Brake Dynamometer Test Report

Nucap Test #:	NU-12K-FW1573
Test Description:	ISO 26867
Customer Reference:	KODIAK G-0710 T
Program #:	W03O95A5
Platform:	KODIAK 225
Lining Material:	KODIAK-G 0710-T
Test Date:	03/12/12

Requested By:

CAMERON RAPP
KODIAK TRAILER COMPONENTS

7600 SAND STREET
FORT WORTH, TX 76118

Tested By:

NUCAP R&D CENTER
115 Ridgetop Road
Toronto. ON. CANADA. M1P 4W9
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Phone: 416-494 1444
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Test Req #	DR2012-46-A	**NUCAP R&D CENTER** **Brake Dynamometer Testing**	Cust Ref:	KODIAK G-0710 T

Test Description

FRICTION CHARACTERISTIC EVALUATION

Test Information

Test Requestor:	KODIAK TRAILER COMPONENTS
Requested By:	CAMERON RAPP
Test Procedure:	ISO 26867
Control Program:	W03O95A5
Dynamometer:	3194
Fixture ID:	KODIAK D289-1
Test Coordinator:	JACOB
Test Technician:	HARMINDER
Date Started:	03/12/12
Date Completed:	03/12/12
Date Parts Received:	19/11/12
Datalog, Report Version:	3.08, 1.01

Dynamometer Information

Rolling Radius:	14.7	inch	373.0	mm
Required Wheel Load:	1270	lb	576	kg
Actual Wheel Load:	1243	lb	564	Kg
Gross Axle Wt:	0	lb	0	Kg
Required Inertia:	59.1	slug·ft²	80.1	Kg·m²
Actual Inertia:	57.9	slug·ft²	78.5	Kg·m²
Piston Diameter:	2.25	inch	57.15	mm
Effective Radius:	4.53	inch	115.00	mm
Number of Pistons:			1	

Brake Information

Brake Name:	KODIAK 225
Brake Size:	305 X 30 MM
Rotor/Drum ID:	KODIAK
Lining FMSI Number:	7192-D289
Pri/Lead/Inner Lining:	KODIAK-G 0710-T
Sec/Trail/Outer Lining:	KODIAK-G 0710-T
Rotor Type:	VENTED
Brake Orientation:	Right

Final Comments:

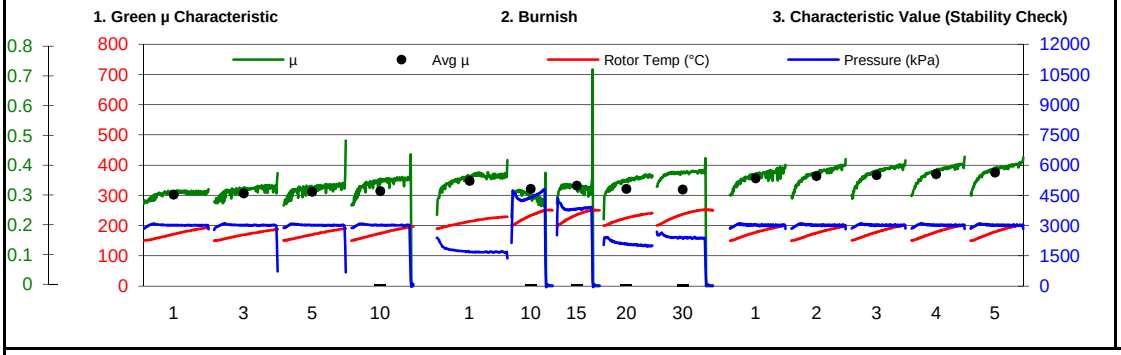
INITIAL LRO IS .002"
MATERIAL SUPPLIED BY KODIAK TRAILER COMPONENTS
OUTER PAD TRALING EDGE SLIGHTLY LIFTED

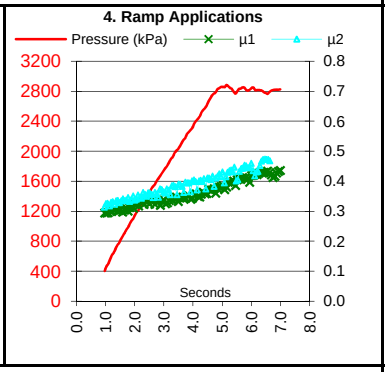
Signature:	Title:	Date:
	Test Engineer	December 5, 2012

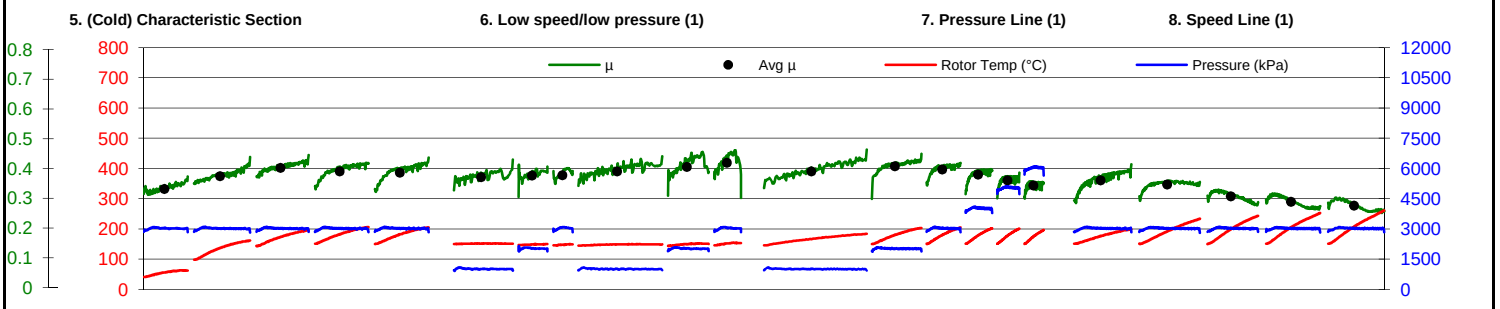
NUCAP

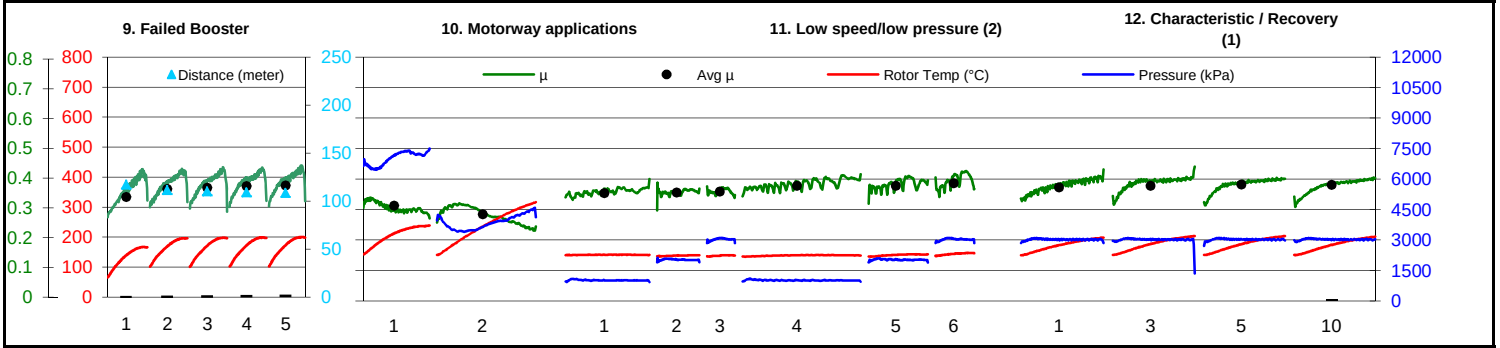
Inertia Dynamometer Friction Behavior Assessment for Brake Systems

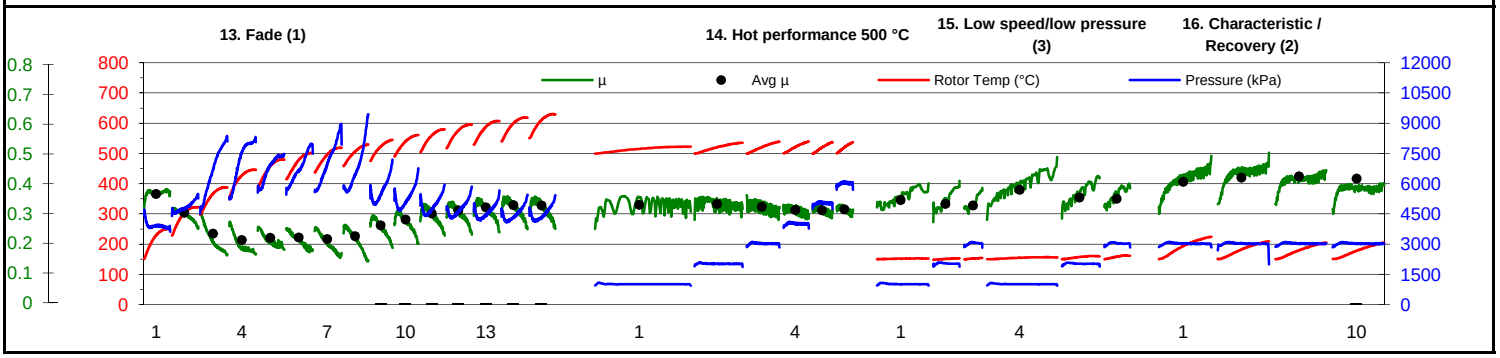
ISO 26867











Test Req #:	DR2012-46-A	Brake Type:	Disc
Cust. Ref:	KODIAK G-0710 T	Program:	W03O95A5
Brake Name:	KODIAK 225	Effective Radius (mm):	115.00
Rotor/Drum ID:	KODIAK	Actual Wheel Load (kg):	564
Pri/Lead/Inner Lining:	KODIAK-G 0710-T	Actual Inertia (kgm²):	78.5
Sec/Trail/Outer Lining:	KODIAK-G 0710-T	Test Date:	03/12/12

05/12/2012

Prepared By: Jacob

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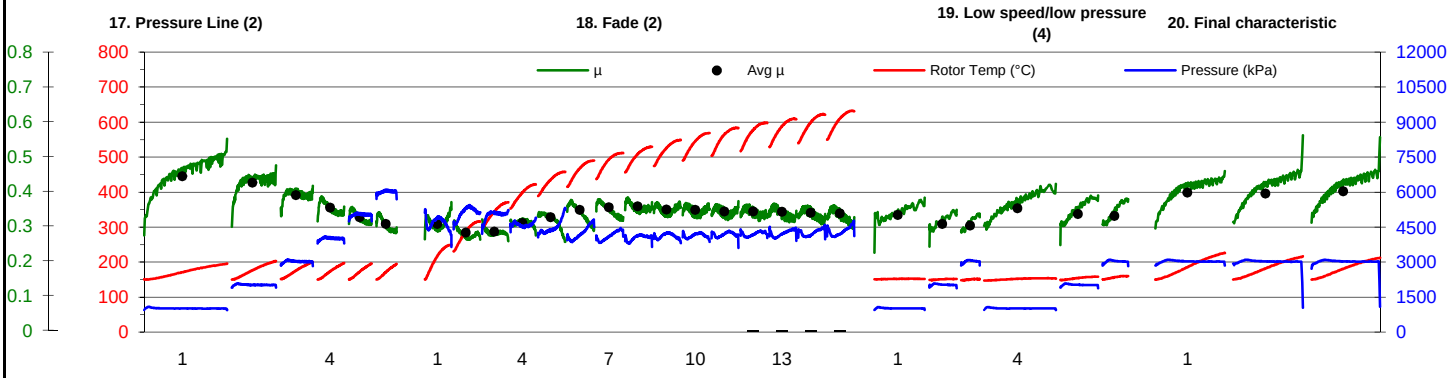
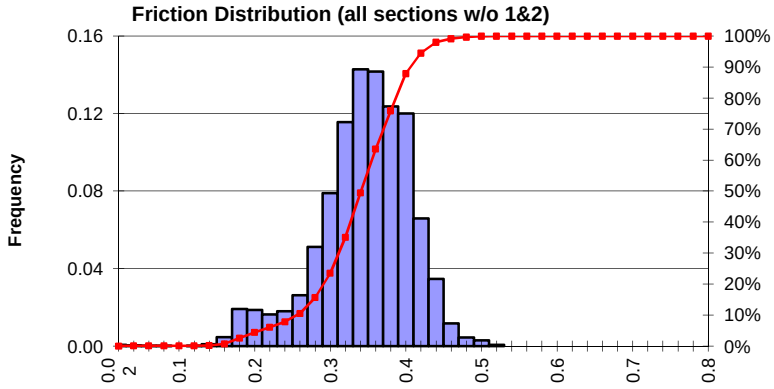
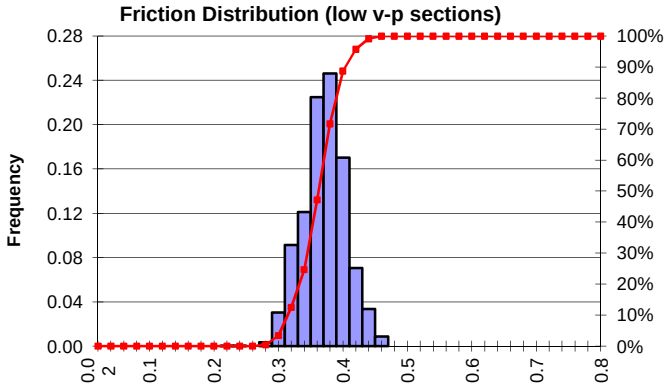
Inertia Dynamometer Friction Behavior Assessment for Brake Systems

ISO 26867







	Description	Value min [μ]	Value avg [μ]
3	Characteristic/Stability (last 3 stops) μ	0.33	0.33
5a	**Cold μ**		**0.33**
5b	Cold/Stability μ (last 3 stops)	0.32	0.39
6	Low-speed/Low-Pressure μ	0.37	0.39
7	Pressure (60 bar)/Stability μ		0.34
8	**High-Speed/Last Stop μ**		**0.28**
9.1	Booster fail (1st stop) [m]	117.3	
9.6	Booster fail (6th stop) [m]	107.9	
10	Motorway 0.9vmax 2nd stop) μ		0.29
11	Low-Speed/Low-Pressure μ	0.35	0.37
12	Characterstic/Stability (last 3 Stops) μ	0.37	0.37
13	**Fade (1) minimum μ**	**0.21**	
14	**Hot performance 500 °C minimum μ**	**3.00**	
15	Low-speed/Low-Pressure μ	0.33	0.35
16	Characterstic/Stability (last 3 Stops) μ	0.38	0.40
17	Pressure (60 bar)/Stability μ		0.31
18	**Fade (2) minimum μ**	**0.29**	
19	Low-speed/Low-Pressure μ	0.31	0.33
20	Characterstic/Stability (last 3 Stops) μ	0.40	0.41

Nominal μ (3/5b/7/8/12/16/17/20)	**0.364**
Minimum μ (3/5b/7/8/12/16/17/20)	**0.278**
Maximum μ (3/5b/7/8/12/16/17/20)	**0.409**

Wear	Value
Thickness loss:	
Inner/Leading	0.634 mm
Outer/Trailing	0.682 mm
Rotor	0.010 mm
Weight loss:	
Inner/Leading	12.29 gram
Outer/Trailing	9.46 gram
Rotor	7.50 gram

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Sec/Trail/Outer Lining:	KODIAK-G 0710-T	Test Date:	03/12/12

05/12/2012

Prepared By: Jacob

Inertia Dynamometer Friction Behavior
Assessment for Brake Systems ISO 26867

Pad and Rotor Wear

Inboard Pad Thickness (mm)

	Individual Positions								
	1	2	3	4	5	6	7	8	Avg
Initial	16.128	16.183	16.118	16.003	16.016	16.136	16.184	16.129	16.112
Final	15.576	15.220	15.166	15.425	15.559	15.380	15.530	15.966	15.478
Loss	0.552	0.963	0.952	0.578	0.457	0.756	0.654	0.163	**0.634**

Outboard Pad Thickness (mm)

	Individual Positions								
	1	2	3	4	5	6	7	8	Avg
Initial	11.052	11.128	11.109	11.025	11.011	11.072	11.100	11.167	11.083
Final	9.478	9.675	9.938	10.379	11.272	10.874	10.658	10.938	10.401
Loss	1.574	1.453	1.171	0.646	-0.261	0.198	0.442	0.229	**0.682**

Rotor Thickness (mm)

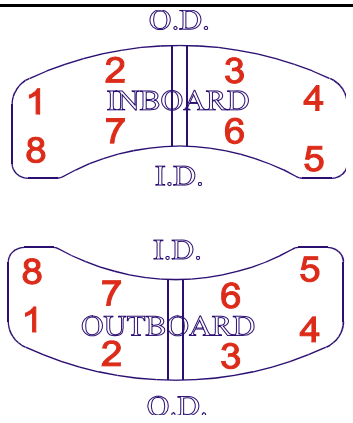
	POSITION 1		POSITION 2		POSITION 3		POSITION 4		Avg
	In	Out	In	Out	In	Out	In	Out	
Initial	23.550	23.560	23.550	23.560	23.550	23.550	23.540	23.550	23.551
Final	23.540	23.540	23.540	23.550	23.540	23.540	23.540	23.540	23.541
Loss	0.010	0.020	0.010	0.010	0.010	0.010	0.000	0.010	**0.010**

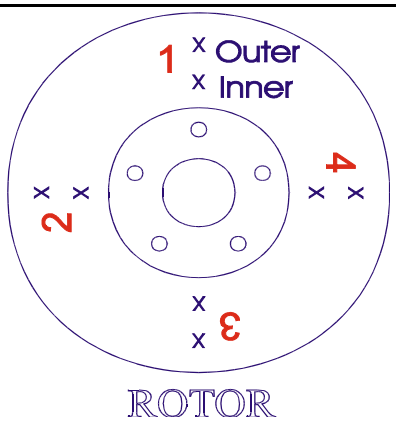
Pad & Rotor Weight (gram)

	Inboard Pad	Outboard Pad	Rotor
Initial	357.9	215.0	11850.0
Final	345.6	205.5	11842.5
Loss	**12.290**	**9.460**	**7.500**

MicroFinish (µm)

	POSITION 1		POSITION 2		POSITION 3		POSITION 4	
	In	Out	In	Out	In	Out	In	Out
Initial	8.42	4.40	8.43	4.42	8.33	4.40	8.28	4.38
Final	1.31	1.11	1.27	1.18	1.36	1.20	1.28	1.16





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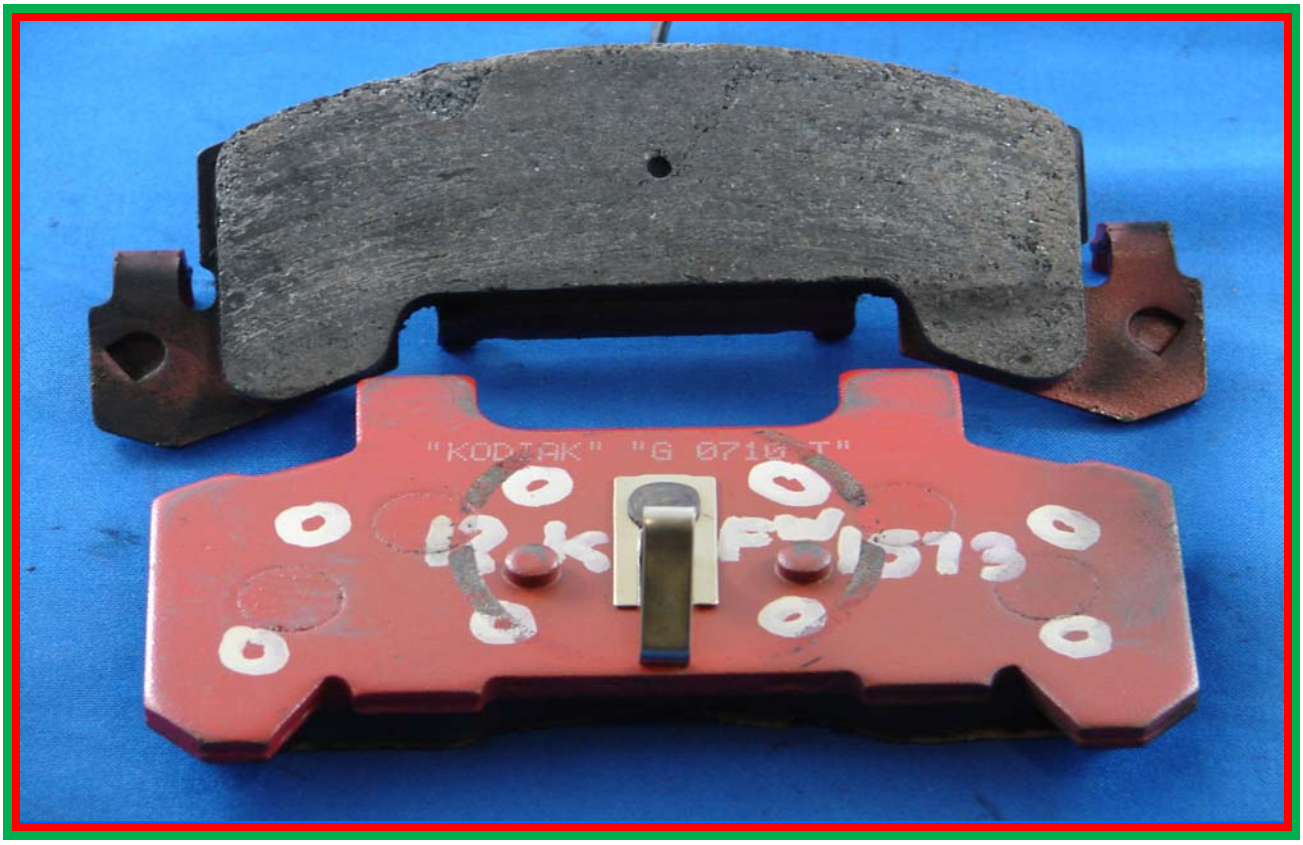

Prepared By:

Jacob

Test Req #:	DR2012-46-A	**NUCAP R&D CENTER** **Brake Dynamometer Testing**	Cust Ref:	KODIAK G-0710 T

Section	Stop	Brake Speed kph	Release Speed kph	Stop Distance meter	Decel Torque g	Press Min kPa	Pres Avg kPa	Press Max kPa	Torque Min N·m	Torque Avg N·m	Torque Max N·m	MFDD m/s²	µ Min	µ Avg	µ Max	Fluid Disp cm³	Rotor Init °C	Rotor Final °C	Lining Init °C	Lining Final °C
100 Green µ Characteristic																				
100	1	80.3	30.1		0.26	2998	3021	3047	532	552	564	2.57	0.270	0.303	0.317	3.90	150	193	86	109
100	2	80.3	30.2		0.26	2992	3022	3053	500	563	580	2.63	0.266	0.307	0.332	3.89	150	188	95	115
100	3	80.3	30.1		0.27	2988	3021	3057	500	573	598	2.68	0.265	0.313	0.335	3.85	151	188	99	117
100	4	80.1	30.0		0.27	2985	3021	3058	497	579	616	2.70	0.267	0.315	0.344	3.82	151	188	101	119
100	5	80.3	30.1		0.27	2988	3021	3051	503	582	615	2.70	0.264	0.317	0.345	3.82	151	190	102	121
100	6	80.0	30.1		0.28	2983	3022	3063	517	587	621	2.73	0.261	0.319	0.345	3.80	150	191	103	121
100	7	80.1	30.1		0.28	2975	3022	3058	524	595	628	2.78	0.258	0.323	0.360	3.79	150	192	104	121
100	8	80.1	30.1		0.28	2979	3022	3060	528	603	636	2.80	0.267	0.327	0.354	3.79	150	194	105	122
100	9	80.1	30.0		0.29	2982	3023	3058	543	612	642	2.85	0.269	0.333	0.359	3.78	150	195	105	123
100	10	80.3	30.1		0.29	2975	3023	3058	539	619	651	2.88	0.265	0.334	0.362	3.79	150	196	105	123
200 Burnish																				
200	1	80.1	30.1		0.17	1651	1701	1767	337	363	381	1.69	0.236	0.349	0.415	3.24	190	230	130	151
200	2	80.3	30.1		0.35	4141	4372	4481	670	738	785	3.43	0.270	0.293	0.315	4.11	201	250	136	154
200	3	80.1	30.1		0.17	1777	1840	1914	341	363	373	1.69	0.236	0.322	0.380	3.33	200	240	138	162
200	4	80.3	30.0		0.20	2084	2137	2188	401	429	448	2.00	0.259	0.333	0.371	3.41	201	242	141	163
200	5	80.1	30.1		0.25	2706	2756	2798	492	531	547	2.48	0.281	0.322	0.358	3.62	200	246	142	163
200	6	80.1	30.1		0.42	5342	5755	6088	782	879	930	4.11	0.239	0.268	0.291	4.58	201	249	143	159
200	7	80.1	30.1		0.17	1732	1829	1957	341	364	379	1.70	0.234	0.320	0.366	3.26	200	241	142	167
200	8	80.1	30.1		0.30	3364	3427	3512	582	638	658	2.98	0.281	0.314	0.335	3.75	200	246	145	163
200	9	80.1	30.1		0.21	1971	2081	2197	403	430	447	2.00	0.262	0.336	0.378	3.35	201	246	145	167
200	10	80.1	30.1		0.37	4212	4439	4820	703	776	805	3.63	0.257	0.301	0.320	4.09	201	251	145	162
200	11	80.3	30.1		0.17	1669	1764	1863	342	363	374	1.69	0.238	0.336	0.418	3.22	201	243	145	168
200	12	80.0	30.1		0.31	3231	3271	3313	585	639	654	2.97	0.290	0.328	0.346	3.66	200	249	146	164
200	13	80.3	30.1		0.17	1596	1684	1771	348	363	379	1.69	0.254	0.353	0.401	3.19	200	245	144	170
200	14	80.3	30.1		0.25	2450	2512	2562	501	532	546	2.48	0.294	0.352	0.391	3.44	200	251	145	167
200	15	80.3	30.2		0.35	3755	3831	3933	662	740	761	3.45	0.291	0.326	0.340	3.86	201	251	145	164
200	16	80.0	30.1		0.49	6170	6685	7334	907	1034	1092	4.82	0.234	0.274	0.301	4.77	200	250	145	160
200	17	80.1	30.1		0.31	3247	3408	3555	577	642	666	2.99	0.253	0.310	0.345	3.65	201	249	146	166
200	18	80.4	30.1		0.57	7321	7665	8155	1069	1184	1234	5.54	0.237	0.267	0.286	4.84	201	248	145	158
200	19	80.1	30.1		0.26	2593	2755	2914	488	535	556	2.50	0.248	0.316	0.363	3.35	200	248	144	167
200	20	80.1	30.0		0.21	1930	2031	2132	408	430	443	2.00	0.271	0.347	0.408	3.05	201	245	145	169
200	21	80.0	30.2		0.47	5288	5453	5648	884	990	1023	4.63	0.269	0.310	0.327	4.08	201	251	146	161
200	22	80.4	30.1		0.17	1613	1700	1788	344	363	376	1.69	0.251	0.349	0.426	2.95	200	245	145	172
200	23	80.3	30.1		0.20	1870	1946	1997	413	429	441	2.00	0.284	0.366	0.416	2.99	200	250	146	171
200	24	80.1	30.1		0.50	5650	5876	6164	941	1049	1095	4.88	0.262	0.308	0.324	4.19	201	252	146	162
200	25	80.1	30.1		0.31	2993	3151	3253	598	642	659	2.99	0.274	0.336	0.359	3.45	200	252	146	167
200	26	80.3	30.0		0.17	1576	1673	1747	346	363	379	1.69	0.253	0.358	0.415	2.94	200	246	146	172
200	27	80.1	30.1		0.38	3770	3825	3907	730	785	809	3.68	0.301	0.345	0.373	3.61	200	252	147	165
200	28	80.3	30.1		0.25	2365	2459	2538	504	532	547	2.48	0.294	0.357	0.398	3.22	201	251	145	168
200	29	80.0	30.1		0.20	1857	1925	1987	415	430	441	2.00	0.284	0.369	0.401	3.03	200	249	146	171
200	30	80.3	30.1		0.25	2345	2398	2447	507	532	550	2.48	0.322	0.369	0.390	3.17	200	252	147	171
200	31	80.1	30.1		0.20	1822	1901	1952	413	429	443	1.99	0.285	0.374	0.417	3.02	200	252	147	173
200	32	80.1	30.1		0.42	4357	4450	4554	811	887	917	4.13	0.307	0.338	0.353	3.79	200	255	147	166
300 Characteristic Value (Stability Check)																				
300	1	80.3	30.2		0.31	2957	3023	3073	608	663	706	3.09	0.291	0.357	0.397	3.47	151	200	115	135
300	2	80.1	30.1		0.32	2960	3023	3071	631	683	724	3.19	0.282	0.364	0.406	3.46	150	197	112	131
300	3	80.1	30.1		0.32	2963	3024	3068	647	689	725	3.21	0.288	0.368	0.413	3.46	151	201	110	129
300	4	80.1	30.1		0.32	2966	3023	3063	649	694	731	3.22	0.298	0.371	0.410	3.47	151	202	109	130
300	5	80.1	30.0		0.33	2964	3024	3070	659	702	743	3.27	0.296	0.376	0.413	3.47	151	203	109	130
400 Ramp Applications																				
400	1	50.1	3.0		0.27	1943	2544	2894	392	563	715	2.61	0.000	0.343	0.436	3.48	101	121	76	87
400	2	50.1	3.0		0.29	1879	2484	2877	391	592	792	2.76	0.000	0.390	0.474	3.36	100	126	77	88
500 (Cold) Characteristic Section																				
500	1	40.2	5.1		0.29	2990	3041	3090	575	605	651	2.83	0.310	0.332	0.369	3.57	41	63	31	39
500	2	80.3	30.1		0.32	2973	3024	3058	644	687	746	3.20	0.343	0.375	0.433	3.31	98	162	64	87
500	3	80.3	30.1		0.35	2972	3025	3063	692	734	771	3.41	0.360	0.403	0.432	3.24	143	196	92	110
500	4	80.3	30.1		0.34	2963	3024	3065	684	724	755	3.38	0.326	0.391	0.424	3.35	150	206	98	121
500	5	80.1	30.1		0.34	2968	3023	3072	677	720	760	3.36	0.314	0.387	0.424	3.36	151	206	106	128
500	6	80.1	30.1		0.34	2966	3025	3070	677	721	755	3.37	0.318	0.387	0.421	3.37	151	207	111	131
600 Low speed/low pressure (1)																				
600	1	20.2	0.6		0.11	973	1015	1041	207	226	239	1.05	0.328	0.372	0.409	2.68	151	151	111	114
600	2	20.1	3.0		0.22	2014	2051	2088	440	463	479	2.17	0.306	0.378	0.426	2.93	148	150	114	115
600	3	20.1	3.0		0.33	2985	3057	3093	649	696	725	3.27	0.347	0.378	0.401	3.25	146	150	114	115
600	4	30.2	3.0		0.11	973	1012	1033	214	238	260	1.11	0.343	0.391	0.433	2.56	145	150	113	117
600	5	30.1	3.0		0.24	2001	2036	2081	466	504	543	2.36	0.310	0.406	0.455	2.89	145	151	114	116
600	6	30.2	3.0		0.37	3009	3060	3101	713	782	823	3.64	0.324	0.419	0.460	3.20	145	153	114	117

05/12/2012
Prepared By: Jacob

Test Req #:	DR2012-46-A	**NUCAP R&D CENTER** **Brake Dynamometer Testing**	Cust Ref:	KODIAK G-0710 T

Section	Stop	Brake Speed kph	Release Speed kph	Stop Distance meter	Decel Torque g	Press Min kPa	Pres Avg kPa	Press Max kPa	Torque Min N·m	Torque Avg N·m	Torque Max N·m	MFDD m/s²	µ Min	µ Avg	µ Max	Fluid Disp cm³	Rotor Init °C	Rotor Final °C	Lining Init °C	Lining Final °C
700 Pressure Line (1)																				
700	1	80.3	40.1		0.11	971	1010	1052	216	244	266	1.14	0.324	0.391	0.457	2.51	146	183	114	134
700	2	80.1	39.9		0.23	1981	2020	2066	485	500	515	2.32	0.299	0.408	0.438	2.99	150	203	114	135
700	3	80.3	40.2		0.34	2986	3028	3065	694	729	748	3.41	0.342	0.398	0.416	3.34	150	205	114	131
700	4	80.1	40.1		0.44	3964	4029	4087	867	929	948	4.34	0.316	0.380	0.398	3.65	150	202	115	128
700	5	80.3	40.1		0.52	4983	5062	5125	997	1099	1131	5.13	0.301	0.361	0.376	3.96	151	200	115	125
700	6	80.1	40.2		0.59	5993	6059	6117	1116	1245	1282	5.82	0.298	0.345	0.358	4.22	151	196	114	122
800 Speed Line (1)																				
800	1	80.3	40.2		0.32	2824	3024	3122	482	645	718	3.17	0.284	0.361	0.403	3.43	150	199	113	129
800	2	120.2	80.0		0.30	2850	3026	3102	503	621	646	2.92	0.292	0.348	0.360	3.41	150	233	115	140
800	3	160.2	130.2		0.26	2850	3025	3109	492	551	604	2.58	0.275	0.309	0.331	3.44	152	244	118	143
800	4	180.3	150.0		0.25	2850	3025	3104	470	519	578	2.43	0.264	0.291	0.318	3.46	151	252	119	149
800	5	200.4	170.3		0.23	2850	3025	3118	447	496	554	2.32	0.249	0.278	0.304	3.46	151	261	120	153
900 Failed Booster																				
900	1	100.1	0.7	117.3	0.37	3564	3637	3694	654	771	923	3.60	0.262	0.334	0.427	3.74	67	167	53	102
900	2	100.3	3.0	111.5	0.39	3567	3638	3688	727	818	929	3.81	0.289	0.361	0.428	3.70	101	196	72	119
900	3	100.1	3.0	110.3	0.39	3580	3639	3680	751	828	935	3.85	0.294	0.365	0.435	3.70	101	197	75	122
900	4	100.3	3.0	109.0	0.40	3572	3638	3678	767	838	935	3.91	0.298	0.371	0.433	3.71	101	197	76	123
900	5	100.1	3.0	108.5	0.40	3573	3638	3679	762	843	946	3.93	0.299	0.373	0.439	3.70	101	200	77	125
900	6	100.4	3.0	107.9	0.40	3577	3639	3683	763	847	953	3.95	0.296	0.373	0.441	3.71	102	199	77	125
1000 Motorway applications																				
1000	1	100.1	3.0		0.60	6435	6881	7480	1200	1272	1343	5.86	0.273	0.314	0.339	4.61	150	247	104	147
1000	2	159.6	88.6		0.30	3387	3824	4589	600	639	717	2.92	0.228	0.285	0.320	3.77	151	322	110	186
1100 Low speed/low pressure (2)																				
1100	1	20.1	0.6		0.10	990	1015	1047	200	215	227	1.00	0.331	0.355	0.378	2.64	150	151	114	117
1100	2	20.2	3.0		0.20	2013	2048	2085	413	431	443	2.03	0.297	0.356	0.403	2.91	146	150	117	118
1100	3	20.1	3.0		0.31	2992	3057	3098	618	653	680	3.05	0.337	0.360	0.376	3.21	146	150	117	118
1100	4	30.2	3.0		0.11	976	1012	1042	205	229	249	1.06	0.343	0.378	0.414	2.51	146	150	117	120
1100	5	30.2	3.0		0.22	1993	2031	2070	410	460	490	2.15	0.319	0.379	0.428	2.86	146	152	117	120
1100	6	30.2	3.0		0.34	3006	3059	3107	633	718	762	3.36	0.340	0.387	0.426	3.18	147	157	119	121
1200 Characteristic /Recovery (1)																				
1200	1	80.1	30.1		0.32	2960	3023	3063	620	692	738	3.24	0.323	0.373	0.413	3.21	151	208	119	137
1200	2	80.1	30.1		0.33	2951	3024	3070	662	703	737	3.29	0.309	0.379	0.413	3.35	150	210	115	135
1200	3	80.3	30.1		0.33	2963	3024	3074	675	705	734	3.29	0.316	0.382	0.420	3.36	151	213	115	137
1200	4	80.0	30.1		0.33	2966	3025	3070	679	705	728	3.29	0.314	0.381	0.414	3.36	150	212	116	136
1200	5	80.3	30.1		0.33	2962	3024	3063	675	701	727	3.27	0.312	0.378	0.411	3.37	150	213	115	138
1200	6	80.3	30.1		0.33	2976	3025	3067	668	696	729	3.25	0.306	0.375	0.406	3.38	150	211	115	137
1200	7	80.1	30.1		0.33	2977	3024	3078	670	699	723	3.25	0.308	0.376	0.407	3.37	151	211	116	136
1200	8	80.1	30.1		0.33	2977	3024	3066	665	696	726	3.25	0.306	0.374	0.405	3.37	150	212	116	137
1200	9	80.3	30.1		0.32	2965	3024	3072	667	695	721	3.24	0.313	0.373	0.407	3.38	151	212	116	137
1200	10	80.1	30.0		0.32	2976	3025	3068	664	695	724	3.25	0.307	0.372	0.413	3.38	150	211	116	136
1300 Fade (1)																				
1300	1	100.1	5.1		0.40	3746	3878	3963	812	849	871	3.95	0.308	0.367	0.381	3.65	151	248	120	166
1300	2	100.1	5.1		0.40	4548	4808	5530	811	844	864	3.94	0.250	0.304	0.321	3.92	228	322	166	213
1300	3	100.3	5.1		0.39	5524	6680	8472	799	825	853	3.84	0.162	0.235	0.306	4.76	299	387	211	261
1300	4	100.3	5.1		0.39	6016	7303	8367	788	827	894	3.86	0.165	0.214	0.279	4.68	355	445	253	304
1300	5	99.8	5.1		0.40	5934	6819	7526	789	835	934	3.89	0.180	0.222	0.258	4.54	388	479	289	337
1300	6	100.1	5.1		0.40	6008	6718	7995	792	835	915	3.89	0.173	0.223	0.258	4.73	414	501	321	362
1300	7	100.3	5.2		0.39	5942	6977	8986	793	827	872	3.84	0.154	0.218	0.261	5.10	438	518	347	385
1300	8	100.3	5.1		0.39	5613	6707	10404	753	820	857	3.83	0.143	0.227	0.266	5.47	459	530	369	402
1300	9	100.3	5.1		0.39	4946	5798	10483	670	824	869	3.84	0.188	0.263	0.295	5.28	475	546	388	422
1300	10	100.3	5.1		0.39	4648	5239	8671	615	831	873	3.88	0.202	0.282	0.314	4.80	490	560	406	441
1300	11	100.1	5.1		0.40	4368	4844	7192	698	836	878	3.89	0.230	0.303	0.335	4.34	504	578	422	457
1300	12	100.1	5.1		0.40	4263	4677	6271	741	838	886	3.91	0.233	0.312	0.344	4.04	517	595	436	472
1300	13	100.1	5.1		0.40	4157	4500	5826	760	841	887	3.92	0.239	0.322	0.354	3.91	529	606	448	483
1300	14	100.4	5.1		0.40	4068	4399	5597	771	841	889	3.91	0.250	0.330	0.363	3.84	540	617	459	494
1300	15	100.1	5.2		0.40	4107	4404	5443	767	842	890	3.93	0.251	0.328	0.359	3.79	550	629	469	504
1400 Hot performance 500 °C																				
1400	1	80.1	40.1		0.09	1001	1011	1019	165	198	216	0.92	0.251	0.331	0.363	2.31	500	522	445	465
1400	2	80.1	40.1		0.19	2003	2020	2041	339	392	424	1.82	0.280	0.333	0.393	2.69	499	535	454	464
1400	3	80.1	40.1		0.27	2986	3023	3055	493	568	615	2.66	0.280	0.325	0.362	3.04	500	539	451	459
1400	4	80.1	40.2		0.35	3956	4018	4072	658	733	788	3.43	0.279	0.313	0.331	3.30	501	538	448	455
1400	5	80.3	40.2		0.44	4962	5047	5123	831	919	982	4.29	0.283	0.313	0.330	3.54	500	536	445	451
1400	6	80.3	40.1		0.53	5952	6042	6104	1015	1113	1173	5.18	0.289	0.316	0.332	3.76	500	537	444	449

Test Req #:	DR2012-46-A	**NUCAP R&D CENTER** **Brake Dynamometer Testing**	Cust Ref:	KODIAK G-0710 T

Section	Stop	Brake Speed kph	Release Speed kph	Stop Distance meter	Decel Torque g	Press Min kPa	Pres Avg kPa	Press Max kPa	Torque Min N·m	Torque Avg N·m	Torque Max N·m	MFDD m/s²	μ Min	μ Avg	μ Max	Fluid Disp cm³	Rotor Init °C	Rotor Final °C	Lining Init °C	Lining Final °C
1500 Low speed/low pressure (3)																				
1500	1	20.1	3.0		0.10	999	1015	1032	192	213	236	1.00	0.313	0.346	0.399	2.25	151	153	136	138
1500	2	20.2	3.0		0.20	2021	2051	2091	376	417	463	1.96	0.273	0.334	0.393	2.49	149	153	136	138
1500	3	20.1	3.0		0.29	2999	3064	3101	531	601	667	2.82	0.300	0.328	0.381	2.71	150	154	137	137
1500	4	30.2	3.0		0.11	1002	1011	1022	210	239	269	1.11	0.280	0.381	0.484	1.91	150	157	136	140
1500	5	30.2	3.0		0.21	2004	2033	2068	393	443	502	2.07	0.284	0.355	0.426	2.28	150	161	136	139
1500	6	30.2	3.0		0.31	3007	3058	3097	583	658	705	3.08	0.310	0.351	0.400	2.68	151	162	134	136
1600 Characteristic /Recovery (2)																				
1600	1	80.1	30.1		0.36	2992	3025	3056	703	769	837	3.58	0.299	0.406	0.491	2.68	151	224	133	164
1600	2	80.1	30.0		0.37	2994	3026	3063	730	798	874	3.72	0.316	0.420	0.503	2.69	151	212	127	157
1600	3	80.3	30.1		0.37	2985	3026	3063	749	795	840	3.72	0.324	0.425	0.478	2.68	151	209	123	153
1600	4	80.1	30.1		0.36	2990	3026	3063	718	767	824	3.58	0.330	0.417	0.462	2.68	151	208	122	151
1600	5	80.1	30.1		0.36	2988	3026	3064	700	748	806	3.50	0.324	0.409	0.448	2.67	150	207	121	150
1600	6	80.0	30.1		0.35	2983	3025	3069	680	725	772	3.39	0.314	0.400	0.428	2.66	150	206	121	150
1600	7	80.1	30.1		0.34	2979	3024	3062	667	713	762	3.34	0.314	0.392	0.433	2.67	151	208	121	150
1600	8	80.1	30.1		0.33	2977	3024	3062	660	703	743	3.28	0.305	0.388	0.415	2.67	150	207	121	149
1600	9	80.1	30.1		0.34	2981	3024	3060	663	707	758	3.30	0.294	0.387	0.425	2.68	151	208	121	149
1600	10	80.1	30.1		0.33	2982	3024	3059	639	690	749	3.21	0.301	0.382	0.423	2.70	151	207	121	150
1700 Pressure Line (2)																				
1700	1	80.1	40.1		0.13	1001	1009	1018	258	287	310	1.34	0.276	0.446	0.545	2.00	151	195	122	154
1700	2	80.3	40.1		0.25	2001	2020	2038	490	525	547	2.45	0.301	0.427	0.459	2.38	150	202	121	149
1700	3	80.1	40.1		0.34	2978	3025	3067	657	704	737	3.28	0.325	0.392	0.412	2.71	152	200	121	143
1700	4	80.3	40.1		0.40	3956	4022	4084	776	823	882	3.83	0.317	0.357	0.388	3.01	150	197	121	139
1700	5	80.1	40.2		0.46	4978	5049	5121	899	949	1013	4.45	0.306	0.330	0.359	3.32	151	196	121	137
1700	6	80.3	40.1		0.51	5968	6047	6110	1000	1057	1145	4.91	0.283	0.310	0.345	3.60	150	195	120	135
1800 Fade (2)																				
1800	1	100.1	5.2		0.41	4140	4741	4960	801	847	916	3.94	0.265	0.310	0.371	3.31	150	249	124	180
1800	2	100.1	5.1		0.40	4849	5211	5449	779	846	881	3.94	0.262	0.285	0.329	3.27	231	316	178	225
1800	3	100.3	5.1		0.40	4992	5097	5354	768	849	881	3.96	0.260	0.288	0.325	3.14	297	371	222	262
1800	4	100.3	5.1		0.40	4450	4590	5266	760	849	884	3.96	0.277	0.313	0.334	3.08	354	423	262	298
1800	5	100.3	5.1		0.40	4205	4407	5356	801	844	872	3.94	0.256	0.329	0.347	3.19	388	458	287	328
1800	6	100.1	5.1		0.40	3852	4183	4848	817	842	873	3.92	0.287	0.350	0.379	3.13	415	490	313	356
1800	7	100.3	5.1		0.40	3842	4097	4461	814	844	886	3.93	0.315	0.357	0.381	3.09	438	512	341	382
1800	8	100.0	5.2		0.40	3844	4070	4194	807	846	878	3.94	0.337	0.360	0.387	3.06	457	530	364	403
1800	9	100.3	5.1		0.40	3907	4159	4276	803	848	884	3.96	0.327	0.351	0.373	3.11	474	549	384	422
1800	10	100.3	5.1		0.40	3956	4147	4287	794	847	891	3.95	0.324	0.350	0.371	3.12	490	569	403	443
1800	11	100.4	5.3		0.40	4014	4173	4345	791	847	890	3.94	0.318	0.346	0.374	3.18	504	583	418	458
1800	12	100.3	5.1		0.40	4041	4172	4366	792	847	888	3.95	0.317	0.345	0.366	3.22	517	598	433	473
1800	13	100.0	5.1		0.40	4000	4190	4479	789	846	887	3.94	0.311	0.345	0.368	3.25	529	608	447	486
1800	14	100.1	5.2		0.40	4070	4197	4613	789	846	882	3.95	0.305	0.342	0.363	3.29	541	621	460	499
1800	15	100.1	5.1		0.40	4071	4234	4784	786	845	880	3.95	0.294	0.340	0.363	3.37	551	632	472	512
1900 Low speed/low pressure (4)																				
1900	1	20.1	0.6		0.10	1006	1013	1026	191	204	225	0.96	0.227	0.335	0.377	2.46	151	152	129	135
1900	2	20.2	3.0		0.18	2019	2042	2076	363	385	415	1.81	0.244	0.310	0.348	2.59	149	151	133	136
1900	3	20.2	3.0		0.27	3020	3062	3093	517	565	603	2.67	0.284	0.305	0.338	2.91	148	151	133	134
1900	4	30.2	3.0		0.11	1002	1010	1019	201	223	252	1.04	0.290	0.355	0.422	2.06	147	154	133	138
1900	5	30.2	3.0		0.20	2016	2030	2059	392	424	464	1.99	0.249	0.338	0.390	2.49	148	158	133	138
1900	6	30.1	3.0		0.30	3021	3058	3098	571	623	679	2.92	0.305	0.333	0.382	2.83	150	160	133	137
2000 Final characteristic																				
2000	1	80.1	30.1		0.35	3012	3026	3048	716	758	795	3.55	0.296	0.400	0.456	2.86	150	226	131	163
2000	2	80.0	30.1		0.35	3009	3025	3046	701	757	809	3.53	0.306	0.397	0.463	2.87	150	220	129	163
2000	3	80.3	30.1		0.36	3009	3025	3045	710	773	827	3.60	0.307	0.403	0.474	2.86	150	215	127	158
2000	4	80.1	30.1		0.36	3009	3026	3052	714	777	831	3.61	0.311	0.406	0.468	2.86	152	214	126	156
2000	5	80.1	30.1		0.36	3009	3026	3052	717	778	828	3.62	0.312	0.409	0.472	2.83	150	211	124	155

05/12/2012
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