APPENDIX F. BRAKE AND TIRE TEMPERATURE DATA SHEETS

VEHICLE GRAND AM GREEN DATE 30 Sept 98

60 MPH BRAKE STOP

Test Configuration	Stop No.	Time (sec)	Road Surface		Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR	Rotors LF	Rotors RF
RUN 11 DRY, FULL PAYLOAD	1	13:10	DRY	94°	92	85	91	91	116	114	105	99	162	167
WET, FULL PAYLOAD	1	13:29	WET	99°	89	82	89	84	130	121	137	123	238	248
WET, FULL PAYLOAD	2	13:40	WET	–	89	100	86	83	150	153	141	127	236	245
WET, FULL PAYLOAD	3	13:50	WET	90°	90	89	88	88	131	134	130	133	255	254
WET, FULL PAYLOAD	4	13:59	WET	–	92	86	91	90	156	154	150	142	290	313
WET, FULL PAYLOAD	5	14:06	WET	–	91	86	88	87	146	154	141	138	251	272
"	6	14:13	WET	96°	89	91	86	85	152	152	151	156	275	277
WET, FULL	7	14:20	WET	–	88	86	85	85	152	150	172	158	299	303
WET, FULL	8	14:25	WET	95°	88	89	85	88	159	160	161	164	307	287
WET, FULL	9	14:32	WET	97°	86	88	85	84	161	154	160	159	294	314
WET, FULL PAYLOAD	10	14:51	WET	95°	90	86	87	86	131	127	131	134	223	251
WET, FULL	11	15:00	WET	–	87	85	88	85	142	146	142	140	265	252

Note: 20 minute delay between stops "9:10. [illegible] water

GA _ Place _ Dry _ [illegible]

VEHICLE GRAND AM. GREEN DATE 30 SEPT 98 : 1[illegible]

60 MPH BRAKE STOP

Test Configuration	Stop No.	Time (sec)	Road Surface		Temperature (Taken after each stop) Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR	ROTORS LF	ROTORS RF
DRY, FULL PAYLOAD	INITIAL		DRY		~~87~~	~~85~~	~~88~~	~~85~~	~~142~~	~~146~~	142	140	265	282
DRY, FULL PAYLOAD	1	15:17	DRY	98°	88	90	85	87	121	126	119	128	232	219
DRY, "	2	15:23	DRY	104	84	97	84	85	128	136	126	130	238	246
DRY, "	3	15:33	DRY		102	102	102	100	160	179	159	164	352	378
DRY	4	15:41	DRY	96°	98	102	98	97	172	178	174	171	357	308
DRY	5	15:48	DRY		95	107	95	99	157	164	160	170	293	308
INITIAL PUMPING - STANDING		1007		72°	99	85	98	86	99	95	92	83	132	136
DRY, FULL	6	0827	DRY		104	87	102	92	114	109	111	109	231	252
DRY, FULL	7	08:32	DRY		98	85	96	90	141	128	128	112	235	252
DRY, FULL	8	08:40	DRY	78	105	88	102	88	150	152	143	136	299	304
DRY, FULL	9	08:47	DRY	78	93	90	96	89	155	154	172	138	353	256
DRY, FULL	10	08:53	DRY		98	87	95	88	175	165	180	141	316	340

+ Had 2 "extra" stops between # 2 & 3 - [illegible] problems.

VEPA 32 \ GRANDAM _ SG

VEHICLE GRAND AM (GREEN) DATE 1 OCT 98

60 MPH BRAKE STOPS – WET ASPHALT, EMPTY (no Passengers)

Test Configuration	Stop No.	Clock Time (sec)	Road Surface	Temperature (Recorded after each stop) Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR	Rotors LF	Rotors RF
INITIAL	INITIAL	9:52	WET 82°	100	99	86	88	108	121	94	90	116	130
WET - EMPTY	1	9:58	WET 89°	97	96	90	87	128	122	124	118	224	243
WET - EMPTY	2	10:05	WET —	98	90	91	84	153	151	152	130	282	289
WET - EMPTY	3	10:17	WET 88°	99	92	90	82	177	173	139	140	323	335
WET - EMPTY	4	10:23	WET —	94	85	88	85	178	174	160	146	355	38[illegible]
"	5	10:30	WET —	100	86	88	81	160	169	146	126	291	304
" "	6	10:38	WET 87°	95	82	88	84	165	158	131	115	271	265
WET EMPTY	7	10:44	WET —	93	83	87	80	155	154	141	118	281	290
"	8	10:51	WET 87°	88	77	83	77	152	147	130	116	277	282
WET, EMPTY	9	10:57	WET 88°	87	83	84	80	149	143	131	117	280	272
"	10	11:05	WET —	87	85	83	79	151	143	133	114	239	275

NOTE: Record AFTER EVERY STOP.

VEHICLE Grand Am SE (Green) Baseline DATE 1 Oct 98

60 MPH BRAKE STOPS Dry Asphalt, Empty (No Parking)

Temperatures AMBIENT TEMP - 77°

Test Configuration	Stop No.	Time (sec)	Road Surface	Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR	ROTOR LF	ROTOR RF
Dry, Empty	Initial	1327	Dry 93°	86	79	82	79	86	87	82	82	104	100
Dry, Empty	1	1339	Dry	88	82	79	79	96	96	98	95	205	177
" "	2	1344	Dry 96°	90	85	80	79	110	111	103	100	244	213
" "	3	1348	Dry	91	84	80	79	126	122	106	102	242	216
" "	4	1353	" 94°	94	86	81	80	123	125	107	103	273	240
" "	[a] 5	1358	"	88	80	78	78	111	105	89	85	130	117
	6	1414	" 92°	88	81	80	79	103	104	101	94	204	185
" "	7	1419	"	91	85	80	79	115	114	101	100	243	220
" "	8	1425	Dry	92	98	87	85	121	124	105	101	[b] 250	262
" "	9	1432	Dry	88	82	81	79	122	126	106	103	288	255
" "	10	1437	Dry	93	86	80	80	141	137	96	93	215	195

a - Slight delay, after stop #5, before stop #6 till temps cooler measured.

b - Parked vehicle 180°, in opposite direction, wind affecting cooling rate of rotors!

VEHICLE FORD EXPEDITION XLT (BLACK) DATE 7 OCT 98

~~80~~ 62 MPH BRAKE STOPS

Temperature* AMBIENT 75°

Test Configuration	Stop No.	Time (sec)*	Road Surface	Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR	ROTORS LF	ROTORS RF
DRY / PAYLOADED	INITIAL	13:42	78°	82	81	77	84	125	127	105	111	141	151
DRY / PAYLOADED	1	13:45	—	81	82	81	82	144	144	121	136	241	259
DRY / PAYLOADED	2	14:01	80°	80	86	82	85	153	168	124	134	233	255
DRY / PAYLOADED	3	14:12	—	82	86	84	85	160	166	149	162	267	298
DRY / PAYLOADED	4	14:22	84°	83	90	84	87	186	192	148	167	295	297
"	5	14:34	—	81	87	82	85	185	187	154	167	282	295
"	6	14:43	86°	84	95	83	85	204	205	165	170	326	353
"	7	14:51	—	80	96	81	89	178	201	151	159	330	290
"	8	15:02	86°	80	83	82	84	180	205	155	192	296	338
"	9	15:12	—	81	83	83	82	195	209	172	201	343	347
AFTER #9		15:32	79°					140	144	125	133	155	170
DRY / PAYLOADED	10	15:33	—	98	88	83	84	164	182	159	166	285	284
								150	158				

SUMMARY AFTER 10 MIN TEMP DOWN 15-25° ON FRONT
" 20 MIN TEMP " 50-70° ON FRONT

* WAITED ≈10 MIN BETWEEN EACH STOP

VEHICLE Ford Expedition (Black) DATE 8 OCT 98

WEATHER CONDITIONS ≈ 70°, RAINING

PAVEMENT CONDITION WET, FREE STANDING WATER

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No. *	Time (sec)	Road Surface	Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR
LOADED	PRE 1		—								
"	PRE 2	10:12	69	69	70	69	70	94 / 110	45 / 108	91 / 105	96 / 100
"	PRE 3	10:27	—	70	72	69	70	108 / 138	105 / 127	130 / 158	111 / 177
"	PRE 4	10:35	69					119 / 160	123 / 164	126 / 176	147 / 190
"	PRE 5	10:44	—					122 / 166	116 / 155	118 / 184	136 / 207
"	PRE 6	10:52	—					114 / 142	114 / 140	113 / 172	122 / 210
"	PRE 7	10:59	72					117 / 149	121 / 137	138 / 197	126 / 208
"	PRE 8	11:10	—					121 / 166	126 / 150	117 / 170	130 / 199
"	PRE 9	11:17	—					123 / 170	118 / 142	126 / 204	138 / 210
"	PRE 10	11:26	72					128 / 176	126 / 154	118 / 182	133 / 208

ALL 12 69 - 15 RANGE

COLD

* ALL TEMPS TAKEN RIGHT BEFORE RUNS

ROTOR SURFACE

TEMP @ SHOE BACKING PLATE SURFACE

NOTE; REAR DISK BRAKES

VEHICLE FORD EXPEDITION DATE 10/9/98 Greg Schultz

WEATHER CONDITIONS COOL / OVERCAST — OCCASIONAL VERY LIGHT DRIZZLE AFTER TEST STARTED

PAVEMENT CONDITION DRY — ROAD NEVER APPEARED WET

TARGET SPEED AT BRAKE APPLY 62.0 TIRE PRESSURE: LF 29.7 RF 29.8 LR 34.2 RR 34.2

Test Configuration	Stop No.	* WATCH HAS 3 MIN FAST Time (sec)	Temperature: Road Surface	Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR	
DRY / NO LOAD	1	8:30	68.0°F	—	—	67.2	68.1	102.4	105.4	86.0	83.6	- initial
"	2	9:00	68.2°F	71.0	75.6	65.3	68.1	97.0	98.1	70.3	77.8	- ran 1 lap before
"	3	9:10	67.0°F	68.2	82.6	65.6	74.9	105.6	116.8	92.4	76.5	- "
"	4	9:25	63.4°F	69.2	86.8	67.2	72.5	108.2	112.3	79.6	87.4	- ran 2 laps before
"	5	9:37	66.4°F	74.5	90.2	68.3	73.5	109.0	112.2	86.9	90.2	"
"	6	9:49	66.2	79.2	84.4	68.4	75.4	106.6	105.2	93.0	91.3	"
"	7	10:01	66.0	70.0	83.7	63.5	73.8	106.4	107.4	88.0	93.1	"
	8	10:14	64.6	70.1	85.8	71.9	68.5	110.1	116.3	97.6	97.1	
	9	10:27	65.4	71.3	86.6	69.4	72.8	102.5	113.1	94.2	96.0	
	10			72.7	80.0	—	—	101.8	111.0	—	—	← hard brake; road wet

VEHICLE [illegible] DATE [illegible] Jay Schultz

WEATHER CONDITIONS [illegible]

PAVEMENT CONDITION [illegible]

TARGET SPEED AT BRAKE APPLY [illegible]

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR	Rotors LF	Rotors RF
WET/[illegible]	1	[illegible]53	[illegible]6	[illegible]	[illegible]1	[illegible]	[illegible]	[illegible]	102	85	[illegible]	[illegible]	[illegible]
[illegible]	2	[illegible]	66	71	76	70	71	91	95	84	[illegible]	[illegible]	[illegible]
[illegible]	3	11:31	[illegible]	70.6	[illegible]	69.5	74.8	94	94.6	85.0	93.5	112	97.0
"	4	11:45	66.6	75.4	78.0	69.4	71.8	95.4	101.4	87.1	102.2	113.0	121.0
"	5	11:57	65.8	71.1	80.5	66.1	74.0	96.9	109.5	89.8	[illegible]	101.4	119.4
"	6	12:10	67.2	68.9	77.8	70.1	75.0	93.5	106.0	95.0	[illegible]	111.5	108.5
"	7	12:21	65.0	72.7	80.1	69.0	72.9	97.0	105.5	86.1	96.3	115.1	109.0
"	8	12:33	65.3	72.0	[illegible]	70.4	74.0	93.2	110.0	91.5	97.0	111.1	124.8
"	9	12:45	67.5	76.7	86.5	[illegible]	75.6	103.0	115.2	90.3	[illegible]	118.2	127.1
"	10	12:57	[illegible]	75.4	82.2	69.3	76.7	101.6	105.2	93.3	95.4	114.3	112.2

VEHICLE GRAND AM SE (GREEN) (BASELINE) DATE 7 OCT 98

WEATHER CONDITIONS 76°, PARTLY CLOUDY

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

OUTSIDE LINING (THERMOCOUPLE)

INSIDE LINING (THERMOCOUPLE)

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature* Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR
NO PAYLOAD	INITIAL	10:49	—	84	95	78	82	129 / 132	134 / 138	88 / 87	88 / 89
"	1	10:55	77	75	77	76	76	239 / 236	234 / 242	122 / 111	125 / 114
"	2	11:00	—	76	76	76	75	252 / 253	247 / 264	122 / 121	125 / 121
"	3	11:11	77	75	78	77	77	253 / 257	238 / 253	120 / 121	124 / 118
"	4	11:19	75	76	77	77	77	255 / 268	278 / 271	129 / 128	129 / 127
"	5	11:25	—	78	82	81	82	259 / 272	243 / 274	128 / 129	128 / 128
"	6	11:34	76	80	84	83	83	260 / 274	249 / 279	128 / 131	130 / 131

* ALL TEMPS TAKEN 1-2 MINUTES AFTER BRAKE STOP

LININGS WERE ALLOWED TO COOL BELOW 212°F.

DATA USED FOR PROCEDURE (ALLOWING LINING TO COOL BELOW 212°F)

VEHICLE GRAND AM SE (GREEN) (BASELINE) DATE 9 OCT 98

WEATHER CONDITIONS ≈ 70°, RAINING LIGHTLY

PAVEMENT CONDITION DAMP, NO FREE STANDING WATER

TARGET SPEED AT BRAKE APPLY 60 MPH

OUTSIDE LINING (THERMOCOUPLE)

INSIDE LINING (THERMOCOUPLE)

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR
UNLOADED	PRE 1	8:52						132 / 134	127 / 133	95 / 99	92 / 93
"	AFTER 1	8:54	69					196 / 208	192 / 218	111 / 113	108 / 111
"	PRE 2	8:57	—					199 / 201	191 / 203	106 / 107	104 / 102
"	AFTER 2	8:57	—					255 / 249	240 / 260	122 / 122	115 / 120
"	PRE 3	9:03	69					209 / 211	201 / 257	112 / 118	108 / 105
"	AFTER 3	9:05	—					244 / 253	236 / 267	124 / 126	118 / 124
"	AFTER 3 (PROBE)	9:06	—	PROBE PLACED ON SHOE BRAKING PLATE				126	138	105	112
"	PRE 4	9:11	—					200 / 205	201 / 210	103 / 106	104 / 105
"	PRE 4 (PROBE)	9:12	—					122	139		
"	AFTER 4	9:16	69					224 / 234	226 / 247	108 / 110	104 / 115
"	AFTER 4 (PROBE)	9:17	—					128			
"	PRE 5	9:23	—					187 / 196	192 / 194	94 / 100	103 / 99
"	PRE 5 (PROBE)	9:24	—					121	129		
"	AFTER 5	9:26	69					237 / 248	239 / 253	112 / 110	111 / 116
"	AFTER 5, AFTER COOLDOWN*	9:30	—					205 / 198	200 / 195	102 / 101	98 / 99
"	PRE 6 (PROBE)	9:32	—					121	124		
"	AFTER 6	9:35	—					216 / 217	215 / 230	107 / 107	104 / 108
"	AFTER 6 (PROBE)	9:36						117	117		

PROBE PLACED ON ROTOR SURFACE

ROTORS LF	RF
293	289
201	196
193	209

* COOL DOWN CONSISTED OF DRIVING VEHICLE DOWN RUNWAY AND BACK TO DATA AREA

VEHICLE [illegible] (BASELINE) DATE [illegible]

WEATHER CONDITIONS [illegible]

PAVEMENT CONDITION [illegible] TIRE PRESSURE: LF 30.7 RF 30.8 LR 29.7 RR 30.4

TARGET SPEED AT BRAKE APPLY 60

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF	Brakes LR	Brakes RR	Power LF	Power RF
DEL/No Payload	1	1:16		66.5	70.6	65.4	65.6	67.3	68.4	69.8	[illegible]	70.3	71.9
"			w/Abuse					68/75	68/75	[illegible]	[illegible]		
"	2	1:21		74.1	75.1	71.4	70.2	92.0	92.9	74.3	71.8	117.6	103.4
"			w/Abuse					133	127	79	77		
"	3	1:43		74.1	73.1	[illegible]	72.2	91.8	93.6	71.2	[illegible]	149.4	147.1
"			w/Abuse					155	148	36	84.0		
	4	1:55		[illegible]	78.4	74.3	75.0	100.1	104.1	78.1	79.3	162.6	147.6
			w/Abuse					161	162	87.0	94.0		
	5	2:08	70.6	76.1	73.5	72.8	72.5	97.3	104	75.1	76.6	163.4	153.0
			w/Abuse					155	150	85.0	85.0		
	6	2:21		74.4	78.6	74.2	74.6	103.2	105.8	[illegible]	79.2	168.0	165.8
			w/Abuse					157	157	94	88		

VEHICLE TOYOTA CAMRY LE (TAN) DATE 13 OCT 98

WEATHER CONDITIONS DRY, PARTLY CLOUDY, 61°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF	Brakes RF (ROTORS)	Brakes LR	Brakes RR (BRAKE DRUM)
DRY, NO PAYLOAD	PRE 1	13:25	80	77	76	77	76	81	77	76	76
DRY, NO PAYLOAD	PRE 2	13:47	82	80	78	77	77	106	109	95	93
"	PRE 3	13:56	81	81	77	78	77	127	132	95	93
"	PRE 4	14:09	81	80	75	75	75	169	162	102	99
"	PRE 5	14:20	79	78	77	78	77	147	139	104	95
"	PRE 6	14:30	78	77	77	76	76	131	129	99	93
"	PRE 7	14:39	80	81	77	77	76	138	137	103	99
"	PRE 8	14:51	80	84	75	75	76	140	131	95	98
"	PRE 9	15:01	80	82	76	75	75	132	131	104	99
"	PRE 10	15:12	81	85	76	75	75	132	133	96	101

VEHICLE TOYOTA CAMRY _ LE (TAN) DATE 10/14/98

WEATHER CONDITIONS SUNNY, 80°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

HEAT BLOWING INTO AREA FROM ENGINE

Test Configuration	Stop No.	Time (sec)	Temperature: Road Surface	Tires: LF	Tires: RF	Tires: LR	Tires: RR	Brakes: LF	Brakes: RF	Brakes: LR	Brakes: RR
DRY, PAYLOADED	PAL 1	14:40	86	81	82	74	79	131	136	77	86
DRY, PAYLOADED	PAL 2	14:52	89	—	—	—	—	130	122	92	90
"	PAL 3	15:24	88	96	81	81	79	115	109	86	84
"	PAL 4	15:32	85	—	—	—	—	130	117	100	92
"	PAL 5	15:43	84	89	76	80	78	120	128	101	96
"	PAL 6	15:53	84	—	—	—	—	140	130	110	108
"	PAL 7	16:02	86	83	75	75	74	134	113	106	110
"	PAL 8	16:11	86	—	—	—	—	131	122	113	105
"	PAL 9	16:22	84	85	77	78	75	131	117	107	109
"	PAL 10	16:32	85	—	—	—	—	128	119	110	107

VEHICLE TOYOTA CAMRY LE (TAN) DATE 10/14/98

WEATHER CONDITIONS SUNNY, 80° @ START

PAVEMENT CONDITION WET, VIA WATER TRUCK

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface (MEASURED ON DRY SURFACE)	Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF (ROTORS)	Brakes RF	Brakes LR (BRAKE DRUMS)	Brakes RR
WET, NO PAYLOAD	PRE 1	11:13	79	80	74	75	73	142	125	81	80
WET, NO PAYLOAD	PRE 2	11:26	82	86	74	75	73	147	110	88	87
"	PRE 3	11:36	84	84	78	76	74	128	120	92	91
"	PRE 4	11:47	85	86	76	74	74	120	126	92	88
"	PRE 5	11:58	83	84	73	75	74	125	122	88	90
"	PRE 6	12:13	85	85	74	75	73	124	120	94	95
"	PRE 7	12:24	85	85	76	77	76	124	119	93	90
"	PRE 8	12:36	86	99	75	76	74	117	117	91	85
"	PRE 9	12:50	87	102	75	75	72	114	106	92	89
"	PRE 10	13:02	86	99	74	77	73	123	109	92	86

HEAT BEING BLOWN INTO AREA

VEHICLE TOYOTA CAMRY - LE DATE 10/15/98

WEATHER CONDITIONS SUNNY, 68° @ START, WINDY (≈ 10-15 MPH)

PAVEMENT CONDITION WET, w/ WATER TRUCK

TARGET SPEED AT BRAKE APPLY 62 MPH

MEASURED IN WET SURFACE

HEAT BLOW DOWN INTO AREA

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature							
				Tires				Brakes			
				LF	RF	LR	RR	LF	RF	LR	RR
WET, PATTERNED	PRE 1	13:08	76	82	68	70	69	142	138	86	85
"	PRE 2	13:21	76	76	73	69	69	124	120	92	99
"	PRE 3	13:35	74	79	69	69	70	122	117	94	95
"	PRE 4	13:50	77	82	76	73	69	122	119	95	96
"	PRE 5	14:02	77	82	78	75	72	126	123	102	104
"	PRE 6	14:15	75	82	78	70	69	121	121	101	100
"	PRE 7	14:27	76	91	79	74	75	118	112	101	102
"	PRE 8	14:40	77	82	73	73	69	121	115	100	95
"	PRE 9	14:50	74	83	76	74	72	119	120	103	95
"	PRE 10	15:02	75	78	70	70	71	123	119	96	99
"	PRE 11	15:13	75	82	71	73	70	121	114	104	101
"	PRE 12	15:24	74	80	74	73	70	124	125	105	101

VEHICLE GRAND AM SE (GREEN) DATE 13 OCT 98

WEATHER CONDITIONS DRY, PARTLY CLOUDY 75° @ START

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes LF (Rotors)	Brakes RF (Rotors)	Brakes LR (Brake Pads)	Brakes RR (Brake Pads)	
DRY/NO PAVING	PRE 1	12:15	77°	72	75	72	73	159	170	96	85	(PROBE)
		12:15						139 / 140	133 / 133	100 / 104	91 / 97	(THERMO)
DRY/NO PAVING	PRE 2	12:31	83°	80	79	80	77	130	140	87	87	(PROBE)
		12:32						134 / 134	130 / 134	96 / 100	90 / 91	(THERMO)
"	PRE 3	12:44	83°	82	74	81	74	133	136	88	85	
		12:45						138 / 131	128 / 133	98 / 103	89 / 91	
"	PRE 4	12:54	84°	82	84	84	81	163	167	97	93	
		12:55						155 / 153	150 / 152	101 / 109	96 / 98	
"	PRE 5	13:03	85°	82	78	82	78	163	180	93	97	
		13:04						157 / 157	155 / 158	107 / 105	94 / 96	
"	PRE 6	13:15	90°	81	88	82	88	151	166	94	91	
		13:16						143 / 143	141 / 145	102 / 105	97 / 97	

VEHICLE GRAND AM SE (GREEN) DATE 10/14/98

WEATHER CONDITIONS SUNNY, 80°

PAVEMENT CONDITION DRY TIRE PRESSURE : 30 PSI

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature: Tires LF	Tires RF	Tires LR	Tires RR	Brakes (THERMOCOUPLES) LF	Brakes RF	Brakes LR	Brakes RR
DRY, NO PAYLOAD	PRE 1	13:23	86					129/134	119/131	87/87	84/81
DRY, NO PAYLOAD	PRE 2	13:35	84					142/143	136/141	87/89	84/82
"	PRE 3	13:48	87					152/150	147/149	94/93	84/84
"	PRE 4	14:01	89					149/147	147/149	98/96	84/85
"	PRE 5	14:13	92					142/143	132/132	100/98	87/88

VEHICLE GRAND AM SE (GREEN) DATE 10/15/98

WEATHER CONDITIONS SUNNY, 68° @ START

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Temperature								
			Road Surface	Tires				Brakes			
				LF	RF	LR	RR	LF	RF	LR	RR
DRY, UNPRIMED	PRE 1	9:15	67°					139 / 138	145 / 131	77 / 72	74 / 68
"	PRE 2	9:21	66°					137 / 130	150 / 150	83 / 82	74 / 77
"	PRE 3	9:28	68°					147 / 142	147 / 145	83 / 84	83 / 82

VEHICLE MALIBU/LS CHEVROLET DATE 10/19/78

WEATHER CONDITIONS OVERCAST, 66° @ START

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature: Road Surface	Brakes: LF	RF	LR	RR
DRY, FULL PAYLOAD	PRE 1	8:43	67°	85	86	67	68
DRY, FULL PAYLOAD	PRE 2	8:56	69°	103	107	80	76
"	PRE 3	9:13	72°	100	107	87	84
"	PRE 4	9:25	74°	104	111	88	86
"	PRE 5 (1)	9:38	75°	106	107	88	93
"	PRE 6 (2)	10:03	77°	105	113	93	85
"	PRE 7 (3)	10:15	81°	110	106	89	87
"	PRE 8 (4)	10:24	81°	111	109	96	86
"	PRE 9 (5)	10:35	82°	113	110	91	84
"	PRE 10 (6)	10:44	82°	117	109	89	85
"	PRE 11 (7)	10:53	79°	112	108	88	80
"	PRE 12 (8)	11:02	79°	125	123	92	84
"	PRE 13 (9)	11:12	80°	115	110	89	85
"	PRE 14 (10)	11:21	82°	118	107	90	87

SUN BROKE OUT

WIND PICKING UP (0-15 MPH)

VEHICLE MALIBU/65 CHEVROLET DATE 10/20/98

WEATHER CONDITIONS SUNNY

PAVEMENT CONDITION WET

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature				
			Road Surface	Brakes			
				LF	RF	LR	RR
WET, w/ PAYLOAD	PRE 1	10:49	71°	76	71	75	73
WET, w/ PAYLOAD	PRE 2	10:58	73°	118	116	86	85
"	PRE 3	11:08	73°	110	112	88	83
"	PRE 4	11:18	72°	117	116	89	79
"	PRE 5	11:28	72°	118	115	88	84
"	PRE 6	11:40	73°	108	110	87	82
"	PRE 7	11:54	73°	102	106	82	77
"	PRE 8	12:03	73°	116	108	86	78
"	PRE 9	12:27	74°	109	115	87	80
"	PRE 10	12:35	72°	118	126	93	85
"	PRE 11	12:44	72°	109	112	86	82
"	PRE 12	12:56	73°	106	110	81	78
"	PRE 13	13:05	72°	112	108	82	77
"	PRE 14	13:14	74°	114	121	95	85
"	PRE 15	13:23	74°	109	117	91	83
"	PRE 16	13:32	75°	107	112	82	80
"	PRE 17	13:42	74°	107	113	82	79
"	PRE 18	13:51	74°	112	123	89	83
"	PRE 19	13:59	74°	116	118	91	82

WIND PICKING UP

VEHICLE MALIBU/LS CHEVROLET DATE 10/21/99

WEATHER CONDITIONS OVERCAST, 58° @ START

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature				
			Road Surface	Brakes			
				LF	RF	LR	RR
DRY, NO PAYLOAD	PRE 1	8:44	58°	81	82	72	66
DRY, NO PAYLOAD	PRE 2	8:55	58°	93	99	73	66
"	PRE 3	9:04	58°	94	100	77	67
"	PRE 4	9:12	59°	95	100	75	67
"	PRE 5	9:20	60°	98	102	77	70
"	PRE 6	9:30	60°	96	97	75	67
"	PRE 7	9:38	61°	96	102	76	67
"	PRE 8	9:45	61°	98	100	74	66
"	PRE 9	9:52	61°	101	98	75	66
"	PRE 10	10:00	61°	100	105	76	67

VEHICLE MALIBU/LS CHEVROLET DATE 10/21/98

WEATHER CONDITIONS OVERCAST, 58° @ START

PAVEMENT CONDITION WET (FROM TRUCK)

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature				
			Road Surface	Brakes			
				LF	RF	LR	RR
WET, NO PAYLOAD	PRE 1	10:18	60°	93	96	70	65
WET, "	PRE 2	10:27	60°	96	99	75	66
WET, "	PRE 3	10:36	61°	89	91	74	66
WET, "	PRE 4	10:43	61°	99	98	73	67
"	PRE 5	10:53	61°	101	97	75	67
"	PRE 6	11:09	61°	96	93	74	67
"	PRE 7	11:17	60°	102	106	80	74
"	PRE 8	12:28	68°	65	65	65	64
"	PRE 9	12:41	68°	93	95	72	66
"	PRE 10	12:51	69°	103	105	77	70
"	PRE 11	13:01	71°	101	99	81	72
"	PRE 12	13:09	71°	104	96	82	74
"	PRE 13	13:18	71°	97	94	77	74

SUN BROKE OUT 67° 10-15 MPH WIND

VEHICLE GRAND AM SE DATE 10/19/98

WEATHER CONDITIONS SUNNY, 79° WINDY (10-15 MPH)

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Temperature (THERMO)				
			Road Surface	Brakes			
				LF	RF	LR	RR
DRY, UNPAYLOADED	PRE 1	11:35	83	87/91	84/91	77/77	75/74
"	PRE 2	11:45	79	147/146	153/156	88/86	88/87
"	PRE 3	12:03	79	155/162	170/172	93/93	90/91

VEHICLE GRAND AM SE DATE 10/20/98

WEATHER CONDITIONS SUNNY & CLEAR, NO WIND, 63°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Temperature				
			Road Surface	Brakes			
				LF	RF	LR	RR
DRY, UNPAYLOADED	PRE 1	9:52	69°	124/125	92/100	75/75	66/64
"	PRE 2	10:02	74°	150/149	147/149	86/87	78/78
"	PRE 3	10:12	76°	148/145	155/156	86/87	84/85

VEHICLE GRAND AM SE DATE 10/21/98

WEATHER CONDITIONS OVERCAST, 64° @ START

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Temperature: Road Surface	Brakes: LF	Brakes: RF	Brakes: LR	Brakes: RR
DRY, UNLOADED	PRE 1	11:43	72°	64/46	59/60	61/62	57/58
"	PRE 2	11:47	73°	151/148	146/152	68/68	75/73
"	PRE 3	11:56	75	138/134	144/146	77/78	72/74
"	PRE 4	12:05	75°	152/148	158/158	81/84	76/77
"	PRE 5	12:16	77°	157/152	159/159	81/83	77/79

SUN CAME OUT

VEHICLE CADILLAC DEVILLE DATE 10/22/98

WEATHER CONDITIONS OVERCAST 59°, WINDY (20-25 MPH)

PAVEMENT CONDITION DRY DRIVER: ED SURLAC

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature: Road Surface	Brakes: LF	RF	LR	RR
DRY, PAYLOADED	PRE 1	13:05	63°	112	107	76	74
"	PRE 2	13:28	64°	96	94	88	86
"	PRE 3	13:38	66°	102	92	89	84
"	PRE 4	13:47	68°	99	96	93	92
"	PRE 5	13:56	68°	108	96	102	93
"	PRE 6	14:04	68°	108	112	100	96
"	PRE 7	14:13	67°	99	105	92	91
"	PRE 8	14:22	66°	100	102	97	96
"	PRE 9	14:30	66°	106	98	94	95
"	PRE 10	14:39	67°	105	111	100	92

Scan Blob out

G.Sel 'z

VEHICLE CADILLAC DEVILLE DATE 10-23-98

WEATHER CONDITIONS SUNNY, CLEAR, NO WIND (LIGHT X-WIND AS DAY WENT ON)

PAVEMENT CONDITION WET DRIVER: ED SURLAC

TARGET SPEED AT BRAKE APPLY

Temperature 51.6°F

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR
WET/FULL	1	9:36	63.4	65.5	57.0	59.3	51.6
"	2	9:47	61.5	87.4	87.8	79.9	74.1
"	3	9:58	63.5	94.8	98.5	83.2	86.8
"	4	10:05	66.3	103.3	91.0	86.3	81.2
"	5	10:15	65.2	103.0	105.9	87.8	82.5
"	6	10:35	67.1	94.0	97.9	90.1	73.2
"	7	10:45	67.0	93.0	101.0	80.3	84.8
"	8	10:55	67.4	104.8	109.8	91.1	80.1
"	9	11:04	69.6	100.9	102.2	87.8	76.1
"	10	11:14	69.0	98.7	105.0	92.7	80.1

VEHICLE CADDY DEVILLE DATE 10-23-98

WEATHER CONDITIONS SUNNY, CLEAR, SLIGHT X-WIND DRIVER: KENNY SHROEDER

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62

Temperature 62°F

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR	
DRY / EMPTY	1	2:50	75.5	96.0	108.0	80.0	79.6	
		~~3:00~~	~~81.5~~	~~111.0~~	~~117.1~~	~~86.4~~	~~85.0~~	BAD STOP
	2	3:10	81.0	110.4	128.6	90.0	83.0	
	3	3:20	80.9	110.0	142.4	95.0	90.0	
	4	3:28	79.7	109.8	133.1	100.3	89.6	
	5	3:37	76.6	113.8	125.1	100.5	94.5	
	6	3:45	77.6	123.1	141.1	102.1	99.2	Drove Longer
	7	4:57	79.1	109.2	104.3	89.6	86.5	
	8	4:10	76.8	95.7	105.9	86.4	78.3	
	9	4:20	74.4	97.2	129.1	91.7	84.0	Shortened Drive Slightly
	10	4:30	74.4	110.1	117.8	92.8	84.8	
	11	4:40	74.4	104.8	125.7	96.7	86.9	
	12	4:51	72.4	96.1	109.5	87.0	79.0	
	13	5:03	71.8	100.2	118.6	92.5	86.6	

VEHICLE CADDY DEVILLE DATE 10-23-98

WEATHER CONDITIONS SUNNY, CLEAR, SLIGHT CROSS WIND DRIVER: ED WIRLAC

PAVEMENT CONDITION WET

TARGET SPEED AT BRAKE APPLY 62 MPH

Temperature 61°F (FROM CHART) START

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR
WET/NO LOAD	1	1:05	80.8	117.0	124.8	93.4	82.0
"	2	1:14	81.0	105.5	119.7	93.2	81.1
"	3	1:24	77.8	107.0	124.5	86.4	80.2
"	4	1:33	77.1	99.0	114.1	88.1	78.3
"	5	1:43	77.5	102.5	136.9	86.6	80.6
"	6	1:53	79.1	103.2	130.5	87.3	84.8
"	7	2:04	79.6	111.4	110.6	82.4	78.5
"	8	2:14	77.6	106.5	123.8	89.4	81.9
"	9	2:24	77.1	114.0	109.9	99.3	86.8
"	10	2:33	81.0	108.5	118.0	90.9	83.2

Driver used brakes more when pulling in

Note: Rotors never got very hot. All 4 were comfortable to touch throughout testing

VEHICLE GRAND AM SE

DATE 10/22/98

WEATHER CONDITIONS OVERCAST 56°, WINDY (20-25 MPH)

PAVEMENT CONDITION DRY

DRIVER: ED SURLAC

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature			
				Brakes			
				LF	RF	LR	RR
DRY, UNEQUALIZED	PRE 1	15:00	63°	58/62	56/61	56/57	54/56
"	PRE 2	15:05	62°	133/132	135/141	70/68	67/66
"	PRE 3	15:12	62°	144/141	152/155	75/77	75/73

VEHICLE CADDY DEVILLE DATE 10-23-98

WEATHER CONDITIONS SUNNY, CLEAR, NO WIND DRIVER: ED SURLAC

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62

Temperature 58.0°F

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR
FULL / DRY	1	11:24	70.8	101.3	108.9	89.8	83.1
"	2	11:35	73.0	111.7	123.1	99.6	81.1
"	3	11:44	70.6	103.6	103.7	93.0	82.5

G. Schultz

Ed Surface => Driver

VEHICLE GRAND AM

DATE 10-23-98

WEATHER CONDITIONS SUNNY, CLEAR, NO WIND, AMBIENT TEMP 46°

PAVEMENT CONDITION DRY (EMPTY)

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature			
				Brakes			
				LF	RF	LR	RR
DRY EMPTY	1	8:46	56.6	97.0	89.3	67.5	58.0
"	2	9:03	56.6	RECORDED SEE VEPA FILE			
"	3	9:11	56.9		"		

VEHICLE DODGE CARAVAN DATE 10/30/98

WEATHER CONDITIONS DRY / SUNNY 71°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature Brakes (ROTORS / DRUMS) LF	RF	LR	RR
DRY/PAYLOADED	PRE 1	11:33	77°	174	153	95	87
"	PRE 2	11:44	78°	148	132	92	85
"	PRE 3	11:56	78°	138	125	89	83
"	PRE 4	12:07	79°	143	123	88	80
"	PRE 5	12:19	80°	149	135	91	83
"	PRE 6	12:30	80°	148	129	88	83
"	PRE 7	12:42	79°	150	131	89	83
"	PRE 8	12:53	78°	149	126	91	83
"	PRE 9	13:03	77°	160	144	92	84
"	PRE 10	13:14	77°	142	128	90	84

VEHICLE DODGE CARAVAN

DATE 11/3/98

WEATHER CONDITIONS DRY 52°

PAVEMENT CONDITION WET (water truck)

TARGET SPEED AT BRAKE APPLY 62 mph

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature			
				Brakes			
				LF	RF	LR	RR
WET-FULLLOAD	1	13:15	62°	100°	90°	68°	65°
WET FULLLOAD	1	13:31	62°	[illegible]	126°	[illegible]	[illegible]
" " "	2	13:39		[illegible]	131°	74°	[illegible]
" " "	3	13:46		132°	121°	77°	71°
" " "	4	13:55		134°	117°	66°	76°
" " "	5	14:05		147°	123°	70°	74°
" " "	6	14:13	63°	148°	123°	76°	75°
" " "	7	14:24	"	153°	133°	77°	77°
" " "	8	14:32		175°	144°	80°	77°
" " "	9	14:40		146°	128°	77°	76°
" " "	10	14:49		172°	132°	76°	77°
" " "	11	14:58		170°	136°	75°	79°
" " "	12	15:06		165°	135°	77°	78°
" " "	13	15:13		151	131	75°	77

VEHICLE DODGE CARAVAN DATE 11/3/98

WEATHER CONDITIONS DRY 46° OVERCAST

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 mph

Temperature 46

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR
Wet NO-LOAD	1	9:16	WET	61	63	52	48
" "	2	9:28	WET	82	82	64	63
" "	3	9:49	WET	91	87	63	59
" "	4	10:00	"	133	114	57	64
" "	5	10:09	"	135	116	64	65
" "	6	10:19	"	135	121	64	64
" "	7	10:29	"	134	118	64	64
" "	8	10:37	"	140	116	63	61
" "	9	10:45	"	139	119	64	64
" "	10	10:53	"	136	120	63	63
" "	11	11:05	"	136	126	75	70
" "	12	11:10	"	145	129	66	63

VEHICLE DODGE CALAVAN

DATE 11/2/98

WEATHER CONDITIONS SUNNY / 63°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature					
			Road Surface	Brakes				
				LF	RF	LR	RR	
DRY, NO PAYLOAD	PRE 1	9:41	65°	64	63	63	62	
DRY, NO PAYLOAD	PRE 2	9:54	66°	140	119	75	67	
"	PRE 3	10:04	66°	132	110	76	69	
"	PRE 4	10:15	67°	138	116	78	71	
"	PRE 5	10:27	67°	144	125	80	73	
"	PRE 6	10:37	68°	138	123	80	74	
"	PRE 7	10:58	70°	152	130	79	74	DID STOP NO DRAG @ 10:4
"	PRE 8	11:08	70°	148	135	82	76	
"	PRE 9	11:18	71°	141	126	79	75	
"	PRE 10	11:28	71°	153	134	80	74	
"	PRE 11	11:38	72°	144	126	80	76	

VEHICLE GRAND_AM DATE 10-30-98

WEATHER CONDITIONS DRY SUNNY 67°, WINDY (5-10 MPH)

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 mph

Test Configuration	Stop No.	Time (sec)	Temperature				
			Road Surface	Brakes			
				LF	RF	LR	RR
DRY NO LOAD	PRE 1	13:58	77°	65/67	63/65	65/67	64/65
"	PRE 2	14:03	77°	152/157	154/160	76/75	83/79
"	PRE 3	14:24	78°	159/160	158/160	77/88	80/83
"	PRE 4	14:39	78°	160/160	160/162	84/87	79/81

VEHICLE GRAND AM

DATE 11/2/98

WEATHER CONDITIONS SUNNY, 59°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature			
				Brakes			
				LF	RF	LR	RR
DRY - NO LOAD	PRE 1	9:06	62°	146/145	150/145	88/85	77/76
"	PRE 2	9:14	62°	156/157	156/156	79/81	82/80
"	PRE 3	9:22	64°	155/152	157/157	82/84	80/82
"	PRE 4	9:30	64°	154/151	153/153	83/82	79/80
		GRAND AM		11/3/98			
		OVERCAST	62°	DRY			
"	~~1~~	~~15:28~~	~~62°~~	~~70/69~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~
"	1	15:40	62°	74/110	67/84	112/113	69/63
"	2	15:46	62°	75/149	80/75	148/147	79/73
"	3	15:51	62°	76/158	82/79	155/154	84/78
					SWITCH COLUMNS		

VEHICLE Dodge RAM 4x4 DATE 11/6/98

WEATHER CONDITIONS SUNNY SLIGHT XWIND

PAVEMENT CONDITION WET

TARGET SPEED AT BRAKE APPLY 62 MPH

Temperature 52.8 (start) 52.4 (END)

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR	
WET, EMPTY								
"	1	1555	61.7	126.0	145.1	76.7	79.6	NO LOCK
"	2	1602	↑	134.8	160.7	77.4	79.9	NO LOCK
"	3	1608		139.5	153.2	75.9	81.1	NO LOCK
"	4	1615		141.8	160.6	72.8	74.7	NO LOCK
"	5	1622		141.5	160.4	71.2	74.5	NO LOCK
"	6	1629		139.6	163.3	70.7	77.8	NO LOCK
"	7	1635		140.5	165.1	74.4	76.5	NO LOCK
"	8	1641		146.8	164.9	74.4	77.2	NO LOCK
"	9	1647	↓	150.7	163.6	76.2	75.2	NO LOCK
"	10	1654	54.1	144.7	165.5	74.3	74.4	NO LOCK

VEHICLE DODGE RAM 4x4

DATE 11/6/98

WEATHER CONDITIONS MOSTLY SUNNY LIGHT X-WIND

PAVEMENT CONDITION WET

TARGET SPEED AT BRAKE APPLY 62 MPH

Temperature 63.6 52.8 (END)

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR	
DRY ; EMPTY	1	13:01	62.2	119.7	139.8	83.8	77.7	LOCK BOTH FR @ VERY END
"	2	13:10		127.9	144.5	74.2	72.8	NO LOCK
"	3	1320		123.0	147.4	71.6	73.4	NO LOCK
"	4	1327		122.0	149.7	71.6	73.1	NO LOCK [DRIVE NOTICED ABS]
"	5	1333		127.6	148.5	70.8	73.8	NO LOCK
"	CHASED	OUT FOR	1 1/2 HR					
"	6	1513	64.8	129.6	155.8	76.0	77.0	RF LOCK
"	7	1520		150.3	134.5	75.0	76.1	NO LOCK
"	8	1527		156.1	156.1	78.8	79.8	NO LOCK
"	9	1533		140.8	163.5	78.7	82.3	NO LOCK
"	10	1540		147.8	168.3	76.9	80.3	NO LOCK
PANIC STOP	11	1546	61.7	143.4	164.3	70.6	76.2	SERIOUS LOCK

VEHICLE GRAND AM

DATE 11/6/98

WEATHER CONDITIONS DUSK, DRY, CLEAR

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY

Temperature 52.4

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR
DRY, EMPTY	1	1708	54.1	SEE VEPA FILE			
"	2	1712		74	142	68	66
"	3			80.	SEE VEPA FILE		
"	4						
"				BAD			
"							
"							
"							
"							
"							
"							
"							

MILEAGE 14,840

VIN # 1B7HF16Z0WS650733

VEHICLE DODGE RAM

DATE 11-16-96

WEATHER CONDITIONS DRY OVERCAST 50 °F STEADY XWIND ≈ 10 MPH

PAVEMENT CONDITION DRY 48 °F

DRIVER: HERSEY

TARGET SPEED AT BRAKE APPLY 62 mph

Temperature 48°F

Test Configuration	Stop No.	Time (sec)	Road Surface	Brakes LF	RF	LR	RR	
DRY Full	—	0820	48°F	59.0	85.1	58.9	58.1	NO GOOD
"	—	0832		98.1	92.3	68.1	66.0	BRIEF LOCK RF
"	1			156.6	160.6	88.1	76.8	NO LOCK
"	—	0850	52.5°F	134.7	157.6	73.1	73.2	LOCK UP RF
"	2	0858	53.5	145.2	123.7	69.0	75.4	NO LOCK
"	3	0905	51.6	123.5	137.6	77.9	67.7	NO LOCK
"	4	0913		136.6	147.5	71.5	78.0	NO LOCK
"	—	0919		132.1	148.9	79.7	74.7	CHIRP LOCK
"	5	0927		133.7	146.8	81.8	75.1	NO LOCK
"	6	0934	53.4	133.8	144.9	78.0	76.5	NO LOCK
"	7	0941		130.8	156.2	79.6	80.0	NO LOCK
"	8	0948		134.5	155.6	82.0	81.2	NO LOCK
"	9	0955		136.8	156.1	81.0	83.5	NO LOCK
	10	1002	53.5	123.0	147.5	79.3	77.0	LOCK

Note: Truck has Rear ABS Only — Did best efforts attempting not to lock front

BLG

VEHICLE CHEVROLET EXPRESS 1-TON (VAN) DATE 12 NOV 98

WEATHER CONDITIONS SUNNY 56°

PAVEMENT CONDITION WET

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature: Brakes (Rotors / Drums) LF	RF	LR	RR
WET, W/ PAYLOAD	PRE 1	10:24	62°	165	138	122	116
"	PRE 2	10:31	62°	203	199	133	145
"	PRE 3	10:41	63°	168	154	135	119
"	PRE 4	10:49	64°	158	146	128	119
"	PRE 5	10:58	63°	150	146	120	112
"	PRE 6	11:06	64°	158	148	125	118
"	PRE 7	11:14	63°	162	156	128	114
"	PRE 8	11:21	64°	166	162	119	110
"	PRE 9	11:30	64°	165	176	124	115
"	PRE 10	11:38	63°	171	158	119	110
"	PRE 11	11:47	63°	165	155	119	108

EXTEND COOLDOWN

VEHICLE CHEVROLET EXPRESS 1-TON

DATE 12 NOV 98

WEATHER CONDITIONS SUNNY, 51°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature ☆ Brakes (Rotors / Drums) LF	RF	LR	RR
DRY, w/ PAYLOAD	PRE 1	8:36	52°	104	84	100	94
"	PRE 2	8:51	54°	112	97	114	106
"	PRE 3	9:16	58°	80	80	90	86
"	PRE 4	9:26	59°	83	99 *	92	103
"	PRE 5	9:35	60°	100	129	112	106
"	PRE 6	9:42	60°	162	129	116	114
"	PRE 7	9:50	61°	181	153	126	117
"	PRE 8	9:58	62°	193	182	111	124
"	PRE 9	10:05	64°	181	164	115	124
"	PRE 10	10:13	64°	230	179	130	117
"							

DELAY FOR PLANE

☆ ROTOR & DRUMS HARD TO GET TO W/ PROBE. NO GUARANTEE PROBE WAS PLACED IN EXACT SAME SPOT EVERY TIME.

* FOUND TRUE ROTOR, AREA HARD TO GET TO W/ PROBE

VEHICLE CHEVROLET ASTRO DATE 18 NOV 98

WEATHER CONDITIONS SUNNY, 61°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature			
				Brakes			
				LF	RF	LR	RR
DRY, NO PAYLOAD	PRE 1	15:02	[illegible]	169	178	105	96
"	PRE 2	15:06	68°	184	193	114	103
"	PRE 3	15:10	67°	172	180	99	93
"	PRE 4	15:14	67°	185	197	103	98
"	PRE 5	15:19	68°	166	175	98	95
"	PRE 6	15:24	67°	175	180	106	96
"	PRE 7	15:30	67°	160	173	95	91
"	PRE 8	15:35	67°	152	165	103	93
"	PRE 9	15:40	66°	152	164	104	90
"	PRE 10	15:45	66°	170	178	107	99

VEHICLE Chev Van 1-TON

DATE 12 NOV 98

WEATHER CONDITIONS SUNNY, 63°

PAVEMENT CONDITION WET

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature			
				Brakes			
				LF	RF	LR	RR
WET, NO PAYLOAD	PRE 1	13:19	64°	101	112	95	84
"	PRE 2	13:26	64°	143	138	163	84
"	PRE 3	13:33	64°	166	149	105	93
"	PRE 4	13:41	63°	158	146	113	91
"	PRE 5	13:49	63°	167	155	106	90
"	PRE 6	13:56	63°	167	145	109	92
"	PRE 7	14:03	63°	160	145	110	88
"	PRE 8	14:11	62°	169	150	102	92
"	PRE 9	14:17	63°	182	154	112	88
"	PRE 10	14:24	62°	172	164	107	86
"	PRE 11	14:31	62°	163	155	105	86

VEHICLE CHEVROLET ASTRO DATE 18 MAY 98

WEATHER CONDITIONS SUNNY, 70°

PAVEMENT CONDITION WET

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature				
			Road Surface	Brakes			
				LF	RF	LR	RR
WET, PAYLOADED	PRE 1	10:51	66°	128	130	106	97
"	PRE 2	10:58	66°	137	141	110	103
"	PRE 3	11:05	67°	145	152	109	100
"	PRE 4	11:12	67°	140	142	121	110
"	PRE 5	13:02	63°	144	157	119	104
"	PRE 6	13:09	63°	134	146	116	95
"	PRE 7	13:16	64°	149	149	117	101
"	PRE 8	13:21	[illegible]	149	151	115	104
"	PRE 9	13:28	[illegible]	147	145	112	102
"	PRE 10	13:34	[illegible]	138	151	120	100
"	PRE 11	13:40	[illegible]	142	157	115	98
"	PRE 12	13:47	65°	152	161	118	103
"	PRE 13	13:53	65°	148	161	123	108
"	PRE 14	13:59	64°	150	158	117	104

BREAK

VEHICLE GRAND AM SE

DATE 12 NOV 98

WEATHER CONDITIONS SUNNY

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

BAD THERMOCOUPLE

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature Brakes LF	RF	LR	RR
DRY, UNPAVED ROAD	PRE 1	16:15	63°	75 / 130	135 / 142	82 / 80	85 / 80
"	PRE 2	16:20	62°	75 / 155	160 / 157	86 / 86	82 / 84
"	PRE 3	16:26	62°	75 / 153	159 / 156	85 / 88	82 / 83
"	PRE 4	16:33	60°	75 / 152	156 / 154	87 / 89	87 / 85
"							
"							
"							
"							
"							
"							

VEHICLE GRAND AM

DATE 18 NOV 98

WEATHER CONDITIONS SUNNY, 58° (10-15 MPH WIND)

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature (Brakes) LF	RF	LR	RR
				TRUCK IN GOOD			
DRY, NO PAYLOAD	PRE 1	8:50	57°	75 / 159	159 / 148	85 / 82	79 / 74
"	PRE 2	8:55	57°	75 / 157	142 / 159	85 / 85	80 / 76
"	PRE 3	9:00	57°	75 / 151	138 / 155	85 / 85	80 / 79
"	PRE 4	9:07	58°	76 / 148	151 / 149	80 / 82	79 / 81

VEHICLE CHEVROLET ASTRO DATE 18 NOV 98

WEATHER CONDITIONS SUNNY, 66° (10-15 MPH)

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature: Road Surface	Brakes (ROTORS): LF	Brakes (ROTORS): RF	Brakes (DRUMS): LR	Brakes (DRUMS): RR	
DRY, PAYLOADED	PRE 1	9:15	58°	80	72	65	61	1 LAP COOL DOWN
"	PRE 2	9:30	60°	110	120	82	72	
"	PRE 3	9:37	61°	120	126	100	89	
"	PRE 4	9:47	63°	98	109	98	84	
"	PRE 5	9:58	64°	107	112	96	85	
"	PRE 6	10:03	64°	165	164	116	107	LESS THAN 1 LAP COOL DOWN
"	PRE 7	10:08	65°	177	188	121	114	
"	PRE 8	10:14	66°	146	151	117	108	
"	PRE 9	10:21	66°	173	189	126	115	
"	PRE 10	10:27	67°	184	191	122	118	
"	PRE 11	10:33	67°	185	194	135	127	
"	PRE 12	10:41	68°	152	165	127	106	

VEHICLE Pontiac Bonneville DATE 20 Nov 98

WEATHER CONDITIONS Overcast, 63°

PAVEMENT CONDITION Wet

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Temperature				
			Road Surface	Brakes (Rotors) LF	RF	Brakes (Drums) LR	RR
Wet, No Payload	Pre 1	12:14	66	144	150	89	85
Wet, No Payload	Pre 2	12:28	65	166	172	93	88
"	Pre 3	12:34	65	175	189	94	89
"	Pre 4	12:39	65	193	199	97	90
"	Pre 5	12:46	66	166	165	96	93
"	Pre 6	12:51	65	163	170	92	95
"	Pre 7	12:58	65	175	177	95	92
"	Pre 8	13:04	65	165	168	93	90
"	Pre 9	13:10	65	166	175	94	92
"	~~Pre 9~~	~~13:19~~	~~64~~	~~155~~	~~151~~	94	87
"	Pre 9	13:31	64	130	158	88	84
"	Pre 10	13:39	63	147	150	90	88

VEHICLE CHEVROLET ASTRO DATE 13 NOV 98

WEATHER CONDITIONS SUNNY, 65°

PAVEMENT CONDITION DRY

TARGET SPEED AT BRAKE APPLY 62 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature			
				Brakes			
				LF	RF	LR	RR
WET, NO PAYLOAD	PRE 1	14:40	64°	126	128	84	80
"	PRE 2	14:50	63°	135	139	90	84
"	PRE 3	14:52	63°	155	165	103	89
"	PRE 4	15:51	59°	159	168	94	89
"	PRE 5	15:56	58°	171	184	104	93
"	PRE 6	16:01	58°	170	175	100	93
"	PRE 7	16:06	57°	163	171	98	90
"	PRE 8	16:12	56°	158	165	93	88
"	PRE 9	16:18	56°	161	168	95	88
"	PRE 10	16:24	55°	159	163	92	87
"							

VEHICLE Grand Am

DATE 20 NOV 98

WEATHER CONDITIONS Overcast, 66°

PAVEMENT CONDITION Dry

TARGET SPEED AT BRAKE APPLY 60 MPH

Test Configuration	Stop No.	Time (sec)	Road Surface	Temperature			
				Brakes			
				LF	RF	LR	RR
Dry, no Payload	Pull 1	15:12	69°	79 / 158	165 / 160	91 / 87	89 / 84
Dry, no Payload	Pull 2	15:20	68°	77 / 153	169 / 167	90 / 40	82 / 41
"	Pull 3	15:28	69°	75 / 116	132 / 177	87 / 37	50 / 32

20 MAY 7-

PONTIAC BONNEVILLE
CONDITIONS SUNNY w/ FOG (61° @ START)
ROAD SURFACE DRY
TARGET SPEED 62 MPH

CONFIGURATION	STOP NO.	TIME	TEMPERATURES: ROAD SURFACE	LF (ROTORS)	RF (ROTORS)	LR (DRUMS)	RR (DRUMS)
DRY, PAYLOADED	PRE 1	8:27	60	162	175	95	90
"	PRE 2	8:32	60	170	181	102	98
"	PRE 3	8:40	60	179	189	100	98
"	PRE 4	8:47	60	180	193	106	99
"	~~PRE 4~~	~~8:56~~	~~60~~	~~148~~	~~155~~	~~95~~	~~88~~
"	PRE 5	9:02	61	170	182	100	94
"	PRE 6	9:12	61	168	175	110	103
"	PRE 7	9:18	62	180	193	115	110
"	PRE 8	9:25	62	179	196	110	108
"	PRE 9	9:31	63	176	190	112	105
"	PRE 10	9:37	63	179	195	113	111
"	PRE 11	9:44	64	176	183	110	106
WET, PAYLOADED	PRE 1	9:51	62	152	165	105	102
"	PRE 2	9:57	62	170	177	107	107
"	PRE 3	10:03	63	166	168	113	108
"	PRE 4	10:09	62	172	170	110	105
"	PRE 5	10:14	64	175	185	105	105
"	PRE 6	10:20	64	170	183	111	106
"	PRE 7	10:26	63	178	189	110	103
"	PRE 8	10:35	63	166	170	107	105
"	PRE 9	11:00	64	168	165	105	100
"	PRE 10	11:06	64	166	172	110	104

DOWN TIME
TEMPS RECORDED 19 MIN BEFORE RUN (10:54)