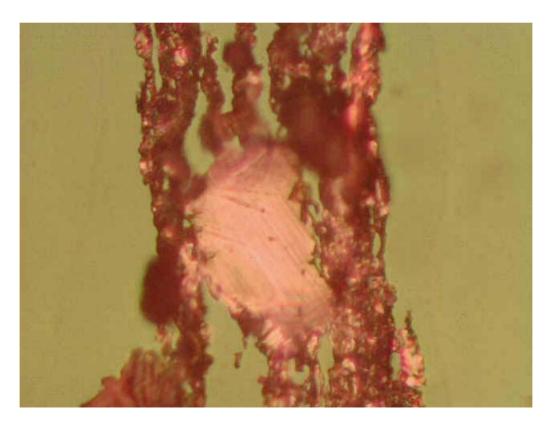
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Bypass Filter											
Comments	fatigue article particulate (3	Ferrogram shows a moderate amount of fine particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue articles, major diameters up to 200 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (35 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (60 microns) particles was noted. Please see attached images										
Special Features	A light amou	A light amount of ferrous cutting wear.										



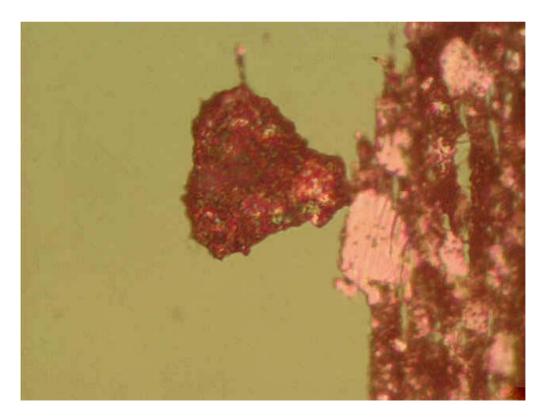
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide			
73432	Full Flow Filter	5/5/05	89520	@5000 miles	6597 miles	100x	73432 89520	Entry			
Comments	Ferrogram shows a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris, major diameters up to 100 microns, were noted. A blue tint was noted on some of the ferrous particulate indicating the particles were formed under high frictional loads. A light amount of non-ferrous and ferrous laminar particulate (75 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (40 microns) particles was noted. Please see attached images.										
Special Features	Rubbing wear	Rubbing wear with large debris particle.									



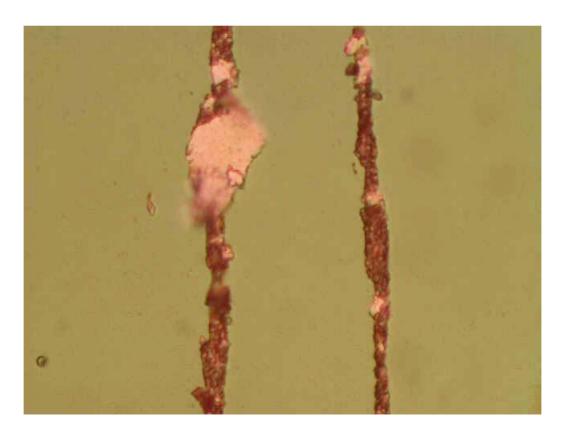
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide			
73432	Full Flow Filter	20011									
Comments	major diamete under high fric	Ferrogram shows a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris, major diameters up to 100 microns, were noted. A blue tint was noted on some of the ferrous particulate indicating the particles were formed under high frictional loads. A light amount of non-ferrous and ferrous laminar particulate (75 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (40 microns) particles was noted. Please see attached images.									
Special Features	75 micron ferr	75 micron ferrous laminar particle									



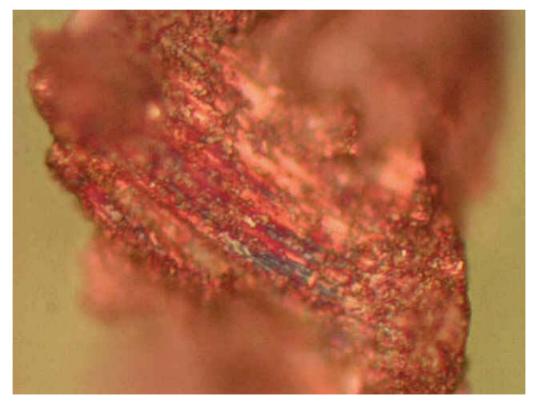
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter										
Comments	major diamete high frictional	Ferrogram shows a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris, major diameters up to 100 microns, were noted. A blue tint was noted on some of the ferrous particulate indicating the particles were formed under high frictional loads. A light amount of non-ferrous and ferrous laminar particulate (75 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (40 microns) particles was noted. Please see attached images.									
Special Features	30 micron ferr	30 micron ferrous laminar particle with heat tint.									



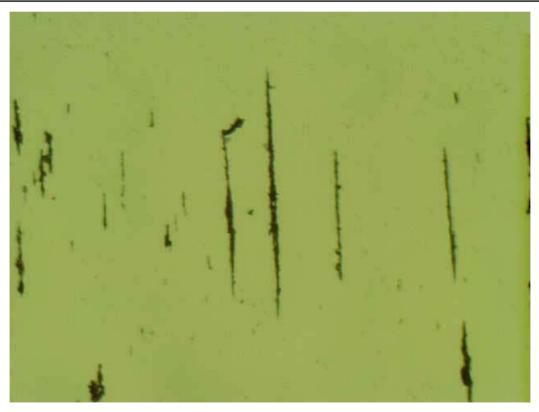
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Full Flow Filter											
Comments	major diamet under high fr	Ferrogram shows a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris, major diameters up to 100 microns, were noted. A blue tint was noted on some of the ferrous particulate indicating the particles were formed under high frictional loads. A light amount of non-ferrous and ferrous laminar particulate (75 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (40 microns) particles was noted. Please see attached images.										
Special Features	Rubbing wea	Rubbing wear with a laminar particle.										



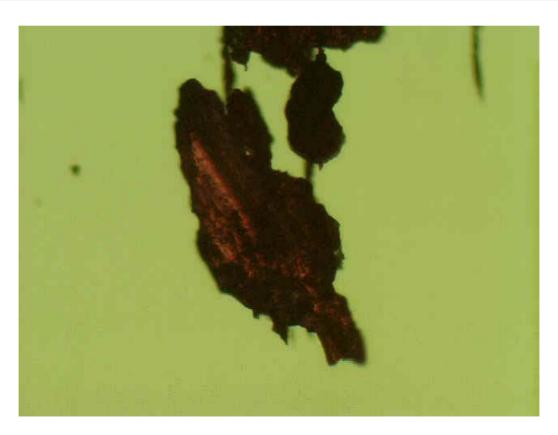
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Full Flow Filter											
Comments	major diamet under high fr	Ferrogram shows a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris, major diameters up to 100 microns, were noted. A blue tint was noted on some of the ferrous particulate indicating the particles were formed under high frictional loads. A light amount of non-ferrous and ferrous laminar particulate (75 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (40 microns) particles was noted. Please see attached images.										
Special Features	80 micron fe	80 micron ferrous severe wear particle-heat tinted										



	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Bypass filter residual	5/5/05	89519	@5000 miles	6597 miles	100x	73432 89519	Entry				
Comments	severe ferrous	Ferrogram indicates a severe wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 300 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (40 microns), soot particles, dark metallo oxide, and fibers was noted. Please see attached images.										
Special Features	A light amount	A light amount of fine ferrous particulate, typical of normal rubbing wear.										



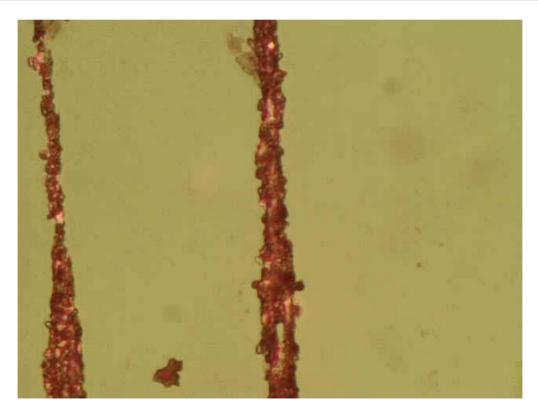
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass filter residual	5/5/05	89519	@5000 miles	6597 miles	100x	73432 89519	Entry			
Comments	severe ferrous	Ferrogram indicates a severe wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 300 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (40 microns), soot particles, dark metallo oxide, and fibers was noted. Please see attached images.									
Special Features	300 micron sev	300 micron severe wear particle									



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass filter residual	5/5/05	89519	@5000 miles	6597 miles	500x	73432 89519	Entry			
Comments	severe ferrous	Ferrogram indicates a severe wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 300 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (40 microns), soot particles, dark metallo oxide, and fibers was noted. Please see attached images.									
Special Features	300 micron fer	300 micron ferrous severe sliding wear particle									



	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Bypass filter residual	5/5/05	89519	@5000 miles	6597 miles	500x	73432 89519	Entry				
Comments	severe ferrou	Ferrogram indicates a severe wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 300 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (40 microns), soot particles, dark metallo oxide, and fibers was noted. Please see attached images.										
Special Features	Rubbing wea	Rubbing wear with sand/dirt particles										



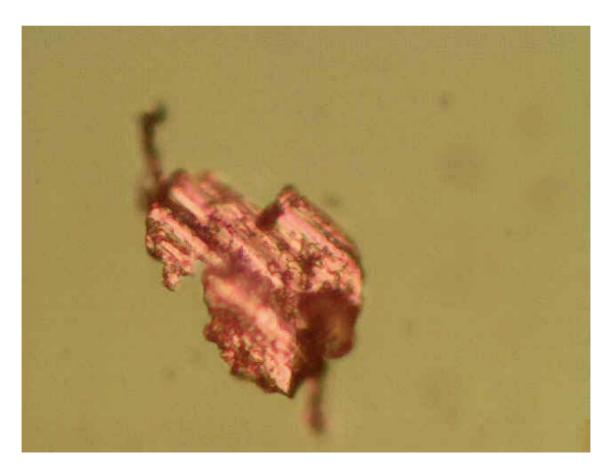
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnificatio n	Photograph Number	Region of Slide				
73432	Bypass filter residual	5/5/05	89519	@5000 miles	6597 miles	600x	73432 89519	Entry				
Comments	of severe fer cutting wear	Ferrogram indicates a severe wear mode. It shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of severe ferrous wear debris and ferrous fatigue particles, major diameters up to 300 microns, were noted. A light amount of ferrous cutting wear, non-ferrous and ferrous laminar particulate (40 microns), soot particles, dark metallo oxide, and fibers was noted. Please see attached images.										
Special Features	Ferrous cutti	Ferrous cutting wear										



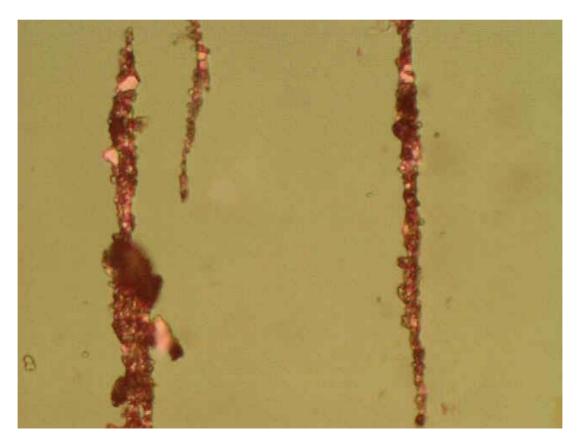
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Full Flow Residual	5/5/05	89521	@5000 miles	6597 miles	100x	73432 89521	Entry					
Comments	Ferrogram shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of non-ferrous and ferrous laminar particulate (~75 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (~40 microns) particles was noted. Please see attached images.												
Special Features	Rubbing wear	and 75 micron	laminar particulat	е									



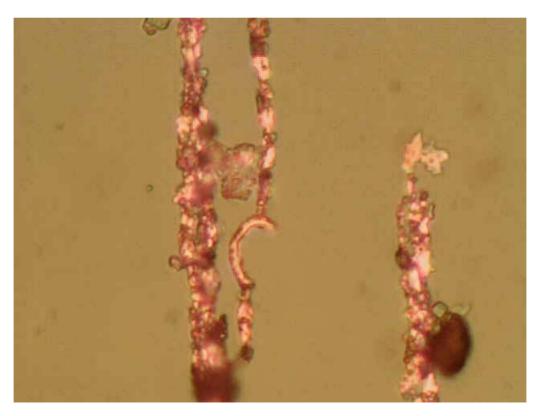
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Full Flow Residual	5/5/05	89521	@5000 miles	6597 miles	500x	73432 89521	Entry					
Comments	Comments Ferrogram shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of non-ferrous and ferrous laminar particulate (~75 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (~40 microns) particles was noted. Please see attached images.												
Special Features	40 micron ferro	ous severe wea	r particle.										



	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Full Flow Residual	5/5/05	89521	@5000 miles	6597 miles	500x	73432 89521	Entry					
Comments	Ferrogram shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of non-ferrous and ferrous laminar particulate (~75 microns), soot particles, dark metallo oxide, and fibers was noted. A moderate amount of abnormally large sand/dirt (~40 microns) particles was noted. Please see attached images.												
Special Features	Rubbing wear	with sand/dirt	and oxides.										

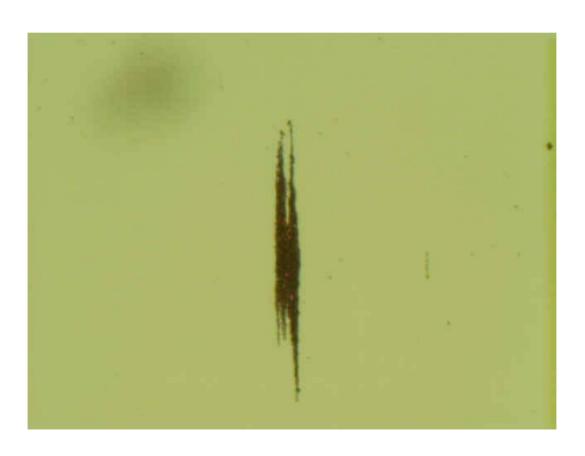


	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Full Flow Residual	5/5/05	89521	@5000 miles	6597 miles	800x	73432 89521	Entry				
Comments	particulate (~	75 microns), se		metallo oxide, an	cal of normal rubbing wea d fibers was noted. A mod							
Special Features	Ferrous cuttir	Ferrous cutting wear with sand and dark metallo oxide particles										

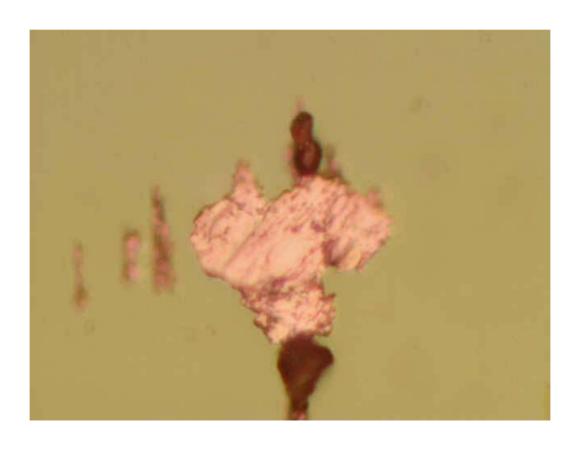


Appendix K-2. Ferrograms – 400 hours Bus 73432

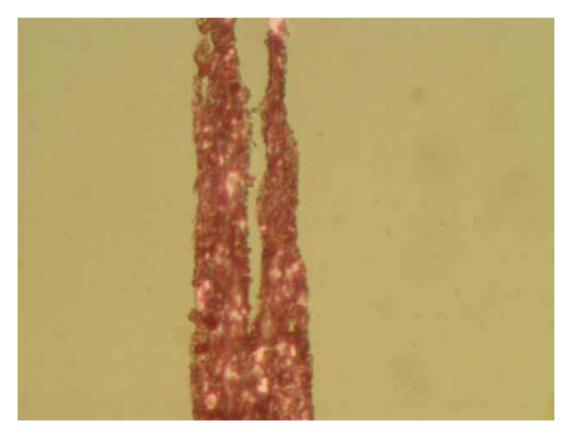
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Used oil	5/31/05	90298	400 hours	6597 miles plus 400 hours	100x	73432 90298	Entry					
Comments	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, fibers, filter media, soot, and an isolated ferrous laminar particle (~36 microns) was noted. An isolated non-ferrous particle (12 microns) was noted. Please see attached images.												
Special Features	Rubbing wear												



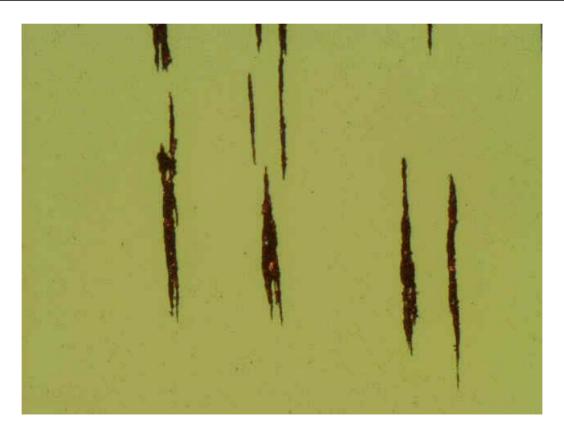
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Used oil	5/31/05	90298	400 hours	6597 miles plus 400 hours	500x	73432 90298	Entry					
Comments	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, fibers, filter media, soot, and an isolated ferrous laminar particle (~36 microns) was noted. An isolated non-ferrous particle (12 microns) was noted. Please see attached images.												
Special Features	Isolated ~36 m	nicrons ferrous	laminar particle										



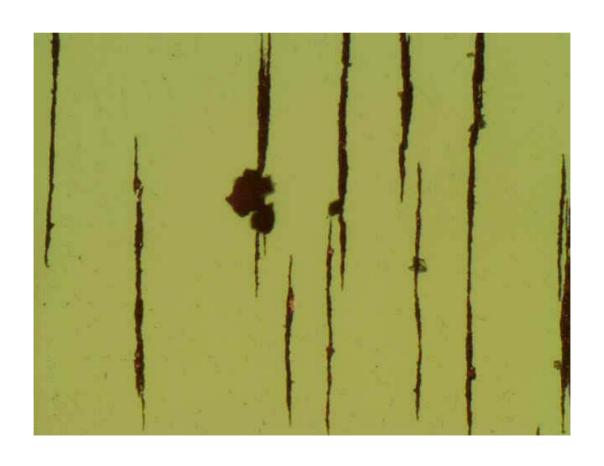
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Used oil	5/31/05	90298	400 hours	6597 miles plus 400 hours	500x	73432 90298	Entry					
Comments	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, fibers, filter media, soot, and an isolated ferrous laminar particle (~36 microns) was noted. An isolated non-ferrous particle (12 microns) was noted. Please see attached images.												
Special Features	Rubbing wear												



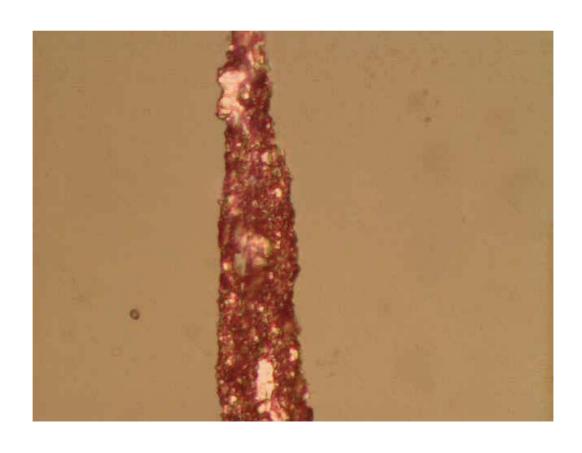
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide					
73432	Bypass Filter	5/31/05	89810	400 hours	6597 miles plus 400 hours	100x	73432 89810	Entry					
Comments	omments Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of sand/dirt, soot particulate, and dark metallo oxide was noted. Please see attached images.												
Special Features	Rubbing wear	Rubbing wear											



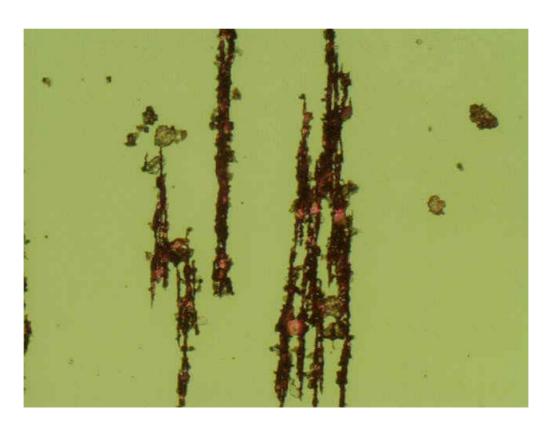
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter	5/31/05	89810	400 hours	6597 miles plus 400 hours	100x	73432 89810	Entry			
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of sand/dirt, soot particulate, and dark metallo oxide was noted. Please see attached images.									
Special Features	Soot particle										



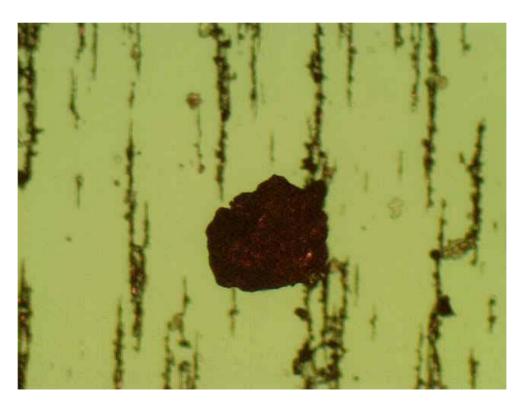
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter										
Comments	~ .	Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of sand/dirt, soot particulate, and dark metallo oxide was noted. Please see attached images.									
Special Features	Rubbing wear	ubbing wear									



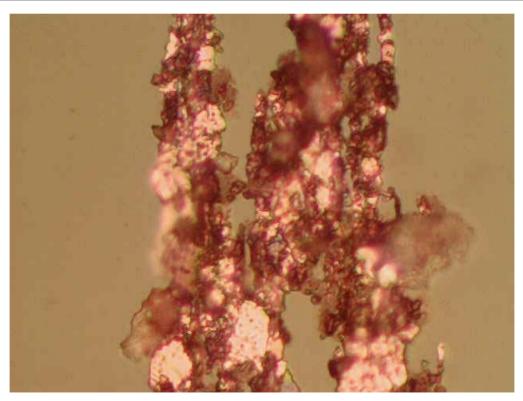
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter	2 con contract contra									
Comments	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles (~120 microns), cutting wear, red oxide (rust), and ferrous laminar particulate was noted. A moderate amount of soot and dark metallo oxide was noted. A trace amount of the ferrous debris had a blue tint, indicative that the particle was formed under elevated temperatures. Please see attached images.										
Special Features	Rubbing wear	Rubbing wear with rust spots and with dispersed filter debris									



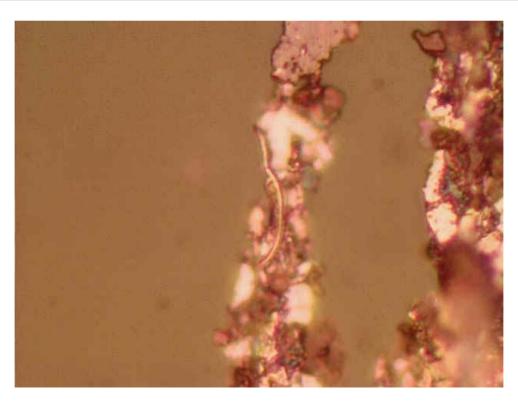
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter	220.0									
Comments	particles (~120 oxide was note	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles (~120 microns), cutting wear, red oxide (rust), and ferrous laminar particulate was noted. A moderate amount of soot and dark metallo oxide was noted. A trace amount of the ferrous debris had a blue tint, indicative that the particle was formed under elevated temperatures. Please see attached images.									
Special Features	A 120 micron	A 120 micron sized ferrous fatigue particle.									



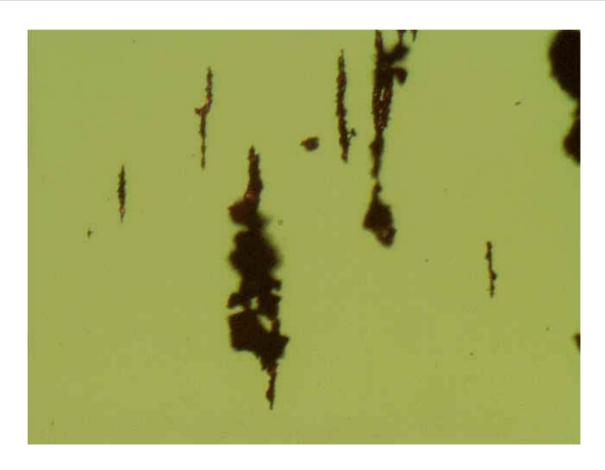
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter	5/31/05	89812	400 hours	6597 miles plus 400 hours	500x	73432 89812	Entry			
Comments	particles (~120 oxide was note	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles (~120 microns), cutting wear, red oxide (rust), and ferrous laminar particulate was noted. A moderate amount of soot and dark metallo oxide was noted. A trace amount of the ferrous debris had a blue tint, indicative that the particle was formed under elevated temperatures. Please see attached images.									
Special Features	Translucent sa	Translucent sand particles									



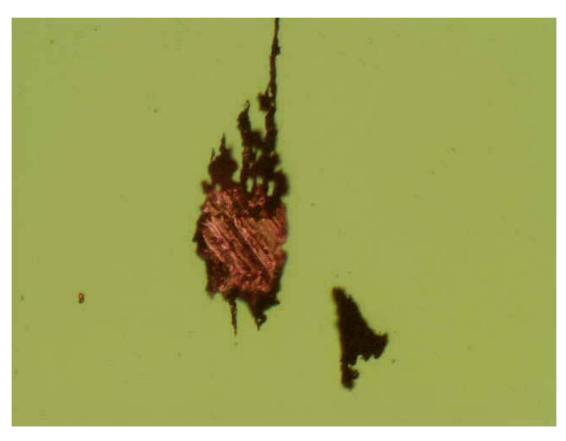
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter										
Comments	particles (~12 oxide was no	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles (~120 microns), cutting wear, red oxide (rust), and ferrous laminar particulate was noted. A moderate amount of soot and dark metallo oxide was noted. A trace amount of the ferrous debris had a blue tint, indicative that the particle was formed under elevated temperatures. Please see attached images.									
Special Features	Ferrous cuttin	Ferrous cutting wear, 13 microns.									



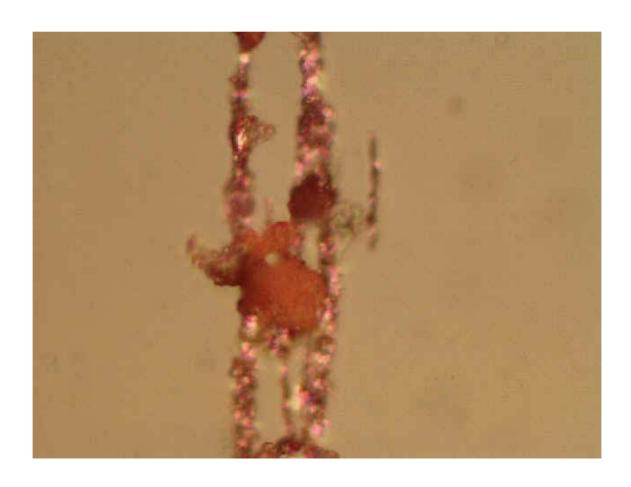
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Residual										
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, red oxide, dark metallo oxide, soot, sand/dirt, fibers and filter media. An isolated severe wear particle, 100 microns in major diameter was noted. Please see attached images.									
Special Features	Rubbing wear	Rubbing wear with filter media									



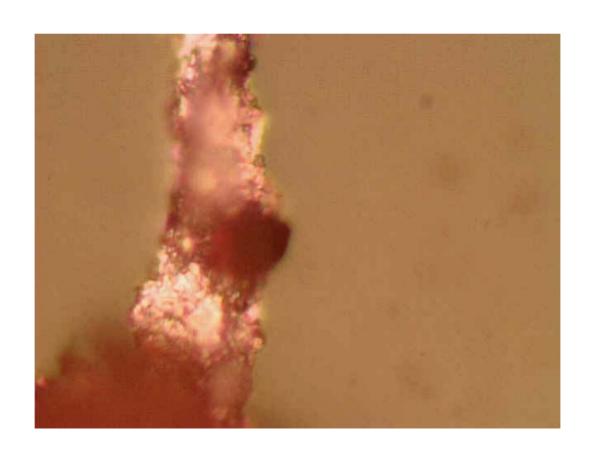
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Residual										
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, red oxide, dark metallo oxide, soot, sand/dirt, fibers and filter media Please see attached images.									
Special Features	An isolated severe wear particle, 100 microns in major diameter was noted										



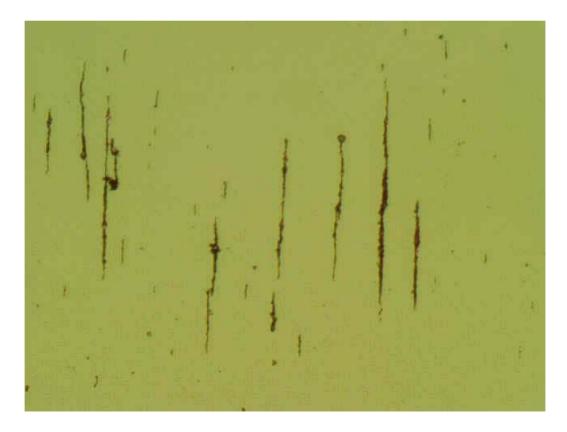
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Residual	5/31/05	89811	400 hours	6597 miles plus 400 hours	500x	73432 89811	Entry			
Comments		•	_		articulate, red oxide, dark me as noted. Please see attached		nd/dirt, fibers and	d filter media. An			
Special Features	Sand particle										



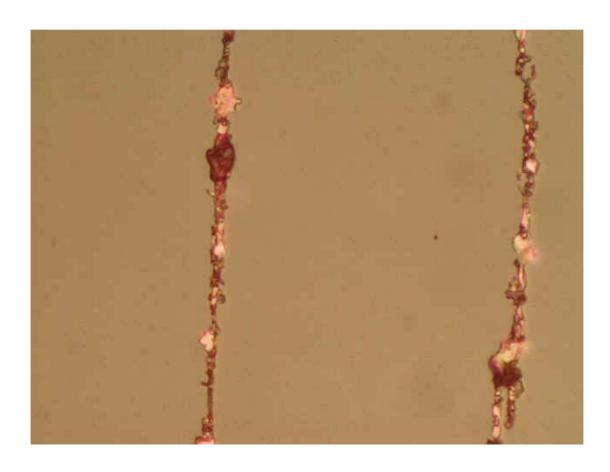
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Bypass Residual											
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, red oxide, dark metallo oxide, soot, sand/dirt, fibers and filter media. An isolated severe wear particle, 100 microns in major diameter was noted. Please see attached images.										
Special Features	Severe wear and sand/dirt particles.											



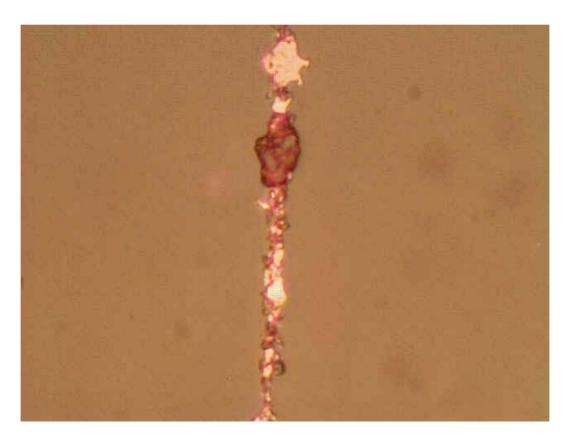
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide			
73432	Full Flow Residual	5/31/05	89813	400 hours	6597 miles plus 400 hours	100x	73432 89813	Entry			
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles (~40 microns), cutting wear, soot, dark metallo oxide, and ferrous laminar particulate (<30 micron) was noted. Please see attached images.									
Special Features	Rubbing wear	Rubbing wear with fatigue particles									



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Residual	5/31/05	89813	400 hours	6597 miles plus 400 hours	500x	73432 89813	Entry			
		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles (~40 microns), cutting wear, soot, dark metallo oxide, and ferrous laminar particulate (<30 micron) was noted. Please see attached images									
Special Features	Ferrous lamina	Ferrous laminar particulate and dark metallo oxide with rubbing wear									

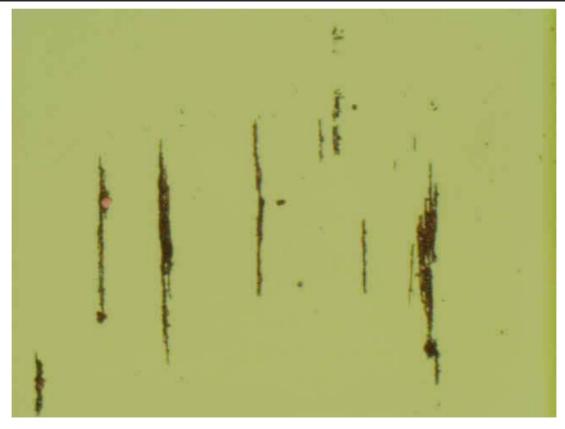


	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Full Flow Residual											
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles (~40 microns), cutting wear, soot, dark metallo oxide, and ferrous laminar particulate (<30 micron) was noted. Please see attached images.										
Special Features	Ferrous lamina	Ferrous laminar and dart metallo oxide particles										

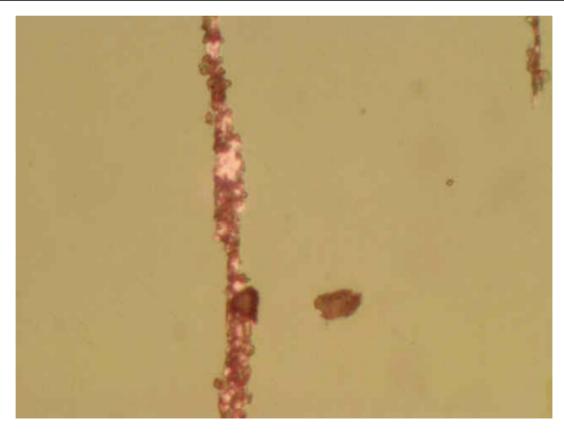


Appendix K-3. Ferrograms – 800 hours Bus 73432

	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide				
73432	Used Oil	1 Oil 6/23/05 90114 800 hours 6858 miles plus 8000 100x 73432 Entry hours										
Comments	rubbing wear.	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles, major diameters up to 90 microns, were noted. A light amount of ferrous laminar particulate (~20 microns), soot particles, abnormally large sand/dirt (~40 microns) particles, red oxide (rust), and dark metallo oxide was noted. A moderate amount of fibers and filter media with embedded wear debris was noted. Please see attached images.										
Special Features	Rubbing wear	Rubbing wear										



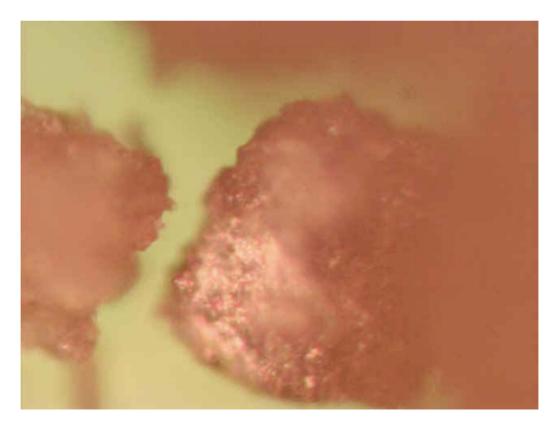
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide			
73432	Used Oil	Jsed Oil 6/23/05 90114 800 hours 6858 miles plus 8000 hours 500x 73432 years Entry									
Comments	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles, major diameters up to 90 microns, were noted. A light amount of ferrous laminar particulate (~20 microns), soot particles, abnormally large sand/dirt (~40 microns) particles, red oxide (rust), and dark metallo oxide was noted. A moderate amount of fibers and filter media with embedded wear debris was noted. Please see attached images.										
Special Features	Rubbing wear	Rubbing wear with dark metallo oxide and/or sand particles									



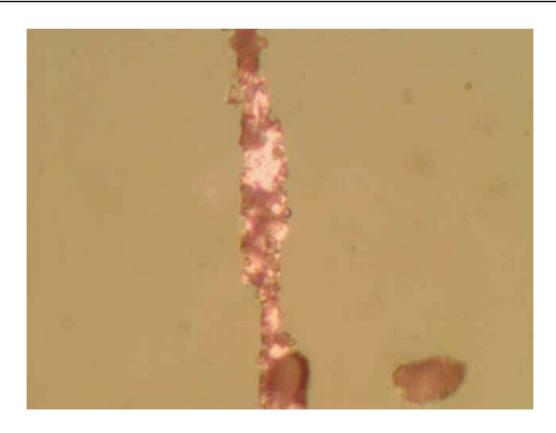
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Used Oil	Sed Oil 6/23/05 90114 800 hours 6858 miles plus 8000 hours 500x 73432 year Entry 90114										
Comments	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles, major diameters up to 90 microns, were noted. A light amount of ferrous laminar particulate (~20 microns), soot particles, abnormally large sand/dirt (~40 microns) particles, red oxide (rust), and dark metallo oxide was noted. A moderate amount of fibers and filter media with embedded wear debris was noted. Please see attached images.											
Special Features	~20 microns	~20 microns ferrous laminar particulate.										



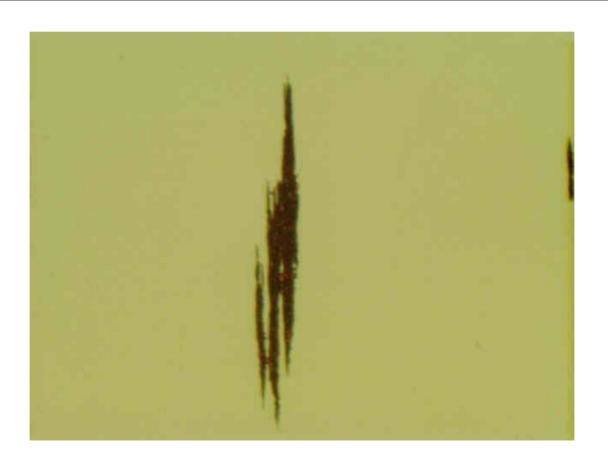
				Idle T	Test Ferrograms							
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide				
73432	Used Oil	Jsed Oil 6/23/05 90114 800 hours 6858 miles plus 8000 hours 500x 73432 year Entry										
Comments	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles, major diameters up to 90 microns, were noted. A light amount of ferrous laminar particulate (~20 microns), soot particles, abnormally large sand/dirt (~40 microns) particles, red oxide (rust), and dark metallo oxide was noted. A moderate amount of fibers and filter media with embedded wear debris was noted. Please see attached images.											
Special Features	Major diame	Major diameters up to 90 micron of ferrous fatigue particles.										



	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Used Oil	Used Oil 6/23/05 90114 800 hours 6858 miles plus 800x 73432 90114 Entry 8000 hours										
Comments	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous fatigue particles, major diameters up to 90 microns, were noted. A light amount of ferrous laminar particulate (~20 microns), soot particles, abnormally large sand/dirt (~40 microns) particles, red oxide (rust), and dark metallo oxide was noted. A moderate amount of fibers and filter media with embedded wear debris was noted. Please see attached images.											
Special Features	Rubbing wea	Rubbing wear and sand/dirt particle										



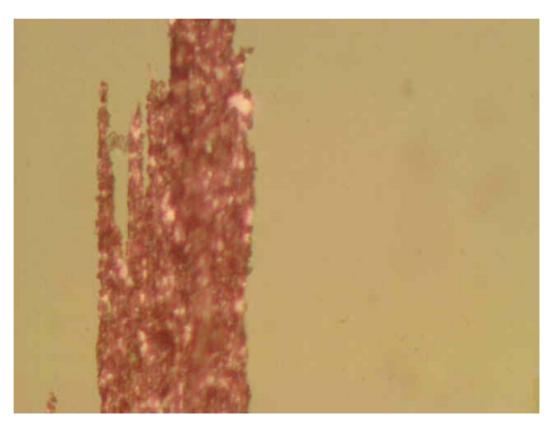
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter										
Comments		Ferrographic analysis of the cross section of the bypass filter indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous laminar particulate (~20 microns), soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.									
Special Features	A light amoun	A light amount of fine ferrous particulate, typical of normal rubbing wear.									



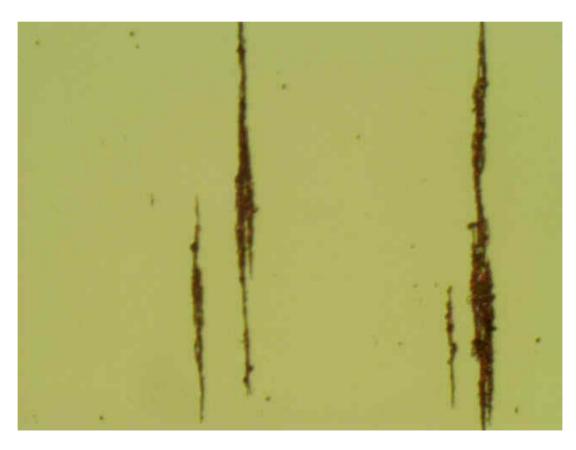
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter	6/23/05	90115	800 hours	6858 miles plus 8000 hours	500x	73432 90115	Entry			
Comments		Ferrographic analysis of the cross section of the bypass filter indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous laminar particulate (~20 microns), soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.									
Special Features	~40 micron fer	~40 micron ferrous laminar particulate									



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter										
Comments	wear. A ligh	Ferrographic analysis of the cross section of the bypass filter indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous laminar particulate (~20 microns), soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.									
Special Features	Rubbing wes	Rubbing wear with sand particle									



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter										
Comments	A light amoun	Ferrographic analysis of the cross section of the full flow filter indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous abnormal sliding wear particulate (~60 microns), ferrous fatigue particulate (~90 microns), soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.									
Special Features	A light amoun	A light amount of fine ferrous particulate, typical of normal rubbing wear.									



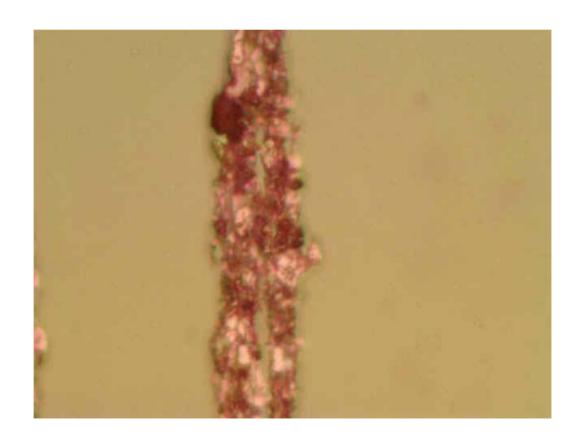
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter	2001 000 10010 000 10010 10010 10010 10010 10010									
Comments	light amount o	Ferrographic analysis of the cross section of the full flow filter indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous abnormal sliding wear particulate (~60 microns), ferrous fatigue particulate (~90 microns), soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.									
Special Features	~90 microns fe	~90 microns ferrous fatigue particulate.									



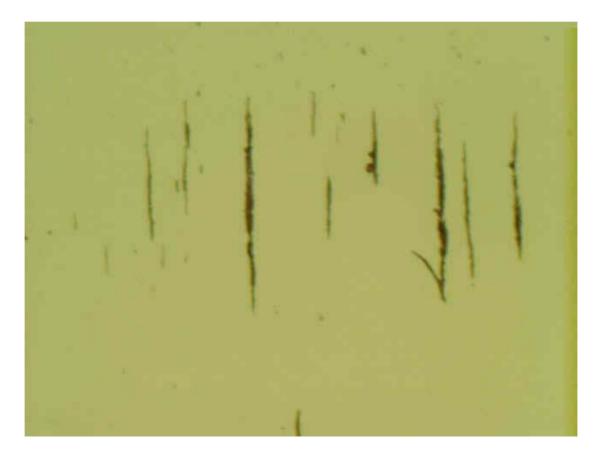
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide			
73432	Full Flow Filter	200 mounts 000 m									
Comments	A light amount of	derrographic analysis of the cross section of the full flow filter indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous abnormal sliding or severe wear particulate (~60 microns), ferrous fatigue particulate (~90 microns), soot particles, and/dirt, and dark metallo oxide was noted. Please see attached images.									
Special Features	~ 60 microns ferr	60 microns ferrous abnormal sliding or severe wear particulate.									



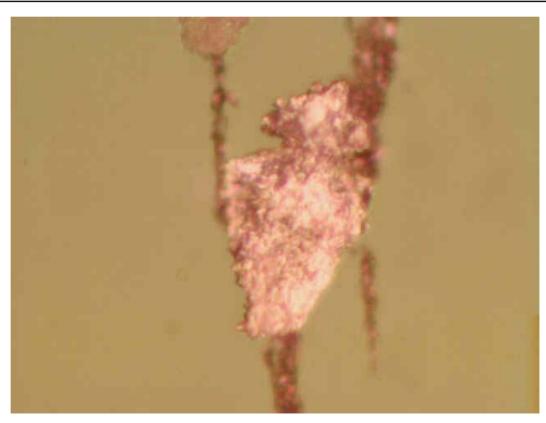
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Full Flow Filter	6/23/05	90117	800 hours	6858 miles plus 8000 hours	500x	73432 90117	Entry					
Comments	Comments Ferrographic analysis of the cross section of the full flow filter indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous abnormal sliding wear particulate (~60 microns), ferrous fatigue particulate (~90 microns), soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.												
Special Features	Dark metallo	oxide on rubb	oing wear										



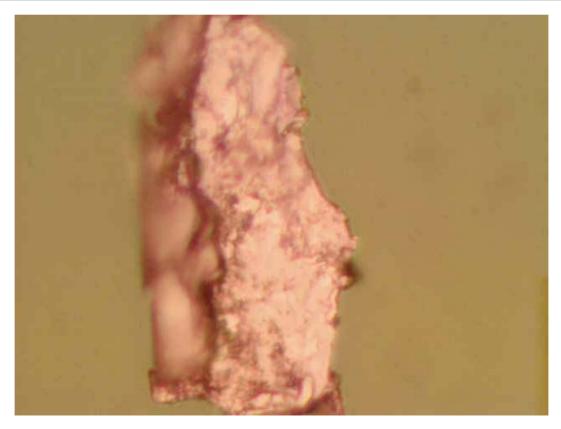
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Bypass Residual	6/23/05	90116	800 hours	6858 miles plus 8000 hours	100x	73432 90116	Entry					
Comments	Comments Ferrographic analysis of the bypass filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of abnormal ferrous sliding wear particles, major diameters up to 60 microns were noted. A light amount ferrous laminar particulate (~40 microns) particles, red oxide (rust), cutting wear, and dark metallo oxide was noted. Please see attached images.												
Special Features	A light amount of fine ferrous particulate, typical of normal rubbing wear.												



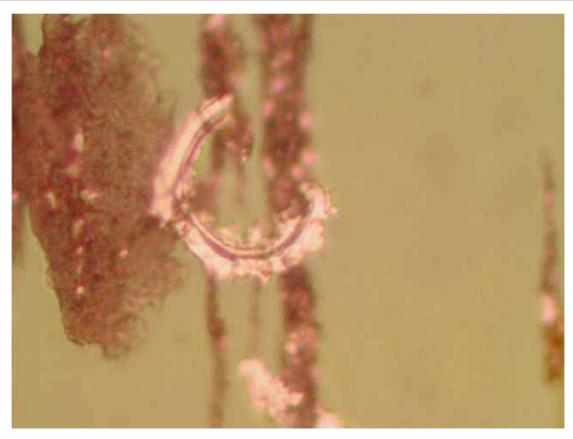
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Bypass Residual	6/23/05	90116	800 hours	6858 miles plus 8000 hours	500x	73432 90116	Entry					
Comments	Ferrographic analysis of the bypass filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of abnormal ferrous sliding wear particles, major diameters up to 60 microns were noted. A light amount ferrous laminar particulate (~40 microns) particles, red oxide (rust), cutting wear, and dark metallo oxide was noted. Please see attached images.												
Special Features	~40 micron fer	rous laminar p	articulate										



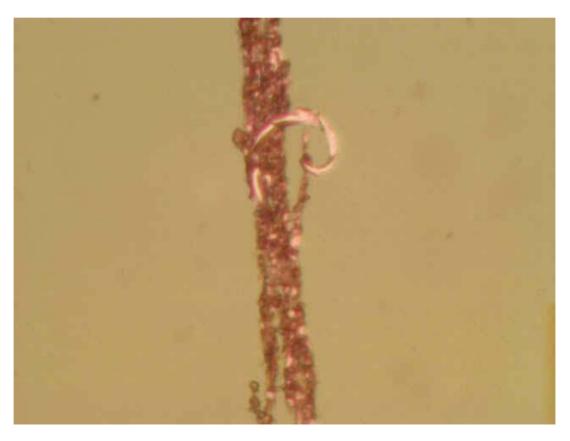
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Bypass Residual	6/23/05	90116	800 hours	6858 miles plus 8000 hours	500x	73432 90116	Entry				
Comments	Comments Ferrographic analysis of the bypass filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of abnormal ferrous sliding wear particles, major diameters up to 60 microns were noted. A light amount ferrous laminar particulate (~40 microns) particles, red oxide (rust), cutting wear and dark metallo oxide was noted. Please see attached images.											
Special Features	60 micron sl	liding or sever	e wear particle									



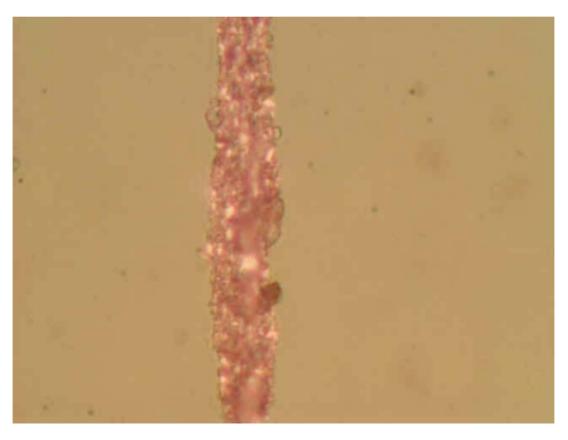
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide					
73432	Bypass Residual	6/23/05	90116	800 hours	6858 miles plus 8000 hours	500x	73432 90116	Entry					
Comments	Ferrographic analysis of the bypass filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of abnormal ferrous sliding wear particles, major diameters up to 60 microns were noted. A light amount ferrous laminar particulate (~40 microns) particles, red oxide (rust), cutting wear, and dark metallo oxide was noted. Please see attached images.												
Special Features	Cutting wear												



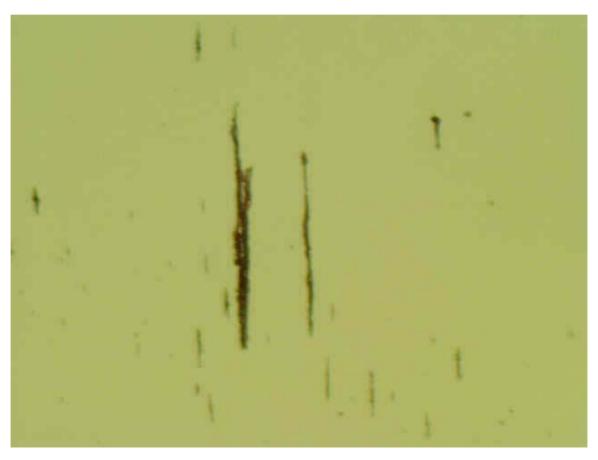
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide				
73432	Bypass Residual	6/23/05	90116	800 hours	6858 miles plus 8000 hours	500x	73432 90116	Entry				
Comments	Comments Ferrographic analysis of the bypass filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of abnormal ferrous sliding wear particles, major diameters up to 60 microns were noted. A light amount ferrous laminar particulate (~40 microns) particles, red oxide (rust), cutting wear, and dark metallo oxide was noted. Please see attached images.											
Special Features	10 micron cu	10 micron cutting wear										



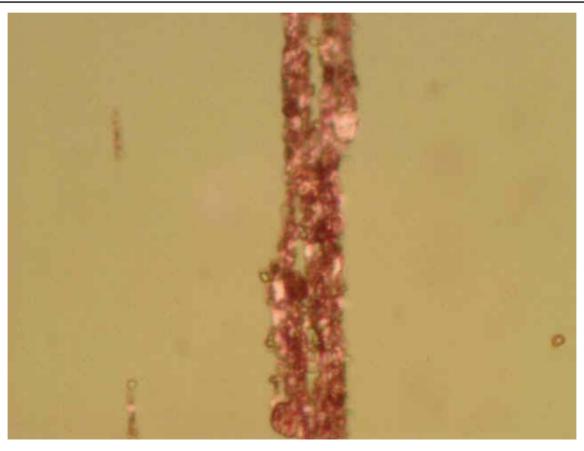
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide					
73432	Bypass Residual	6/23/05	90116	800 hours	6858 miles plus 8000 hours	800x	73432 90116	Entry					
Comments	Comments Ferrographic analysis of the bypass filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of abnormal ferrous sliding wear particles, major diameters up to 60 microns were noted. A light amount ferrous laminar particulate (~40 microns) particles, red oxide (rust), cutting wear, and dark metallo oxide was noted. Please see attached images.												
Special Features	Rubbing wear												



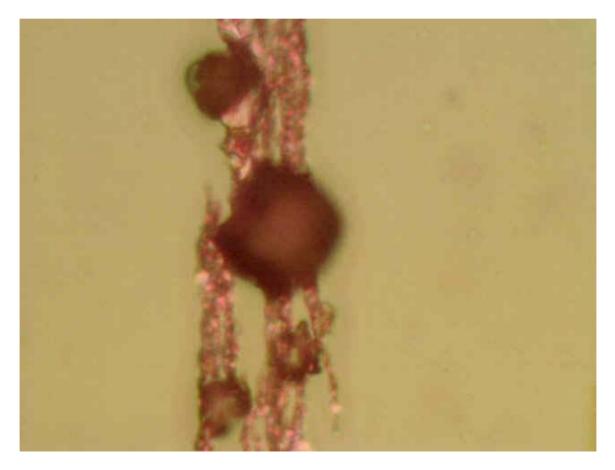
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Full Flow Residual	6/23/05	90118	800 hours	6858 miles plus 8000 hours	100x	73432 90118	Entry					
Comments	ments Ferrographic analysis of the full flow filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.												
Special Features	A light amoun	A light amount of fine ferrous particulate, typical of normal rubbing wear.											



	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73432	Full Flow Residual	6/23/05	90118	800 hours	6858 miles plus 8000 hours	100x	73432 90118	Entry					
Comments	Comments Ferrographic analysis of the full flow filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.												
Special Features	Rubbing wea	Rubbing wear											

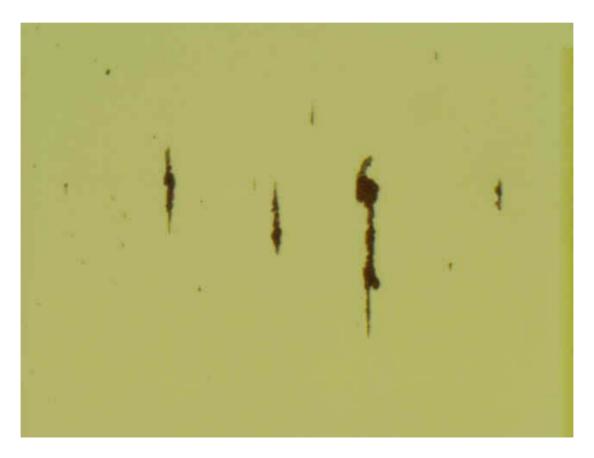


	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide					
73432	Full Flow Residual	6/23/05	90118	800 hours	6858 miles plus 8000 hours	100x	73432 90118	Entry					
Comments	Comments Ferrographic analysis of the full flow filter residue oil indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.												
Special Features	Soot particles on rubbing wear particulate												



Appendix K-4. Ferrograms – 1,000 hours Bus 73432

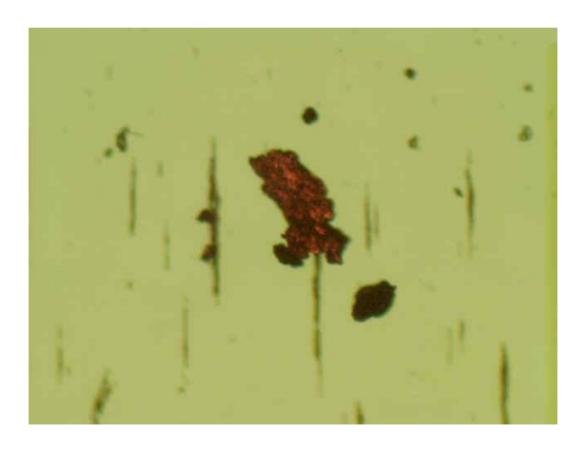
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Used Oil	ed Oil 7/5/05 90155 1000 hours 6858 miles plus 1000 100x 73432 Entry hours 90155									
Comments	Ferrogram of t attached image		sample shows a lig	tht amount of fin	e (<10 micron) ferrous partic	culate, typical of no	rmal rubbing wea	ar. Please see			
Special Features	Shows a light amount of fine (<10 micron) ferrous particulate, typical of normal rubbing wear.										



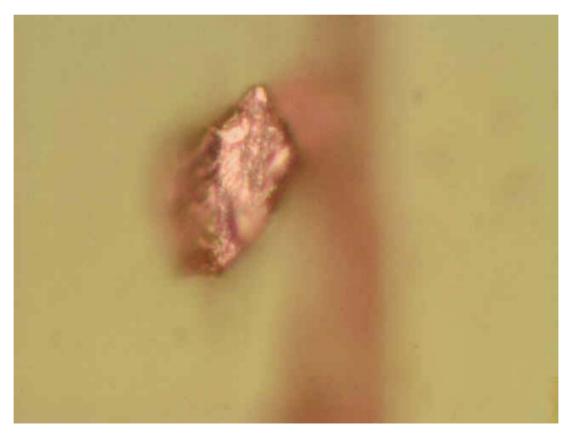
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Used Oil	7/5/05	90155	1000 hours	6858 miles plus 1000 hours	500x	73432 90155	Entry			
Comments	Ferrogram of t attached image		sample shows a lig	ht amount of fin	e (<10 micron) ferrous partic	culate, typical of no	rmal rubbing we	ar. Please see			
Special Features	Rubbing wear										



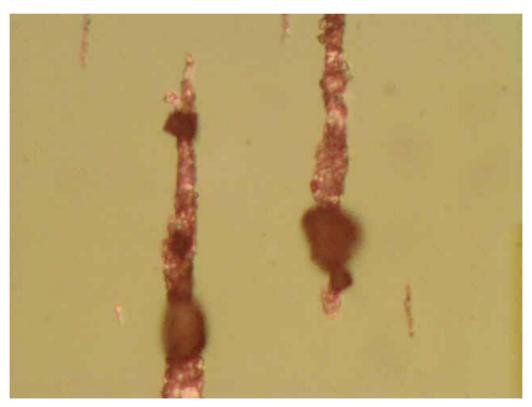
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Bypass Filter											
Comments	Ferrogram from Please see atta	• 1	lter cross section s	shows a light am	ount of fine (<10µm) ferrous	particulate, typical	of normal opera	ting condition.				
Special Features	A discrete copper alloy laminar particle, measuring 132 μm, is noted.											



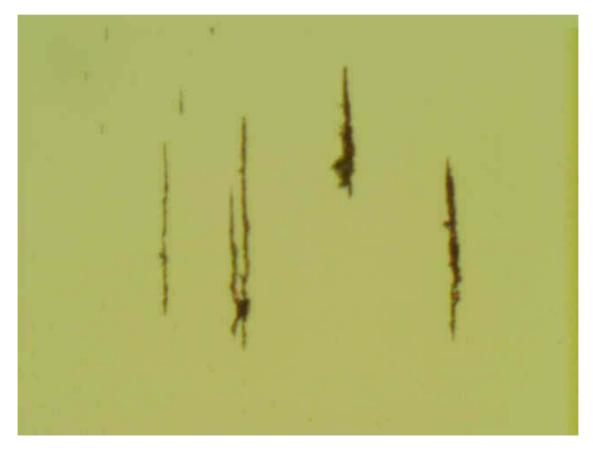
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Filter										
Comments	Ferrogram from the bypass filter cross section shows a light amount of fine (<10µm) ferrous particulate, typical of normal operating condition. A discrete fatigue particle, measuring 29 µm, and a discrete copper alloy laminar particle, measuring 132 µm, are noted. Please see attached images.										
Special Features	A discrete fatigue particle, measuring 29 μm										



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnificatio n	Photograp h Number	Region of Slide			
73432	Bypass Filter										
Comments	_	Ferrogram from the bypass filter cross section shows a light amount of fine (<10µm) ferrous particulate, typical of normal operating condition. A discrete fatigue particle, measuring 29 µm, and a discrete copper alloy laminar particle, measuring 132 µm, are noted. Please see attached images.									
Special Features	Soot or dark	metallo oxide	particles								



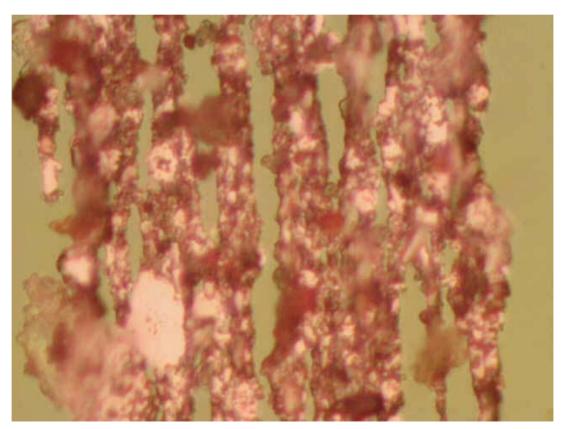
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Full Flow Filter											
Comments	_	Ferrogram from the full flow filter cross section shows a moderate amount of fine (<10µm) ferrous particulate, consistent with normal operation. A discrete 28 µm aluminum laminar particle is present, but is not considered problematic at this time. Please see attached images. Continue to monitor.										
Special Features	Shows a mode	Shows a moderate amount of fine ferrous particulate.										



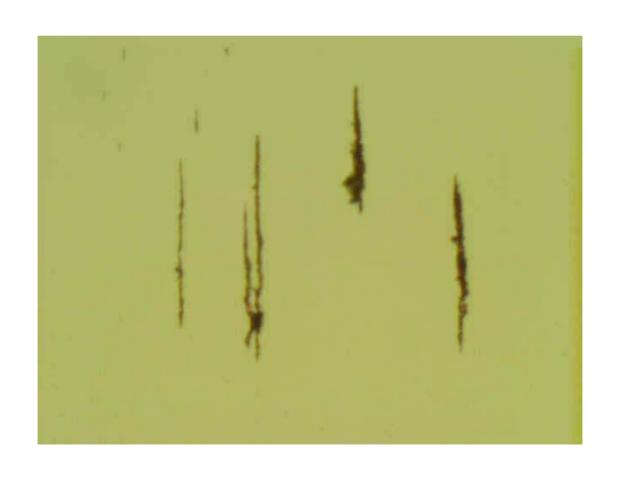
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter										
Comments		Ferrogram from the full flow filter cross section shows a moderate amount of fine (<10µm) ferrous particulate, consistent with normal operation. A discrete 28 µm aluminum laminar particle is present, but is not considered problematic at this time. Please see attached images. Continue to monitor.									
Special Features	A discrete 28 μ	A discrete 28 μm aluminum laminar particle noted.									



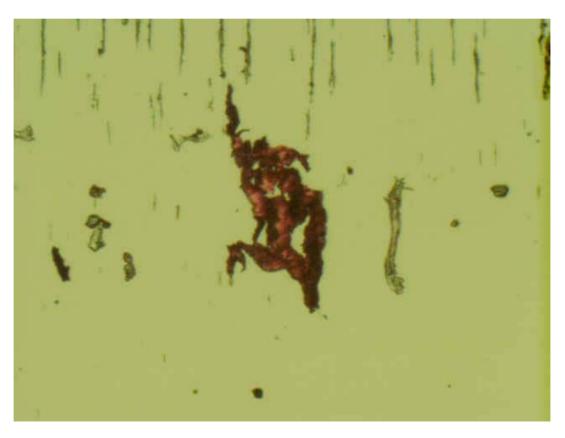
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Filter										
Comments		Ferrogram from the full flow filter cross section shows a moderate amount of fine (<10µm) ferrous particulate, consistent with normal operation. A discrete 28 µm aluminum laminar particle is present, but is not considered problematic at this time. Please see attached images. Continue to monitor.									
Special Features	Rubbing wear	Rubbing wear with sand/dirt particulates and oxides									



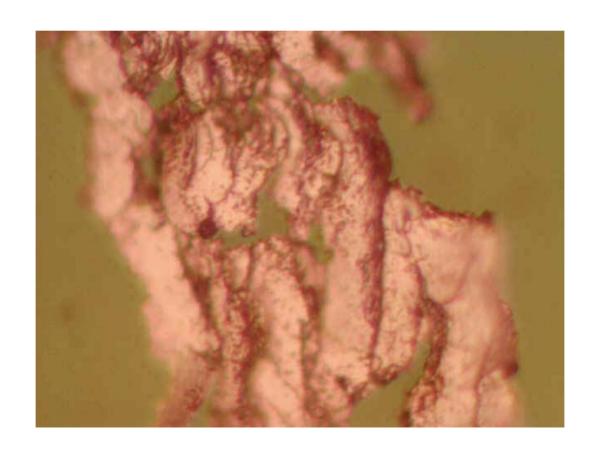
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Residual										
Comments	_	* 1		•	ine ferrous particulate, typicase see attached images. Cont		_	e 200 µm ferrous			
Special Features	Shows a light	Shows a light amount of fine ferrous particulate, typical of normal rubbing wear.									



	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Bypass Residual											
Comments	_	Ferrogram of the bypass filter residue shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A discrete 200 µm ferrous and a discrete 44 µm aluminum laminar particle are noted. Please see attached images. Continue to monitor per schedule.										
Special Features	A discrete 200	A discrete 200 μm ferrous laminar particle with sand/dirt debris.										



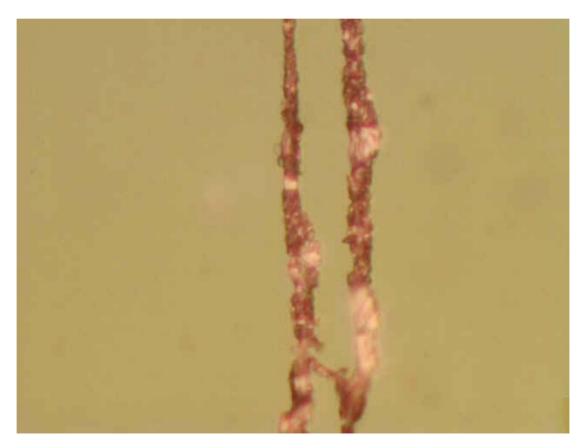
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Residual										
Comments		Ferrogram of the bypass filter residue shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A discrete 200 µm ferrous and a discrete 44 µm aluminum laminar particle are noted. Please see attached images. Continue to monitor per schedule.									
Special Features	A discrete 20	A discrete 200 µm ferrous laminar particle noted.									



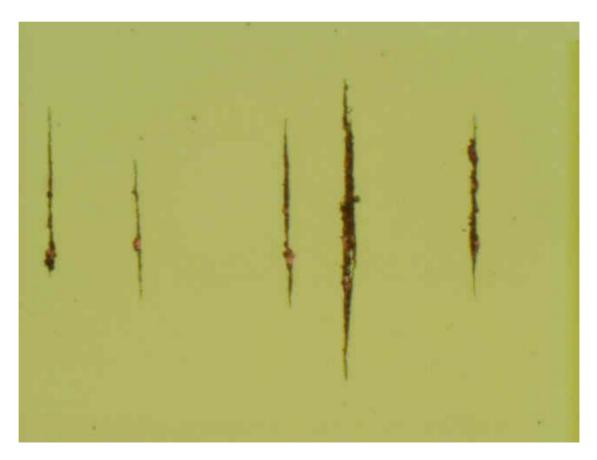
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Residual										
Comments		Ferrogram of the bypass filter residue shows a light amount of fine ferrous particulate, typical of normal rubbing wear. A discrete 200 µm ferrous and a discrete 44 µm aluminum laminar particle are noted. Please see attached images. Continue to monitor per schedule.									
Special Features	A discrete 44	A discrete 44 μm aluminum laminar particle noted.									



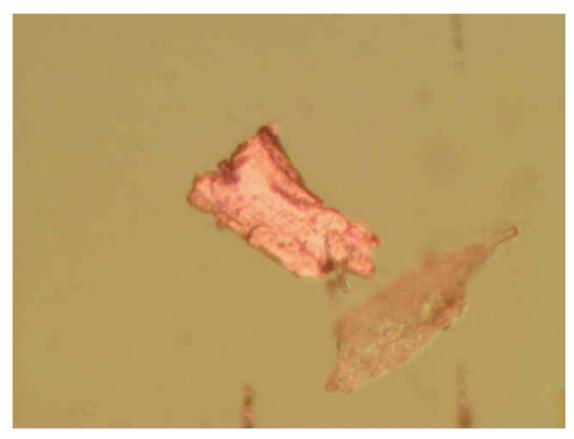
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Bypass Residual	7/5/05	90157	1000 hours	6858 miles plus 1000 hours	500x	73432 90157	Entry			
Comments	_	* *		•	fine ferrous particulate, typ ted. Please see attached im:		-	•			
Special Features	Rubbing wea	Rubbing wear									



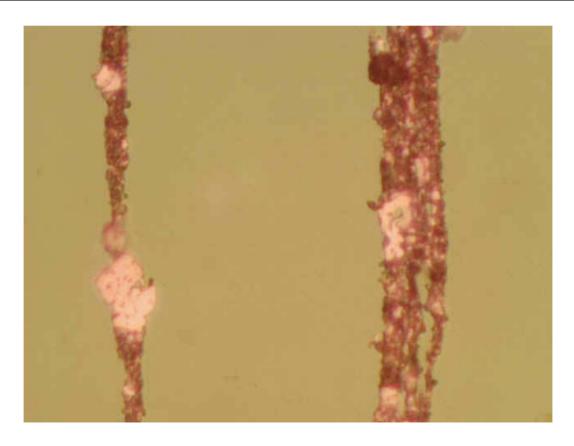
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73432	Full Flow Residual											
Comments	~ .	Ferrographic analysis of the full flow filter residue shows a light amount of fine (<10 µm) particulate, typical of normal rubbing wear. A discrete 30 µm laminar copper particle is noted, but is not considered problematic at this time. Please see attached images. Continue to monitor.										
Special Features	Shows a light amount of fine (<10 µm) particulate, typical of normal rubbing wear.											



Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Residual										
Comments	~ .	Ferrographic analysis of the full flow filter residue shows a light amount of fine (<10 µm) particulate, typical of normal rubbing wear. A discrete 30 µm laminar copper particle is noted, but is not considered problematic at this time. Please see attached images. Continue to monitor.									
Special Features	A discrete 30 μ	A discrete 30 μm laminar copper particle noted.									

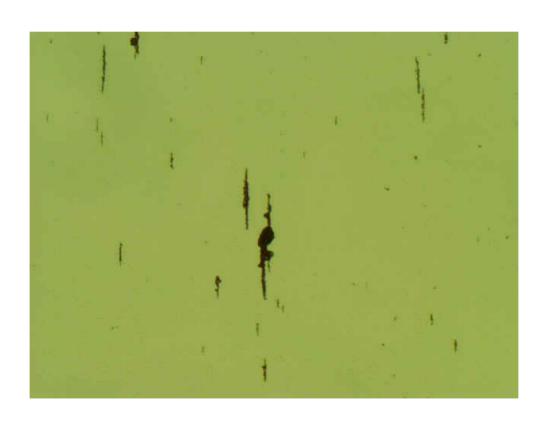


	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73432	Full Flow Residual	7/5/05	90159	1000 hours	6858 miles plus 1000 hours	500x	73432 90159	Entry			
Comments		Ferrographic analysis of the full flow filter residue shows a light amount of fine (<10 µm) particulate, typical of normal rubbing wear. A discrete 30 µm laminar copper particle is noted, but is not considered problematic at this time. Please see attached images. Continue to monitor.									
Special Features	Rubbing wea	Rubbing wear with laminar particles									

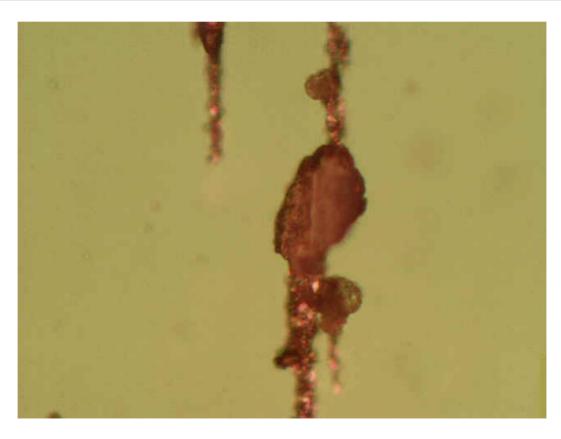


Appendix K-5. Ferrograms – 5,000 miles Bus 73433

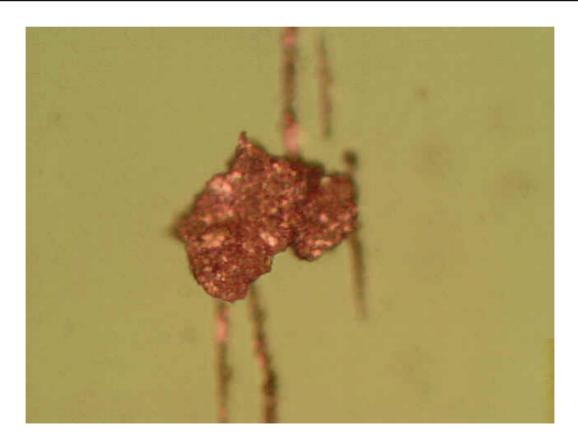
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Used oil	4/26/05	89304	@5000 miles	6858 miles	100x	73433 89304	Entry			
Comments					articulate, typical of normal ricrons), and ferrous and non-						
Special Features	Rubbing wear	Rubbing wear with laminar particulates									



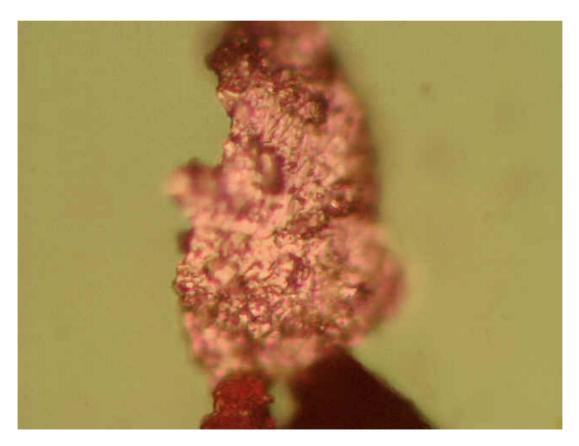
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Used oil	ed oil 4/26/05 89304 @5000 6858 miles 500x 73433 Entry miles										
Comments					articulate, typical of normal r icrons), and ferrous and non-							
Special Features	Laminar partic	Laminar particulate on rubbing wear										



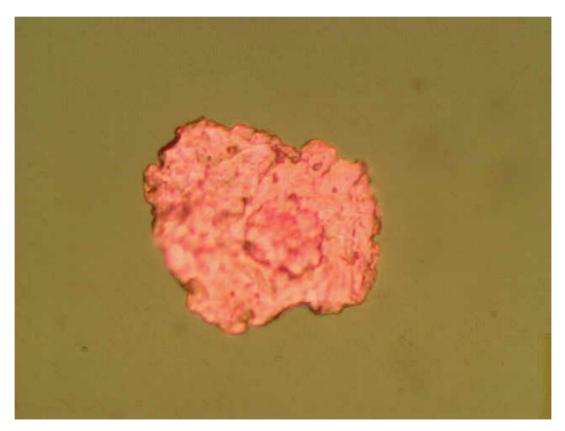
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Used oil	4/26/05	89304	@5000 miles	6858 miles	500x	73433 89304	On the slide			
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).									
Special Features	Ferrous fatig	Ferrous fatigue									



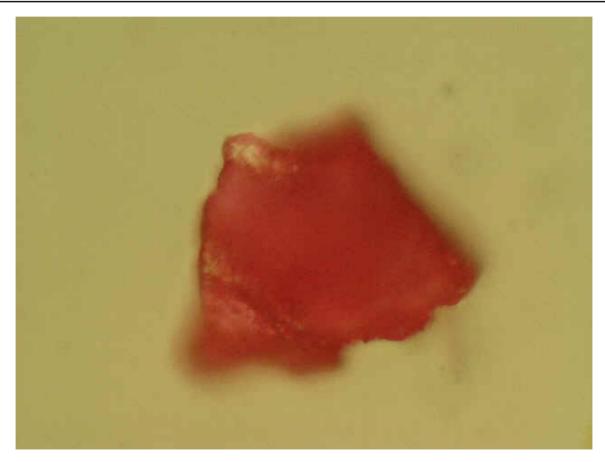
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Used oil	ed oil 4/26/05 89304 @5000 miles 6858 miles 500x 73433 89304 On the slide									
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).									
Special Features	Ferrous fatigue with soot										



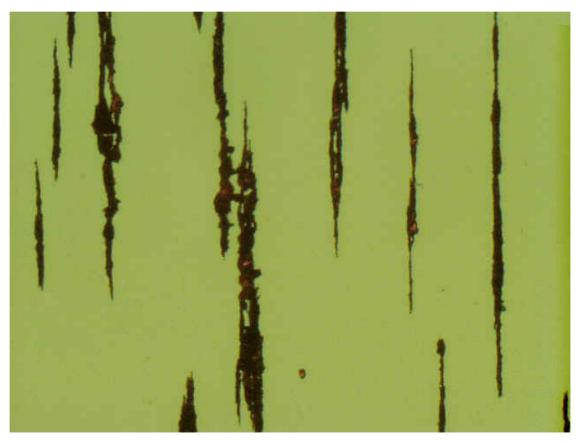
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Used oil	d oil 4/26/05 89304 @5000 miles 6858 miles 500x 73433 89304 On the slide									
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).									
Special Features	Non-ferrous laminar particulate										



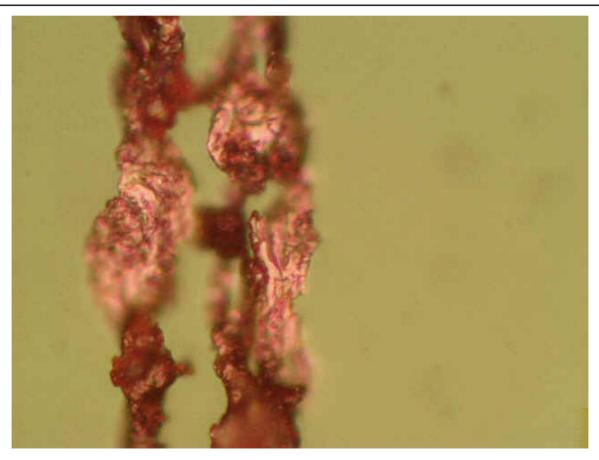
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Used oil	Used oil 4/26/05 89304 @5000 miles 6858 miles 500x 73433 89304 On the slide										
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).										
Special Features	Sand particle											



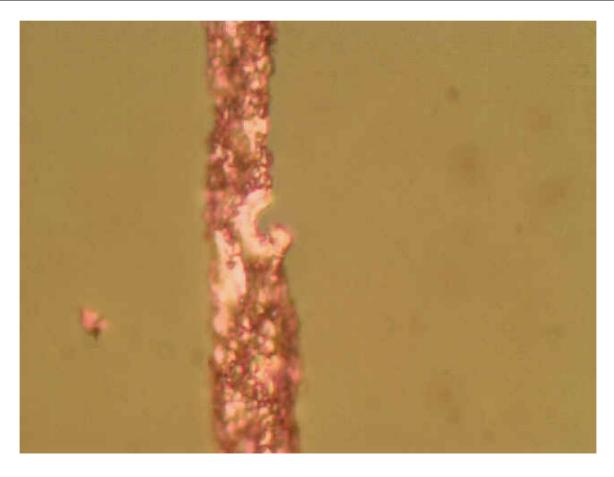
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass Filter	4/26/05	89305	@5000 miles	6858 miles	100x	73433 89305	Entry			
Comments	U 1	•	•		articulate, typical of normal ricrons), and ferrous and non-	0 0		•			
Special Features	Rubbing wear										



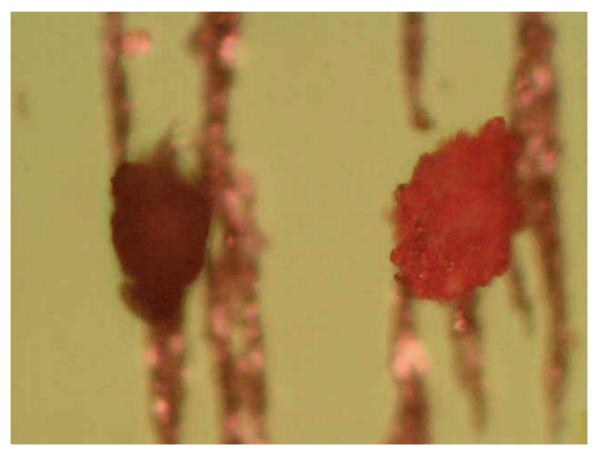
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass Filter	4/26/05	89305	@5000 miles	6858 miles	500x	73433 89305	Entry			
Comments	~ .	Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).									
Special Features	Fatigue wear p	Fatigue wear particulates									



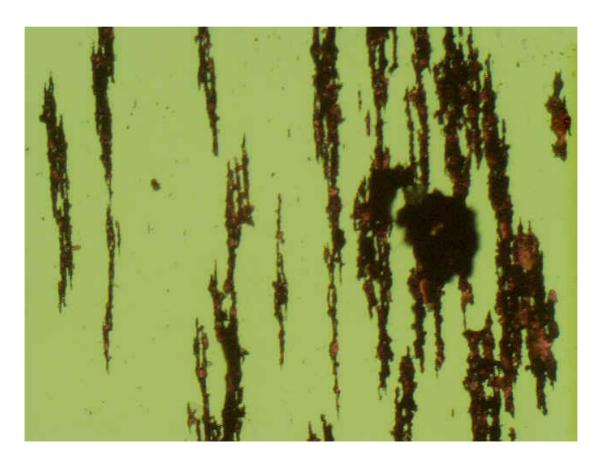
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Filter	4/26/05	89305	@5000 miles	6858 miles	800x	73433 89305	On the slide				
Comments		•	_		s particulate, typical of nor e (~50 microns), and ferro	•	-	_				
Special Features	Ferrous Cutt	Ferrous Cutting Wear										



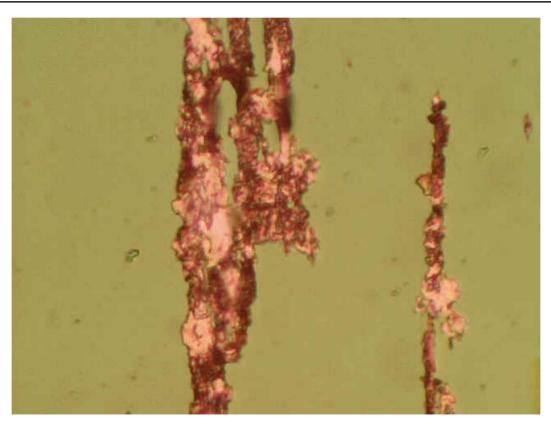
	Idle Test Ferrograms												
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide					
73433	Bypass Filter												
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).											
Special Features	Rubbing wear	Rubbing wear with soot and sand											



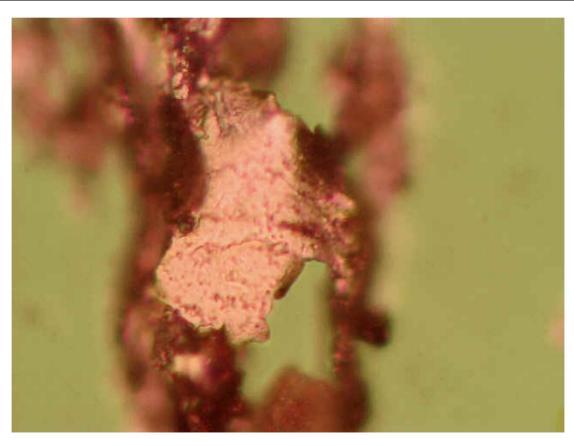
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow	4/26/05	89307	@5000 miles	6858 miles	100x	73433 89307	Entry				
Comments					articulate, typical of normal ricrons), and ferrous and non-							
Special Features	Rubbing wear	Rubbing wear with larger non-ferrous laminar particulate										



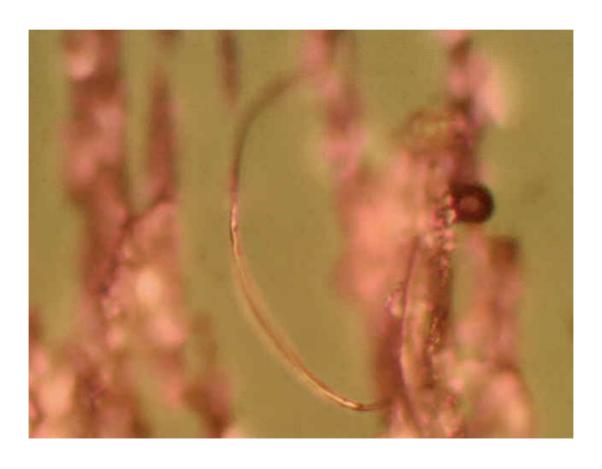
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow	4/26/05	89307	@5000 miles	6858 miles	500x	73433 89307	Entry				
Comments	~ .	Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).										
Special Features	Rubbing wear											



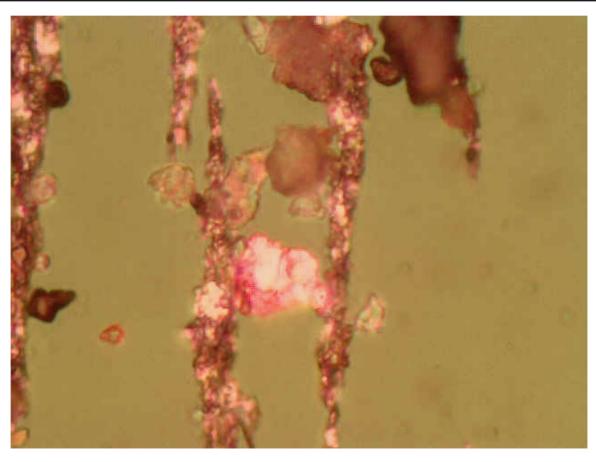
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow	4/26/05	89307	@5000 miles	6858 miles	500x	73433 89307	On the slide				
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).										
Special Features	Ferrous lami	Ferrous laminar wear										



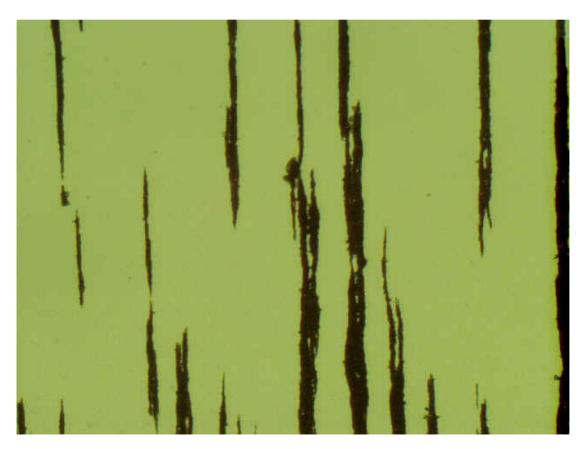
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow	4/26/05	89307	@5000 miles	6858 miles	800x	73433 89307	On the slide				
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).										
Special Features	Ferrous Cutti	ng										



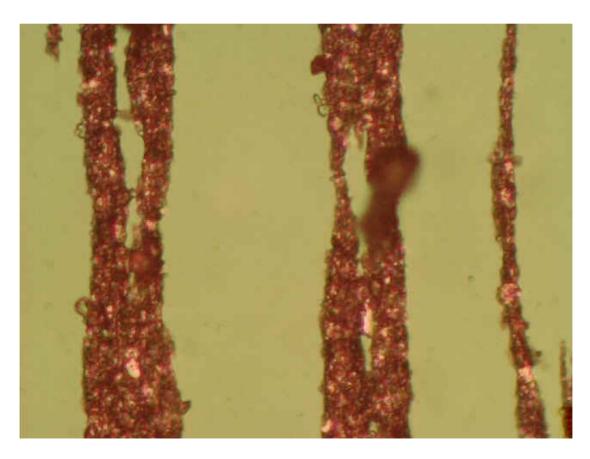
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow	Flow 4/26/05 89307 @5000 miles 6858 miles 800x 73433 89307 On the slide										
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).										
Special Features	Dark metallo oxide particles, sand and non ferrous (sand) particle											



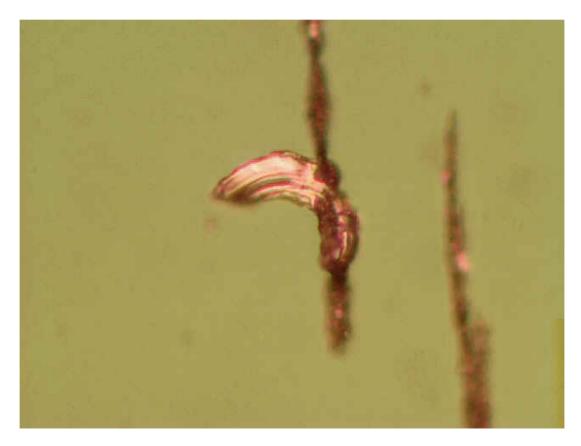
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual	4/26/05	89306	@5000 miles	6858 miles	100x	73433 89306	Entry				
Comments					urticulate, typical of normal ricrons), and ferrous and non-							
Special Features	Rubbing wear											



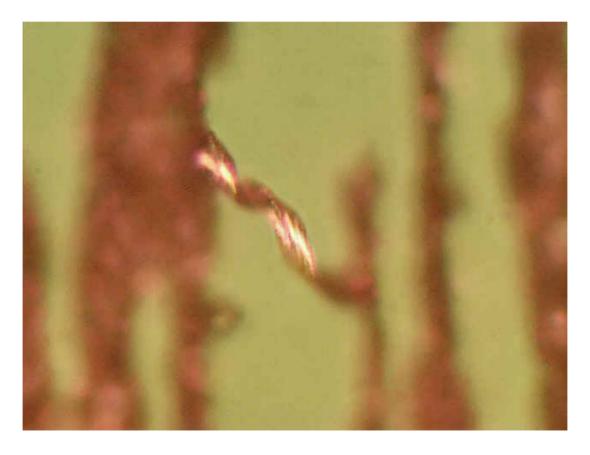
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual	4/26/05	89306	@5000 miles	6858 miles	500x	73433 89306	Entry				
Comments					articulate, typical of normal ricrons), and ferrous and non-							
Special Features	Rubbing wear	Rubbing wear and sand/dirt particle										



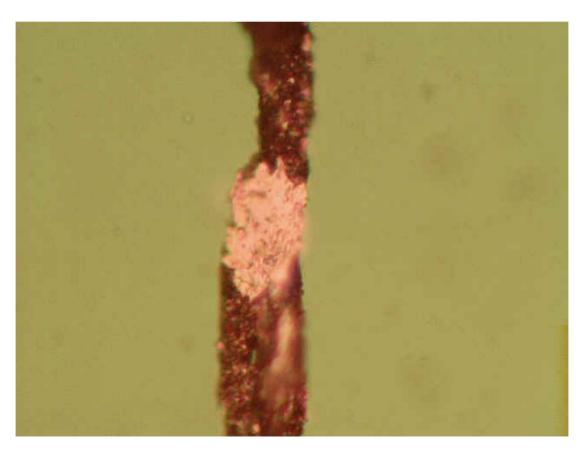
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual	4/26/05	89306	@5000 miles	6858 miles	800x	73433 89306	On the slide				
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).										
Special Features	Ferrous Cutt	Ferrous Cutting Wear										



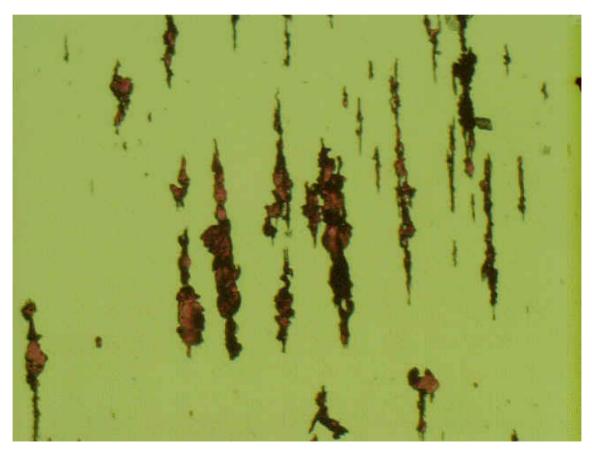
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual	4/26/05	89306	@5000 miles	6858 miles	800x	73433 89306	On the slide				
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).										
Special Features	Ferrous Cutt	Ferrous Cutting Wear										



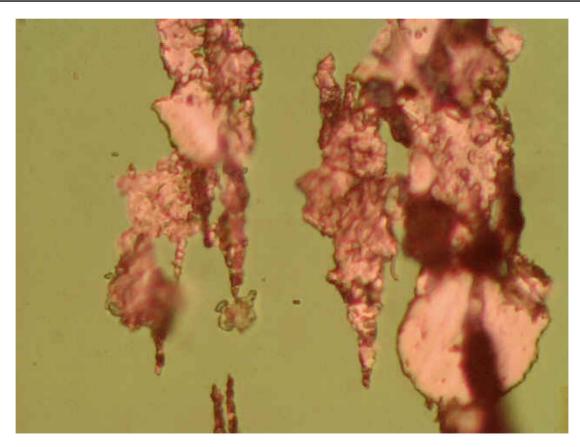
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass Residual	4/26/05	89306	@5000 miles	6858 miles	500x	73433 89306	One the slide			
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).									
Special Features	Ferrous Lam	Ferrous Laminar									



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Full Flow Residual	4/26/05	89308	@5000 miles	6858 miles	100x	73433 89308	Entry			
Comments					urticulate, typical of normal r icrons), and ferrous and non-						
Special Features	Rubbing wear	Rubbing wear with oxides particulates									



	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow Residual	4/26/05	89308	@5000 miles	6858 miles	500x	73433 89308	Entry				
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, ferrous fatigue particulate (~50 microns), and ferrous and non-ferrous laminar particulate (~35 microns).										
Special Features	Fatigue wear											

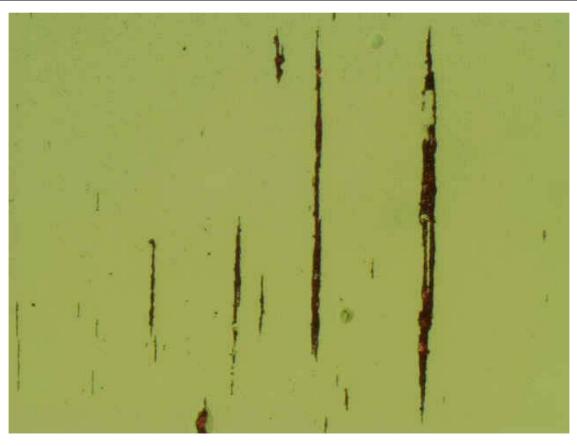


	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow Residual	4/26/05	89308	@5000 miles	6858 miles	800x	73433 89308	On the slide				
Comments		•	-	-	articulate, typical of normal	•	-	_				
Special Features	Ferrous Cutti	Ferrous Cutting Wear										

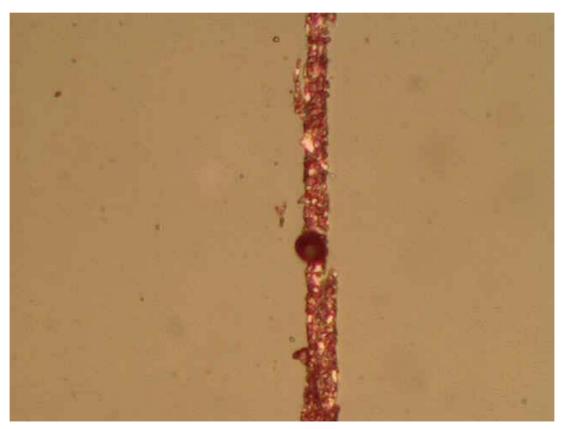


Appendix K-6. Ferrograms – 400 hours Bus 73433

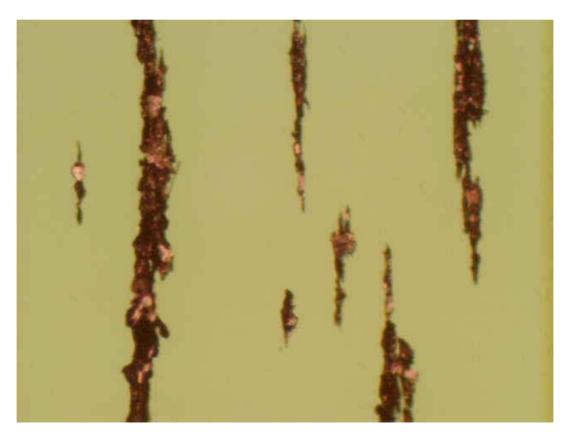
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass Filter	5/19/05	89814	@400 hours	6858 miles plus 400 hours	100x	73433 89814	Entry			
Comments			es a moderate amo iculate was noted.		us particulate, typical of norn ched images.	nal rubbing wear.	A light amount o	f dark metallo			
Special Features	Rubbing wear										



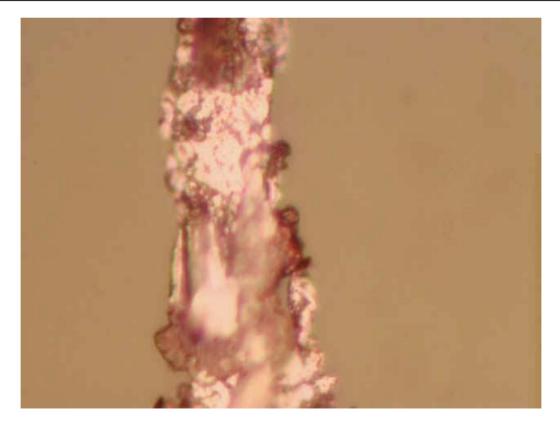
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass Filter	5/19/05	89814	@400 hours	6858 miles plus 400 hours	500x	73433 89814	Entry			
Comments	~ .	•	es a moderate amo ciculate was noted.		us particulate, typical of norr ched images.	nal rubbing wear.	A light amount o	f dark metallo			
Special Features	Dark metallo oxide										



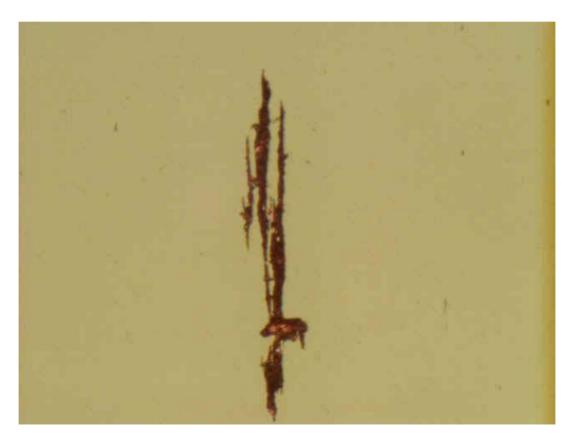
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow Filter	2 mars para 10 mar										
Comments	dark metallo o	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot, ferrous fatigue particulate (~100 microns), and ferrous laminar particulate (~45 microns) was noted. A light amount of the debris had a blue tint, suggesting the particles were formed during localized elevated temperature. Please see attached images.										
Special Features	Rubbing wear	Rubbing wear with oxide particulates										



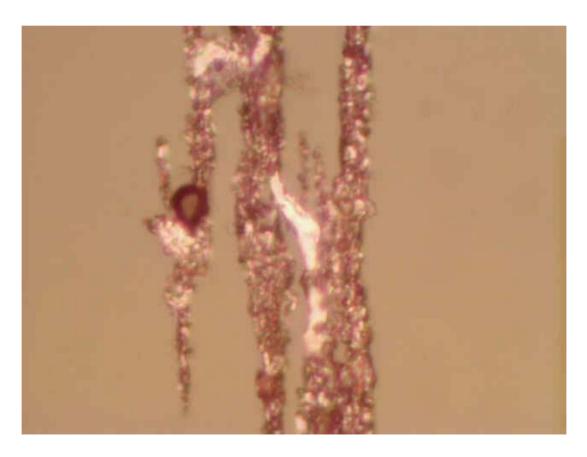
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual											
Comments	wear, dark met	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot, ferrous fatigue particulate (~100 microns), and ferrous laminar particulate (~45 microns) was noted. A light amount of the debris had a blue tint, suggesting the particles were formed during localized elevated temperature. Please see attached images.										
Special Features	Fatigue wear											



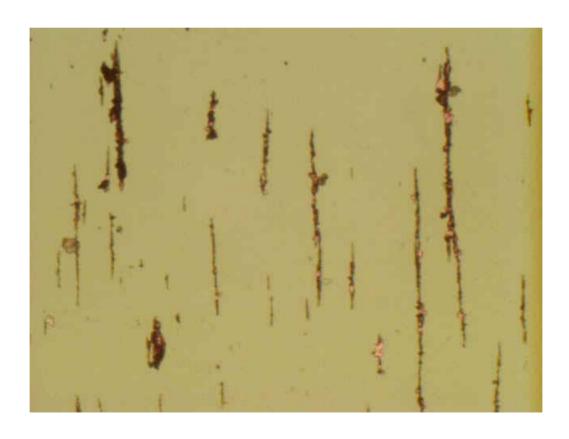
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual											
Comments	~ .	•	-		particulate, typical of normal ate (~50 microns) was noted.	-	-	errous cutting wear,				
Special Features	Rubbing wear	Rubbing wear with fatigue particle										



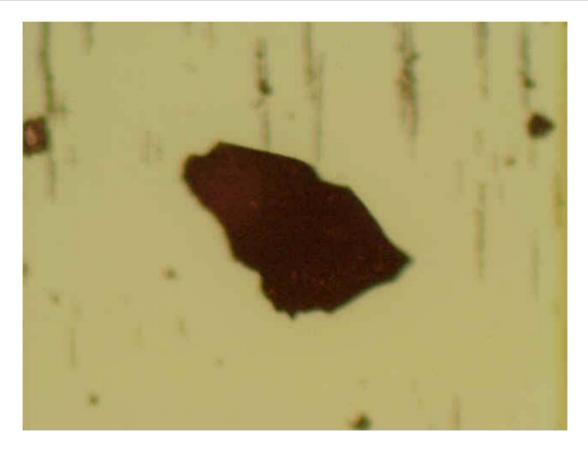
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass Residual	5/19/05	89815	@400 hours	6858 miles plus 400 hours	500x	73433 89815	Entry			
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot and ferrous fatigue particulate (~50 microns) was noted. Please see attached images.									
Special Features	Dark metallo o	Dark metallo oxide, rubbing and cutting wear									



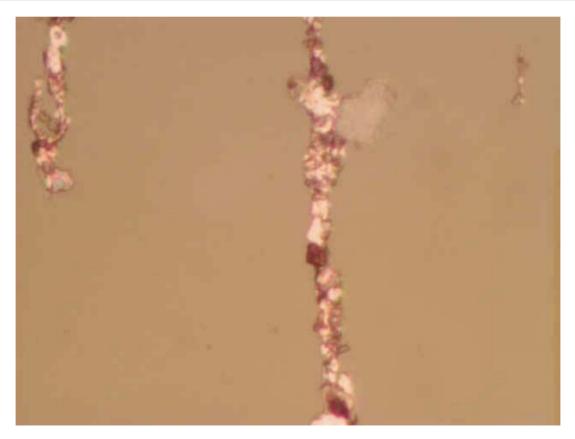
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Full Flow Residual	5/19/05	89817	@400 hours	6858 miles plus 400 hours	100x	73433 89817	Entry			
Comments					particulate, typical of norma particulate (~30 microns) we						
Special Features	Rubbing wear	Rubbing wear with sand/dirt and ferrous laminar particulates									



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Full Flow Residual	5/19/05	89817	@400 hours	6858 miles plus 400 hours	100x	73433 89817	Entry			
Comments	~ .	Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, soot, sand/dirt, and ferrous laminar particulate (~30 microns) were noted. Please see attached images.									
Special Features	Soot										



	Idle Test Ferrograms										
Bus Number	Oil Source Sample Date NTS Sample Number Test Stage Total Miles and Hours on the Oil Magnification Number Region										
73433	Full Flow Residual										
Comments					articulate, typical of normal rate (~30 microns) were noted			ous cutting wear,			
Special Features	Rubbing and la	Rubbing and laminar wear with sand/dirt particle									

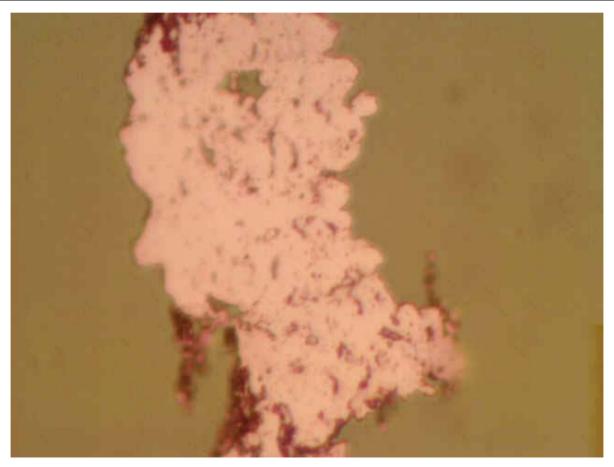


Appendix K-7. Ferrograms – 800 hours Bus 73433

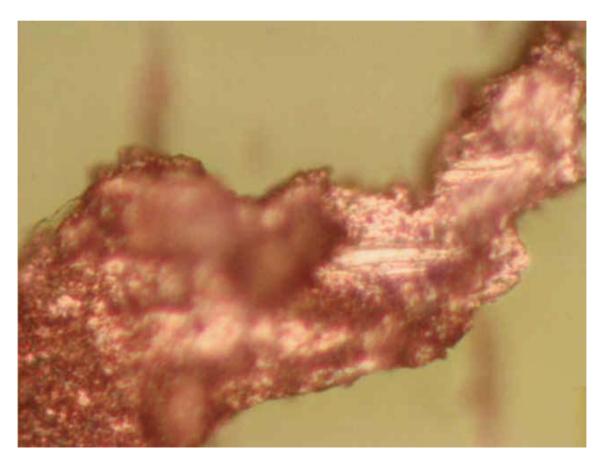
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Used Oil Sample	6/19/05	90003	800 hours	7754 miles plus 800 hours	100x	73433 90003	Entry				
Comments					urticulate, typical of normal r							
Special Features	Fine rubbing wear											



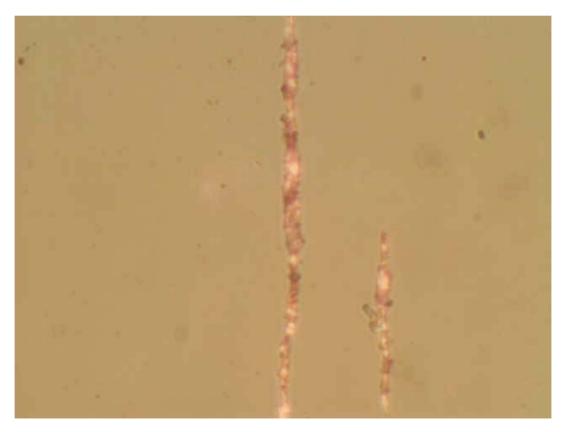
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide			
73433	Used Oil Sample	6/19/05	90003	800 hours	7754 miles plus 800 hours	500x	73433 90003	Entry			
Comments					particulate, typical of normal ferrous laminar particulate						
Special Features	~60 micron fe	~60 micron ferrous laminar particulate.									



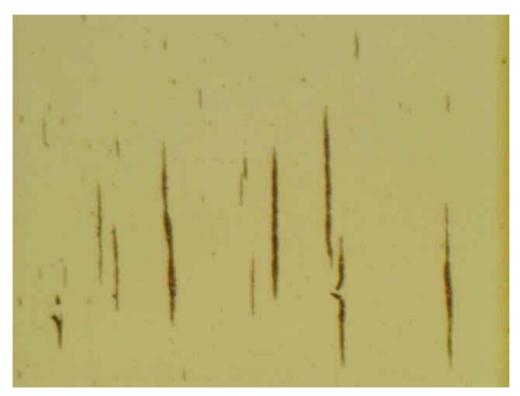
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Used Oil Sample 6/19/05 90003 800 hours 7754 miles plus 800 hours 500x 73433 90003 Entry										
Comments	~ .	•	_	-	rticulate, typical of normal r errous laminar particulate (~						
Special Features	~120 micron ferrous laminar particulate with out of focus debris										



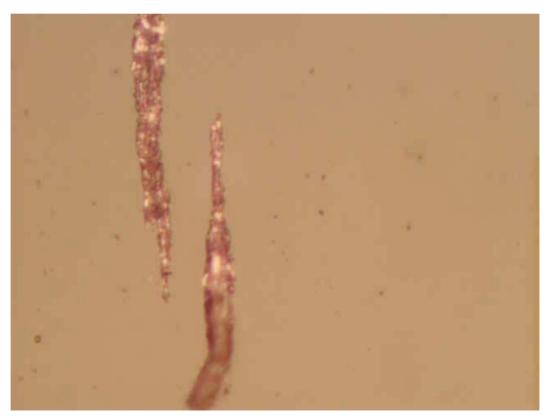
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Used Oil Sample	6/19/05	90003	800 hours	7754 miles plus 800 hours	800x	73433 90003	Entry				
Comments		Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, soot, ferrous laminar particulate (~120 microns), and ferrous laminar particulate (~60 microns) was noted. Please see attached images.										
Special Features	Rubbing wea	ar										



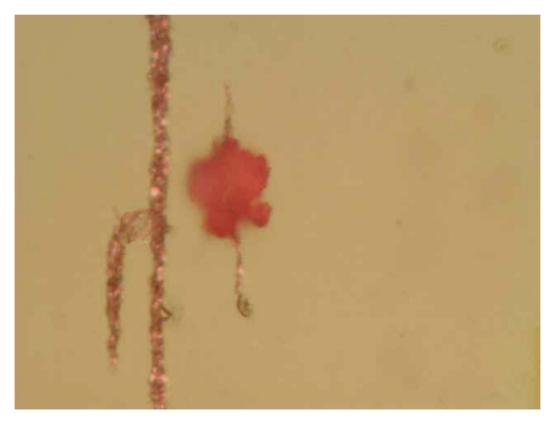
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Filter	6/19/05	89999	800 hours	7754 miles plus 800 hours	100x	73433 89999	Entry				
Comments	oxide, sand/dir	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, and soot was noted. Two isolated ferrous spherical particles, with major diameters of 20 and 5 microns were noted. Please see attached images.										
Special Features	Fine rubbing w	Fine rubbing wear										



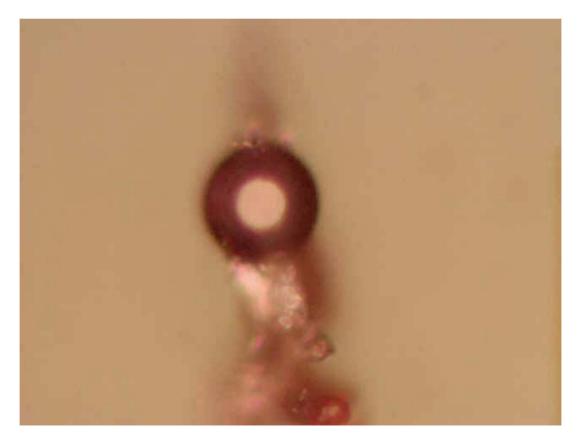
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Filter	6/19/05	89999	800 hours	7754 miles plus 800 hours	800x	73433 89999	Entry				
Comments		irt, and soot wa			s particulate, typical of norn ical particles, with major dia							
Special Features	Rubbing wear	r										



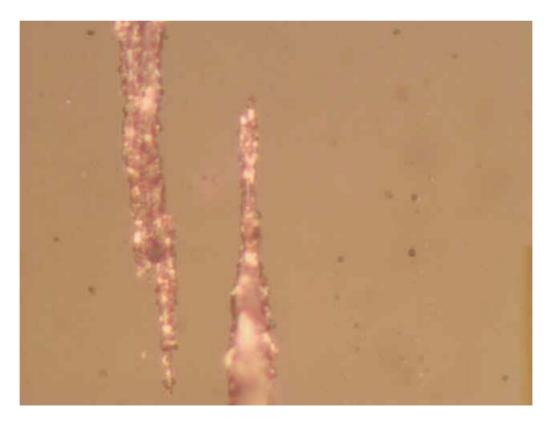
	Idle Test Ferrograms										
Bus Number	mber Oil Source Sample Date NTS Sample NTS Stage Total Miles and Hours On the Oil Magnification Number Reg										
73433	Bypass Filter	6/19/05	89999	800 hours	7754 miles plus 800 hours	500x	73433 89999	Entry			
Comments					us particulate, typical of normaticles, with major diameters						
Special Features	Sand particle	Sand particle with rubbing wear.									



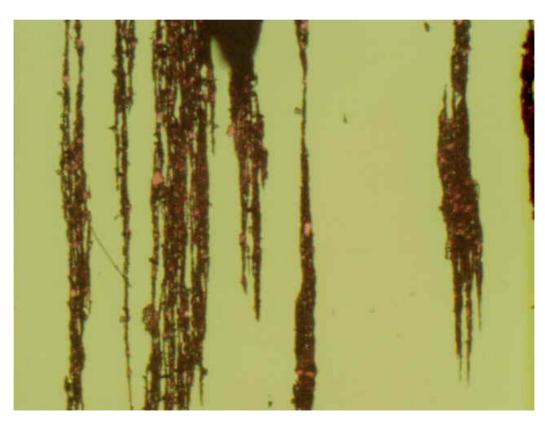
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Filter	6/19/05	89999	800 hours	7754 miles plus 800 hours	500x	73433 89999	Entry				
Comments	metallo oxide	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, and soot was noted. Two isolated ferrous spherical particles, with major diameters of 20 and 5 microns were noted. Please see attached images										
Special Features	20 micron fe	rrous sphere										



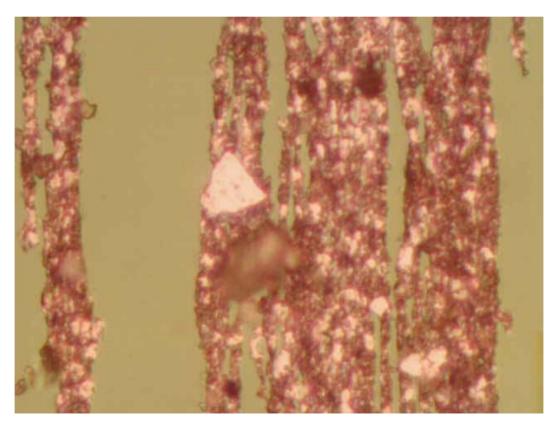
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Filter	6/19/05	89999	800 hours	7754 miles plus 800 hours	500x	73433 89999	Entry				
Comments	metallo oxide	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, and soot was noted. Two isolated ferrous spherical particles, with major diameters of 20 and 5 microns were noted. Please see attached images.										
Special Features	Rubbing wea	ar										



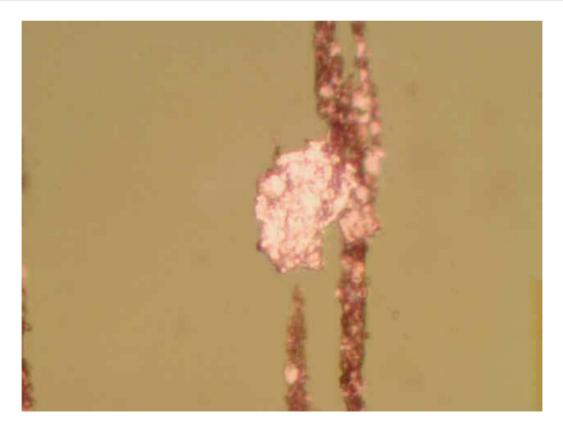
	Idle Test Ferrograms										
Bus Number	Oil Source Sample Date NTS Sample NTS Stage Total Miles and Hours on the Oil Magnification Number Region Number										
73433	Full Flow Filter	2 mar 1 mar									
Comments	wear and ferro	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear and ferrous laminar and sliding particulate, with a major diameters up to 30 microns was noted. A moderate amount of dark metallo oxide, sand/dirt, and soot was observed. Please see attached images.									
Special Features	Rubbing wear	Rubbing wear with laminar and sand/dirt particulates									



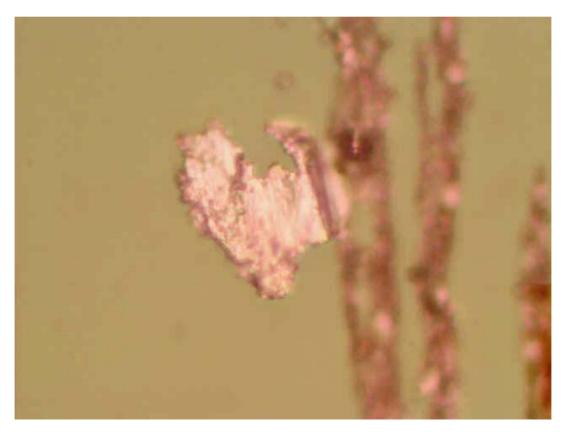
	Idle Test Ferrograms										
Bus Number	Oil Source Sample Date NTS Sample Number Test Stage Total Miles and Hours on the Oil Magnification Number										
73433	Full Flow Filter	2 con constant con									
Comments	wear and ferro	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear and ferrous laminar and sliding particulate, with a major diameters up to 30 microns was noted. A moderate amount of dark metallo oxide, sand/dirt, and soot was observed. Please see attached images.									
Special Features	Laminar and sand/dirt particulates										



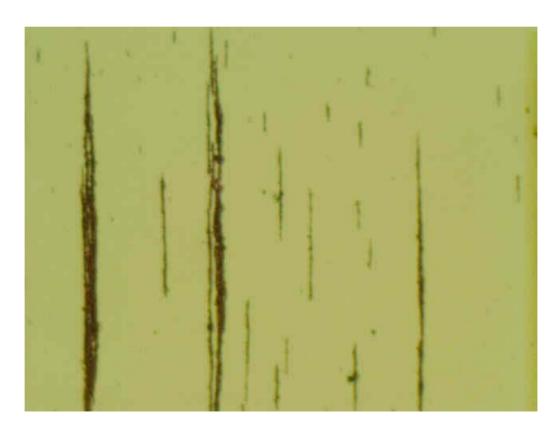
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Full Flow Filter	6/19/05	90001	800 hours	7754 miles plus 800 hours	500x	73433 90001	Entry			
Comments	Comments Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear and ferrous laminar and sliding particulate, with a major diameters up to 30 microns was noted. A moderate amount of dark metallo oxide, sand/dirt, and soot was observed. Please see attached images.										
Special Features	25 micron ferrous laminar particulate										



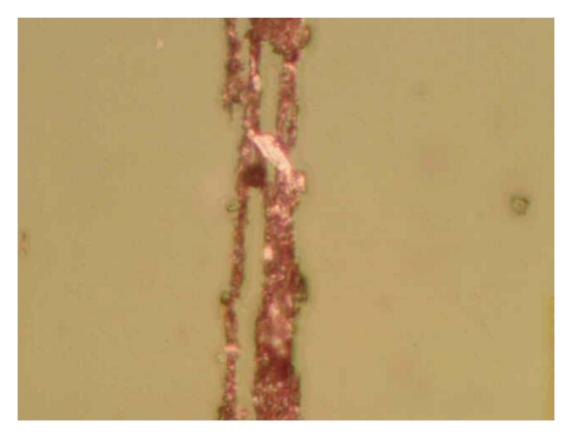
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow Filter	6/19/05	90001	800 hours	7754 miles plus 800 hours	500x	73433 90001	Entry				
Comments	Comments Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear and ferrous laminar and sliding particulate, with a major diameters up to 30 microns was noted. A moderate amount of dark metallo oxide, sand/dirt, and soot was observed. Please see attached images.											
Special Features	A 30 microns ferrous laminar particulate											



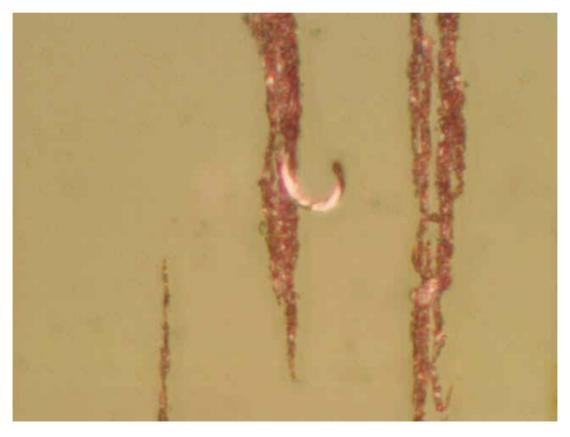
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass residual	6/19/05	90000	800 hours	7754 miles plus 800 hours	100x	73433 90000	Entry			
Comments	Comments Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot and and ferrous laminar and sliding particulate, with a major diameters up to 38 microns was noted. Please see attached images.										
Special Features	Rubbing wear										



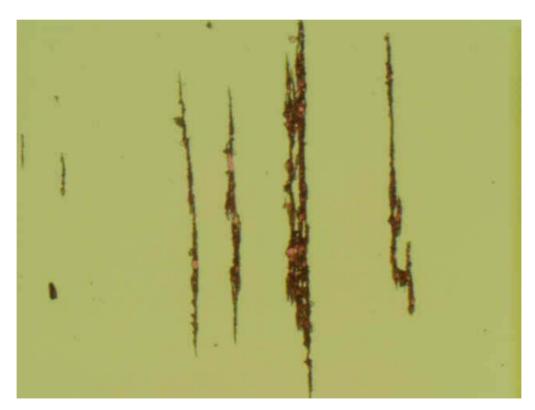
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide			
73433	Bypass Residual	6/19/05	89999	800 hours	7754 miles plus 800 hours	500x	73433 89999	Entry			
Comments	s Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot and ferrous laminar and sliding particulate, with a major diameters up to 38 microns was noted. Please see attached images.										
Special Features	Laminar partic	Laminar particulate and dark metallo oxide									



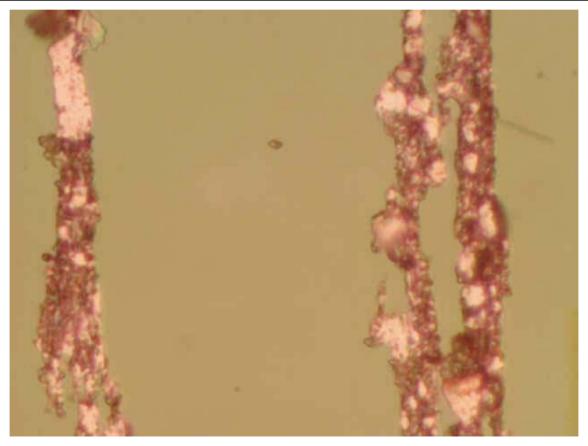
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass Residual	6/19/05	89999	800 hours	7754 miles plus 800 hours	500x	73433 89999	Entry			
Comments	Ferrographic analysis indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot and ferrous laminar and sliding particulate, with a major diameters up to 38 microns was noted. Please see attached images.										
Special Features	Cutting wear										



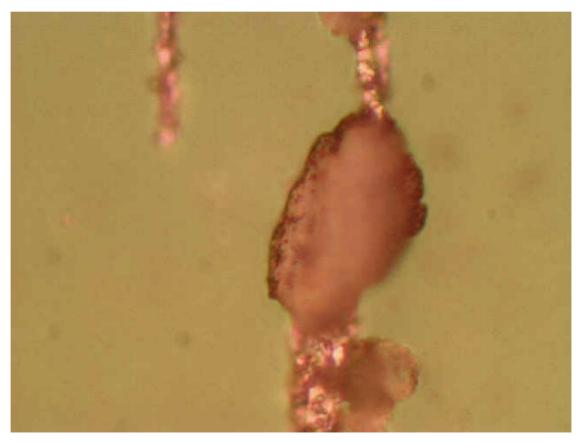
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Full Flow Residual	6/19/05	90002	800 hours	7754 miles plus 800 hours	100x	73433 90002	Entry			
Comments	Comments Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot, and ferrous laminar particulate, with major diameters up to 26 microns was noted. Please see attached images.										
Special Features	Rubbing wear with red oxides										



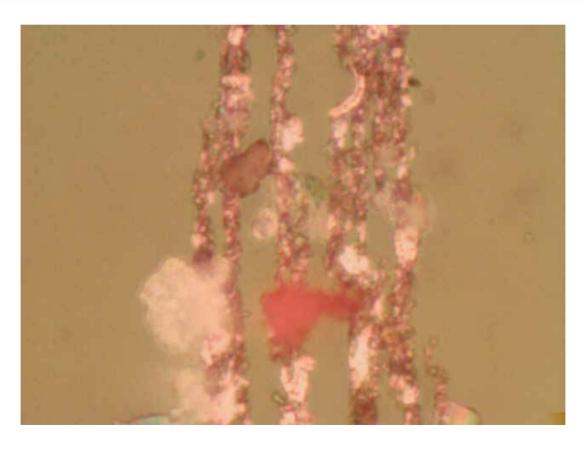
	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Full Flow Residual	6/19/05	90002	800 hours	7754 miles plus 800 hours	500x	73433 90002	Entry			
Comments	Comments Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot, and ferrous laminar particulate, with major diameters up to 26 microns was noted. Please see attached images.										
Special Features	Rubbing wear										



	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Full Flow Residual	6/19/05	90002	800 hours	7754 miles plus 800 hours	500x	73433 90002	Entry			
Comments	Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot, and ferrous laminar particulate, with major diameters up to 26 microns was noted. Please see attached images.										
Special Features	26 micron fer	26 micron ferrous laminar particulate noted.									

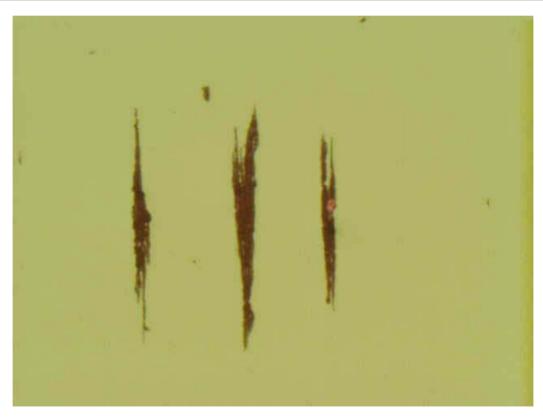


	Idle Test Ferrograms										
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Full Flow Residual	6/19/05	90002	800 hours	7754 miles plus 800 hours	100x	73433 90002	Entry			
Comments	Ferrographic analysis indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous cutting wear, dark metallo oxide, sand/dirt, soot, and ferrous laminar particulate, with major diameters up to 26 microns was noted. Please see attached images.										
Special Features	Sand, laminar, and ferrous cutting wear particles.										

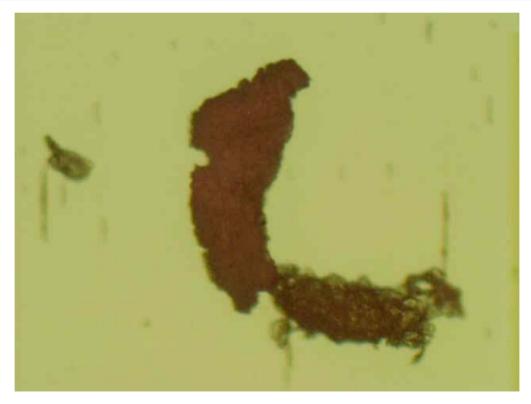


Appendix K-8. Ferrograms – 1,000 hours Bus 73433

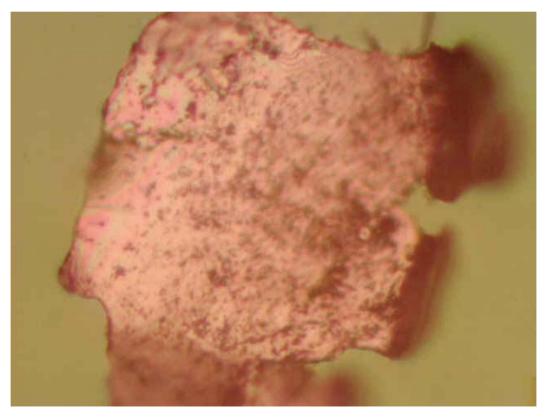
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Used Oil 6/28/05 90150 1000 hours 6858 miles plus 1000 100x 73433 Entry hours											
Comments	wear. A light a	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, white crystalline debris, fibers, filter media, soot, and ferrous laminar particulate (~60 microns) was noted. Please see attached images.										
Special Features	A light amount of fine ferrous particulate, typical of normal rubbing wear.											



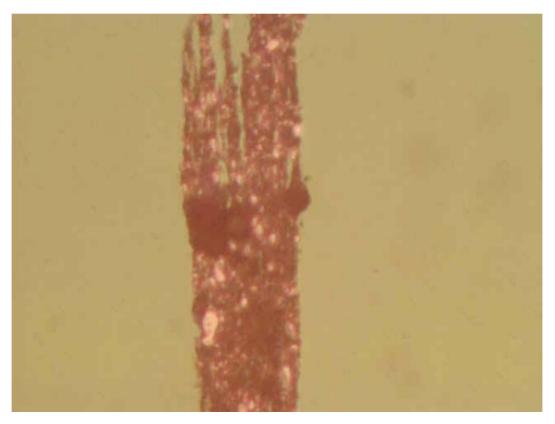
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Used Oil	6/28/05	90150	1000 hours	6858 miles plus 1000 hours	100x	73433 90150	Entry				
Comments	normal rubbii	ng wear. A ligh		netallo oxide, san	rankcase, indicates a light a d/dirt, white crystalline debr							
Special Features	Filter media a	Filter media and crystalline debris										



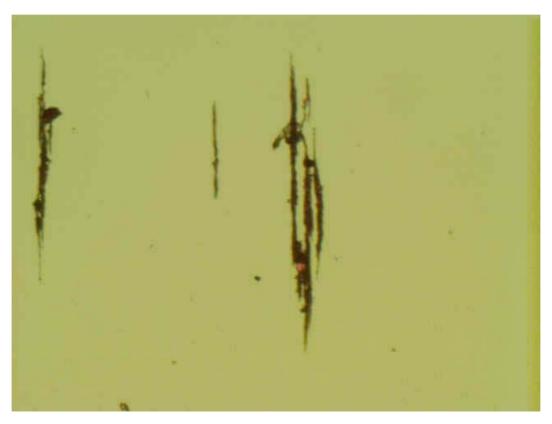
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Used Oil	ed Oil 6/28/05 90150 1000 hours 6858 miles plus 1000 500x 73433 90150 Entry hours										
Comments	rubbing wear	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, white crystalline debris, fibers, filter media, soot, and ferrous laminar particulate (~60 microns) was noted. Please see attached images.										
Special Features	~60 microns	~60 microns ferrous laminar particulate.										



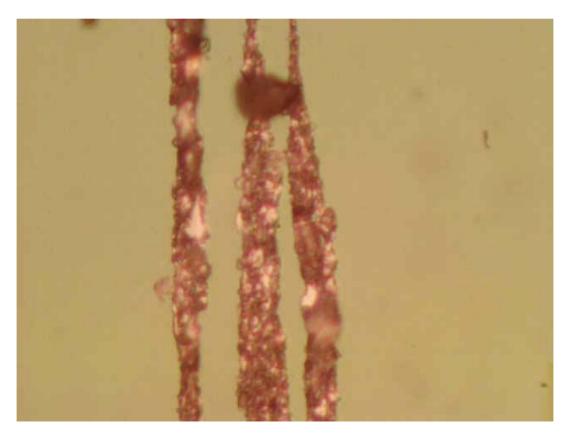
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Used Oil	6/28/05	90150	1000 hours	6858 miles plus 1000 hours	500x	73433 90150	Entry				
Comments	normal rubbir	ng wear. A ligh		netallo oxide, san	crankcase, indicates a light a d/dirt, white crystalline debr							
Special Features	Rubbing wea	r with dark me	tallo oxides									



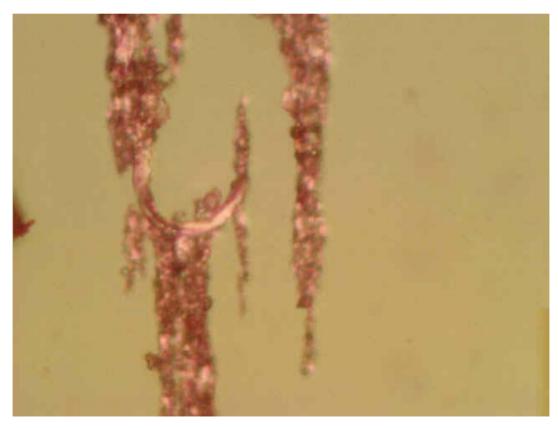
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograp h Number	Region of Slide				
73433	Bypass Filter											
Comments	rubbing wear.	Ferrographic analysis of lube oil sample, taken from the crankcase, indicates a light amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of dark metallo oxide, sand/dirt, white crystalline debris, fibers, filter media, soot, and ferrous laminar particulate (~60 microns) was noted. Please see attached images.										
Special Features	A moderate ar	A moderate amount of fine ferrous particulate, typical of normal rubbing wear with sand/dirt and laminar particulates										



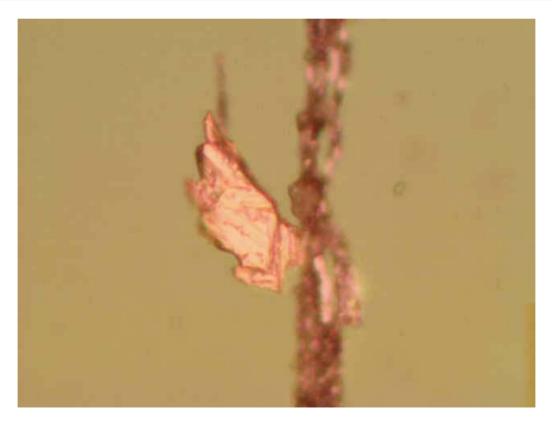
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Filter											
Comments	rubbing wear	. A light amour		on-ferrous lamina	licates a moderate amount or particulate (~30 microns),							
Special Features	~60 microns	-60 microns ferrous laminar particulate.										



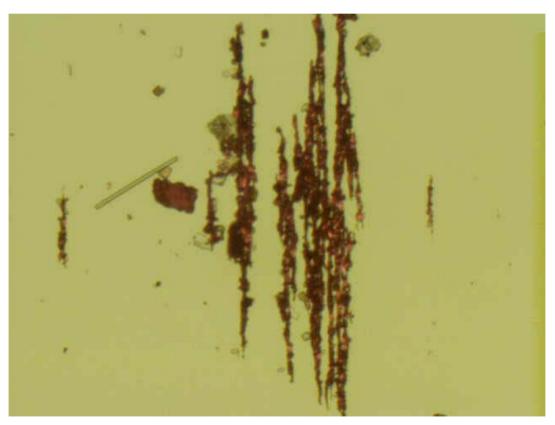
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Filter											
Comments	rubbing wear	Ferrographic analysis of the cross section of the bypass filter indicates a moderate amount of fine ferrous particulate, typical of normal rubbing wear. A light amount of ferrous and non-ferrous laminar particulate (~30 microns), ferrous cutting wear, soot particles, sand/dirt, and dark metallo oxide was noted. Please see attached images.										
Special Features	ferrous cutting wear											



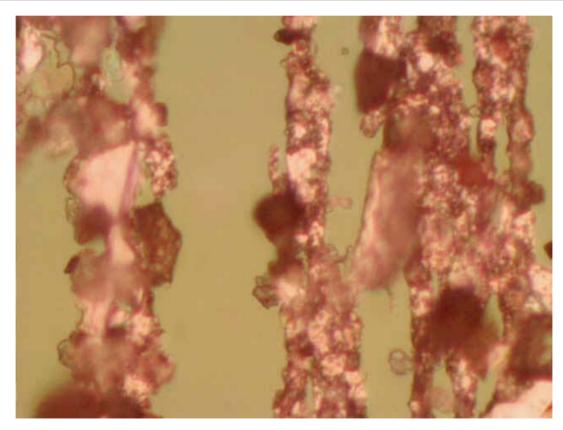
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Filter	6/28/05	90151	1000 hours	6858 miles plus 1000 hours	800x	73433 90151	Entry				
Comments	rubbing wear	. A light amou		on-ferrous lamina	dicates a moderate amount our particulate (~30 microns)							
Special Features	~30 micron la	~30 micron laminar particulate										



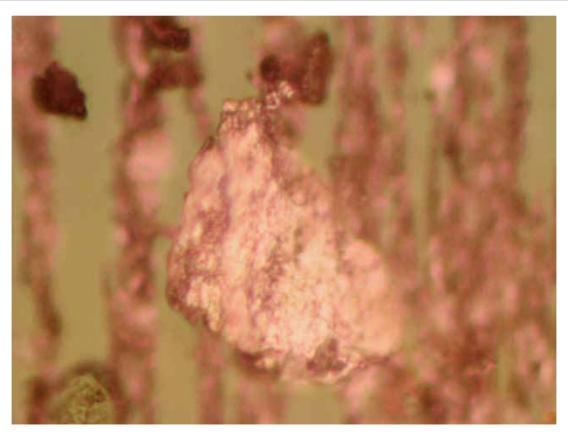
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow	Full Flow 6/28/05 90153 1000 hours 6858 miles plus 1000 100x 73433 Entry hours										
Comments		Ferrogram shows a moderate amount of fine (<10 µm) ferrous particulate, typical of normal rubbing wear. A lighter amount of dark oxide/soot is present as is a discrete fatigue particle measuring 52 µm. Please see attached images.										
Special Features	A moderate an	A moderate amount of fine (<10 µm) ferrous particulate, typical of normal rubbing wear with filter debris, sand/dirt, and fatigue particle.										



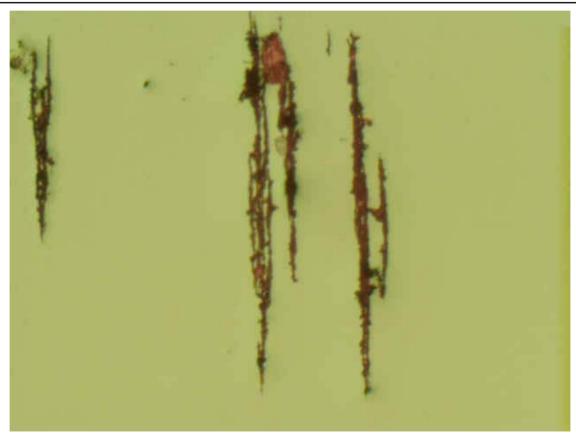
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow 6/28/05 90153 1000 hours 6858 miles plus 1000 500x 73433 90153 hours											
Comments	_				particulate, typical of norma 52 µm. Please see attached i	_	ghter amount of o	lark				
Special Features	Sand/dirt with	and/dirt with dark oxides and rubbing wear										



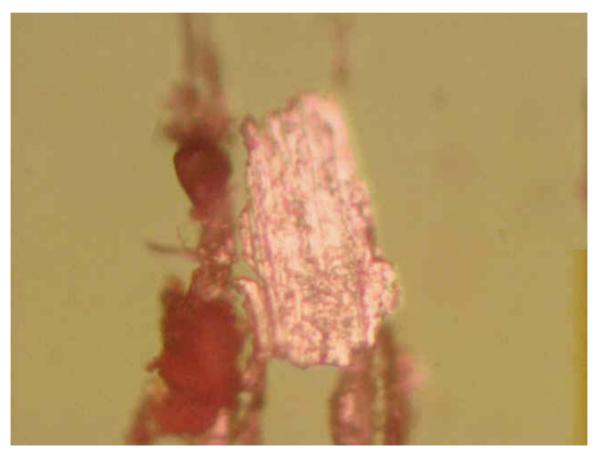
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Full Flow	Full Flow 6/28/05 90153 1000 hours 6858 miles plus 1000 500x 73433 90153 Entry hours										
Comments					particulate, typical of normal see attached images	al rubbing wear. A	lighter amount of	dark oxide/soot is				
Special Features	52 micron discrete fatigue and soot particles.											



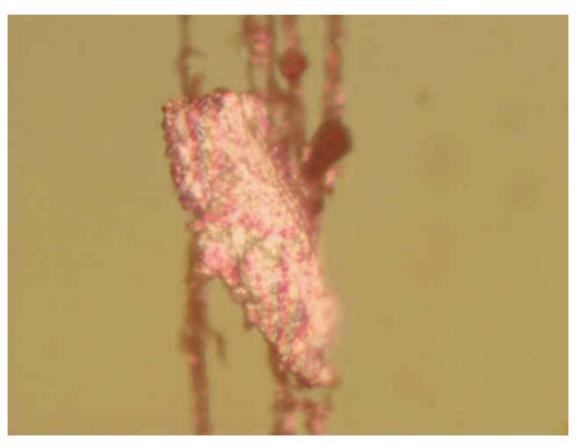
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual											
Comments	_	Ferrogram shows a light amount of fine (<10µm) ferrous particulate, typical of normal rubbing wear. Two discrete laminar particles, measuring 42 and 50 µm, are noted but are not considered problematic at this time. Please see attached images.										
Special Features	A light amoun	A light amount of fine (<10µm) ferrous particulate, typical of normal rubbing wear with large laminar particle										



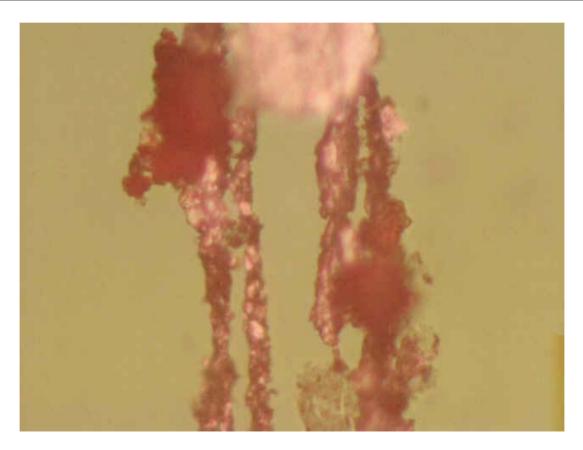
Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide			
73433	Bypass Residual	6/28/05	90152	1000 hours	6858 miles plus 1000 hours	500x	73433 90152	Entry			
Comments	Ferrogram shows a light amount of fine (<10µm) ferrous particulate, typical of normal rubbing wear. Two discrete laminar particles, measuring 42 and 50 µm, are noted but are not considered problematic at this time. Please see attached images.										
Special Features	42 micron fer	42 micron ferrous laminar particle.									



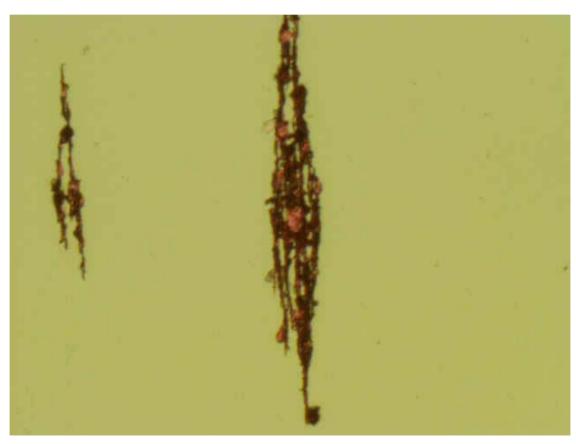
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual	6/28/05	90152	1000 hours	6858 miles plus 1000 hours	500x	73433 90152	Entry				
Comments	Ferrogram shows a light amount of fine (<10µm) ferrous particulate, typical of normal rubbing wear. Two discrete laminar particles, measuring 42 and 50 µm, are noted but are not considered problematic at this time. Please see attached images.											
Special Features	50 micron fer	50 micron ferrous laminar particle.										



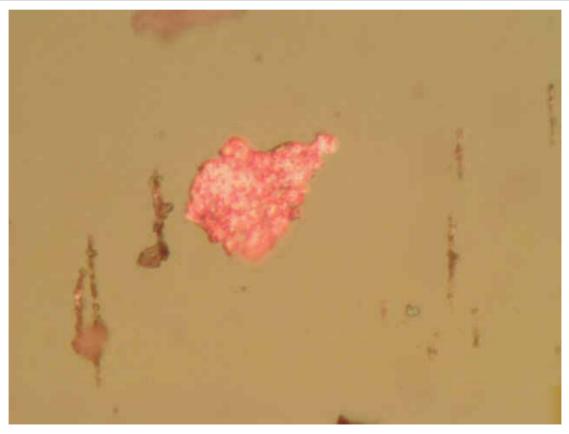
	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	Bypass Residual	6/28/05	90152	1000 hours	6858 miles plus 1000 hours	800x	73433 90152	Entry				
Comments		Ferrogram shows a light amount of fine (<10µm) ferrous particulate, typical of normal rubbing wear. Two discrete laminar particles, measuring 42 and 50 µm, are noted but are not considered problematic at this time. Please see attached images.										
Special Features	~30 micron la	~30 micron laminar particulate with rubbing wear, sand particle and oxides										



	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	full flow residual	6/28/05	90154	1000 hours	6858 miles plus 1000 hours	100x	73433 90154	Entry				
Comments	Ferrogram shows a light amount of fine (<10 μm) ferrous particulate, typical of normal rubbing wear. A discrete laminar copper particle, 28 μm in size, is noted but is not considered problematic at this time. Continue to monitor. Please see attached images.											
Special Features	A light amoun	A light amount of fine (<10 µm) ferrous particulate, typical of normal rubbing wear with red oxides.										



	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	full flow residual	6/28/05	90154	1000 hours	6858 miles plus 1000 hours	500x	73433 90154	Entry				
Comments		Ferrogram shows a light amount of fine (<10 µm) ferrous particulate, typical of normal rubbing wear. A discrete laminar copper particle, 28 µm in size, is noted but is not considered problematic at this time. Continue to monitor. Please see attached images.										
Special Features	28 μm discre	28 μm discrete laminar copper particle.										



	Idle Test Ferrograms											
Bus Number	Oil Source	Sample Date	NTS Sample Number	Test Stage	Total Miles and Hours on the Oil	Magnification	Photograph Number	Region of Slide				
73433	full flow residual	6/28/05	90154	1000 hours	6858 miles plus 1000 hours	500x	73433 90154	Entry				
Comments	omments Ferrogram shows a light amount of fine (<10 μm) ferrous particulate, typical of normal rubbing wear. A discrete laminar copper particle, 28 μm in size, is noted but is not considered problematic at this time. Continue to monitor. Please see attached images.											
Special Features	Rubbing wea	Rubbing wear with dark metallo oxides and sand/dirt debris										

