

Populations, Activity and Emissions of Diesel Nonroad Equipment in EPA Region 7

PEMS and PAMS Testing Details Appendix U

Assessment and Standards Division
Office of Transportation and Air Quality
U.S. Environmental Protection Agency

Prepared for EPA by
Eastern Research Group, Inc. (ERG)
EPA Contract No. EP-C-06-080

p1	p1	p7	p1	p1	p1	p1	p1
General	General	PEMS	General	General	PEMS	General	General
Test ID	Test Type	PEMS Test Date	Establishment Number	Installation Date	PEMS Test Shift	Type of Equipment	Equipment Serial Number
0619_0968	PEMS	7/24/07	7000619	7/23/2007	8:00 AM	Track/Crawler Loader	CAT0953CTBBX00968
1688_1462	PEMS	7/2/07	7001688	7/2/2007		Horizontal Boring Machine	IVRT170S961001462
1688_1462	PAMS	N/A	7001688	6/8/2007		Horizontal Boring Machine	IVRT170S961001462
1688_0216	PAMS	N/A	7001688	6/8/2007		Horizontal Boring Machine	1VR4180L571000216
0008_1644	PEMS	6/29/07	7000008	6/28/2007	daytime	Backhoe loader	SLP210ASVE0761644
0685_2214	PEMS	6/21/07	7000685	6/20/2007		Track/Crawler Loader	CAT0963CC2DS02214
2208_1918	PEMS	6/15/07	7002208	6/14/2007		Backhoe loader	T0410BB701918
2208_1918	PAMS	N/A	7002208	6/10/2007		Backhoe loader	T0410BB701918
0685_1214	PEMS	6/26/07	7000685	6/25/2007	Daytime (N/A)	Grader	KMTGD015K01051214
1437_0399	PAMS	N/A	7001437	6/9/2007		Skidsteer loader	514140399
1437_1396	PAMS	N/A	7001437	6/6/2007		Skidsteer loader	525811396
1911_9540	PAMS	N/A	7001911	6/19/2007		Concrete Saw	1299540
1911_1916	PAMS	N/A	7001911	6/11/2007		Tracked Loader	521911916
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS		7003868	09/19/07		Telescopic Lift Truck	148720
3597_0265	PAMS		7003597	9/14/2007		Wheel Loader	4PW00265
2535_2754	PAMS		7002535	10/6/2007		Backhoe loader	JJG 0282754
3928_1649	PAMS		7003928	9/11/2007		Telescopic Lift Truck	98Z24N21-649
3702_9726	PAMS		7003702	9/15/2007		Telescopic Lift Truck	0160009726

p1	p1	p2	p2	p2	p2	p2	p2
General	General	General	General	General	General	General	General
Test ID	Test Type	Equipment Manufacturer	Equipment Model	Equipment Model Year	Equipment Plate Code	Equipment Comments	Engine Manufacturer
0619_0968	PEMS	Caterpillar	953C	2004	Present and Legible		Caterpillar
1688_1462	PEMS	Vermeer	Navigator D16x20A	2006	Present and Legible		Cummins
1688_1462	PAMS	Vermeer	Navigator D16x20A	2006	Present and Legible		Cummins
1688_0216	PAMS	Vermeer	Navigator D20x22	2007	Not Present		Caterpillar
0008_1644	PEMS	JC Bamford Excavators	210S Series 2	1977	Present and Legible		Perkins
0685_2214	PEMS	Caterpillar	963C	2002	Present and Legible		Caterpillar
2208_1918	PEMS	John Deere	410B Turbo	1983	Present and Legible		John Deere
2208_1918	PAMS	John Deere	410B Turbo	1983	Present and Legible		John Deere
0685_1214	PEMS	Komatsu	GD655	2005	Present and Legible		Komatsu
1437_0399	PAMS	Bobcat	873 G-Series	1999	Present and Legible	Idle (no load), CO = 201 PPM, Purifier - 92 PPM	Deutz
1437_1396	PAMS	Bobcat	S300	2004	Present and Legible	Idle (no load), CO = 242 PPM, Purifier - 220 PPM	Kubota
1911_9540	PAMS	Core Cut	CC6560 XLS	2006	Present and Legible		Deutz
1911_1916	PAMS	Bobcat	T300 Turbo	2003	Present and Legible		Kubota
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	Ingersoll-Rand	VR-90B	1997	Present and Legible	Mfg Code SCG	Perkins
3597_0265	PAMS	Caterpillar	962 G	1999	Present and Legible		Caterpillar
2535_2754	PAMS	Case	580 Super M	2002	Present and Legible		Case
3928_1649	PAMS	Lull	644B-42	1998	Present and Legible		Cummins
3702_9726	PAMS	Skytrak	6042	2005	Present and Legible		Cummins

p1	p1	p2	p2	p2	p2	p2	p2	p3	p3
General	General	General	General	General	General	General	General	General	General
Test ID	Test Type	Engine Model	Engine Model Year	Engine Serial Number	Engine Family	Engine Plate Code	Engine Comments	Hour-meter Function Code 1	Hour-meter Function Code 2
0619_0968	PEMS	3126	2004	BMA15933	4CPXL072HSK	Present and legible	Tag other info: 120 hp/95 kw max power	Original meter; reading can be	Current reading presumed
1688_1462	PEMS	B3.3	2005	68037240	5CEXL03.3ABA		S.O.No.: S094445 EPA Cert. No.: 5CEXL03.3ABA Displ = 3.261 L	Original meter; reading can be presumed to represent hours	Current reading presumed accurate
1688_1462	PAMS	B3.3	2005	68037240			S.O.No.: S094445 EPA Cert. No.:	Original meter; reading can be	Current reading presumed
1688_0216	PAMS	3054C	2005	*33409237*	5PKXL04.4REI	Present and legible		Original meter; reading can be	Current reading presumed
0008_1644	PEMS		1977	829065 C	N/A	Present and legible	47.4 KW@ 2000 RPM Unknown engine details 4 cylinder	Original meter; reading can be presumed to represent hours	Current reading presumed accurate
0685_2214	PEMS	3116	2002	4TF74625		Present and legible	Good, Cat Ref #:129-5342	Original meter; reading can be	Current reading presumed
2208_1918	PEMS	4045D	1983	613083T		Present and legible	Type: 4219T1 02	Original meter; reading can be presumed to represent hours	Current reading presumed accurate
2208_1918	PAMS			613083T		Present and legible	Type: 4219T1 02	Original meter; reading can be	Current reading presumed
0685_1214	PEMS	SAA6D114E-2	2005	26804397	5KLXL0505ABD	Present and legible		Original meter; reading can be presumed to	Current reading presumed accurate
1437_0399	PAMS	BF4M1011F	1999	12				Original meter; reading can be	Current reading presumed
1437_1396	PAMS	V3300	2003	Unk	3300	Cannot locate		Original meter; reading can be	Current reading presumed
1911_9540	PAMS	BF3L2011	2006	10274312	60ZXL03 1039	Present and legible		Original meter; reading can be	Current reading presumed
1911_1916	PAMS	V3300-D1-T-EU2	2001	3C9706	1KBXL03.3AAD	Present and legible	Serial Code: 16565-0000	Original meter; reading can be	Current reading presumed
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS			U285374B		Present and legible	List H AB70215	Original meter; reading can be	Current reading presumed
3597_0265	PAMS	3126				Cannot locate	Modern's Cat 3126 DITA from mfg site	Original meter; reading can be	Current reading presumed
2535_2754	PAMS	4T-390	2001	46160024	1X9XL0239ABA	Present and legible		Original meter; reading can be	Current reading presumed
3928_1649	PAMS	B39-C	9/1/1998	45745846	WCEXL0239AAA	Present and legible		Original meter; reading can be	Current reading presumed
3702_9726	PAMS	B4.5	2005	46455980	5CEXL0275AAC	Present and legible		Original meter; reading can be	Current reading presumed

p1	p1	p3	p3	p3	p3	p3	p3	p3
General	General	General	General	General	General	General	General	General
Test ID	Test Type	Current Meter Read Date	Hour-meter Reading	Hour-meter Comments	Major Exhaust Leaks (Y/N)	Alternator Speed Signal Reliable (Y/N/Unk)	Modifications or Mal-Maintenance (Y/N)	General Equipment Comments
0619_0968	PEMS	07/23/07	3871.20	Digital, LCD Hour Meter	N	Unk	N	
1688_1462	PEMS	07/02/07	643.70		N		N	Clean engine. Well maintained.
1688_1462	PAMS	06/08/07	612.80		N		N	Clean engine. Well maintained.
1688_0216	PAMS	06/08/07	586.50		N		N	Clean engine. Well maintained. Has had hydraulic hoses/o-rings fail, spraying oil
0008_1644	PEMS	06/28/07	2807.80	OEM, appears intact	N	Unk	N	
0685_2214	PEMS	06/20/07	7056.20		N	Y	N	
2208_1918	PEMS	06/10/07	4583.70					Insufficient access to engine compartment to assess
2208_1918	PAMS	06/10/07	4583.70					Insufficient access to engine compartment to assess
0685_1214	PEMS	06/26/07	1632.90		N	Y	N	
1437_0399	PAMS	06/09/07	3100.80		N		N	
1437_1396	PAMS	06/06/07	1421.20		N		N	
1911_9540	PAMS	06/07/07	47.60	hour meter reading obtained during inventory	N	Yes	No	
1911_1916	PAMS	06/11/07	3492.10		N		N	
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	10/01/07	01568.2	hour meter collected on 10/1/07 revisit	N	Unk	N	
3597_0265	PAMS	10/30/07	8,647.5		N	Y	N	
2535_2754	PAMS	10/14/07	3672.8		N	Unk	N	
3928_1649	PAMS	09/11/07	3,626.8		N	Unk	N	Relatively new exhaust pipe between exhaust manifold & muffler - piece
3702_9726	PAMS	10/06/07	634.86	hour meter reading not obtained on install, but on	N	Unk	N	Oil meter reads 240 mm, 4-27-00. Exhaust out rear "passenger" side - most likely

p1	p1	p4	p4		p4	p4	p4	p4	p4	p4	p4	p4
General	General	General	General		General	General	General	General	General	General	General	General
Test ID	Test Type	Rated Power (RP)	RP Units Code	RP Units Rating (gross/net/unknown)	RP Source Code	RP Method Code	Rated Speed (RS), RPM	RS Source Code	RS Method Code	Peak Torque (PT)	PT Units Code	PT Source Code
0619_0968	PEMS	128	Horsepower	Unk	Engine plate	Unknown		Unavailable				Unavailable
1688_1462	PEMS	48	kilowatts	Unk	Engine plate		2600	Engine plate				
1688_1462	PAMS	48	kilowatts	Unk	Engine plate		2600	Engine plate				
1688_0216	PAMS	64	kilowatts	Unk	Engine plate		2400					
0008_1644	PEMS	47.4	kilowatts	gross	Manufacturer's specifications	Unknown	2000	Engine plate				
0685_2214	PEMS	160	Horsepower	gross	Engine plate					865	Unknown	Engine plate
2208_1918	PEMS	75	Horsepower	Net	Reference source	NETT SAE	2200					
2208_1918	PAMS	75	Horsepower	Net	Reference source	NETT SAE						
0685_1214	PEMS	197	Horsepower	gross	Engine plate	Unknown						
1437_0399	PAMS	73	Horsepower	net	Manufacturer's specifications	NETT SAE	2350	Engine plate	Net SAE	176	foot-lbs	Manufacturer's
1437_1396	PAMS	81	Horsepower	net	Manufacturer's specifications	Unknown	2400	Engine plate	Unknown	2155	foot-lbs	Manufacturer's
1911_9540	PAMS	60	Horsepower	Unk	Engine plate	Unknown	2800	Engine plate	Unknown			
1911_1916	PAMS	81	Horsepower	net	Reference source	NETT SAE						
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1		end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	113	Horsepower	Net	Reference source	NETT SAE						
3597_0265	PAMS	200	Horsepower	net	Manufacturer's specifications	Unknown	2200	Manufacture	Unknown	917	newton-me	Manufacturer's
2535_2754	PAMS	95	Horsepower	gross	Engine plate	Unknown						
3928_1649	PAMS	80	Horsepower	gross	Engine plate	Unknown						
3702_9726	PAMS	99	Horsepower	gross	Engine plate	Unknown	2500					

p1	p1	p4	p4	p4	p4	p4		p4
General	General	General	General	General	General	General	General	General
Test ID	Test Type	PT Method Code	Peak Speed (PS), RPM	PS Source Code	PS Method Code	Overall Engine Rating Comments	Turbo? (not collected in field)	Exhaust After-Treatment (Y/N)
0619_0968	PEMS			Unavailable			Unk	Y
1688_1462	PEMS					Low idle RPM = 800 per engine plate	Unk	N
1688_1462	PAMS					Low idle RPM = 800 per engine plate		N
1688_0216	PAMS							N
0008_1644	PEMS						Unk	N
0685_2214	PEMS		2200	Engine plate			Unk	N
2208_1918	PEMS					HP @ RPM from "Specification Reference Book"	Yes	N
2208_1918	PAMS						Yes	N
0685_1214	PEMS		1900	Engine plate	Unknown		Unk	N
1437_0399	PAMS	Unknown	1800	manufacturer's	Unknown		Yes	
1437_1396	PAMS	Unknown	1400	manufacturer's	Unknown		Yes	N
1911_9540	PAMS							
1911_1916	PAMS						Yes	N
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1		end of PSU 1
3868_8720	PAMS					no Engine Rating info was available on equipment	Yes	
3597_0265	PAMS	Unknown	1950	manufacturer's	Unknown			N
2535_2754	PAMS					Low idle RPM = 950	Yes	N
3928_1649	PAMS					Engine Rating of 60 HP is at 2500 RPM		N
3702_9726	PAMS					Low idle RPM = 850	Yes	N

p1	p1	p4		p4	p4	p5
General	General	General	General	General	General	General RPM Cal
Test ID	Test Type	After-Treatment Description	Unit Power (volts)	Tailpipe Outer Diameter #1 (inches)	Tailpipe Outer Diameter #2 (elliptical) (inches)	RPM Sensor 1
0619_0968	PEMS	Engine tag indicates EM, DI, TC, ECM, CAC	Unk	3.5"		Capelec
1688_1462	PEMS					Capelec
1688_1462	PAMS					Capelec
1688_0216	PAMS					Capelec
0008_1644	PEMS	No apparent aftertreatment - long exhaust pipe standoff present		2"		Capelec
0685_2214	PEMS	None		3.5		
2208_1918	PEMS			3		
2208_1918	PAMS			3		Capelec
0685_1214	PEMS			5.5		Capelec
1437_0399	PAMS	Optional - exhaust purifier Equipment has spark arresting turbo	12 VDC			Capelec
1437_1396	PAMS	Optional - catalytic exhaust purifier (not included)	12 VDC	2.5		Capelec
1911_9540	PAMS		12 VDC	2.5		Optical
1911_1916	PAMS	None		2.5		Optical
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	Turbocharged				Optical
3597_0265	PAMS			5.0		Optical
2535_2754	PAMS	Turbocharged		2.5 x 5"		Optical
3928_1649	PAMS	None seen		3" (slash cut)		Optical
3702_9726	PAMS	Only turbo seen.		3"		Optical

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	RPM Sensor 2	RPM Confirmation Method	Pre-Cal Idle Confirmation RPM	Pre-Cal Idle Measured Sensor 1	Calibration Scaling Factor (CFS), Sensor 1	Pre-Cal Idle Measured Sensor 2	CFS Sensor 2	Pre-test Idle Cofirmation RPM
0619_0968	PEMS	None	Onboard Tach						851
1688_1462	PEMS	None	Onboard Tach						
1688_1462	PAMS	Optical Sensor							
1688_0216	PAMS	Optical Sensor							
0008_1644	PEMS	None	Onboard Tach						1000
0685_2214	PEMS		None						
2208_1918	PEMS		None						
2208_1918	PAMS	Optical Sensor	Onboard Tach	1100			243	0.011	1100
0685_1214	PEMS	NA	Onboard Tach (digital)	N/A	Capelec				746
1437_0399	PAMS	Optical Sensor	None						
1437_1396	PAMS	Optical Sensor							
1911_9540	PAMS	RPM Line Tap							
1911_1916	PAMS	Magnetic							
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS		Hand held Tach	810	1030	0.021108			814
3597_0265	PAMS	Capelec							
2535_2754	PAMS		Hand held Tach (for install)			0.01827			951
3928_1649	PAMS		Hand held Tach						872
3702_9726	PAMS	Capelec	Hand held Tach						1083

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	Pre-test Idle Measured Sensor 1	Pre-test Idle Measured Sensor 2	Pre-test Idle Exh rate (Kg/hr)	Pre-test Mid-range Cofirmation RPM	Pre-test Mid-range Measured Sensor 1	Pre-test Mid-range Measured Sensor 2	Pre-test Mid-range Exh rate (Kg/hr)	Pre-test High Confirmation RPM
0619_0968	PEMS	856			1250	1252			2153
1688_1462	PEMS								
1688_1462	PAMS								
1688_0216	PAMS								
0008_1644	PEMS	998			1500	1528			
0685_2214	PEMS								
2208_1918	PEMS								
2208_1918	PAMS		1130						2000
0685_1214	PEMS	740			1158	1200			
1437_0399	PAMS								
1437_1396	PAMS								
1911_9540	PAMS								
1911_1916	PAMS								
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	815							2013
3597_0265	PAMS								
2535_2754	PAMS	950							2017
3928_1649	PAMS	878							1576
3702_9726	PAMS	1085	400-1000						2122

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	Pre-test High Measured Sensor 1	Pre-test High Measured Sensor 2	Pre-test high-range Exh rate (Kg/hr)	Post-test Idle Cofirmation RPM	Post-test Idle Measured Sensor 1	Post-test Idle Measured Sensor 2	Post-test Idle Exh rate (Kg/hr)	Post-test Mid-range Cofirmation RPM
0619_0968	PEMS	2156							
1688_1462	PEMS								
1688_1462	PAMS								
1688_0216	PAMS								
0008_1644	PEMS								
0685_2214	PEMS								
2208_1918	PEMS								
2208_1918	PAMS		2200						
0685_1214	PEMS								
1437_0399	PAMS								
1437_1396	PAMS								
1911_9540	PAMS								
1911_1916	PAMS								
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	2003			1034	1020			1293
3597_0265	PAMS								
2535_2754	PAMS	2023			850	903			1400
3928_1649	PAMS	1581			878	875			1316
3702_9726	PAMS	2130	580		1085	1091	245		1553

p1	p1	p5	p5	p5	p5	p5	p5	p5	p6	
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	PEMS	PEMS
Test ID	Test Type	Post-test Mid-range Measured Sensor 1	Post-test Mid-range Measured Sensor 2	Post-test Mid-range Exh rate (Kg/hr)	Post-test High Confirmation RPM	Post-test High Measured Sensor 1	Post-test High Measured Sensor 2	Post-test high-range Exh rate (Kg/hr)	Date PEMS Installed	Time PEMS Installed
0619_0968	PEMS								07/23/07	
1688_1462	PEMS								07/02/07	
1688_1462	PAMS									
1688_0216	PAMS								06/08/07	
0008_1644	PEMS								06/28/07	
0685_2214	PEMS								06/20/07	
2208_1918	PEMS								06/14/07	
2208_1918	PAMS									
0685_1214	PEMS								06/25/07	
1437_0399	PAMS									
1437_1396	PAMS									
1911_9540	PAMS									
1911_1916	PAMS									
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	
3868_8720	PAMS	1272			2589	2542				
3597_0265	PAMS									
2535_2754	PAMS	1446			2100	2107				
3928_1649	PAMS	1209			1921	1826				
3702_9726	PAMS	1542	350		2130	2110	240			

p1	p1	p6			p6	p6	p6	p6	p6
General	General	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS
Test ID	Test Type	Date PEMS Tested	Date PEMS Removed	Time PEMS Removed	Independent Ambient Temp Msmnt at start	Ambient Temp Msmnt units	Independent Humidity Msmnt at start	Independent Humidity Msmnt units	PEMS Installation Comments
0619_0968	PEMS								
1688_1462	PEMS	7/2/2007							
1688_1462	PAMS								
1688_0216	PAMS								
0008_1644	PEMS	6/29/2007							
0685_2214	PEMS	6/21/2007							
2208_1918	PEMS	6/15/2007							
2208_1918	PAMS								
0685_1214	PEMS	6/26/2007							
1437_0399	PAMS								
1437_1396	PAMS								
1911_9540	PAMS								
1911_1916	PAMS								
end of PSU 1	end of PSU 1	end of PSU 1			end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS								
3597_0265	PAMS								
2535_2754	PAMS								
3928_1649	PAMS								
3702_9726	PAMS								

p1	p1	p8	pg 7	pg 7	pg 7
General	General	PEMS	PEMS Filters	PEMS Filters	PEMS Filters
Test ID	Test Type	Other PEMS Installation Notes, Comments, Etc.	Date Engine was Last Operated	Time Engine was Last Operated	Hours Since Last Engine Operation (soak duration)
0619_0968	PEMS	Unable to acquire any CAN signal - tried ERG's CAT comm box & Sensors' Dearborn box - used comm deutsch connector in cab, no luck.	7/23/2007	8:00 PM	12 hours (8:00 AM 7/24)
1688_1462	PEMS		7/2/2007	continual	0
1688_1462	PAMS				
1688_0216	PAMS				
0008_1644	PEMS	Unable to draw fuel sample, fill tube has sharp bend that we could not pass beyond - oil sample was collected, tho. Grav filters void (MPS flow rates incorrect), gaseous sample should be ok.	6/28/2007	23:15	7
0685_2214	PEMS	Note: NDIR board failed during or after test, so CO, CO2, & O2 reading during test are suspect and should be reviewed Fuel & oil samples inadvertently drawn into small containers, later transferred to glass (fuel only).	6/20/2007	6:00 PM	13 hrs 37 min
2208_1918	PEMS	Fuel & oil samples inadvertently drawn into incorrect containers, sample volume may be insufficient for analysis.	6/15/2007	11:00 AM	1 hr, 45 minutes
2208_1918	PAMS				
0685_1214	PEMS	MPS multi-point cal took long time (until equip was needed), so we weren't able to do full gas audit. However, we only got a couple of minutes of test data due to equip probs (main A/C line shorted/melted) (Capelec signal line stripped).			
1437_0399	PAMS				
1437_1396	PAMS				
1911_9540	PAMS				
1911_1916	PAMS				
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS				
3597_0265	PAMS				
2535_2754	PAMS				
3928_1649	PAMS				
3702_9726	PAMS				

p1	p1	p7		p7	p7		p7	p9
General	General	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PAMS Install
Test ID	Test Type	Filter 9 Field ID	Filter 9 EPA ID	Filter 9 Holder Location	Filter 9 Test Type	Filter 9 Status	Other Gravimetric Filter Collection Notes and Comments	Date PAMS Installed
0619_0968	PEMS						Filter 37 - field blank - transported to site, handled @ site (bagged for shipment to DRI) - filter never removed from	
1688_1462	PEMS						Filters voided, not sent to DRI.	
1688_1462	PAMS							06/08/07
1688_0216	PAMS							06/08/07
0008_1644	PEMS						MPS flow sampler malfunctioned, flows to grav samper are incorrect & intermittent, so all three filters are void.	
0685_2214	PEMS						Filter startup 7:37 - 7:40 to move equipment. Changed filters during work crew lunch break. Filter	
2208_1918	PEMS						Voided filters	
2208_1918	PAMS							6/10/2007
0685_1214	PEMS						No cold start b/c we were performing multi-point non-linear curve fitting on flow sampler. Grav samples invalidated, cannot use as dynamic blanks	06/25/07
1437_0399	PAMS							06/09/07
1437_1396	PAMS							06/06/07
1911_9540	PAMS							6/19/2007
1911_1916	PAMS							6/11/2007
end of PSU 1	end of PSU 1	end of PSU 1		end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS							09/19/07
3597_0265	PAMS							09/14/07
2535_2754	PAMS							09/17/07
3928_1649	PAMS							09/11/07
3702_9726	PAMS							09/15/07

p1	p1	p9	p9	p9	p9	p9	p9
General	General	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install
Test ID	Test Type	Time PAMS Installed	Date PAMS Removed	Time PAMS Removed	Test Comments, install mods to reverse, after PAMS install	PAMS Mfr	PAMS Serial #
0619_0968	PEMS						
1688_1462	PEMS						
1688_1462	PAMS	7:30 AM	07/26/07		Replace carriage bolt removed to mount Corsa (match door hinge) - zip tied to left of Corsa on bulk head.	Corsa	
1688_0216	PAMS	7:22 PM	07/26/07		2 brackets installed (Mount for datalogger and RPM sensor)	Corsa	
0008_1644	PEMS						
0685_2214	PEMS						
2208_1918	PEMS						
2208_1918	PAMS	2:10 PM	7/25/2007		Uninstallers: Remove RPM bracket and wire around pulley.	Corsa	
0685_1214	PEMS	8:00 PM	06/26/07				
1437_0399	PAMS	3:30 PM	7/25/2007		Uninstall notes - brackets off engine (RPM) and chassis (Corsa), ring terminal on crank pulley.	Corsa	
1437_1396	PAMS	4:00 PM	7/25/2007		Uninstall Note: Remove bracket holding RPM (optical) sensor.	Corsa	
1911_9540	PAMS		7/3/2007			Corsa	
1911_1916	PAMS	8:00 AM	7/3/2007		Uninstallers - Remove RPM brackets and wire around pulley.	Isaac	
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	PM	10/26/07	9:50 AM	Power taken from fuel solenoid on right side of engine. There are two blade terminals. From right side of engine, switched positive power is Access PAMS from right side of engine compartment, just behind cab. Positive power is taken from starter. Negative is taken from a 10239 from 9/17 - 10/6. Then, 10246 from 10/6 - 10/29.	Corsa	
3597_0265	PAMS	PM	09/20/07		Remove power connection @ fuse box (access @ left side door in steering console). Master power is from starter. Switched power is from fuel solenoid on right of engine. Ground for both is from bolt near fuel solenoid. Corsa	Isaac	
2535_2754	PAMS	3:00 PM	10/29/07			Corsa	
3928_1649	PAMS	13:00 PM	10/29/07	9:30 AM		Corsa	
3702_9726	PAMS	PM	10/29/07	12:00 PM	Access PAMS unit from rear of vehicle.	Isaac	

p1	p1		p9	p9	p9	p9	p9	p9	p9
General	General	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install
Test ID	Test Type	Datalogger ID	PAMS Auto Shutdown criteria	Auto shutdown "Other" description	Voltage/RPM Set Limit (if used)	Auto Shutdown Confirm Details	Standby Current Drain (mA)	VI Compliance	VI Connector Description
0619_0968	PEMS								
1688_1462	PEMS								
1688_1462	PAMS	10246	Voltage < 13		13 V				
1688_0216	PAMS	10242	Voltage < 13		13 V				
0008_1644	PEMS								
0685_2214	PEMS								
2208_1918	PEMS								
2208_1918	PAMS	10244	Voltage < 13		13 V				
0685_1214	PEMS								
1437_0399	PAMS	10239	Voltage < 13		13 V				
1437_1396	PAMS	10244 (6/6 - 6/6) 10243 (6/9 - 7/25)	Voltage < 13		13 V				
1911_9540	PAMS	10245							
1911_1916	PAMS	BOXV80-SLD, SL07-2012 CBLSL1-321, SL07-2691	RPM < 300		300 RPM				
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	10238	Switched power						
3597_0265	PAMS	BOXV80-SLD, SL07-2211 CBLSL1-321, SL07-2170							
2535_2754	PAMS	10239 10246							
3928_1649	PAMS	10242							
3702_9726	PAMS	BOXV80-SLD, SL07-2213 CBLSL1-321, SL07-2549	Switched power signal						

p1	p1	p9	p13	p10/11	p10/11	p10/11
General	General	PAMS Install	PAMS Install	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	VI Acquisition Notes	PAMS Installation Comments	PAMS Revisit 1 Date	PAMS Revisit 1 File Download (Y/N)	PAMS Revisit 1 Remaining Memory
0619_0968	PEMS					
1688_1462	PEMS					
1688_1462	PAMS			6/12/2007	Yes	
1688_0216	PAMS			6/12/2007	Yes	
0008_1644	PEMS					
0685_2214	PEMS					
2208_1918	PEMS					
2208_1918	PAMS			6/12/2007	Yes	
0685_1214	PEMS					
1437_0399	PAMS		Calibrated RPM from alternator pulley. Dia crank/Dia alt ~ 2.3	6/12/2007	Yes	
1437_1396	PAMS		Scaled IR sensor using handheld RPM sensor. Corsa scale value = .01577	6/9/2007		
1911_9540	PAMS		Attempted to install 6/11, equipment (PAMS) probs, try later this week/ 6/19 - installed	6/22/2007	Yes	
1911_1916	PAMS		RPM via optical and magnetic. Both mounted to bell on fan pulley.	6/18/2007	No	
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS			09/25/07	Y	
3597_0265	PAMS		Did not have time to complete calibration. Had to leave shop Friday evening. Car during first check? Capelec was reading approx 1/2 of optical.	9/20/2007	N	
2535_2754	PAMS		Optical RPM taken from radiator fan. Correlated to true RPM (as measured off	9/24/2007	Y	
3928_1649	PAMS			9/18/2007	N	
3702_9726	PAMS		Access datalogger from rear of vehicle.	10/6/2007	Y	

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 1 Comments	PAMS Revisit 2 Date	PAMS Revisit 2 File Download (Y/N)	PAMS Revisit 2 Remaining Memory
0619_0968	PEMS				
1688_1462	PEMS				
1688_1462	PAMS	Reflective tape & base duct tape & wires were gone. New reflective tape attached by cleaning the fan pulley bell w/carb. cleaner and	6/20/2007	Yes	
1688_0216	PAMS	pulley has remained in good shape. Downloaded data. Looks reasonable.	6/16/2007	No	
0008_1644	PEMS				
0685_2214	PEMS				
2208_1918	PEMS				
2208_1918	PAMS	went to finish install on June 12 - Reflective tape on wedge or tape in fan pulley replaced w/wood wedge in same location. Secured by wire. - Calib'd RPM. -	6/14/2007	No	
0685_1214	PEMS				
1437_0399	PAMS	6/12 - checked install; no key and could not access datalogger (Bobcat chained to trailer and locked, engine compartment inaccessible). Downloaded data through	6/16/2007	Yes	
1437_1396	PAMS	6-9-07 (A/C), Logger changed, 10244 removed, 10243 installed Also, original RPM bracket broke after 1 day. Replaced w/alum. bracket that did not	6/12/2007	Yes	
1911_9540	PAMS	6/22 - Downloaded data from CF card. Large data file; the entire file will not open in excel.	6/28/2007		
1911_1916	PAMS	6/18 - not able to communicate with Issac equipment. May be software related. Unable to contact equipment manufacturer.	6/19/2007	No	
end of PSU 1	1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	Data downloaded. No problems or concerns.	10/01/07	Y	
3597_0265	PAMS	Unable to communicate with or power up logger. Logger was removed to be shipped to factory. Suspect Isaac will not be compatible with 24V unless a voltage			
2535_2754	PAMS	Data downloaded. No problems or concerns.	10/6/2007	Y	
3928_1649	PAMS	9/10 - No revisit, but Doug Zumans called, his Forktruck went into shop, we decided to leave Corsa on, to not affect selection process (based on usage), also equipment	10/1/2007	N	
3702_9726	PAMS	10/0 - MS visited. Raw data file was successfully downloaded from Isaac, but an error was generated when software tried to convert to *.ISA file. Only the raw file is	10/17/2007	Y	

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 2 Comments	PAMS Revisit 3 Date	PAMS Revisit 3 File Download (Y/N)	PAMS Revisit 3 Remaining Memory
0619_0968	PEMS				
1688_1462	PEMS				
1688_1462	PAMS	6/20 - checked install; everything looked good. Downloaded data from CF card.	6/25/2007	Yes	
1688_0216	PAMS	Checked install on June 16. Equipment was locked (i.e. no access to datalogger). Was unable to communicate with Corsa via software/USB radio.	6/21/2007	Yes	
0008_1644	PEMS				
0685_2214	PEMS				
2208_1918	PEMS				
2208_1918	PAMS	6/14 - reflective tape and wedge were missing. Reinstalled reflective tape on a piece of belt and zip tied it in the fan pulley. Unable to communicate with	6/15/2007	Yes	
0685_1214	PEMS				
1437_0399	PAMS	6/16 - Could not detect Corsa w/software/USB radio. Powered Corsa down and manually downloaded data from cf card. Installed a power switch (inline	6/20/2007	Yes	
1437_1396	PAMS	Checked the install June 12. Looked good. Downloaded data to ADB laptop. Note reflective tape used to calib. RPM was still attached to the crank pulley.	6/16/2007		
1911_9540	PAMS	Optical sensor was not functioning when he tested it. Optical sensor was	7/2/2007		
1911_1916	PAMS	6/19 - uninstalled and reinstalled usb driver - did not solve the communication problem. Uninstalled and reinstalled software with drivers - did not solve the	6/22/2007	Yes	
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	MS: The optical sensor was hanging free (out of bracket (appears to have jiggled loose). I replaced optical sensor and recalibrated the corsa.	10/15/07	Y	
3597_0265	PAMS				
2535_2754	PAMS	9/29: MS left msg for George, asking permission to visit PAMS over upcoming weekend (no est presence required). 10/5, MS reached George, who was leary of us visiting (establishment liability	10/14/2007	Y	
3928_1649	PAMS	MS talked with Doug Zumans, fork truck is still in shop. we can go to shop to remove if we need to (shop is on 76th street). He does expect it to get out of	10/12/2007	N	
3702_9726	PAMS	Downloaded Data with no errors. Data was readable but the RPM signal appeared to contain many spikes. Might need to be filtered. If this is not	10/21/2007	Y	

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 3 Comments	PAMS Revisit 4 Date	PAMS Revisit 4 File Download (Y/N)	PAMS Revisit 4 Remaining Memory
0619_0968	PEMS				
1688_1462	PEMS				
1688_1462	PAMS	6/25 - checked install; everything looked good. Downloaded data from CF card.	6/29/2007		
1688_0216	PAMS	6/21 - Checked install on June 21. Everything looked good. Downloaded data from CF card.	6/26/2007	No	
0008_1644	PEMS				
0685_2214	PEMS				
2208_1918	PEMS				
2208_1918	PAMS	6/15 - unable to communicate with corsa via usb radio. Corsa tech troubleshot system and data was retrieved manually from cf	6/21/2007	Yes	
0685_1214	PEMS				
1437_0399	PAMS	Checked install on June 20. Downloaded data as a csv file. Rewired Capelec and calibrated.	6/25/2007	Yes	
1437_1396	PAMS	6/16 - equipment was to be at Gann Equipment Construction yard. Equipment was not there and no contact was available.	6/18/2007	Yes	
1911_9540	PAMS	7/2: MS review of test record suggests datalogger is not shutting off, incorrect config file. I'll try to revisit ASAP to	7/3/2007		
1911_1916	PAMS	6/22 - installed software on SRI machine with success. Downloaded data from Issac.	6/28/2007		
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	Downloaded data. Everything looked ok except there were no timestamps in the data file. Reset corsa time and date.	10/26/07	Y	
3597_0265	PAMS				
2535_2754	PAMS	Data file downloaded. Data looked ok. Unit was dry and there were no apparent problems. Check sensor bracket for bolt tightness when unit is revisited. The AS spoke with Verne (309-314-0932) at K11 then with the shop that serviced the equipment. The equipment is now repaired			
3928_1649	PAMS	Downloaded data with no errors. Data had spikes, as was the case for the prior revisit, also apparent dropouts at elevated	10/17/2007	Y	
3702_9726	PAMS		10/29/2007	Y	

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 4 Comments	PAMS Revisit 5 Date	PAMS Revisit 5 File Download (Y/N)	PAMS Revisit 5 Remaining Memory
0619_0968	PEMS				
1688_1462	PEMS				
1688_1462	PAMS	Alan S and Sarah F: Able to communicate via radio, got data from CF card. Optical sensor appears to have failed same location (#3. XXX), equipment locked, unable to communicate remotely. Spoke w/Todd equipment will be @	7/2/2007	Yes	
1688_0216	PAMS		6/29/2007	No	
0008_1644	PEMS				
0685_2214	PEMS				
2208_1918	PEMS				
2208_1918	PAMS	6/27/07 - Downloaded data, installed fuse, re-wired Capelec. Capelec now working.	6/26/2007	Yes	
0685_1214	PEMS				
1437_0399	PAMS	Checked install on June 25. Unable to communicate with logger via USB radio/software. Bobcat was chained to trailer.	6/30/2007	No	
1437_1396	PAMS	Checked the install June 18. Bobcat was chained to trailer so limited access to Corsa. Limited access did not allow a Site contact requested that optical sensor be moved so they could relocate saw blade. This would require removal and	6/25/2007	Yes	
1911_9540	PAMS	Checked on 6/26/07. Magnet had been thrown off. A new magnet was placed directly on the pulley and secured with	7/3/2007		
1911_1916	PAMS				
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS	Downloaded data. No problems, removed datalogger.			
3597_0265	PAMS				
2535_2754	PAMS				
3928_1649	PAMS	The USB EZD file could not be copied off of the card. Downloaded Partial Data file. Corsa had error light on and	10/29/2007	Y	
3702_9726	PAMS	Downloaded data and removed PAMS.			

p1	p1	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 5 Comments	PAMS Revisit 6 Date	PAMS Revisit 6 File Download (Y/N)	PAMS Revisit 6 Remaining Memory	PAMS Revisit 6 Comments	PAMS Revisit 7 Date
0619_0968	PEMS						
1688_1462	PEMS						
1688_1462	PAMS	MS revisited. Vermeer would not start (apparent dead battery over weekend). Datalogger would not communicate via radio. After June 29. Checked equipment. Were able to ping Corsa but still used CR card. Experienced intermittent Capelec performance. Needed to bump	7/20/2007			APS: Unit pinged and communicated.	7/26/2007
1688_0216	PAMS		7/2/2007	Yes		MS revisit 7/2: - Unit 10242. Unit pinged ok	7/20/2007
0008_1644	PEMS						
0685_2214	PEMS						
2208_1918	PEMS						
2208_1918	PAMS	6/26/07 - Download data, check install, install OK. After downloading data & restarting datalogger, be sure to give Capelec enough time to	7/2/2007	Yes		MS revisit 7/2: Config file wrong on this, but	7/20/2007
0685_1214	PEMS						
1437_0399	PAMS	MS revisit 6/30: Unit would not communicate. Power light was on, but card had no data (one 0 kb data file). Put a new card in, and the unit	7/1/2007	No		MS Revisited 7/1 to retrv datalogger. I	7/11/2007
1437_1396	PAMS	Checked the install June 25, unable to communicate w/ logger via USB radio/software. Bobcat was chained to trailer (I.e. no access to Corsa).	6/30/2007	Yes		MS revisit 6/30: Unit communicated thru	7/1/2007
1911_9540	PAMS						
1911_1916	PAMS	Revisited prior to leaving town (for 7/4 holiday). Download cable was unavailable, so not able to download at site. Tape had come off					
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS						
3597_0265	PAMS						
2535_2754	PAMS						
3928_1649	PAMS	Performed delay time test, datalogger removed.					
3702_9726	PAMS						

p1	p1	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 7 File Download (Y/N)	PAMS Revisit 7 Remaining Memory	PAMS Revisit 7 Comments	PAMS Revisit 8 Date	PAMS Revisit 8 File Download (Y/N)	PAMS Revisit 8 Remaining Memory	PAMS Revisit 8 Comments	PAMS Revisit 9 Date
0619_0968	PEMS								
1688_1462	PEMS								
1688_1462	PAMS	Yes		7/26 - MS revisited to remove D16/removal.					
1688_0216	PAMS			7/20 - APS: Unit pinged and	7/26/2007			MS revisit to remove. Vermeer D20. Hour Mtr	
0008_1644	PEMS								
0685_2214	PEMS								
2208_1918	PEMS								
2208_1918	PAMS	Yes		7/20: APS: Unit pinged and	7/25/2007			7/25/07 - MS, SF revisit/remove - Ping ok.	
0685_1214	PEMS								
1437_0399	PAMS			AS visted establishment shop to	7/25/2007			7/25 - MS revisited, datalogger copied file -	
1437_1396	PAMS	No		MS Revisited 7/1 to install protective case.	7/25/2007	Yes		7/25/07 - MS removed datalogger (box 10243).	
1911_9540	PAMS								
1911_1916	PAMS								
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1
3868_8720	PAMS								
3597_0265	PAMS								
2535_2754	PAMS								
3928_1649	PAMS								
3702_9726	PAMS								

p1	p1	p10/11	p10/11	p10/11	p12	p12	p12	p12	p12
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals
Test ID	Test Type	PAMS Revisit 9 File Download (Y/N)	PAMS Revisit 9 Remaining Memory	PAMS Revisit 9 Comments	PAMS RPM Check 1 Date	Check 1 Pre-Cal "Conf" RPM	Check 1 Pre-Cal Sensor 1 Reading	Check 1 Pre-Cal Sensor 2 Reading	Check 1 Post-Cal "Conf" RPM
0619_0968	PEMS								
1688_1462	PEMS								
1688_1462	PAMS				7/2/2007	See revisit 3 notes	See revisit 3 notes	See revisit 3 notes	
1688_0216	PAMS								
0008_1644	PEMS								
0685_2214	PEMS								
2208_1918	PEMS								
2208_1918	PAMS				6/12/2007	1100		243 (optical)	
0685_1214	PEMS								
1437_0399	PAMS								
1437_1396	PAMS				7/1/2007	1160	116 (Capelec)	1080 (optical)	
1911_9540	PAMS								
1911_1916	PAMS								
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	
3868_8720	PAMS				10/1/2007	800	1010		1008
3597_0265	PAMS								
2535_2754	PAMS								
3928_1649	PAMS								
3702_9726	PAMS								

p1	p1	p12	p12	p12	p12	p12	p12
General	General	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals
Test ID	Test Type	Check 3 Pre-Cal "Conf" RPM	Check 3 Pre-Cal Sensor 1 Reading	Check 3 Pre-Cal Sensor 2 Reading	Check 3 Post-Cal "Conf" RPM	Check 3 Post-Cal Sensor 1 Reading	Check 3 Post-Cal Sensor 2 Reading
0619_0968	PEMS						
1688_1462	PEMS						
1688_1462	PAMS						
1688_0216	PAMS						
0008_1644	PEMS						
0685_2214	PEMS						
2208_1918	PEMS						
2208_1918	PAMS						
0685_1214	PEMS						
1437_0399	PAMS						
1437_1396	PAMS						
1911_9540	PAMS						
1911_1916	PAMS						
end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1	end of PSU 1			
3868_8720	PAMS						
3597_0265	PAMS						
2535_2754	PAMS						
3928_1649	PAMS						
3702_9726	PAMS						

p1	p1	p7	p1	p1	p1	p1	p1
General	General	PEMS	General	General	PEMS	General	General
Test ID	Test Type	PEMS Test Date	Establishment Number	Installation Date	PEMS Test Shift	Type of Equipment	Equipment Serial Number
2535_9216	PAMS		7002535	9/17/2007		Backhoe loader	JJG 0269216
3868_0304	PAMS		7003868	9/13/2007		Wheeled Crane	220304
3858_5754	PAMS		7003858			Backhoe loader	JJG0005754
3858_1482	PAMS		7003858	9/16/2007		Crawler Dozer	6YL01482
3854_9162	PAMS		7003854	9/12/2007		Straight-Mast Lift Truck	17019162
3597_095K	PAMS		7003597	9/10/2007		Compactor	C146C3095K
3858_1482	PEMS	9/18/2007	7003858	9/17/2007		Crawler Dozer	6YL01482
3858_1482_1	PEMS	9/20/2008	7003858	09/19/07		Crawler Dozer	6YL01482
3858_5754	PEMS	9/21/2007	7003858	9/20/2007		Wheel Loader	JJG0005754
2523_0713	PEMS	9/27/2007	7002523	9/26/2007		Track Dozer	5LN00713
2523_6087	PEMS	9/28/2007	7002523	9/27/2007		Articulated Loader	DW544HX586087
2523_0210	PEMS	10/2/2007	7002523	10/1/2007	Daytime	Track Excavator	O325DAA3R00210
3597_095K	PEMS	10/4/2007	7003597	10/3/2007	Daytime	Roller/Compactor	C146C3095K
3597-0726	PEMS	10/9/2007	7003597	10/8/2007	Daytime (7-3)	Grader	4XM00726
2745-1190	PEMS	10/11/2007	7002745	10/10/2007	8:00 am - 4:00 pm	Well Driller	44201190
3858-4862_1	PEMS	10/13/2007	7003858	10/12/2007		Telescopic Lift Truck	CAT0TH83J3RN04862
3858-4862_2	PEMS	10/15/2007	7003858	10/12/2007		Telescopic Lift Truck	CAT0TH83J3RN04862
3597-4734	PEMS	10/24/2007	7003597	10/23/2007	Day	Tractor Loader	JJG0224734
3597-9706	PEMS	10/27/2007	7003597	10/26/2007	Day	Tracker Dozer	T0550HX879706
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS		7008542	7/10/2008		Compact Track Excavator	A2PG11271

p1	p1	p2	p2	p2	p2	p2	p2
General	General	General	General	General	General	General	General
Test ID	Test Type	Equipment Manufacturer	Equipment Model	Equipment Model Year	Equipment Plate Code	Equipment Comments	Engine Manufacturer
2535_9216	PAMS	Case	580 Super L	1999	Present and Legible		Case
3868_0304	PAMS	Grove	RT640C	1999	Present and Legible		Cummins
3858_5754	PAMS	Case	480F LL	1992	Present and Legible		Case - Consolidated
3858_1482	PAMS	Caterpillar	D4C	1996	Present and Legible		Caterpillar
3854_9162	PAMS	Case	586D	1985	Present and Legible		Case
3597_095K	PAMS	Hyster	C340C	1997	Present and Legible		
3858_1482	PEMS	Caterpillar	D4CXL	1996	Present and Legible		Caterpillar
3858_1482_1	PEMS	Caterpillar	D4CXL	1996	Present and Legible		Caterpillar
3858_5754	PEMS	Case	480F	1992	Present and Legible		Case - Consolidated
2523_0713	PEMS	Caterpillar	D6RXL	1997	Present and Legible		Caterpillar
2523_6087	PEMS	John Deere	544H	2003	Present and Legible		John Deere
2523_0210	PEMS	Caterpillar	325D	2006	Present and Legible	1908 Comm Protocol	Caterpillar
3597_095K	PEMS	Hyster	C340C	1997	Present and Legible	Equipment tag indicates Basic Machine Wt = 13,600, with	
3597-0726	PEMS	Caterpillar	12H	1996	Present and Legible		Caterpillar
2745-1190	PEMS	Cummins 4B - 3.9		1987	Not Present	James W. Bell Co. Inc. No vehicle plate found. Could	Cummins
3858-4862_1	PEMS	Caterpillar	TH83	2002	Present and Legible		Caterpillar
3858-4862_2	PEMS	Caterpillar	TH83	2002	Present and Legible		Caterpillar
3597-4734	PEMS	Case	570LXT	1997	Present and Legible		Case
3597-9706	PEMS	John Deere	550H	1999	Present and Legible		John Deere
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	Bobcat	329G	2007	Present and Legible	Equipment used year round, 12 months of the year.	Kubota

p1	p1	p2	p2	p2	p2	p2	p2	p3	p3
General	General	General	General	General	General	General	General	General	General
Test ID	Test Type	Engine Model	Engine Model Year	Engine Serial Number	Engine Family	Engine Plate Code	Engine Comments	Hour-meter Function Code 1	Hour-meter Function Code 2
2535_9216	PAMS	4T-390	1998	45766942	WX9XL0239ABA	Present and legible	Engine tag found in cab also	Original meter; re	Current reading p
3868_0304	PAMS	B5.9-C	1999	45806311	XCEXL0359AAA	Present and legible	reads ell*97/68BA*0010*01	Original meter; re	Current reading p
3858_5754	PAMS	4-390		44753910		Present and legible	Part # 1989066C2	Original meter; re	Current reading p
3858_1482	PAMS	3406	1996	5XK09382		Present and legible	Can Fulper data review suggests engine is model	Original meter; re	Current reading p
3854_9162	PAMS	G188D	NA	4346176	NA	Present and legible		Original meter; re	Current reading p
3597_095K	PAMS					Not present	Can Fulper data review	Original meter; re	Current reading p
3858_1482	PEMS	3406	1996	5XK09382		Present and legible	Can Fulper data review suggests engine is model	Original meter; re	Current reading p
3858_1482_1	PEMS	3406	1996	5XK09382		Present and legible	Can Fulper data review suggests engine is model	Original meter; re	Current reading p
3858_5754	PEMS	4-390		44753910		Present and legible	Part #1989066C2	Original meter; re	Current reading p
2523_0713	PEMS	3306				Cannot locate	Rebuild tag indicates engine rebuilt at 10,000 hrs	Original meter; re	Current reading p
2523_6087	PEMS	6068T	2003			Cannot locate		Original meter; re	Current reading p
2523_0210	PEMS	C7	2006	KHX01908	6CPXL072ESL	Present and legible	2006 KHX01908	Original meter; re	Current reading p
3597_095K	PEMS		1997			Not present	No engine tag	Original meter; re	Current reading p
3597-0726	PEMS	3306	1996	08Z90705		Present and legible	AR 110-5760	Original meter; re	Current reading p
2745-1190	PEMS	4B -3.9	5/7/1987	44201190		Present and legible	injector P/N: 3909473 Rated HP 76 @ 2500 RPM	Meter present but	Current reading n
3858-4862_1	PEMS	3054	2002	7BJ64770		Present and legible		Original meter; re	Current reading p
3858-4862_2	PEMS	3054	2002	7BJ64770		Present and legible		Original meter; re	Current reading p
3597-4734	PEMS	4-390 (Fulper)				Cannot locate	Part # RE300973	Original meter; re	Current reading p
3597-9706	PEMS	4045T	1999		184685	Present but sp	4.5 Liter	Original meter; re	Current reading p
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	D1703	2000	06S2951	YKBXL02.2FCD	Present and legible		Original meter; re	Current reading p

p1	p1	p3	p3	p3	p3	p3	p3	p3
General	General	General	General	General	General	General	General	General
Test ID	Test Type	Current Meter Read Date	Hour-meter Reading	Hour-meter Comments	Major Exhaust Leaks (Y/N)	Alternator Speed Signal Reliable (Y/N/Unk)	Modifications or Mal-Maintenance (Y/N)	General Equipment Comments
2535_9216	PAMS	10/14/07	5,859.70		N	Unk	N	
3868_0304	PAMS	10/01/07	1341.8	hour reading from 10/1 revisit.	N	Unk	N	
3858_5754	PAMS	09/29/07	5187.5	hour reading from 9/29/07 revisit.	N	Unk	N	
3858_1482	PAMS	09/29/07	05088.7	hour reading from 9/29/07 revisit.	N	Unk	Y	
3854_9162	PAMS	09/12/07	1,578.60	on meter. - 1550 hrs @ 2/8/2005	N	Y	N	
3597_095K	PAMS	10/03/07	1876.7	hour meter obtained on 10/3/07 revisit.	N	Unk	N	
3858_1482	PEMS	09/18/07	5044.1		N	Y	N	
3858_1482_1	PEMS	09/20/07	5054.4		N	Y	N	
3858_5754	PEMS	09/20/07	5160		N	Unk	N	
2523_0713	PEMS	09/26/07	12,681		N	Y	N	
2523_6087	PEMS	09/28/07	6,637		N	Y	N	
2523_0210	PEMS	10/01/07	1272.7		N	Unk	N	
3597_095K	PEMS	10/03/07	1876.7		N	Unk	N	
3597-0726	PEMS	10/08/07	4,866.9		N	Unk	N	
2745-1190	PEMS	10/10/07		meter present in cab but not functioning - missing	N	Unk	N	
3858-4862_1	PEMS	10/11/07	3,049.3		N	Unk	N	
3858-4862_2	PEMS	10/15/07	3,051.6		N	Unk	N	
3597-4734	PEMS	10/23/07	3,929.5		N	Y	N	
3597-9706	PEMS	10/26/07	2,515.0		N	Y	N	
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	7/10/2008	150.9	"0" hours on oil filter, no date written.	N	Unk	N	

p1	p1	p4	p4		p4	p4	p4	p4	p4	p4	p4	p4
General	General	General	General		General	General	General	General	General	General	General	General
Test ID	Test Type	Rated Power (RP)	RP Units Code	RP Units Rating (gross/net/unknown)	RP Source Code	RP Method Code	Rated Speed (RS), RPM	RS Source Code	RS Method Code	Peak Torque (PT)	PT Units Code	PT Source Code
2535_9216	PAMS	95	Horsepower	gross	Engine plate	Gross	2200	Engine plate				
3868_0304	PAMS	152	Horsepower	Net	Reference source	NETT SAE						
3858_5754	PAMS	63	Horsepower	Net	Reference source	NETT SAE						
3858_1482	PAMS	87	Horsepower	gross	Engine plate		2400					
3854_9162	PAMS	63	Horsepower	Net	Reference source	NETT SAE	2100	Engine plate				
3597_095K	PAMS	83	Horsepower	Net	Reference source	NETT SAE						
3858_1482	PEMS	87	Horsepower	gross	Engine plate		2400					
3858_1482_1	PEMS	87	Horsepower	gross	Engine plate		2400					
3858_5754	PEMS	63	Horsepower	Net	Reference source	NETT SAE						
2523_0713	PEMS	175	Horsepower	Unk			1900					
2523_6087	PEMS	130	Horsepower	Unk								
2523_0210	PEMS	224	kilowatts	Unk	Engine plate		2200 (max)	Engine plate				
3597_095K	PEMS	83	Horsepower	Net	Reference source	NETT SAE						
3597-0726	PEMS	140	Horsepower	Unk	Engine plate	Unknown	2000	Engine plate	Unknown			
2745-1190	PEMS	76	Horsepower	Unk	Engine plate	Unknown	2500	Engine plate	Unknown			Unavailable
3858-4862_1	PEMS	101	Horsepower	Net	Reference source	NETT SAE						
3858-4862_2	PEMS	101	Horsepower	Net	Reference source	NETT SAE						
3597-4734	PEMS	68	Horsepower	Net	Reference source	NETT SAE						
3597-9706	PEMS	84	Horsepower	net	manufacturer's specifications	NETT SAE	2200	Manufacturer's specifications	Unknown	372	newton-meter	Manufacturer's specifications
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2		end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	21.9	kilowatts	Unk	Engine plate	Unknown	2200	Engine plate	Unknown			

p1	p1	p4	p4	p4	p4	p4		p4
General	General	General	General	General	General	General	General	General
Test ID	Test Type	PT Method Code	Peak Speed (PS), RPM	PS Source Code	PS Method Code	Overall Engine Rating Comments	Turbo? (not collected in field)	Exhaust After-Treatment (Y/N)
2535_9216	PAMS							N
3868_0304	PAMS					Tag found, but info not available.	Yes	N
3858_5754	PAMS					No engine tag seen.		N
3858_1482	PAMS					engine tag reads "Bare engine high idle = 2600, 'Full Load' RPM is 2400"		N
3854_9162	PAMS							N
3597_095K	PAMS					No engine tag seen.		N
3858_1482	PEMS					Bare Engine high idle 2000 "full load" RPM = 2400	Unk	N
3858_1482_1	PEMS					Bare Engine high idle 2000 "full load" RPM = 2400	Unk	0
3858_5754	PEMS					No engine power tag seen.	Unk	N
2523_0713	PEMS						Unk	N
2523_6087	PEMS						Yes	N
2523_0210	PEMS		2200			Max low idle 1400	Unk	Y
3597_095K	PEMS					Engine Rating - Unk, no engine plate	Unk	N
3597-0726	PEMS					high idle = 2140 RPM		
2745-1190	PEMS	Unavailable		Unavailable	Unavailable	Tag doesn't specify net or gross hp. Unsure of units for rated hp (gross or net)	Unk	N
3858-4862_1	PEMS					No power rating tag seen.	Unk	N
3858-4862_2	PEMS					No power rating tag seen.	Unk	N
3597-4734	PEMS					No info was found on the equipment or from mfr. Search, Carl Fulper	Unk	N
3597-9706	PEMS	Unknown				Engine info here from John Deere website.	Unk	N
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2		end of PSU 2
8542-1271	PAMS					Engine power units of kilowatts, net/gross not specified.		N

p1	p1	p4		p4	p4	p5
General	General	General	General	General	General	General RPM Cal
Test ID	Test Type	After-Treatment Description	Unit Power (volts)	Tailpipe Outer Diameter #1 (inches)	Tailpipe Outer Diameter #2 (eliptical) (inches)	RPM Sensor 1
2535_9216	PAMS			2"		Optical
3868_0304	PAMS	Turbocharged		4" x 5" (eliptical)		Optical
3858_5754	PAMS	None seen.		2.5" x 5"		Optical
3858_1482	PAMS			2.5" x 2.75"		Optical
3854_9162	PAMS		12	2"	3"	Optical
3597_095K	PAMS		12	2.5"		Capelec
3858_1482	PEMS			2.5"		Capelec
3858_1482_1	PEMS			2.5"		Capelec
3858_5754	PEMS	None seen.		2.5	5	Capelec
2523_0713	PEMS			4.0		
2523_6087	PEMS			4		Capelec
2523_0210	PEMS	Exh Emiss Cntrl Sys: EM, DI, TC, ECM, CAC		4"		Capelec
3597_095K	PEMS	None		2"		Capelec
3597-0726	PEMS			4		Capelec
2745-1190	PEMS			3		Capelec
3858-4862_1	PEMS			2.5	5	Capelec
3858-4862_2	PEMS			2.5	5	Capelec
3597-4734	PEMS			2.5"		Capelec
3597-9706	PEMS			2.0"		Capelec
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS			1		electrical tap into engine harness

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	RPM Sensor 2	RPM Confirmation Method	Pre-Cal Idle Confirmation RPM	Pre-Cal Idle Measured Sensor 1	Calibration Scaling Factor (CFS), Sensor 1	Pre-Cal Idle Measured Sensor 2	CFS Sensor 2	Pre-test Idle Confirmation RPM
2535_9216	PAMS		Hand held Tach	955	950	1.1007			955
3868_0304	PAMS		Hand held Tach	852	855				852
3858_5754	PAMS		Hand held Tach	745	820	1.10067			750
3858_1482	PAMS	Capelec	Hand held Tach						694
3854_9162	PAMS		Hand held Tach						802
3597_095K	PAMS	Optical	Handheld						2007
3858_1482	PEMS		No RPM Cal performed						
3858_1482_1	PEMS		None						
3858_5754	PEMS		Handheld Tach						748
2523_0713	PEMS		None						
2523_6087	PEMS		Onboard Tach						
2523_0210	PEMS		Onboard Tach (digital)						950
3597_095K	PEMS		Handheld Tach (Digital)						1989
3597-0726	PEMS		Onboard Tach (digital)						825
2745-1190	PEMS		Hand held Tach (digital)						1320
3858-4862_1	PEMS		Handheld Tach (Digital)						1720
3858-4862_2	PEMS		Handheld Tach (Digital)						1720
3597-4734	PEMS		Onboard Tach						800
3597-9706	PEMS		Hand held Tach (Digital)						862
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS		Onboard Tach	1290	135,000	105			1235

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	Pre-test Idle Measured Sensor 1	Pre-test Idle Measured Sensor 2	Pre-test Idle Exh rate (Kg/hr)	Pre-test Mid-range Cofirmation RPM	Pre-test Mid-range Measured Sensor 1	Pre-test Mid-range Measured Sensor 2	Pre-test Mid-range Exh rate (Kg/hr)	Pre-test High Confirmation RPM
2535_9216	PAMS	950							2038
3868_0304	PAMS	855							1645
3858_5754	PAMS	745							2140
3858_1482	PAMS	691	335						2014
3854_9162	PAMS	819							1705
3597_095K	PAMS	350	2210						2327
3858_1482	PEMS								
3858_1482_1	PEMS								
3858_5754	PEMS	724							2120 - 4240
2523_0713	PEMS								
2523_6087	PEMS								
2523_0210	PEMS			265	1300			380	1970
3597_095K	PEMS	1938		356	2306	2082		361	2338
3597-0726	PEMS	720		223	1400	1270		438	2000
2745-1190	PEMS	570		265	2060			390	2430
3858-4862_1	PEMS	1752		164	3635	3648		365	4678
3858-4862_2	PEMS	1752		164	3635	3648		365	4678
3597-4734	PEMS	692		150	2000	1576		319	2300
3597-9706	PEMS	377		180	1228	534		270	2033
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	1230			1580	1560			2215

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	Pre-test High Measured Sensor 1	Pre-test High Measured Sensor 2	Pre-test high-range Exh rate (Kg/hr)	Post-test Idle Cofirmation RPM	Post-test Idle Measured Sensor 1	Post-test Idle Measured Sensor 2	Post-test Idle Exh rate (Kg/hr)	Post-test Mid-range Cofirmation RPM
2535_9216	PAMS	2020							
3868_0304	PAMS	1652							
3858_5754	PAMS	2120			787	740			1280
3858_1482	PAMS	2006	980		467	465	0		1305
3854_9162	PAMS	1710							1476
3597_095K	PAMS	252	2357		1310	625	1220		2106
3858_1482	PEMS								
3858_1482_1	PEMS								
3858_5754	PEMS	2288							
2523_0713	PEMS								
2523_6087	PEMS				855	540			
2523_0210	PEMS			680					
3597_095K	PEMS	2021		360	1351	2422			1650
3597-0726	PEMS	1800		583					
2745-1190	PEMS	1250		449	1290	1344		259	1990
3858-4862_1	PEMS	4680		555					
3858-4862_2	PEMS	4680		555	1750	1304			3300
3597-4734	PEMS	1854		371	850	845		150	1400
3597-9706	PEMS	871		440	1119	412		185	1721
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	2200			1340	1340			1600

p1	p1	p5	p5	p5	p5	p5	p5	p5	p6	
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	PEMS	PEMS
Test ID	Test Type	Post-test Mid-range Measured Sensor 1	Post-test Mid-range Measured Sensor 2	Post-test Mid-range Exh rate (Kg/hr)	Post-test High Confirmation RPM	Post-test High Measured Sensor 1	Post-test High Measured Sensor 2	Post-test high-range Exh rate (Kg/hr)	Date PEMS Installed	Time PEMS Installed
2535_9216	PAMS									
3868_0304	PAMS									
3858_5754	PAMS	1165			1674	1580				
3858_1482	PAMS	1309	0		1921	1936	0			
3854_9162	PAMS	1485			2111	2103				
3597_095K	PAMS	992	1932		2560	1198	2348			
3858_1482	PEMS								09/17/07	4:00 PM
3858_1482_1	PEMS								09/19/07	7:00 PM
3858_5754	PEMS								09/20/07	
2523_0713	PEMS								9/26/2007	
2523_6087	PEMS				2210	1305			9/27/2007	
2523_0210	PEMS								10/1/2007	
3597_095K	PEMS	2994			1898	3362			10/3/2007	
3597-0726	PEMS								10/8/2007	
2745-1190	PEMS	3076		385	2430	2504		434	10/10/2007	
3858-4862_1	PEMS								10/12/2007	
3858-4862_2	PEMS	2116							10/12/2007	
3597-4734	PEMS	1388		226	2000	2007		315	10/23/2007	
3597-9706	PEMS	682		300	2425	964		430	10/26/2007	
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	
8542-1271	PAMS	1600			2315	2315				

p1	p1	p6			p6	p6	p6	p6	p6
General	General	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS
Test ID	Test Type	Date PEMS Tested	Date PEMS Removed	Time PEMS Removed	Independent Ambient Temp Msmnt at start	Ambient Temp Msmnt units	Independent Humidity Msmnt at start	Independent Humidity Msmnt units	PEMS Installation Comments
2535_9216	PAMS								
3868_0304	PAMS								
3858_5754	PAMS								
3858_1482	PAMS								
3854_9162	PAMS								
3597_095K	PAMS								
3858_1482	PEMS		09/18/07	12:15 PM					No RPM Cal done
3858_1482_1	PEMS		09/20/07						774, full throttle - 570.
3858_5754	PEMS		09/21/07						
2523_0713	PEMS								
2523_6087	PEMS	9/28/2007							
2523_0210	PEMS	10/2/2007							
3597_095K	PEMS	10/4/2007							Oil sample collected. Fuel door was locked, we had no key, so no fuel temp and RH taken inside trailer. A handheld portable meter for outside
3597-0726	PEMS	10/9/2007			14	C	84	RH	Ambient P = 900 mbar, air measured at 8:52 am
2745-1190	PEMS	10/11/2007			12	C	58%	RH	
3858-4862_1	PEMS	10/13/2007							
3858-4862_2	PEMS	10/15/2007			57	F	82	RH	
3597-4734	PEMS	10/24/2007			52.2	F	33	% RH	
3597-9706	PEMS	10/27/2007			51.4	F	68	% RH	misty rain early in the morning prior to start up.
end of PSU 2	end of PSU 2	end of PSU 2			end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS								

p1	p1	p8	pg 7	pg 7	pg 7
General	General	PEMS	PEMS Filters	PEMS Filters	PEMS Filters
Test ID	Test Type	Other PEMS Installation Notes, Comments, Etc.	Date Engine was Last Operated	Time Engine was Last Operated	Hours Since Last Engine Operation (soak duration)
2535_9216	PAMS				
3868_0304	PAMS				
3858_5754	PAMS				
3858_1482	PAMS				
3854_9162	PAMS				
3597_095K	PAMS				
3858_1482	PEMS	Oil and Fuel samples collected.	9/17/2007	7:35 PM	11 HR 31 MIN
3858_1482_1	PEMS	THC FID automatically shut off as the software detected a leak in the system (false alarm). Sensors at 9:45 AM, Sensors rendered generator and discovered compressor was not functioning. Troubleshooting began at 11:00. At 12:30 PM, Sensors bypassed the grounding wire with a new wire	9/19/2007	8:13 PM	
3858_5754	PEMS		9/20/2007	7:22 PM	13 HR 48 MIN
2523_0713	PEMS		9/26/2007	5:30 PM	
2523_6087	PEMS	Unable to perform pre-test calibration, as no key was available. Post-test KPM measurements were taken	9/27/2007	5:30 PM	
2523_0210	PEMS		10/1/2007	9:00 PM	10 hours
3597_095K	PEMS	System quit acquiring gaseous (pollutants) 1 hour into test.		9:00 PM	11 hours
3597-0726	PEMS	Louie repaired @ noon (exhaust line was disconnected, Louie reconnected), replaced filters & notes Page 6 - Operator started equip early, during gas zero - lost zero, no span, no audit on cold start.	10/8/2007	11:00 PM	7 Hours 45 mins (6:45 AM start)
2745-1190	PEMS	At 6:55 am, O2 sensor not responding. Approx 9:00 am, KPM indicator from Capelec not sending signal. At approx 1:03 pm, the crew stopped to change bits. Replaced capelec power line which	10/10/2007	10:30 PM	
3858-4862_1	PEMS	Voided PM - One filter used as a dynamic blank	10/12/2007	10:00 PM	
3858-4862_2	PEMS				
3597-4734	PEMS		10/23/2007	2:00 PM	
3597-9706	PEMS	Loose capelec cable found and repaired around 8:30 am.	10/26/2007	3:30 PM	
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS				

[illegible]

[illegible]

[illegible]

[illegible]

p1	p1	p7		p7	p7		p7	p9
General	General	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PAMS Install
Test ID	Test Type	Filter 9 Field ID	Filter 9 EPA ID	Filter 9 Holder Location	Filter 9 Test Type	Filter 9 Status	Other Gravimetric Filter Collection Notes and Comments	Date PAMS Installed
2535_9216	PAMS							09/17/07
3868_0304	PAMS							09/13/07
3858_5754	PAMS							09/15/07
3858_1482	PAMS							09/16/07
3854_9162	PAMS							09/12/07
3597_095K	PAMS							09/10/07
3858_1482	PEMS						Cold start completely on IDLE. Operator turned on the engine at 7:06 AM and let it idle till 7:28 am. Exhaust hose	
3858_1482_1	PEMS						Cold start completely on IDLE. Operator started engine at 7:18 am and let it idle until 7:35 am.	
3858_5754	PEMS						Cold start - operator immediately began use following start up at 9:10 am, until 9:20 am. Idled from 9:20 am - 11:15.	
2523_0713	PEMS						CS @ 6:38 am revved to maximum RPM @ 6:45 for about 20 sec. Then, idle until 7:15 am.	
2523_6087	PEMS						6:55 am operator started up and left on idle for about 10 min.	
2523_0210	PEMS						PEMGT086 (6075340) was damaged (broken petri dish).	
3597_095K	PEMS							
3597-0726	PEMS						Operator started equip early - lost ~ 1.5 mins of cold start filter (5070732), then it appears to have switched to bypass.	
2745-1190	PEMS							
3858-4862_1	PEMS						Lost filter flow control briefly at the end of filter 3. 4-10 mins @ 1/3 of spec.	
3858-4862_2	PEMS						For "Filter 3", equipment turned on during hot operation, then back on. For "Filter 4", equip was turned on, off, then idle from 6:24-6:34. worked for approximately 3-10 min. idle for rest of 1st half of test (until approx 9:35 am).	
3597-4734	PEMS						No sample drawn thru PEMGT121 Dynamic Blank.	
3597-9706	PEMS	PEMGT126	7048948	3	Warm Op		PEMGT123 (7049845) was a field blank.	
end of PSU 2	end of PSU 2	end of PSU 2		end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS							7/10/2008

p1	p1	p9	p9	p9	p9	p9	p9
General	General	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install
Test ID	Test Type	Time PAMS Installed	Date PAMS Removed	Time PAMS Removed	Test Comments, install mods to reverse, after PAMS install	PAMS Mfr	PAMS Serial #
2535_9216	PAMS	6:00 PM	10/29/07		Power is taken from fuse box inside cab. Bolts holding optical bracket were added by ERG, the tapped holes were empty before.	Isaac	
3868_0304	PAMS		10/26/07	11:00 AM	Access PAMS from right side of engine compartment. Optical sensor may be accessed from underneath the engine, bracket faces	Corsa	
3858_5754	PAMS	12:00 PM	10/25/07	1:00 PM	Access data logger from left side of engine compartment, tucked down in the frame. If you have trouble starting the engine, wiggle the	Isaac	
3858_1482	PAMS		10/25/07	12:20 PM	Power for issac and Capelec comes from key tumbler behind dash. It may be easier to just cut off the ring terminal when removing instead	Isaac	
3854_9162	PAMS	10:00 AM	10/25/07	11:30 AM	Access PAMS from right side of engine compartment.	Corsa	
3597_095K	PAMS		10/27/07	8:00 AM	PAMS accessible from engine compartment side cover. Power is supplied from behind key tumbler. This runs the capelec and corsa.	Corsa	
3858_1482	PEMS						
3858_1482_1	PEMS						
3858_5754	PEMS						
2523_0713	PEMS						
2523_6087	PEMS						
2523_0210	PEMS						
3597_095K	PEMS						
3597-0726	PEMS						
2745-1190	PEMS						
3858-4862_1	PEMS						
3858-4862_2	PEMS						
3597-4734	PEMS						
3597-9706	PEMS						
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	2:00 PM	08/09/08	11:45 AM	Remove power from plug in hatch on right side of cab under hydraulic manifold. The female power adapter is not covered in stock configuration (not normally capped). The two yellow connectors near the starter need to be removed and the blue/black connectors plugged together.	Isaac	SL07-2543 (2551)

p1	p1		p9	p9	p9	p9	p9	p9	p9
General	General	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install
Test ID	Test Type	Datalogger ID	PAMS Auto Shutdown criteria	Auto shutdown "Other" description	Voltage/RPM Set Limit (if used)	Auto Shutdown Confirm Details	Standby Current Drain (mA)	VI Compliance	VI Connector Description
2535_9216	PAMS	BOXV80-SLD, SL07-2212 CBLSL1-321, SL07-2171							
3868_0304	PAMS	10244							
3858_5754	PAMS	BOXV80-SLD, SL07-2543 CBLSL1-321, SL07-2551							
3858_1482	PAMS	BOXV80-SLD, SL07-2542 CBLSL1-321, SL07-2550							
3854_9162	PAMS	10242							
3597_095K	PAMS	10243							
3858_1482	PEMS								
3858_1482_1	PEMS								
3858_5754	PEMS								
2523_0713	PEMS								
2523_6087	PEMS								
2523_0210	PEMS								
3597_095K	PEMS								
3597-0726	PEMS								
2745-1190	PEMS								
3858-4862_1	PEMS								
3858-4862_2	PEMS								
3597-4734	PEMS								
3597-9706	PEMS								
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS		Switched Dead			Verified segments in datafile, measured voltage.	N/A	None	

p1	p1	p9	p13	p10/11	p10/11	p10/11
General	General	PAMS Install	PAMS Install	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	VI Acquisition Notes	PAMS Installation Comments	PAMS Revisit 1 Date	PAMS Revisit 1 File Download (Y/N)	PAMS Revisit 1 Remaining Memory
2535_9216	PAMS		No Capelec output cable w/4-pin connector was available, so no capelec was installed (optical only).	9/24/2007	Yes	
3868_0304	PAMS		Corsa power is drawn alternator terminal. Switched power is from fuel solenoid on right side of engine.	9/19/2007	Y	
3858_5754	PAMS		Capelec was not used because power consumption was too great for the fuel relay. Issac would only work with capelec removed.	9/20/2007	Y	
3858_1482	PAMS			9/20/2007	Y	
3854_9162	PAMS			9/25/2007	Y	
3597_095K	PAMS		Capelec is intermittent. Started out reading approx. 1/2 of optical sensor. when RPM was increased, it began reading 100 RPM higher than optical, and continued	9/23/2007	Y	
3858_1482	PEMS					
3858_1482_1	PEMS					
3858_5754	PEMS					
2523_0713	PEMS					
2523_6087	PEMS					
2523_0210	PEMS					
3597_095K	PEMS					
3597-0726	PEMS					
2745-1190	PEMS					
3858-4862_1	PEMS					
3858-4862_2	PEMS					
3597-4734	PEMS					
3597-9706	PEMS					
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS		Isaac, switched voltage (dead on key off), wiring harness for RPM tap - did dead on off instead of standby because equipment sometimes sits unused for a couple weeks Date / Time have bene set, acquisition frequency set to 1 Hz, engine idle speed = 1200 RPM	7/25/2008	Y	

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 1 Comments	PAMS Revisit 2 Date	PAMS Revisit 2 File Download (Y/N)	PAMS Revisit 2 Remaining Memory
2535_9216	PAMS	Data downloaded. No apparent problems.	10/6/2007	N	
3868_0304	PAMS	Data downloaded, no apparent problems.	10/1/2007	Y	
3858_5754	PAMS	Downloaded data, no apparent problems.	9/29/2007	Y	
3858_1482	PAMS	Data downloaded, no apparent problems.	9/29/2007	Y	
3854_9162	PAMS	Dowloaded data, no apparent problems.	10/16/2007	Y	
3597_095K	PAMS	No problems with download. Install looked good.	10/3/2007	Y	
3858_1482	PEMS				
3858_1482_1	PEMS				
3858_5754	PEMS				
2523_0713	PEMS				
2523_6087	PEMS				
2523_0210	PEMS				
3597_095K	PEMS				
3597-0726	PEMS				
2745-1190	PEMS				
3858-4862_1	PEMS				
3858-4862_2	PEMS				
3597-4734	PEMS				
3597-9706	PEMS				
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	File downloaded, install looks Ok	8/9/2008	Y	

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 2 Comments	PAMS Revisit 3 Date	PAMS Revisit 3 File Download (Y/N)	PAMS Revisit 3 Remaining Memory
2535_9216	PAMS	Equip was not at site at revisit.	10/14/2007	Y	
3868_0304	PAMS	Unit appears to have been installed well, was in lunch sack and in separate ziplock, and under cover in engine compartment, but somehow water got in vented air intake but did not have sufficient time to recalibrate.	10/26/2007	N	
3858_5754	PAMS	Downloaded data, but didn't clear memory (488 of 512 Mb was free). No	10/12/2007	Y	
3858_1482	PAMS	Downloaded raw file, but error generated while software tried to convert to ISA file (tried 2 computers). Had to reset Isaac (now only the raw file is	10/12/2007	Y	
3854_9162	PAMS	Downloaded data. File looked ok. No apparent problems.	10/25/2007	Y	
3597_095K	PAMS	Unit did not "ping" (key on), but otherwise appeared fine. Archived files had been moved into "old" folder previously created (good archival process).	10/9/2007	N	
3858_1482	PEMS				
3858_1482_1	PEMS				
3858_5754	PEMS				
2523_0713	PEMS				
2523_6087	PEMS				
2523_0210	PEMS				
3597_095K	PEMS				
3597-0726	PEMS				
2745-1190	PEMS				
3858-4862_1	PEMS				
3858-4862_2	PEMS				
3597-4734	PEMS				
3597-9706	PEMS				
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS	Data looks good			

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 3 Comments	PAMS Revisit 4 Date	PAMS Revisit 4 File Download (Y/N)	PAMS Revisit 4 Remaining Memory
2535_9216	PAMS	File downloaded and looked OK. No water intrusion into logger. No apparent problems.	10/20/2007	Y	
3868_0304	PAMS	Corsa was removed at last check. At this visit we removed remaining wiring harness and optical sensor from crane			
3858_5754	PAMS	Downloaded and reviewed data, looked OK. No apparent problems. Cleared memory.	10/20/2007	Y	
3858_1482	PAMS	Per feedback from Isaac, when revisiting, ensure power to datalogger doesn't have an intermittent short (power is switched,	10/20/2007	Y	
3854_9162	PAMS	Downloaded data and removed datalogger and hardware.			
3597_095K	PAMS	Performed RPM check.	10/27/2007	Y	
3858_1482	PEMS				
3858_1482_1	PEMS				
3858_5754	PEMS				
2523_0713	PEMS				
2523_6087	PEMS				
2523_0210	PEMS				
3597_095K	PEMS				
3597-0726	PEMS				
2745-1190	PEMS				
3858-4862_1	PEMS				
3858-4862_2	PEMS				
3597-4734	PEMS				
3597-9706	PEMS				
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS				

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 4 Comments	PAMS Revisit 5 Date	PAMS Revisit 5 File Download (Y/N)	PAMS Revisit 5 Remaining Memory
2535_9216	PAMS	File downloaded. Logger clock was reset for startup delay procedure. During startup delay test, there were frequent	10/29/2007	N	
3868_0304	PAMS				
3858_5754	PAMS	Downloaded and reviewed data, which looked good. Cleared memory and reset clock for startup delay testing.	10/25/2007	Y	
3858_1482	PAMS	Downloaded data. Looked ok. Reset logger clock for startup delay testing.	10/25/2007	N	
3854_9162	PAMS				
3597_095K	PAMS	no problems with download. Removed PAMS unit following download of data and statup delay time check.			
3858_1482	PEMS				
3858_1482_1	PEMS				
3858_5754	PEMS				
2523_0713	PEMS				
2523_6087	PEMS				
2523_0210	PEMS				
3597_095K	PEMS				
3597-0726	PEMS				
2745-1190	PEMS				
3858-4862_1	PEMS				
3858-4862_2	PEMS				
3597-4734	PEMS				
3597-9706	PEMS				
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS				

p1	p1	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 5 Comments	PAMS Revisit 6 Date	PAMS Revisit 6 File Download (Y/N)	PAMS Revisit 6 Remaining Memory	PAMS Revisit 6 Comments	PAMS Revisit 7 Date
2535_9216	PAMS	Unable to download data file from Issac. Error generating ISA file. Was unable to obtain a calibration check of RPM as computer was					
3868_0304	PAMS						
3858_5754	PAMS	10/25/07 - Removed PAMS unit following data download.					
3858_1482	PAMS	Unable to download data. Error occurred during ISA file generation. 10/25/07 - Unable to remove data file from Issac. There was an error					
3854_9162	PAMS						
3597_095K	PAMS						
3858_1482	PEMS						
3858_1482_1	PEMS						
3858_5754	PEMS						
2523_0713	PEMS						
2523_6087	PEMS						
2523_0210	PEMS						
3597_095K	PEMS						
3597-0726	PEMS						
2745-1190	PEMS						
3858-4862_1	PEMS						
3858-4862_2	PEMS						
3597-4734	PEMS						
3597-9706	PEMS						
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS						

p1	p1	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 7 File Download (Y/N)	PAMS Revisit 7 Remaining Memory	PAMS Revisit 7 Comments	PAMS Revisit 8 Date	PAMS Revisit 8 File Download (Y/N)	PAMS Revisit 8 Remaining Memory	PAMS Revisit 8 Comments	PAMS Revisit 9 Date
2535_9216	PAMS								
3868_0304	PAMS								
3858_5754	PAMS								
3858_1482	PAMS								
3854_9162	PAMS								
3597_095K	PAMS								
3858_1482	PEMS								
3858_1482_1	PEMS								
3858_5754	PEMS								
2523_0713	PEMS								
2523_6087	PEMS								
2523_0210	PEMS								
3597_095K	PEMS								
3597-0726	PEMS								
2745-1190	PEMS								
3858-4862_1	PEMS								
3858-4862_2	PEMS								
3597-4734	PEMS								
3597-9706	PEMS								
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2
8542-1271	PAMS								

p1	p1	p10/11	p10/11	p10/11	p12	p12	p12	p12	p12
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals
Test ID	Test Type	PAMS Revisit 9 File Download (Y/N)	PAMS Revisit 9 Remaining Memory	PAMS Revisit 9 Comments	PAMS RPM Check 1 Date	Check 1 Pre- Cal "Conf" RPM	Check 1 Pre-Cal Sensor 1 Reading	Check 1 Pre-Cal Sensor 2 Reading	Check 1 Post- Cal "Conf" RPM
2535_9216	PAMS								
3868_0304	PAMS								
3858_5754	PAMS				9/29/2007				820
3858_1482	PAMS								
3854_9162	PAMS								
3597_095K	PAMS				10/9/2007				1312
3858_1482	PEMS								
3858_1482_1	PEMS								
3858_5754	PEMS								
2523_0713	PEMS								
2523_6087	PEMS								
2523_0210	PEMS								
3597_095K	PEMS								
3597-0726	PEMS								
2745-1190	PEMS								
3858-4862_1	PEMS								
3858-4862_2	PEMS								
3597-4734	PEMS								
3597-9706	PEMS								
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	
8542-1271	PAMS								

[illegible]

p1	p1	p12	p12	p12	p12	p12	p12
General	General	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals
Test ID	Test Type	Check 3 Pre-Cal "Conf" RPM	Check 3 Pre-Cal Sensor 1 Reading	Check 3 Pre-Cal Sensor 2 Reading	Check 3 Post-Cal "Conf" RPM	Check 3 Post-Cal Sensor 1 Reading	Check 3 Post-Cal Sensor 2 Reading
2535_9216	PAMS						
3868_0304	PAMS						
3858_5754	PAMS						
3858_1482	PAMS						
3854_9162	PAMS						
3597_095K	PAMS				2070	1263	2079
3858_1482	PEMS						
3858_1482_1	PEMS						
3858_5754	PEMS						
2523_0713	PEMS						
2523_6087	PEMS						
2523_0210	PEMS						
3597_095K	PEMS						
3597-0726	PEMS						
2745-1190	PEMS						
3858-4862_1	PEMS						
3858-4862_2	PEMS						
3597-4734	PEMS						
3597-9706	PEMS						
end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2	end of PSU 2			
8542-1271	PAMS						

p1	p1	p7	p1	p1	p1	p1	p1
General	General	PEMS	General	General	PEMS	General	General
Test ID	Test Type	PEMS Test Date	Establishment Number	Installation Date	PEMS Test Shift	Type of Equipment	Equipment Serial Number
8597-0194	PAMS		7008597	7/10/2008		Compact Track Loader	531840194
8555-2757	PAMS		7008555	7/7/2008		Compact skid steer loader	519032757
8597-1096	PAMS		7008597	7/9/2008		Compact Track Loader	531621096
0229-3781	PAMS		70010229	7/8/2008		Wheeled Excavator	6293781
0229-0045	PAMS		7010229	7/11/2008		Backhoe loader	T0410DG810045

p1	p1	p2	p2	p2	p2	p2	p2
General	General	General	General	General	General	General	General
Test ID	Test Type	Equipment Manufacturer	Equipment Model	Equipment Model Year	Equipment Plate Code	Equipment Comments	Engine Manufacturer
8597-0194	PAMS	Bobcat	T250	2008	Present and Legible	Equipment used year round, 12 months of the year.	Kubota
8555-2757	PAMS	Bobcat	S185 Turbo	2002	Present and Legible	Equipment used approximately 10 months out of the year.	Kubota
8597-1096	PAMS	Bobcat	T190	2008	Present and Legible	Equipment used year round, 12 mounths of the year.	Kubota
0229-3781	PAMS	Case	1085B	1985	Present and Legible	Equipment used year round, 12 months of the year. Transmission does not work, so equipment is stationary (secured by outriggers on railroad ties) - used for stationary trash compacting at establishment	Case
0229-0045	PAMS	John Deere	410D Turbo 4x4	1995	Present and Legible	Equipment used year round, 12 months of the year.	John Deere

p1	p1	p2	p2	p2	p2	p2	p2	p3	p3
General	General	General	General	General	General	General	General	General	General
Test ID	Test Type	Engine Model	Engine Model Year	Engine Serial Number	Engine Family	Engine Plate Code	Engine Comments	Hour-meter Function Code 1	Hour-meter Function Code 2
8597-0194	PAMS	V3300-01-T-ES02	2007	Not Available	7xBxL03.3AAD	Present and legible	ECS: EM listed on engine tag. Engine Serial # tag cannot be seen without exhaust system removal. Other info from engine model & family tag.	Original meter; read	Current reading p
8555-2757	PAMS	V2003-T-E	2003	02N0990	2KBXL02.0FAD	Present and legible		Original meter; read	Current reading p
8597-1096	PAMS	V2403-M-DI-T-ES016	2007	07Y2790	7KBXL02.4EAD	Present and legible	Engine Type - V2403-M-DI-T EU26 Engine Code 1G924-00000	Original meter; read	Current reading p
0229-3781	PAMS	6T-590		44139532	unk	Present and legible	Part #A172833	Original meter; read	Current reading p
0229-0045	PAMS	Unk	Unk	T04045T498485		Present and legible	Serial # tag also lists: 4045TT018.	Original meter; read	Current reading p

p1	p1	p3	p3	p3	p3	p3	p3	p3
General	General	General	General	General	General	General	General	General
Test ID	Test Type	Current Meter Read Date	Hour-meter Reading	Hour-meter Comments	Major Exhaust Leaks (Y/N)	Alternator Speed Signal Reliable (Y/N/Unk)	Modifications or Mal-Maintenance (Y/N)	General Equipment Comments
8597-0194	PAMS	7/10/2008	133.4	Oil filter indicates 49 hours on 4/3/08.	N	Unk	N	
8555-2757	PAMS	7/7/2008	1345.7	LCD - No comments.	N	Unk	N	Engine really clean.
8597-1096	PAMS	7/9/2008	95.4	Under 100 hours - Equipment purchased Spring 08 (approx 3 months of usage thus far).	N	Unk	N	
0229-3781	PAMS	7/8/2008	8828.0		N	Unk	N	
0229-0045	PAMS	7/11/2008	7287.2		N	Unk	N	

[illegible]

p1	p1	p4	p4	p4	p4	p4		p4
General	General	General	General	General	General	General	General	General
Test ID	Test Type	PT Method Code	Peak Speed (PS), RPM	PS Source Code	PS Method Code	Overall Engine Rating Comments	Turbo? (not collected in field)	Exhaust After-Treatment (Y/N)
8597-0194	PAMS					Engine power units of kilowatts, net/gross not specified.		N
8555-2757	PAMS					Engine power units of kilowatts, net/gross not specified.	Yes	N
8597-1096	PAMS					Engine power units of kilowatts, net/gross not specified.		N
0229-3781	PAMS					Engine Rating info not found - Turbocharged	Yes	N
0229-0045	PAMS					Engine Rating info not found - Turbocharged	Yes	N

p1	p1	p4		p4	p4	p5
General	General	General	General	General	General	General RPM Cal
Test ID	Test Type	After-Treatment Description	Unit Power (volts)	Tailpipe Outer Diameter #1 (inches)	Tailpipe Outer Diameter #2 (eliptical) (inches)	RPM Sensor 1
8597-0194	PAMS	None seen. Engine tag lists ECS:EM.		2.5		Optical
8555-2757	PAMS			1 7/8	2 1/4	Optical
8597-1096	PAMS	None that I can see. ECS:EM.SPL on engine tag.		2		Optical
0229-3781	PAMS			2.75		Optical
0229-0045	PAMS	None seen.		4.25	2.75	Optical

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[illegible]

[illegible]

[illegible]

[illegible]

p1	p1	p8	pg 7	pg 7	pg 7
General	General	PEMS	PEMS Filters	PEMS Filters	PEMS Filters
Test ID	Test Type	Other PEMS Installation Notes, Comments, Etc.	Date Engine was Last Operated	Time Engine was Last Operated	Hours Since Last Engine Operation (soak duration)
8597-0194	PAMS				
8555-2757	PAMS				
8597-1096	PAMS				
0229-3781	PAMS				
0229-0045	PAMS				

[illegible]

[illegible]

[illegible]

p1	p1	p7		p7	p7		p7	p9
General	General	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PAMS Install
Test ID	Test Type	Filter 9 Field ID	Filter 9 EPA ID	Filter 9 Holder Location	Filter 9 Test Type	Filter 9 Status	Other Gravimetric Filter Collection Notes and Comments	Date PAMS Installed
8597-0194	PAMS							7/10/2008
8555-2757	PAMS							7/7/2008
8597-1096	PAMS							7/9/2008
0229-3781	PAMS							7/8/2008
0229-0045	PAMS							7/11/2008

p1	p1	p9	p9	p9	p9	p9	p9
General	General	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install
Test ID	Test Type	Time PAMS Installed	Date PAMS Removed	Time PAMS Removed	Test Comments, install mods to reverse, after PAMS install	PAMS Mfr	PAMS Serial #
8597-0194	PAMS	7:00 AM	08/09/08	10:30 AM	Remove RPM splice connector below oil filter, remove switched power input above battery. Remove optical sensor.	Corsa	10243
8555-2757	PAMS	2:00 PM	08/07/08	1:00 PM	Open LHS engine connector, extract red wire & spade connector (push connector thru top). Reinsert plug (in cat master key bag in red cooler) - remove ground wire & monarch optical sensor wire. No post-test RPM calibration check performed.	Corsa	10242
8597-1096	PAMS	7:00 AM	08/09/08	10:05 AM	Unable to find viable switched power for startup (everything uses sealed connectors) - no modifications from OEM.	Isaac	SL07-2542 (2550)
0229-3781	PAMS	9:00 AM	08/08/08	1:00 PM	Remove magnet mount from bottom support strut under engine. Corsa wired to switch dead on rear of engine panel near battery switch. Remove red power cable going to Corsa.	Corsa	10246
0229-0045	PAMS	9:00 AM	08/08/08	1:00 PM	Remove black (hot) lead from fuel pump - remove wire harness. Remove optical sensor bracket, bolt holding bracket to be reinstalled in Deere. No post-test RPM calibration check performed.	Corsa	10250

[illegible]

p1	p1	p9	p13	p10/11	p10/11	p10/11
General	General	PAMS Install	PAMS Install	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	VI Acquisition Notes	PAMS Installation Comments	PAMS Revisit 1 Date	PAMS Revisit 1 File Download (Y/N)	PAMS Revisit 1 Remaining Memory
8597-0194	PAMS		<p>Corsa on switched power, with optical and harness tap for 2 RPM sources</p> <p>Date / Time have been set, acquisition frequency set to 1 Hz, engine idle speed = 1130 RPM</p>	7/25/2008	Y	971 Mb
8555-2757	PAMS		<p>Corsa timestamp is offset + 6 hours (minutes & seconds calibrated, but we could not correct the hours). At 8:00 PM Monday, Corsa indicated it was 2 AM Tuesday. All data from install date is from install operations, not actual usage. Engine idle speed is 1060 RPM.</p>	7/24/2008	Y	99%
8597-1096	PAMS		<p>We were unable to get the logger to start up / standby w/RPM, so we left it running continuously - approx 90 mA current draw. - Datalogger is powered to always be on and always logging.</p> <p>Post-test RPM calibration check attempted, but required datafile review to obtain RPM readings (not viewed from real-time screen). However, results could not be derived from datafile, as RPM jumped around from 0 to 20,000 RPM for the post-test calibration segment.</p>	7/25/2008	Y	90%
0229-3781	PAMS		<p>Date/time have been set to GMT. Engine idle speed is 775 RPM</p> <p>24V system, power transducer used</p>	7/24/2008	Y	975 Mb
0229-0045	PAMS		<p>We used black wire for PAMS hot (positive) lead, since we were out of red (stranded) wire.</p> <p>Ran Corsa on switch from fuel pump.</p> <p>Corsa on switched power, with optical sensor on bolted bracket</p>	7/24/2008	Y	99%

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 1 Comments	PAMS Revisit 2 Date	PAMS Revisit 2 File Download (Y/N)	PAMS Revisit 2 Remaining Memory
8597-0194	PAMS	Moved file into archive folder, copied and dlwnloaded. Data looked reasonable. Optical sensor & magnet mount looked good and secure.	8/9/2008	Y	
8555-2757	PAMS	Collected data looks good	8/4/2008	Y	99%
8597-1096	PAMS		8/9/2008	Y	
0229-3781	PAMS	File downloaded, install looks Ok	7/31/2008	Y	
0229-0045	PAMS	All looks good, data being recorded 1/2 hour before we performed check.	8/1/2008	Y	99%

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 2 Comments	PAMS Revisit 3 Date	PAMS Revisit 3 File Download (Y/N)	PAMS Revisit 3 Remaining Memory
8597-0194	PAMS	Data looks fine, unit removed			
8555-2757	PAMS	Collected data looks good.	8/7/2008	Y	99%
8597-1096	PAMS	RPM appears inconsistent. Optical reflective tape appears dirty (dusty), and optical sensor may be misaligned. RPM readings in Isaac datafile appear erratic. Post-test readings could not be obtained (via Isaac or by handheld tach). Post-test calibration check attempted at 10:05 am.			
0229-3781	PAMS	Fresh data as of last night. Timestamps may be off, noticed times of 7:00 - 9:00 PM, not consistent with what we know about how they operate.	8/8/2008	Y	
0229-0045	PAMS	Data last recorded previous day.	8/8/2008	Y	99%

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 3 Comments	PAMS Revisit 4 Date	PAMS Revisit 4 File Download (Y/N)	PAMS Revisit 4 Remaining Memory
8597-0194	PAMS				
8555-2757	PAMS	Collected data looks good. Removed unit. Date stamp is off (says 6:13 PM was last event). Removed datalogger at 1:00 PM.			
8597-1096	PAMS				
0229-3781	PAMS	Collected data and removed unit @ 1:00 PM. Data looked good.			
0229-0045	PAMS	Data last recorded in morning on 8/8. PAMS removed at 1:00 PM.			

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 4 Comments	PAMS Revisit 5 Date	PAMS Revisit 5 File Download (Y/N)	PAMS Revisit 5 Remaining Memory
8597-0194	PAMS				
8555-2757	PAMS				
8597-1096	PAMS				
0229-3781	PAMS				
0229-0045	PAMS				

p1	p1	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 5 Comments	PAMS Revisit 6 Date	PAMS Revisit 6 File Download (Y/N)	PAMS Revisit 6 Remaining Memory	PAMS Revisit 6 Comments	PAMS Revisit 7 Date
8597-0194	PAMS						
8555-2757	PAMS						
8597-1096	PAMS						
0229-3781	PAMS						
0229-0045	PAMS						

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p1	p1	p12	p12	p12	p12	p12	p12
General	General	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals
Test ID	Test Type	Check 3 Pre-Cal "Conf" RPM	Check 3 Pre-Cal Sensor 1 Reading	Check 3 Pre-Cal Sensor 2 Reading	Check 3 Post-Cal "Conf" RPM	Check 3 Post-Cal Sensor 1 Reading	Check 3 Post-Cal Sensor 2 Reading
8597-0194	PAMS						
8555-2757	PAMS						
8597-1096	PAMS						
0229-3781	PAMS						
0229-0045	PAMS						

p1	p1	p7	p1	p1	p1	p1	p1
General	General	PEMS	General	General	PEMS	General	General
Test ID	Test Type	PEMS Test Date	Establishment Number	Installation Date	PEMS Test Shift	Type of Equipment	Equipment Serial Number
0062-6976	PAMS		7010062	8/11/2008		Backhoe loader	T0310GX956976
0062-0934	PAMS		7010062	8/11/2008		Crawler Dozer	CAT00D4CP6BS00934
9429-7232	PAMS		7009429	8/12/2008		Backhoe loader	CAT0420ECHLS07232
9429-0323	PAMS		7009429	8/12/2008		Directinal Drill	CMWJ2020K600000323
9679-6459	PAMS		7009679	8/13/2008		Skid steer forklift	66459
0349-0567	PAMS		7010349	8/14/2008		Track Excavator	CAT0330DJMWP00567
8925-2466	PEMS	7/23/2008	7008925	7/22/2008		Track/Crawler Loader	2ZN02466

p1	p1	p2	p2	p2	p2	p2	p2
General	General	General	General	General	General	General	General
Test ID	Test Type	Equipment Manufacturer	Equipment Model	Equipment Model Year	Equipment Plate Code	Equipment Comments	Engine Manufacturer
0062-6976	PAMS	John Deere	310G	2006	Present and Legible	Equipment used 11-12 months/year, may take break during Dec / Jan Probably too recent to show up in equip spec, so model year not known	Deere
0062-0934	PAMS	Caterpillar	D4C	2001	Present and Legible	Equipment used 11-12 months/year, may take break during Dec / Jan	Caterpillar
9429-7232	PAMS	Caterpillar	420E	2008	Present and Legible	Equipment used year round, 12 months of the year.	Unk
9429-0323	PAMS	Ditch Witch	JT2020	2006	Present and Legible	Equipment used year round, 12 months of the year.	Cummins
9679-6459	PAMS	New Holland	LX665 Turbo	1998	Present and Legible	Equipment used year round, 12 months of the year.	Ishkawajima Machi
0349-0567	PAMS	Caterpillar	330D	2006	Present and Legible	Equipment used year round, 12 months of the year.	Caterpillar
8925-2466	PEMS	Caterpillar	953C	1999	Present and	Operator states the equipment is	Caterpillar

p1	p1	p2	p2	p2	p2	p2	p2	p3	p3
General	General	General	General	General	General	General	General	General	General
Test ID	Test Type	Engine Model	Engine Model Year	Engine Serial Number	Engine Family	Engine Plate Code	Engine Comments	Hour-meter Function Code 1	Hour-meter Function Code 2
0062-6976	PAMS	4045TT088	2006	PE4045T567248	6JDXL04.5062	Present and legible		Original meter; re	Current reading p
0062-0934	PAMS	3046	Unk	5XK29638		Present and le	Engine arrangement 1498746	Original meter; re	Current reading p
9429-7232	PAMS			G4D25393		Cannot locate	Engine arrangement 3208414. Engine serial # and arrangement # taken from equip plate, we were unable to locate engine tag due to compact engine compartment.	Original meter; re	Current reading p
9429-0323	PAMS	B 3.3	2006	68052491	6CEXL03.3ABB	Present and legible		Original meter; re	Current reading p
9679-6459	PAMS	N844T	1995	68205	WH3XL1995N4T	Present and legible		Original meter; re	Current reading p
0349-0567	PAMS	C9	2006	THX03340	6CPXL08.8ESK	Present and legible		Original meter; re	Current reading p
8925-2466	PEMS	3116	1999	4TF50828		Present but sp	Specs legible except for	Original meter; re	Current reading p

p1	p1	p3	p3	p3	p3	p3	p3	p3
General	General	General	General	General	General	General	General	General
Test ID	Test Type	Current Meter Read Date	Hour-meter Reading	Hour-meter Comments	Major Exhaust Leaks (Y/N)	Alternator Speed Signal Reliable (Y/N/Unk)	Modifications or Mal-Maintenance (Y/N)	General Equipment Comments
0062-6976	PAMS	08/11/08	1,335.0		N	Unk	N	
0062-0934	PAMS	08/11/08	3,573.0		N	Unk	N	
9429-7232	PAMS	08/12/08	47.0		N	Unk	N	
9429-0323	PAMS	08/12/08	771.0		N	Unk	N	
9679-6459	PAMS	08/13/08	2,681.5		N	Unk	N	
0349-0567	PAMS	08/14/08	1,179.0		N	Unk	N	
8925-2466	PEMS	7/22/2008	6,459.0		Y	Unk	N	Large (~1-2 in ²) hole in muffler, large

p1	p1	p4	p4		p4	p4	p4	p4	p4	p4	p4	p4
General	General	General	General		General	General	General	General	General	General	General	General
Test ID	Test Type	Rated Power (RP)	RP Units Code	RP Units Rating (gross/net/unknown)	RP Source Code	RP Method Code	Rated Speed (RS), RPM	RS Source Code	RS Method Code	Peak Torque (PT)	PT Units Code	PT Source Code
0062-6976	PAMS	63	kilowatts	net	Engine plate		2200	Engine plate				
0062-0934	PAMS	87	Horsepower	gross	Engine plate							
9429-7232	PAMS	89	Horsepower	Net	Reference source	NETT SAE						
9429-0323	PAMS	85	Horsepower	gross	Engine plate							
9679-6459	PAMS	52	Horsepower	Unk	Engine plate	Unknown	2900	Engine plate				
0349-0567	PAMS	480	Horsepower	Unk	Engine plate	Unknown	2200	Engine plate	Unknown			
8925-2466	PEMS	170	Horsepower	Unk	Engine plate	Unknown	2600	Engine plate	Unknown			

p1	p1	p4	p4	p4	p4	p4		p4
General	General	General	General	General	General	General	General	General
Test ID	Test Type	PT Method Code	Peak Speed (PS), RPM	PS Source Code	PS Method Code	Overall Engine Rating Comments	Turbo? (not collected in field)	Exhaust After-Treatment (Y/N)
0062-6976	PAMS							N
0062-0934	PAMS							N
9429-7232	PAMS							N
9429-0323	PAMS							N
9679-6459	PAMS					Engine power units of horsepower, net/gross not specified.	Yes	N
0349-0567	PAMS					Engine power units of horsepower, net/gross not specified.		N
8925-2466	PEMS					units of hp (net or gross not	Unk	N

p1	p1	p4		p4	p4	p5
General	General	General	General	General	General	General RPM Cal
Test ID	Test Type	After-Treatment Description	Unit Power (volts)	Tailpipe Outer Diameter #1 (inches)	Tailpipe Outer Diameter #2 (eliptical) (inches)	RPM Sensor 1
0062-6976	PAMS		12	3"	4"	Optical
0062-0934	PAMS		12	5"	6"	Optical
9429-7232	PAMS		12	2"	3"	Optical
9429-0323	PAMS		12	4"	3"	Optical
9679-6459	PAMS		12	2"		Optical
0349-0567	PAMS		24	5"	8"	Optical
8925-2466	PEMS	Engine tag indictes exhaust ECS codes are:		3.5"		Optical

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	RPM Sensor 2	RPM Confirmation Method	Pre-Cal Idle Confirmation RPM	Pre-Cal Idle Measured Sensor 1	Calibration Scaling Factor (CFS), Sensor 1	Pre-Cal Idle Measured Sensor 2	CFS Sensor 2	Pre-test Idle Confirmation RPM
0062-6976	PAMS		Onboard Tach	~930	930	1			930
0062-0934	PAMS		Hand Held Tach	770	772	0.0166			770
9429-7232	PAMS		Hand Held Tach (pre-test), analog onboard (post-test)	956	955	0.0166			956
9429-0323	PAMS		Hand Held Tach	1327	1663	1.2532			1217
9679-6459	PAMS		Onboard Tach	900/1580	980/1730	1.09			930
0349-0567	PAMS		Onboard Tach	807	806	0.0166			807
8925-2466	PEMS	CAT ET	CAT ET		N/A		N/A		858

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	Pre-test Idle Measured Sensor 1	Pre-test Idle Measured Sensor 2	Pre-test Idle Exh rate (Kg/hr)	Pre-test Mid- range Cofirmation RPM	Pre-test Mid- range Measured Sensor 1	Pre-test Mid- range Measured Sensor 2	Pre-test Mid- range Exh rate (Kg/hr)	Pre-test High Confirmation RPM
0062-6976	PAMS	928			1310	1305			2010
0062-0934	PAMS	773			1358	1363			1748
9429-7232	PAMS	955			1517	1523			2084
9429-0323	PAMS	1210			1646	1643			2215
9679-6459	PAMS	933			1370	1374			2340
0349-0567	PAMS	806			1300	1306			1800
8925-2466	PEMS	1714	858	175	1305	2610	1305	291	2292

p1	p1	p5	p5	p5	p5	p5	p5	p5	p5
General	General	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal	General RPM Cal
Test ID	Test Type	Pre-test High Measured Sensor 1	Pre-test High Measured Sensor 2	Pre-test high-range Exh rate (Kg/hr)	Post-test Idle Cofirmation RPM	Post-test Idle Measured Sensor 1	Post-test Idle Measured Sensor 2	Post-test Idle Exh rate (Kg/hr)	Post-test Mid-range Cofirmation RPM
0062-6976	PAMS	2003			970	974			1300
0062-0934	PAMS	1752							1078
9429-7232	PAMS	2092			1100	1084			1500
9429-0323	PAMS	2186			873	884			
9679-6459	PAMS	2334			930	940			1730
0349-0567	PAMS	1804							
8925-2466	PEMS	4570	2292	608					

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p1	p1	p6			p6	p6	p6	p6	p6
General	General	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS
Test ID	Test Type	Date PEMS Tested	Date PEMS Removed	Time PEMS Removed	Independent Ambient Temp Msmnt at start	Ambient Temp Msmnt units	Independent Humidity Msmnt at start	Independent Humidity Msmnt units	PEMS Installation Comments
0062-6976	PAMS								
0062-0934	PAMS								
9429-7232	PAMS								
9429-0323	PAMS								
9679-6459	PAMS								
0349-0567	PAMS								
8925-2466	PEMS	7/23/2008			80.2	F	59%	RH	Sensors was not able to scale optical

p1	p1	p6	p6	p6	p6	p6	p6	p6	p6	p6
General	General	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS	PEMS
Test ID	Test Type	PEMS SEMTECH ID	PEMS MPS ID	PEMS Flowmeter ID	PEMS Flowmeter (FM) Box ID	Silicon Hose Dia (inches)	Silicon Hose Length (inches)	VI Compliance	VI Connector Description	VI Acquisition Notes
0062-6976	PAMS									
0062-0934	PAMS									
9429-7232	PAMS									
9429-0323	PAMS									
9679-6459	PAMS									
0349-0567	PAMS									
8925-2466	PEMS					4"	6'	J1939	Cat 9-pin	

p1	p1	p8	pg 7	pg 7	pg 7
General	General	PEMS	PEMS Filters	PEMS Filters	PEMS Filters
Test ID	Test Type	Other PEMS Installation Notes, Comments, Etc.	Date Engine was Last Operated	Time Engine was Last Operated	Hours Since Last Engine Operation (soak duration)
0062-6976	PAMS				
0062-0934	PAMS				
9429-7232	PAMS				
9429-0323	PAMS				
9679-6459	PAMS				
0349-0567	PAMS				
8925-2466	PEMS	Segment 1 time period: 7:29-8:30, Segment 2 time period: 12:20-1:20	7/22/2008	8:30 PM	11 hours

p1	p1	p7		p7	p7		p7		p7	p7	
General	General	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters
Test ID	Test Type	Filter 1 Field ID	Filter 1 EPA ID	Filter 1 Holder Location	Filter 1 Test Type	Filter 1 Status	Filter 2 Field ID	Filter 2 EPA ID	Filter 2 Holder Location	Filter 2 Test Type	Filter 2 Status
0062-6976	PAMS										
0062-0934	PAMS										
9429-7232	PAMS										
9429-0323	PAMS										
9679-6459	PAMS										
0349-0567	PAMS										
8925-2466	PEMS	8004430		1	CS		8004431		2	WO	

p1	p1	p7		p7	p7		p7		p7	p7	
General	General	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters
Test ID	Test Type	Filter 3 Field ID	Filter 3 EPA ID	Filter 3 Holder Location	Filter 3 Test Type	Filter 3 Status	Filter 4 Field ID	Filter 4 EPA ID	Filter 4 Holder Location	Filter 4 Test Type	Filter 4 Status
0062-6976	PAMS										
0062-0934	PAMS										
9429-7232	PAMS										
9429-0323	PAMS										
9679-6459	PAMS										
0349-0567	PAMS										
8925-2466	PEMS	8004432		3	WO	Void	8004433		1	HS	

p1	p1	p7		p7	p7		p7		p7	p7	
General	General	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters
Test ID	Test Type	Filter 5 Field ID	Filter 5 EPA ID	Filter 5 Holder Location	Filter 5 Test Type	Filter 5 Status	Filter 6 Field ID	Filter 6 EPA ID	Filter 6 Holder Location	Filter 6 Test Type	Filter 6 Status
0062-6976	PAMS										
0062-0934	PAMS										
9429-7232	PAMS										
9429-0323	PAMS										
9679-6459	PAMS										
0349-0567	PAMS										
8925-2466	PEMS	8004434		2	WO		8004435		3	WO	

[illegible]

p1	p1	p7		p7	p7		p7	p9
General	General	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PAMS Install
Test ID	Test Type	Filter 9 Field ID	Filter 9 EPA ID	Filter 9 Holder Location	Filter 9 Test Type	Filter 9 Status	Other Gravimetric Filter Collection Notes and Comments	Date PAMS Installed
0062-6976	PAMS							08/11/08
0062-0934	PAMS							08/11/08
9429-7232	PAMS							08/12/08
9429-0323	PAMS							08/12/08
9679-6459	PAMS							08/13/08
0349-0567	PAMS							08/14/08
8925-2466	PEMS						Filters swapped at 11:30.	

p1	p1	p9	p9	p9	p9	p9	p9
General	General	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install
Test ID	Test Type	Time PAMS Installed	Date PAMS Removed	Time PAMS Removed	Test Comments, install mods to reverse, after PAMS install	PAMS Mfr	PAMS Serial #
0062-6976	PAMS	5:00 PM	09/16/08	11:00 AM	Isaac is located in battery box on left side of machine just in front of the cab. The dongle is located under this hatch near the front edge. The tray must be removed (3 bolts) to remove the Isaac, but not to download data. The optical sensor is connected to the fan cage and points to the water pump/fan pulley. Switched power is taken from the master solenoid in the fuse box. This is located above the steering wheel console (2 screws). Ground is taken from the battery post.	Isaac	SL07-2211 (2170)
0062-0934	PAMS	12:00 PM	09/16/08	12:00 PM	Optical sensor is on magnetic base on right side of engine. Power is taken from key tumbler behind dash. Need Torx T45 to remove dash. Ground is taken from fan shroud cage. The corsa can be accessed from the top hatch of the engine compartment.	Corsa	10243
9429-7232	PAMS	1:00 PM	09/16/08	5:30 PM	Corsa unit is located in battery box on right side of machine. Switched power is taken from fuse box inside cab near the right side door. The corsa fuse is also located in here. Optical sensor is magnet mounted underneath engine. Note that USB antenna has been removed to prevent accidental triggering of Quarry explosives. On revisits, leave Corsa antenna off of unit. This equip is used in quarries that require all equip to not have any communications devices in order to prevent accidental triggering of explosives. Also, check that optical is still aligned on revisit.	Corsa	10250
9429-0323	PAMS	5:00 PM	09/18/08	12:30 PM	Isaac is located in rear (hydraulic) compartment. Switched power is taken from key tumbler (also in this compartment). Optical sensor is mounted on fan grill.	Isaac	SL07-2543 (2551)
9679-6459	PAMS	4:00 PM	09/17/08	4:00 PM	Unit is located inside engine compartment. Switched power is taken from fuse inside engine compartment. Optical is on magnetic base.	Isaac	SL07-2213 (2549)
0349-0567	PAMS	1:00 PM	09/16/08	7:00 PM	Optical sensor is mounted underneath engine and is accessed from panel under the engine compartment. Corsa is mounted in battery compartment on left side of machine. Switched power is taken from fuse box inside cab, behind seat on left side of the machine. A Torx bit is needed to remove the panel holding the spade connector.	Corsa	10246
8925-2466	PEMS						

p1	p1		p9	p9	p9	p9	p9	p9	p9
General	General	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install
Test ID	Test Type	Datalogger ID	PAMS Auto Shutdown criteria	Auto shutdown "Other" description	Voltage/RPM Set Limit (if used)	Auto Shutdown Confirm Details	Standby Current Drain (mA)	VI Compliance	VI Connector Description
0062-6976	PAMS		Switched dead			Power off	NA		
0062-0934	PAMS		Switched dead			Power off	NA		
9429-7232	PAMS		Switched dead			Power off	NA		
9429-0323	PAMS		Switched dead			Power off	NA		
9679-6459	PAMS		Switched dead			Power off	NA		
0349-0567	PAMS		Switched dead			Power off	NA		
8925-2466	PEMS								

p1	p1	p9	p13	p10/11	p10/11	p10/11
General	General	PAMS Install	PAMS Install	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	VI Acquisition Notes	PAMS Installation Comments	PAMS Revisit 1 Date	PAMS Revisit 1 File Download (Y/N)	PAMS Revisit 1 Remaining Memory
0062-6976	PAMS		Engine idle is approx 930 RPM. Isaac is on switched power, taken from the master solenoid inside the fuse compartment above the steering wheel console.	9/16/2008	Y	
0062-0934	PAMS		Engine idle is approx 760 RPM. Corsa on switched power from key tumbler behind dash. Optical sensor is on magnetic base.	9/16/2008	Y	965 Mb
9429-7232	PAMS		Engine idle is approx 950 RPM. Corsa is on switched power, taken from fuse compartment inside cab.	8/22/2008	Y	975 Mb
9429-0323	PAMS		Engine idle is approx 1100 RPM. Isaac is run on switched power , taken from key tumbler in this compartment.	8/22/2008	Y	
9679-6459	PAMS		Engine idle is approx 930 RPM. Isaac is run on switched power taken from fuse panel in engine compartment.	8/22/2008	Y	
0349-0567	PAMS		Engine idle is approx 800 RPM. No data collected for post-test RPM calibration check. Corsa is run on switched power taken from the fuse panel inside of the cab	9/16/2008	Y	973 Mb
8925-2466	PEMS					

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 1 Comments	PAMS Revisit 2 Date	PAMS Revisit 2 File Download (Y/N)	PAMS Revisit 2 Remaining Memory
0062-6976	PAMS	PAMS removed, everything appeared OK.			
0062-0934	PAMS	Unit pinged successfully and file was downloaded. RPM was intermittent during post test cal until sensor was wiped off. Then, it worked correctly. Unit removed.			
9429-7232	PAMS	1:30 PM visit, data current as of 9:30 AM today. Everything looks OK.	9/16/2008	Y	973 Mb
9429-0323	PAMS	2:00 PM visit, everything checks out OK	9/18/2008	Y	
9679-6459	PAMS	.raw file downloaded. Software returned errors when we attempted to process raw to ISA file. Reset datalogger. Then, we were not obtaining an RPM reading, so replaced optical sensor. Unit now seems to function OK. 9/24: MS sent *.raw from 8/13 - 8/22 to Isaac for repair / processing. File has been corrected and processed.	9/17/2008	Y	
0349-0567	PAMS	Data downloaded. Unit was not powering on due to connection problems in fuse panel. However, there was data in the file. Adjusting the power cable allowed the Corsa to power on. Unit removed.			
8925-2466	PEMS				

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 2 Comments	PAMS Revisit 3 Date	PAMS Revisit 3 File Download (Y/N)	PAMS Revisit 3 Remaining Memory
0062-6976	PAMS				
0062-0934	PAMS				
9429-7232	PAMS	Datalogger removed.			
9429-0323	PAMS	File downloaded at PAMS removal. Everything appears OK.			
9679-6459	PAMS	File downloaded at PAMS removal. Everything appeared ok.			
0349-0567	PAMS				
8925-2466	PEMS				

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 3 Comments	PAMS Revisit 4 Date	PAMS Revisit 4 File Download (Y/N)	PAMS Revisit 4 Remaining Memory
0062-6976	PAMS				
0062-0934	PAMS				
9429-7232	PAMS				
9429-0323	PAMS				
9679-6459	PAMS				
0349-0567	PAMS				
8925-2466	PEMS				

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 4 Comments	PAMS Revisit 5 Date	PAMS Revisit 5 File Download (Y/N)	PAMS Revisit 5 Remaining Memory
0062-6976	PAMS				
0062-0934	PAMS				
9429-7232	PAMS				
9429-0323	PAMS				
9679-6459	PAMS				
0349-0567	PAMS				
8925-2466	PEMS				

p1	p1	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 5 Comments	PAMS Revisit 6 Date	PAMS Revisit 6 File Download (Y/N)	PAMS Revisit 6 Remaining Memory	PAMS Revisit 6 Comments	PAMS Revisit 7 Date
0062-6976	PAMS						
0062-0934	PAMS						
9429-7232	PAMS						
9429-0323	PAMS						
9679-6459	PAMS						
0349-0567	PAMS						
8925-2466	PEMS						

p1	p1	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 7 File Download (Y/N)	PAMS Revisit 7 Remaining Memory	PAMS Revisit 7 Comments	PAMS Revisit 8 Date	PAMS Revisit 8 File Download (Y/N)	PAMS Revisit 8 Remaining Memory	PAMS Revisit 8 Comments	PAMS Revisit 9 Date
0062-6976	PAMS								
0062-0934	PAMS								
9429-7232	PAMS								
9429-0323	PAMS								
9679-6459	PAMS								
0349-0567	PAMS								
8925-2466	PEMS								

p1	p1	p10/11	p10/11	p10/11	p12	p12	p12	p12	p12
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals
Test ID	Test Type	PAMS Revisit 9 File Download (Y/N)	PAMS Revisit 9 Remaining Memory	PAMS Revisit 9 Comments	PAMS RPM Check 1 Date	Check 1 Pre- Cal "Conf" RPM	Check 1 Pre-Cal Sensor 1 Reading	Check 1 Pre-Cal Sensor 2 Reading	Check 1 Post- Cal "Conf" RPM
0062-6976	PAMS								
0062-0934	PAMS								
9429-7232	PAMS								
9429-0323	PAMS								
9679-6459	PAMS								
0349-0567	PAMS								
8925-2466	PEMS								

[illegible]

p1	p1	p12	p12	p12	p12	p12	p12
General	General	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals
Test ID	Test Type	Check 3 Pre-Cal "Conf" RPM	Check 3 Pre-Cal Sensor 1 Reading	Check 3 Pre-Cal Sensor 2 Reading	Check 3 Post-Cal "Conf" RPM	Check 3 Post-Cal Sensor 1 Reading	Check 3 Post-Cal Sensor 2 Reading
0062-6976	PAMS						
0062-0934	PAMS						
9429-7232	PAMS						
9429-0323	PAMS						
9679-6459	PAMS						
0349-0567	PAMS						
8925-2466	PEMS						

p1	p1	p7	p1	p1	p1	p1	p1
General	General	PEMS	General	General	PEMS	General	General
Test ID	Test Type	PEMS Test Date	Establishment Number	Installation Date	PEMS Test Shift	Type of Equipment	Equipment Serial Number
9960-6086	PEMS	8/5/2008	7009960	8/4/2008		Articulated Loader	A76086
0229-3781	PEMS	7/31/2008	70010229	7/31/2008		Wheeled Excavator	6293781
0229-0045	PEMS	8/1/2008	7010229	8/1/2008		Backhoe loader	T0410DG810045
9960-5674	PEMS	8/6/2008	7009960	8/5/2008		Track Excavator	A85674
8391-3333	PEMS	8/12/2008	7008391	8/11/2008		Track Excavator	FF450DX913333
8391-3333	PEMS	8/13/2008	7008391	8/12/2008		Track Excavator	FF450DX913333
8418-0097	PEMS	8/18/2008	7008418	8/17/2008		Track/Crawler Loader	9BL0097
8418-0097	PEMS	8/19/2008	7008418	8/18/2008		Track/Crawler Loader	9BL0097
8418-0377	PEMS	8/22/2008	7008418	8/21/2008		Track/Crawler Loader	21Z00377
8418-0961	PEMS	8/25/2008	7008418	8/24/2008		Track Excavator	A80961
8418-0377	PEMS	8/26/2008	7008418	8/25/2008		Track/Crawler Loader	21Z00377
0349-1836	PEMS	9/22/2008	7010349	9/22/2008		Track/Crawler Loader	20Z01836
0349-2422	PEMS	9/23/2008	7010349	9/23/2008		Track Excavator	3MR02422
9272-3481	PEMS	9/29/2008	7009272	9/29/2008		Track Excavator	A83481
9272-2494	PEMS	10/1/2009	7009272	9/30/2008		Track/Crawler Loader	9BL02494
9272-2494	PEMS	10/2/2008	7009272	10/1/2008		Track/Crawler Loader	9BL02494
9272-0853	PEMS	10/6/2008	7009272	10/5/2008		Track Excavator	A70853
0062-0748	PEMS	10/8/2008	7010062	10/8/2008	Day	Backhoe loader	T0310JX140748
0062-6092	PEMS	10/10/2008	7010062	10/9/2008		Backhoe loader	T0310GX956092

p1	p1	p2	p2	p2	p2	p2	p2
General	General	General	General	General	General	General	General
Test ID	Test Type	Equipment Manufacturer	Equipment Model	Equipment Model Year	Equipment Plate Code	Equipment Comments	Engine Manufacturer
9960-6086	PEMS	Komatsu	WA180-1	Unk	Present and	No specifications listed on the	Komatsu Dresser
0229-3781	PEMS	Case	1085 B	1985	Present and	Transmission is shot, excavator	Case
0229-0045	PEMS	John Deere	410D Turbo 4x4	1995	Present and	Model year was told to us by	John Deere
9960-5674	PEMS	Komatsu	PC300LC-7L	Unk	Present and		Komatsu
8391-3333	PEMS	John Deere	450D LC	Unk	Present and Legible	equipment is used all 12 months of the year	Isuzu
8391-3333	PEMS	John Deere	450D LC	Unk	Present and	Site contact indicated this	Isuzu
8418-0097	PEMS	Caterpillar	963 C	1995	Present and		
8418-0097	PEMS	Caterpillar	963 C	1995	Present and		
8418-0377	PEMS	Caterpillar	963	1985	Present and	Equipment serial # originally	
8418-0961	PEMS	Komatsu	PC300LC-6LC		Present and Legible		
8418-0377	PEMS	Caterpillar	963	1985	Present and		
0349-1836	PEMS	Caterpillar	953	1988	Present and	Equipment used year round, 12	Caterpillar
0349-2422	PEMS	Caterpillar	320B	1997	Present and	Hydraulic leak.	Caterpillar
9272-3481	PEMS	Komatsu	PL400LC	2000	Present and	Equipment used the entire year	Komatsu
9272-2494	PEMS	Caterpillar	963B	1998	Present and	Equipment used the entire year	Caterpillar
9272-2494	PEMS	Caterpillar	963B	1998	Present and	Equipment used the entire year	Caterpillar
9272-0853	PEMS	Komatsu	PC400LC-5L	1993	Present and	Equipment used the entire year	
0062-0748	PEMS	John Deere	310J	Unk	Present and Legible	Equipment used 12 months out of year	John Deere
0062-6092	PEMS	John Deere	310G	2006	Present and Legible	Equipment used 12 months out of year	John Deere

[illegible]

p1	p1	p3	p3	p3	p3	p3	p3	p3
General	General	General	General	General	General	General	General	General
Test ID	Test Type	Current Meter Read Date	Hour-meter Reading	Hour-meter Comments	Major Exhaust Leaks (Y/N)	Alternator Speed Signal Reliable (Y/N/Unk)	Modifications or Mal-Maintenance (Y/N)	General Equipment Comments
9960-6086	PEMS	8/4/2008	6,106.4	Two meters, one is	N	Unk	N	
0229-3781	PEMS	7/31/2008	8,832.4		N	Unk	N	
0229-0045	PEMS	8/1/2008	7,297.1		N	Unk	N	
9960-5674	PEMS	8/6/2008	4,795.0		N	Unk	N	
8391-3333	PEMS	8/11/2008	2,059.6		N	Unk	N	
8391-3333	PEMS	8/12/2008	2,069.9		N	Unk	N	
8418-0097	PEMS	8/17/2008	10,342.0		N	Unk	N	
8418-0097	PEMS	8/18/2008	10,352.2		N	Unk	N	
8418-0377	PEMS	8/21/2008	15,500.0		N	Unk	N	
8418-0961	PEMS	8/25/2008	15,735.0	Hardwritten on back of chassis: 5-22-08 15463	N	Unk	N	
8418-0377	PEMS	8/25/2008	15,510.0		N	Unk	N	
0349-1836	PEMS	09/22/08	4,069.5		N	Unk		
0349-2422	PEMS	09/23/08	6,374.9		N	Unk		
9272-3481	PEMS	09/29/08	10,459.8		N	Unk	N	
9272-2494	PEMS	09/30/08	5,499.5		N	Unk	N	
9272-2494	PEMS	10/01/08	5,509.5		N	Unk	N	
9272-0853	PEMS	10/05/08	3,184.3	Hour meter only reports 4	N	Unk	N	
0062-0748	PEMS	10/08/08	852.0		N	Unk	N	w/Turbocharger
0062-6092	PEMS	10/09/08	1,934.7		N	Unk	N	

[illegible]

p1	p1	p4	p4	p4	p4	p4		p4
General	General	General	General	General	General	General	General	General
Test ID	Test Type	PT Method Code	Peak Speed (PS), RPM	PS Source Code	PS Method Code	Overall Engine Rating Comments	Turbo? (not collected in field)	Exhaust After-Treatment (Y/N)
9960-6086	PEMS					units of hp (net or gross not	Yes	N
0229-3781	PEMS					Engine tag located, but above	Yes	N
0229-0045	PEMS					Engine Rating info not found -	Yes	N
9960-5674	PEMS						Yes	
8391-3333	PEMS					204.9 mm ³ /st Turbocharged	Yes	Y
8391-3333	PEMS					Engine tag indicates: Fuel Rate =	Yes	Y
8418-0097	PEMS						Unk	N
8418-0097	PEMS						Unk	N
8418-0377	PEMS						Unk	N
8418-0961	PEMS					Engine info unknown, engine tag not located.	Yes	N
8418-0377	PEMS					Unknown, engine tag not located.	Unk	N
0349-1836	PEMS					Engine tag not located. Engine model	Unk	N
0349-2422	PEMS					Engine power is hp, unknown if gross	Unk	N
9272-3481	PEMS					Units are hp, unknown if gross or net	Yes	N
9272-2494	PEMS						Unk	N
9272-2494	PEMS						Unk	N
9272-0853	PEMS						Unk	N
0062-0748	PEMS					Units are kW, gross/net not specified. Engine tag also indicates the following: 69 kW @ 2300 RPM FEL 0.37 g/KW-hr PM, 6.8 g/KW-hr NOx + NMHC	Yes	N
0062-6092	PEMS					Units are kW, gross/net not specified. Engine tag also indicates the following: FEL 0.37 g/KW-hr PM, 6.8 g/KW-hr NOx + NMHC	Unk	N

p1	p1	p4		p4	p4	p5
General	General	General	General	General	General	General RPM Cal
Test ID	Test Type	After-Treatment Description	Unit Power (volts)	Tailpipe Outer Diameter #1 (inches)	Tailpipe Outer Diameter #2 (eliptical) (inches)	RPM Sensor 1
9960-6086	PEMS			3"		Optical
0229-3781	PEMS			2-3/4"		Optical
0229-0045	PEMS	None seen.		3		Optical
9960-5674	PEMS			4	0	Optical
8391-3333	PEMS	Exhaust Emiss Cntrl Sys ECM, TC, CAC, DFI, EGR		5		Optical
8391-3333	PEMS	Per engine tag:		5		Optical
8418-0097	PEMS			4"		Optical
8418-0097	PEMS			4"		Optical
8418-0377	PEMS					Optical
8418-0961	PEMS			3.5"		Optical
8418-0377	PEMS			3.5"		Optical
0349-1836	PEMS			3-1/8"		Optical
0349-2422	PEMS			3.5"		Optical
9272-3481	PEMS			3.5		Optical
9272-2494	PEMS					Optical
9272-2494	PEMS					Optical
9272-0853	PEMS					Optical
0062-0748	PEMS			2-1/4"		Optical
0062-6092	PEMS	None seen		2-1/4"		Optical

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p1	p1	p8	pg 7	pg 7	pg 7
General	General	PEMS	PEMS Filters	PEMS Filters	PEMS Filters
Test ID	Test Type	Other PEMS Installation Notes, Comments, Etc.	Date Engine was Last Operated	Time Engine was Last Operated	Hours Since Last Engine Operation (soak duration)
9960-6086	PEMS	We used a 4" Silicon hose w/3x4 reducer off of tailpipe.			
0229-3781	PEMS	Segment 1 time period: 12:23 PM	7/30/2008	3:30 PM	21 hours
0229-0045	PEMS	Segment 1 time period: 11:36 - 12:45 pm	7/31/2008	2:30 PM	
9960-5674	PEMS	exhaust had three 90 degree elbows over the 10 foot span			
8391-3333	PEMS		8/11/2008	11:30 PM (see notes)	8 hours
8391-3333	PEMS		8/12/2008	9:00 PM	11 hours
8418-0097	PEMS		8/15/2008	Unknown	>24 hrs
8418-0097	PEMS	Segment 1 time period: 7:35 - 7:45	8/18/2008	5:30	14 hrs.
8418-0377	PEMS	Segment 1 time period: 7:16 am Not able to collect oil sample. Tried different pumps/tubes to no avail.	8/21/2008		
8418-0961	PEMS	Cold start @ 6:42 AM	8/24/2008	Approx 4:00 PM 8/24/08	14.5 hrs
8418-0377	PEMS	No key available, so pre-test RPM cal not conducted, post-test RPM check data available	8/25/2008		
0349-1836	PEMS	Shortly after test start, lost communication and had to reboot SEMTECH.	9/22/2008	Approx. 6:00 PM	
0349-2422	PEMS	Segment 1 time period: 3:00 pm - 4:45 pm.	9/23/2008	6:15 PM	~21 hours
9272-3481	PEMS	Segment 1 time period: 7:11 - 7:21.	9/29/2008	10:00 PM	9 hrs
9272-2494	PEMS	Segment 1 time period: 7:00 - 7:09.	9/30/2008	9:00 PM	10 hrs
9272-2494	PEMS	Segment 1 time period: 7:06 - 7:16.	10/1/2008	7:00 PM	12 hrs
9272-0853	PEMS	Segment 1 time period: 7:39 - 7:49.			
0062-0748	PEMS	7:15 - 7:25 Initial test session, ignore, per Chris Darby Segment 1 time period: 7:28 am start - 11:40 am Segment 2 time period: ~12:13 pm start - 3 or 4 pm Started @ 7:28 am, idle until 7:48 am. Replaced filters @ ~9:25 am & 11:50 am. Could not do post-test rpm check because equip burst hydraulic hose & could not be run. No steel union fit exhaust outlet, so silicon (white) boot used, all else was steel.	10/8/2008	9:00 pm (2100)	10.5 hours
0062-6092	PEMS	Segment 1 time period: 7:30 - 9:00 We were not able to get AMBI NDIR bench to function day before or morning of test No RPM cal, CO, CO2, O2. NDIR became functional after reboot @ 9:00 am day of test. No NDIR (or RPM) for 1st 3 filters NDIR calibrated @ 11:00 Test in afternoon (w/final 3 filters) has complete data (HC, CO, CO2, NOx, O2, RPM, flows, etc.)	10/9/2008	16:00	15.5

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p1	p1	p7		p7	p7		p7	p9
General	General	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PEMS Filters	PAMS Install
Test ID	Test Type	Filter 9 Field ID	Filter 9 EPA ID	Filter 9 Holder Location	Filter 9 Test Type	Filter 9 Status	Other Gravimetric Filter Collection Notes and Comments	Date PAMS Installed
9960-6086	PEMS						Filter 1 blank/empty for second run. Not enough filters.	
0229-3781	PEMS							
0229-0045	PEMS							
9960-5674	PEMS							
8391-3333	PEMS						Equipment was being performed on equip (80000042) in AM, so mechanic started excavator two times before we began sampling (approx 2 to 3 minutes total run time prior to Equip started once briefly (by operator) early am, then sat	
8391-3333	PEMS						8001550 did not collect sample and will be used as a	
8418-0097	PEMS						Filter 1, 7:35 - 7:45; Filter 2, 7:45 - 8:05; Filter 3; 8:05 - 8:35	
8418-0097	PEMS						Flowrate for filter 1 (8001543) was unstable, use with	
8418-0377	PEMS						Filter 1 OK, filters 2 and 3 void (details below)	
8418-0961	PEMS						Post-test investigation showed sample dilution tube was very clogged w/particulate gunk, probably due to burned	
8418-0377	PEMS						Grav system failure prior to testing. Filters exposed to	
0349-1836	PEMS							
0349-2422	PEMS							
9272-3481	PEMS							
9272-2494	PEMS							
9272-2494	PEMS							
9272-0853	PEMS						Filters 8000042, 8000039, and 8000044 were not sampled.	
0062-0748	PEMS	8000043		3	DB	void	8000040 was white (idle), 8000041 & 7078351 were darker. Switched 3rd set of filters in around 11:50 am. We lost communication w/grav sampler during filter 7078356 - filter void (only 13 seconds). Chris says 7078355 is ok, 8000043 was not exposed to exhaust (but previously touched by finger)	
0062-6092	PEMS						Filters replaced @ 10:45 am 7078398 was approx 20 mins (instead of 10) because software froze. 7078399 was manually switched @ 20 minutes 7078400 collected for 10 minutes before the MPS failed NDIR was functional only during 7078398, 99, & 7078400	

p1	p1	p9	p9	p9	p9	p9	p9
General	General	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install	PAMS Install
Test ID	Test Type	Time PAMS Installed	Date PAMS Removed	Time PAMS Removed	Test Comments, install mods to reverse, after PAMS install	PAMS Mfr	PAMS Serial #
9960-6086	PEMS						
0229-3781	PEMS						
0229-0045	PEMS						
9960-5674	PEMS						
8391-3333	PEMS						
8391-3333	PEMS						
8418-0097	PEMS						
8418-0097	PEMS						
8418-0377	PEMS						
8418-0961	PEMS						
8418-0377	PEMS						
0349-1836	PEMS						
0349-2422	PEMS						
9272-3481	PEMS						
9272-2494	PEMS						
9272-2494	PEMS						
9272-0853	PEMS						
0062-0748	PEMS						
0062-6092	PEMS						

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p1	p1	p9	p13	p10/11	p10/11	p10/11
General	General	PAMS Install	PAMS Install	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	VI Acquisition Notes	PAMS Installation Comments	PAMS Revisit 1 Date	PAMS Revisit 1 File Download (Y/N)	PAMS Revisit 1 Remaining Memory
9960-6086	PEMS					
0229-3781	PEMS					
0229-0045	PEMS					
9960-5674	PEMS					
8391-3333	PEMS					
8391-3333	PEMS		Contact confirmed equip use & operations continue 12 months throughout year.			
8418-0097	PEMS					
8418-0097	PEMS					
8418-0377	PEMS					
8418-0961	PEMS					
8418-0377	PEMS					
0349-1836	PEMS					
0349-2422	PEMS					
9272-3481	PEMS					
9272-2494	PEMS					
9272-2494	PEMS					
9272-0853	PEMS					
0062-0748	PEMS					
0062-6092	PEMS					

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 1 Comments	PAMS Revisit 2 Date	PAMS Revisit 2 File Download (Y/N)	PAMS Revisit 2 Remaining Memory
9960-6086	PEMS				
0229-3781	PEMS				
0229-0045	PEMS				
9960-5674	PEMS				
8391-3333	PEMS				
8391-3333	PEMS				
8418-0097	PEMS				
8418-0097	PEMS				
8418-0377	PEMS				
8418-0961	PEMS				
8418-0377	PEMS				
0349-1836	PEMS				
0349-2422	PEMS				
9272-3481	PEMS				
9272-2494	PEMS				
9272-2494	PEMS				
9272-0853	PEMS				
0062-0748	PEMS				
0062-6092	PEMS				

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 2 Comments	PAMS Revisit 3 Date	PAMS Revisit 3 File Download (Y/N)	PAMS Revisit 3 Remaining Memory
9960-6086	PEMS				
0229-3781	PEMS				
0229-0045	PEMS				
9960-5674	PEMS				
8391-3333	PEMS				
8391-3333	PEMS				
8418-0097	PEMS				
8418-0097	PEMS				
8418-0377	PEMS				
8418-0961	PEMS				
8418-0377	PEMS				
0349-1836	PEMS				
0349-2422	PEMS				
9272-3481	PEMS				
9272-2494	PEMS				
9272-2494	PEMS				
9272-0853	PEMS				
0062-0748	PEMS				
0062-6092	PEMS				

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 3 Comments	PAMS Revisit 4 Date	PAMS Revisit 4 File Download (Y/N)	PAMS Revisit 4 Remaining Memory
9960-6086	PEMS				
0229-3781	PEMS				
0229-0045	PEMS				
9960-5674	PEMS				
8391-3333	PEMS				
8391-3333	PEMS				
8418-0097	PEMS				
8418-0097	PEMS				
8418-0377	PEMS				
8418-0961	PEMS				
8418-0377	PEMS				
0349-1836	PEMS				
0349-2422	PEMS				
9272-3481	PEMS				
9272-2494	PEMS				
9272-2494	PEMS				
9272-0853	PEMS				
0062-0748	PEMS				
0062-6092	PEMS				

p1	p1	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 4 Comments	PAMS Revisit 5 Date	PAMS Revisit 5 File Download (Y/N)	PAMS Revisit 5 Remaining Memory
9960-6086	PEMS				
0229-3781	PEMS				
0229-0045	PEMS				
9960-5674	PEMS				
8391-3333	PEMS				
8391-3333	PEMS				
8418-0097	PEMS				
8418-0097	PEMS				
8418-0377	PEMS				
8418-0961	PEMS				
8418-0377	PEMS				
0349-1836	PEMS				
0349-2422	PEMS				
9272-3481	PEMS				
9272-2494	PEMS				
9272-2494	PEMS				
9272-0853	PEMS				
0062-0748	PEMS				
0062-6092	PEMS				

p1	p1	p10/11	p10/11	p10/11	p10/11	p10/11	p10/11
General	General	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits	PAMS Revisits
Test ID	Test Type	PAMS Revisit 5 Comments	PAMS Revisit 6 Date	PAMS Revisit 6 File Download (Y/N)	PAMS Revisit 6 Remaining Memory	PAMS Revisit 6 Comments	PAMS Revisit 7 Date
9960-6086	PEMS						
0229-3781	PEMS						
0229-0045	PEMS						
9960-5674	PEMS						
8391-3333	PEMS						
8391-3333	PEMS						
8418-0097	PEMS						
8418-0097	PEMS						
8418-0377	PEMS						
8418-0961	PEMS						
8418-0377	PEMS						
0349-1836	PEMS						
0349-2422	PEMS						
9272-3481	PEMS						
9272-2494	PEMS						
9272-2494	PEMS						
9272-0853	PEMS						
0062-0748	PEMS						
0062-6092	PEMS						

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p1	p1	p12	p12	p12	p12	p12	p12
General	General	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals	PAMS Recals
Test ID	Test Type	Check 3 Pre-Cal "Conf" RPM	Check 3 Pre-Cal Sensor 1 Reading	Check 3 Pre-Cal Sensor 2 Reading	Check 3 Post-Cal "Conf" RPM	Check 3 Post-Cal Sensor 1 Reading	Check 3 Post-Cal Sensor 2 Reading
9960-6086	PEMS						
0229-3781	PEMS						
0229-0045	PEMS						
9960-5674	PEMS						
8391-3333	PEMS						
8391-3333	PEMS						
8418-0097	PEMS						
8418-0097	PEMS						
8418-0377	PEMS						
8418-0961	PEMS						
8418-0377	PEMS						
0349-1836	PEMS						
0349-2422	PEMS						
9272-3481	PEMS						
9272-2494	PEMS						
9272-2494	PEMS						
9272-0853	PEMS						
0062-0748	PEMS						
0062-6092	PEMS						