

§ 1039.815

TABLE 2 OF § 1039.810.—SAE MATERIALS

Document number and name	Part 1039 reference
SAE J1930, Electrical/Electronic Systems Diagnostic Terms, Definitions, Abbreviations, and Acronyms, revised May 1998 ...	1039.135

§ 1039.815 What provisions apply to confidential information?

(a) Clearly show what you consider confidential by marking, circling, bracketing, stamping, or some other method.

(b) We will store your confidential information as described in 40 CFR part 2. Also, we will disclose it only as specified in 40 CFR part 2. This applies both to any information you send us and to any information we collect from inspections, audits, or other site visits.

(c) If you send us a second copy without the confidential information, we will assume it contains nothing confidential whenever we need to release information from it.

(d) If you send us information without claiming it is confidential, we may make it available to the public without

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further notice to you, as described in 40 CFR 2.204.

§ 1039.820 How do I request a hearing?

(a) You may request a hearing under certain circumstances, as described elsewhere in this part. To do this, you must file a written request, including a description of your objection and any supporting data, within 30 days after we make a decision.

(b) For a hearing you request under the provisions of this part, we will approve your request if we find that your request raises a substantial factual issue.

(c) If we agree to hold a hearing, we will use the procedures specified in 40 CFR part 1068, subpart G.

APPENDIX I TO PART 1039 [RESERVED]

APPENDIX II TO PART 1039—STEADY-STATE DUTY CYCLES FOR CONSTANT-SPEED ENGINES

(a) The following duty cycle applies for discrete-mode testing of constant-speed engines:

D2 mode number	Engine speed ¹	Torque (percent) ²	Weighting factors
1	Maximum test speed	100	0.05
2	Maximum test speed	75	0.25
3	Maximum test speed	50	0.30
4	Maximum test speed	25	0.30
5	Maximum test speed	10	0.10

¹ Maximum test speed is defined in 40 CFR part 1065.

² Except as noted in § 1039.505, the percent torque is relative to maximum test torque.

(b) The following duty cycle applies for ramped-modal testing of constant-speed engines:

RMC mode	Time in mode (seconds)	Engine speed	Torque (percent) ^{1,2}
1a Steady-state	53	Engine Governed	100.
1b Transition	20	Engine Governed	Linear transition.
2a Steady-state	101	Engine Governed	10.
2b Transition	20	Engine Governed	Linear transition.
3a Steady-state	277	Engine Governed	75.
3b Transition	20	Engine Governed	Linear transition.
4a Steady-state	339	Engine Governed	25.
4b Transition	20	Engine Governed	Linear transition.
5 Steady-state	350	Engine Governed	50.

¹ The percent torque is relative to maximum test torque.

² Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

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APPENDIX III TO PART 1039—STEADY-STATE DUTY CYCLES FOR VARIABLE-SPEED ENGINES WITH MAXIMUM POWER BELOW 19 kW

(a) The following duty cycle applies for discrete-mode testing of variable-speed engines with maximum power below 19 kW:

G2 mode number	Engine speed ¹	Observed torque (percent) ²	Weighting factors
1	Maximum test speed	100	0.09
2	Maximum test speed	75	0.20
3	Maximum test speed	50	0.29
4	Maximum test speed	25	0.30
5	Maximum test speed	10	0.07
6	Idle	0	0.05

¹ Speed terms are defined in 40 CFR part 1065.

²The percent torque is relative to the maximum torque at the commanded test speed.

(b) The following duty cycle applies for ramped-modal testing of variable-speed engines with maximum power below 19 kW:

RMC mode	Time in mode (seconds)	Engine speed ^{1,3}	Torque (percent) ^{2,3}
1a Steady-state	41	Warm Idle	0.
1b Transition	20	Linear transition	Linear transition.
2a Steady-state	135	Maximum Test Speed	100.
2b Transition	20	Maximum Test Speed	Linear transition.
3a Steady-state	112	Maximum Test Speed	10.
3b Transition	20	Maximum Test Speed	Linear transition.
4a Steady-state	337	Maximum Test Speed	75.
4b Transition	20	Maximum Test Speed	Linear transition.
5a Steady-state	518	Maximum Test Speed	25.
5b Transition	20	Maximum Test Speed	Linear transition.
6a Steady-state	494	Maximum Test Speed	50.
6b Transition	20	Linear transition	Linear transition.
7 Steady-state	43	Warm Idle	0.

¹ Speed terms are defined in 40 CFR part 1065.

²The percent torque is relative to the maximum torque at the commanded engine speed.

³ Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

APPENDIX IV TO PART 1039—STEADY-STATE DUTY CYCLES FOR VARIABLE-SPEED ENGINES WITH MAXIMUM POWER AT OR ABOVE 19 kW

(a) The following duty cycle applies for discrete-mode testing of variable-speed engines with maximum power at or above 19 kW:

C1 mode number	Engine speed ¹	Observed torque (percent) ²	Weighting factors
1	Maximum test speed	100	0.15
2	Maximum test speed	75	0.15
3	Maximum test speed	50	0.15
4	Maximum test speed	10	0.10
5	Intermediate test speed	100	0.10
6	Intermediate test speed	75	0.10
7	Intermediate test speed	50	0.10

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C1 mode number	Engine speed ¹	Observed torque (percent) ²	Weighting factors
8	Idle	0	0.15

¹ Speed terms are defined in 40 CFR part 1065.

² The percent torque is relative to the maximum torque at the commanded test speed.

(b) The following duty cycle applies for engines with maximum power at or above 19 kW:

RMC Mode	Time in mode (seconds)	Engine speed ^{1,3}	Torque (percent) ^{2,3}
1a Steady-state	126	Warm Idle	0.
1b Transition	20	Linear Transition ²	Linear Transition.
2a Steady-state	159	Intermediate Speed	100.
2b Transition	20	Intermediate Speed	Linear Transition.
3a Steady-state	160	Intermediate Speed	50.
3b Transition	20	Intermediate Speed	Linear Transition.
4a Steady-state	162	Intermediate Speed	75.
4b Transition	20	Linear Transition	Linear Transition.
5a Steady-state	246	Maximum Test Speed	100.
5b Transition	20	Maximum Test Speed	Linear Transition.
6a Steady-state	164	Maximum Test Speed	10.
6b Transition	20	Maximum Test Speed	Linear Transition.
7a Steady-state	248	Maximum Test Speed	75.
7b Transition	20	Maximum Test Speed	Linear Transition.
8a Steady-state	247	Maximum Test Speed	50.
8b Transition	20	Linear Transition	Linear Transition.
9 Steady-state	128	Warm Idle	0.

¹ Speed terms are defined in 40 CFR part 1065.

² The percent torque is relative to the maximum torque at the commanded engine speed.

³ Advance from one mode to the next within a 20-second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

APPENDIX V TO PART 1039 [RESERVED]

APPENDIX VI TO PART 1039—NONROAD COMPRESSION-IGNITION COMPOSITE TRANSIENT CYCLE

Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
1	0	0	25	1	3
2	0	0	26	1	3
3	0	0	27	1	3
4	0	0	28	1	3
5	0	0	29	1	3
6	0	0	30	1	6
7	0	0	31	1	6
8	0	0	32	2	1
9	0	0	33	4	13
10	0	0	34	7	18
11	0	0	35	9	21
12	0	0	36	17	20
13	0	0	37	33	42
14	0	0	38	57	46
15	0	0	39	44	33
16	0	0	40	31	0
17	0	0	41	22	27
18	0	0	42	33	43
19	0	0	43	80	49
20	0	0	44	105	47
21	0	0	45	98	70
22	0	0	46	104	36
23	0	0	47	104	65
24	0	0	48	96	71
			49	101	62
			50	102	51
			51	102	50
			52	102	46
			53	102	41
			54	102	31
			55	89	2

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Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
56	82	0	128	104	30
57	47	1	129	104	19
58	23	1	130	103	28
59	1	3	131	104	40
60	1	8	132	104	32
61	1	3	133	101	63
62	1	5	134	102	54
63	1	6	135	102	52
64	1	4	136	102	51
65	1	4	137	103	40
66	0	6	138	104	34
67	1	4	139	102	36
68	9	21	140	104	44
69	25	56	141	103	44
70	64	26	142	104	33
71	60	31	143	102	27
72	63	20	144	103	26
73	62	24	145	79	53
74	64	8	146	51	37
75	58	44	147	24	23
76	65	10	148	13	33
77	65	12	149	19	55
78	68	23	150	45	30
79	69	30	151	34	7
80	71	30	152	14	4
81	74	15	153	8	16
82	71	23	154	15	6
83	73	20	155	39	47
84	73	21	156	39	4
85	73	19	157	35	26
86	70	33	158	27	38
87	70	34	159	43	40
88	65	47	160	14	23
89	66	47	161	10	10
90	64	53	162	15	33
91	65	45	163	35	72
92	66	38	164	60	39
93	67	49	165	55	31
94	69	39	166	47	30
95	69	39	167	16	7
96	66	42	168	0	6
97	71	29	169	0	8
98	75	29	170	0	8
99	72	23	171	0	2
100	74	22	172	2	17
101	75	24	173	10	28
102	73	30	174	28	31
103	74	24	175	33	30
104	77	6	176	36	0
105	76	12	177	19	10
106	74	39	178	1	18
107	72	30	179	0	16
108	75	22	180	1	3
109	78	64	181	1	4
110	102	34	182	1	5
111	103	28	183	1	6
112	103	28	184	1	5
113	103	19	185	1	3
114	103	32	186	1	4
115	104	25	187	1	4
116	103	38	188	1	6
117	103	39	189	8	18
118	103	34	190	20	51
119	102	44	191	49	19
120	103	38	192	41	13
121	102	43	193	31	16
122	103	34	194	28	21
123	102	41	195	21	17
124	103	44	196	31	21
125	103	37	197	21	8
126	103	27	198	0	14
127	104	13	199	0	12

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Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
200	3	8	272	66	0
201	3	22	273	37	0
202	12	20	274	45	37
203	14	20	275	68	96
204	16	17	276	80	97
205	20	18	277	92	96
206	27	34	278	90	97
207	32	33	279	82	96
208	41	31	280	94	81
209	43	31	281	90	85
210	37	33	282	96	65
211	26	18	283	70	96
212	18	29	284	55	95
213	14	51	285	70	96
214	13	11	286	79	96
215	12	9	287	81	71
216	15	33	288	71	60
217	20	25	289	92	65
218	25	17	290	82	63
219	31	29	291	61	47
220	36	66	292	52	37
221	66	40	293	24	0
222	50	13	294	20	7
223	16	24	295	39	48
224	26	50	296	39	54
225	64	23	297	63	58
226	81	20	298	53	31
227	83	11	299	51	24
228	79	23	300	48	40
229	76	31	301	39	0
230	68	24	302	35	18
231	59	33	303	36	16
232	59	3	304	29	17
233	25	7	305	28	21
234	21	10	306	31	15
235	20	19	307	31	10
236	4	10	308	43	19
237	5	7	309	49	63
238	4	5	310	78	61
239	4	6	311	78	46
240	4	6	312	66	65
241	4	5	313	78	97
242	7	5	314	84	63
243	16	28	315	57	26
244	28	25	316	36	22
245	52	53	317	20	34
246	50	8	318	19	8
247	26	40	319	9	10
248	48	29	320	5	5
249	54	39	321	7	11
250	60	42	322	15	15
251	48	18	323	12	9
252	54	51	324	13	27
253	88	90	325	15	28
254	103	84	326	16	28
255	103	85	327	16	31
256	102	84	328	15	20
257	58	66	329	17	0
258	64	97	330	20	34
259	56	80	331	21	25
260	51	67	332	20	0
261	52	96	333	23	25
262	63	62	334	30	58
263	71	6	335	63	96
264	33	16	336	83	60
265	47	45	337	61	0
266	43	56	338	26	0
267	42	27	339	29	44
268	42	64	340	68	97
269	75	74	341	80	97
270	68	96	342	88	97
271	86	61	343	99	88

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Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
344	102	86	416	89	55
345	100	82	417	89	56
346	74	79	418	88	58
347	57	79	419	78	69
348	76	97	420	98	39
349	84	97	421	64	61
350	86	97	422	90	34
351	81	98	423	88	38
352	83	83	424	97	62
353	65	96	425	100	53
354	93	72	426	81	58
355	63	60	427	74	51
356	72	49	428	76	57
357	56	27	429	76	72
358	29	0	430	85	72
359	18	13	431	84	60
360	25	11	432	83	72
361	28	24	433	83	72
362	34	53	434	86	72
363	65	83	435	89	72
364	80	44	436	86	72
365	77	46	437	87	72
366	76	50	438	88	72
367	45	52	439	88	71
368	61	98	440	87	72
369	61	69	441	85	71
370	63	49	442	88	72
371	32	0	443	88	72
372	10	8	444	84	72
373	17	7	445	83	73
374	16	13	446	77	73
375	11	6	447	74	73
376	9	5	448	76	72
377	9	12	449	46	77
378	12	46	450	78	62
379	15	30	451	79	35
380	26	28	452	82	38
381	13	9	453	81	41
382	16	21	454	79	37
383	24	4	455	78	35
384	36	43	456	78	38
385	65	85	457	78	46
386	78	66	458	75	49
387	63	39	459	73	50
388	32	34	460	79	58
389	46	55	461	79	71
390	47	42	462	83	44
391	42	39	463	53	48
392	27	0	464	40	48
393	14	5	465	51	75
394	14	14	466	75	72
395	24	54	467	89	67
396	60	90	468	93	60
397	53	66	469	89	73
398	70	48	470	86	73
399	77	93	471	81	73
400	79	67	472	78	73
401	46	65	473	78	73
402	69	98	474	76	73
403	80	97	475	79	73
404	74	97	476	82	73
405	75	98	477	86	73
406	56	61	478	88	72
407	42	0	479	92	71
408	36	32	480	97	54
409	34	43	481	73	43
410	68	83	482	36	64
411	102	48	483	63	31
412	62	0	484	78	1
413	41	39	485	69	27
414	71	86	486	67	28
415	91	52	487	72	9

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Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
488	71	9	560	91	39
489	78	36	561	72	3
490	81	56	562	43	25
491	75	53	563	30	60
492	60	45	564	40	45
493	50	37	565	37	32
494	66	41	566	37	32
495	51	61	567	43	70
496	68	47	568	70	54
497	29	42	569	77	47
498	24	73	570	79	66
499	64	71	571	85	53
500	90	71	572	83	57
501	100	61	573	86	52
502	94	73	574	85	51
503	84	73	575	70	39
504	79	73	576	50	5
505	75	72	577	38	36
506	78	73	578	30	71
507	80	73	579	75	53
508	81	73	580	84	40
509	81	73	581	85	42
510	83	73	582	86	49
511	85	73	583	86	57
512	84	73	584	89	68
513	85	73	585	99	61
514	86	73	586	77	29
515	85	73	587	81	72
516	85	73	588	89	69
517	85	72	589	49	56
518	85	73	590	79	70
519	83	73	591	104	59
520	79	73	592	103	54
521	78	73	593	102	56
522	81	73	594	102	56
523	82	72	595	103	61
524	94	56	596	102	64
525	66	48	597	103	60
526	35	71	598	93	72
527	51	44	599	86	73
528	60	23	600	76	73
529	64	10	601	59	49
530	63	14	602	46	22
531	70	37	603	40	65
532	76	45	604	72	31
533	78	18	605	72	27
534	76	51	606	67	44
535	75	33	607	68	37
536	81	17	608	67	42
537	76	45	609	68	50
538	76	30	610	77	43
539	80	14	611	58	4
540	71	18	612	22	37
541	71	14	613	57	69
542	71	11	614	68	38
543	65	2	615	73	2
544	31	26	616	40	14
545	24	72	617	42	38
546	64	70	618	64	69
547	77	62	619	64	74
548	80	68	620	67	73
549	83	53	621	65	73
550	83	50	622	68	73
551	83	50	623	65	49
552	85	43	624	81	0
553	86	45	625	37	25
554	89	35	626	24	69
555	82	61	627	68	71
556	87	50	628	70	71
557	85	55	629	76	70
558	89	49	630	71	72
559	87	70	631	73	69

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Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
632	76	70	704	102	68
633	77	72	705	102	70
634	77	72	706	102	72
635	77	72	707	102	68
636	77	70	708	102	69
637	76	71	709	100	68
638	76	71	710	102	71
639	77	71	711	101	64
640	77	71	712	102	69
641	78	70	713	102	69
642	77	70	714	101	69
643	77	71	715	102	64
644	79	72	716	102	69
645	78	70	717	102	68
646	80	70	718	102	70
647	82	71	719	102	69
648	84	71	720	102	70
649	83	71	721	102	70
650	83	73	722	102	62
651	81	70	723	104	38
652	80	71	724	104	15
653	78	71	725	102	24
654	76	70	726	102	45
655	76	70	727	102	47
656	76	71	728	104	40
657	79	71	729	101	52
658	78	71	730	103	32
659	81	70	731	102	50
660	83	72	732	103	30
661	84	71	733	103	44
662	86	71	734	102	40
663	87	71	735	103	43
664	92	72	736	103	41
665	91	72	737	102	46
666	90	71	738	103	39
667	90	71	739	102	41
668	91	71	740	103	41
669	90	70	741	102	38
670	90	72	742	103	39
671	91	71	743	102	46
672	90	71	744	104	46
673	90	71	745	103	49
674	92	72	746	102	45
675	93	69	747	103	42
676	90	70	748	103	46
677	93	72	749	103	38
678	91	70	750	102	48
679	89	71	751	103	35
680	91	71	752	102	48
681	90	71	753	103	49
682	90	71	754	102	48
683	92	71	755	102	46
684	91	71	756	103	47
685	93	71	757	102	49
686	93	68	758	102	42
687	98	68	759	102	52
688	98	67	760	102	57
689	100	69	761	102	55
690	99	68	762	102	61
691	100	71	763	102	61
692	99	68	764	102	58
693	100	69	765	103	58
694	102	72	766	102	59
695	101	69	767	102	54
696	100	69	768	102	63
697	102	71	769	102	61
698	102	71	770	103	55
699	102	69	771	102	60
700	102	71	772	102	72
701	102	68	773	103	56
702	100	69	774	102	55
703	102	70	775	102	67

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Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
776	103	56	848	83	21
777	84	42	849	83	15
778	48	7	850	83	12
779	48	6	851	83	9
780	48	6	852	83	8
781	48	7	853	83	7
782	48	6	854	83	6
783	48	7	855	83	6
784	67	21	856	83	6
785	105	59	857	83	6
786	105	96	858	83	6
787	105	74	859	76	5
788	105	66	860	49	8
789	105	62	861	51	7
790	105	66	862	51	20
791	89	41	863	78	52
792	52	5	864	80	38
793	48	5	865	81	33
794	48	7	866	83	29
795	48	5	867	83	22
796	48	6	868	83	16
797	48	4	869	83	12
798	52	6	870	83	9
799	51	5	871	83	8
800	51	6	872	83	7
801	51	6	873	83	6
802	52	5	874	83	6
803	52	5	875	83	6
804	57	44	876	83	6
805	98	90	877	83	6
806	105	94	878	59	4
807	105	100	879	50	5
808	105	98	880	51	5
809	105	95	881	51	5
810	105	96	882	51	5
811	105	92	883	50	5
812	104	97	884	50	5
813	100	85	885	50	5
814	94	74	886	50	5
815	87	62	887	50	5
816	81	50	888	51	5
817	81	46	889	51	5
818	80	39	890	51	5
819	80	32	891	63	50
820	81	28	892	81	34
821	80	26	893	81	25
822	80	23	894	81	29
823	80	23	895	81	23
824	80	20	896	80	24
825	81	19	897	81	24
826	80	18	898	81	28
827	81	17	899	81	27
828	80	20	900	81	22
829	81	24	901	81	19
830	81	21	902	81	17
831	80	26	903	81	17
832	80	24	904	81	17
833	80	23	905	81	15
834	80	22	906	80	15
835	81	21	907	80	28
836	81	24	908	81	22
837	81	24	909	81	24
838	81	22	910	81	19
839	81	22	911	81	21
840	81	21	912	81	20
841	81	31	913	83	26
842	81	27	914	80	63
843	80	26	915	80	59
844	80	26	916	83	100
845	81	25	917	81	73
846	80	21	918	83	53
847	81	20	919	80	76

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Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
920	81	61	992	81	25
921	80	50	993	81	26
922	81	37	994	81	22
923	82	49	995	81	20
924	83	37	996	81	17
925	83	25	997	81	23
926	83	17	998	83	65
927	83	13	999	81	54
928	83	10	1000	81	50
929	83	8	1001	81	41
930	83	7	1002	81	35
931	83	7	1003	81	37
932	83	6	1004	81	29
933	83	6	1005	81	28
934	83	6	1006	81	24
935	71	5	1007	81	19
936	49	24	1008	81	16
937	69	64	1009	80	16
938	81	50	1010	83	23
939	81	43	1011	83	17
940	81	42	1012	83	13
941	81	31	1013	83	27
942	81	30	1014	81	58
943	81	35	1015	81	60
944	81	28	1016	81	46
945	81	27	1017	80	41
946	80	27	1018	80	36
947	81	31	1019	81	26
948	81	41	1020	86	18
949	81	41	1021	82	35
950	81	37	1022	79	53
951	81	43	1023	82	30
952	81	34	1024	83	29
953	81	31	1025	83	32
954	81	26	1026	83	28
955	81	23	1027	76	60
956	81	27	1028	79	51
957	81	38	1029	86	26
958	81	40	1030	82	34
959	81	39	1031	84	25
960	81	27	1032	86	23
961	81	33	1033	85	22
962	80	28	1034	83	26
963	81	34	1035	83	25
964	83	72	1036	83	37
965	81	49	1037	84	14
966	81	51	1038	83	39
967	80	55	1039	76	70
968	81	48	1040	78	81
969	81	36	1041	75	71
970	81	39	1042	86	47
971	81	38	1043	83	35
972	80	41	1044	81	43
973	81	30	1045	81	41
974	81	23	1046	79	46
975	81	19	1047	80	44
976	81	25	1048	84	20
977	81	29	1049	79	31
978	83	47	1050	87	29
979	81	90	1051	82	49
980	81	75	1052	84	21
981	80	60	1053	82	56
982	81	48	1054	81	30
983	81	41	1055	85	21
984	81	30	1056	86	16
985	80	24	1057	79	52
986	81	20	1058	78	60
987	81	21	1059	74	55
988	81	29	1060	78	84
989	81	29	1061	80	54
990	81	27	1062	80	35
991	81	23	1063	82	24

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Time(s)	Normalized speed (percent)	Normalized torque (percent)	Time(s)	Normalized speed (percent)	Normalized torque (percent)
1064	83	43	1136	72	42
1065	79	49	1137	78	2
1066	83	50	1138	76	34
1067	86	12	1139	67	80
1068	64	14	1140	70	67
1069	24	14	1141	53	70
1070	49	21	1142	72	65
1071	77	48	1143	60	57
1072	103	11	1144	74	29
1073	98	48	1145	69	31
1074	101	34	1146	76	1
1075	99	39	1147	74	22
1076	103	11	1148	72	52
1077	103	19	1149	62	96
1078	103	7	1150	54	72
1079	103	13	1151	72	28
1080	103	10	1152	72	35
1081	102	13	1153	64	68
1082	101	29	1154	74	27
1083	102	25	1155	76	14
1084	102	20	1156	69	38
1085	96	60	1157	66	59
1086	99	38	1158	64	99
1087	102	24	1159	51	86
1088	100	31	1160	70	53
1089	100	28	1161	72	36
1090	98	3	1162	71	47
1091	102	26	1163	70	42
1092	95	64	1164	67	34
1093	102	23	1165	74	2
1094	102	25	1166	75	21
1095	98	42	1167	74	15
1096	93	68	1168	75	13
1097	101	25	1169	76	10
1098	95	64	1170	75	13
1099	101	35	1171	75	10
1100	94	59	1172	75	7
1101	97	37	1173	75	13
1102	97	60	1174	76	8
1103	93	98	1175	76	7
1104	98	53	1176	67	45
1105	103	13	1177	75	13
1106	103	11	1178	75	12
1107	103	11	1179	73	21
1108	103	13	1180	68	46
1109	103	10	1181	74	8
1110	103	10	1182	76	11
1111	103	11	1183	76	14
1112	103	10	1184	74	11
1113	103	10	1185	74	18
1114	102	18	1186	73	22
1115	102	31	1187	74	20
1116	101	24	1188	74	19
1117	102	19	1189	70	22
1118	103	10	1190	71	23
1119	102	12	1191	73	19
1120	99	56	1192	73	19
1121	96	59	1193	72	20
1122	74	28	1194	64	60
1123	66	62	1195	70	39
1124	74	29	1196	66	56
1125	64	74	1197	68	64
1126	69	40	1198	30	68
1127	76	2	1199	70	38
1128	72	29	1200	66	47
1129	66	65	1201	76	14
1130	54	69	1202	74	18
1131	69	56	1203	69	46
1132	69	40	1204	68	62
1133	73	54	1205	68	62
1134	63	92	1206	68	62
1135	61	67	1207	68	62

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Time(s)	Normalized speed (percent)	Normalized torque (percent)
1208	68	62
1209	68	62
1210	54	50
1211	41	37
1212	27	25
1213	14	12
1214	0	0
1215	0	0
1216	0	0
1217	0	0
1218	0	0
1219	0	0
1220	0	0
1221	0	0
1222	0	0
1223	0	0
1224	0	0
1225	0	0
1226	0	0
1227	0	0
1228	0	0
1229	0	0
1230	0	0
1231	0	0
1232	0	0
1233	0	0
1234	0	0
1235	0	0
1236	0	0
1237	0	0
1238	0	0

PART 1048—CONTROL OF EMISSIONS FROM NEW, LARGE NONROAD SPARK-IGNITION ENGINES**Subpart A—Determining How to Follow This Part**

Sec.

- 1048.1 Does this part apply to me?
- 1048.5 Which engines are excluded or exempted from this part's requirements?
- 1048.10 What main steps must I take to comply with this part?
- 1048.15 Do any other regulation parts affect me?
- 1048.20 What requirements from this part apply to my excluded engines?

Subpart B—Emission Standards and Related Requirements

- 1048.101 What exhaust emission standards must my engines meet?
- 1048.105 What evaporative emissions standards and requirements apply?
- 1048.110 How must my engines diagnose malfunctions?
- 1048.115 What other requirements must my engines meet?
- 1048.120 What warranty requirements apply to me?
- 1048.125 What maintenance instructions must I give to buyers?

- 1048.130 What installation instructions must I give to equipment manufacturers?
- 1048.135 How must I label and identify the engines I produce?

- 1048.140 What are the provisions for certifying Blue Sky Series engines?
- 1048.145 What provisions apply only for a limited time?

Subpart C—Certifying Engine Families

- 1048.201 What are the general requirements for submitting a certification application?
- 1048.205 What must I include in my application?
- 1048.210 May I get preliminary approval before I complete my application?
- 1048.215 What happens after I complete my application?
- 1048.220 How do I amend the maintenance instructions in my application?
- 1048.225 How do I amend my application to include new or modified engines?
- 1048.230 How do I select engine families?
- 1048.235 What emission testing must I perform for my application for a certificate of conformity?
- 1048.240 How do I demonstrate that my engine family complies with exhaust emission standards?
- 1048.245 How do I demonstrate that my engine family complies with evaporative emission standards?
- 1048.250 What records must I keep and make available to EPA?
- 1048.255 When may EPA deny, revoke, or void my certificate of conformity?

Subpart D—Testing Production-line Engines

- 1048.301 When must I test my production-line engines?
- 1048.305 How must I prepare and test my production-line engines?
- 1048.310 How must I select engines for production-line testing?
- 1048.315 How do I know when my engine family fails the production-line testing requirements?
- 1048.320 What happens if one of my production-line engines fails to meet emission standards?
- 1048.325 What happens if an engine family fails the production-line requirements?
- 1048.330 May I sell engines from an engine family with a suspended certificate of conformity?
- 1048.335 How do I ask EPA to reinstate my suspended certificate?
- 1048.340 When may EPA revoke my certificate under this subpart and how may I sell these engines again?
- 1048.345 What production-line testing records must I send to EPA?
- 1048.350 What records must I keep?