

(7) In 40 CFR part 1068, subpart D, we identify several reporting and record-keeping items for making demonstrations and getting approval related to importing engines.

(8) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line engines in a selective enforcement audit.

(9) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.

(10) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming engines.

[73 FR 59245, Oct. 8, 2008]

APPENDIX I TO PART 1048 [RESERVED]

APPENDIX II TO PART 1048—LARGE SPARK-IGNITION (SI) COMPOSITE TRANSIENT CYCLE

The following table shows the transient duty-cycle for engines that are not constant-speed engines, as described in §1048.510:

Time(s)	Normalized speed (percent)	Normalized torque (percent)
0	0	0
1	0	0
2	0	0
3	0	0
4	0	0
5	0	0
6	0	0
7	0	0
8	0	0
9	1	8
10	6	54
11	8	61
12	34	59
13	22	46
14	5	51
15	18	51
16	31	50
17	30	56
18	31	49
19	25	66
20	58	55
21	43	31
22	16	45
23	24	38
24	24	27
25	30	33
26	45	65
27	50	49
28	23	42
29	13	42
30	9	45
31	23	30
32	37	45
33	44	50
34	49	52
35	55	49
36	61	46
37	66	38
38	42	33

Time(s)	Normalized speed (percent)	Normalized torque (percent)
39	17	41
40	17	37
41	7	50
42	20	32
43	5	55
44	30	42
45	44	53
46	45	56
47	41	52
48	24	41
49	15	40
50	11	44
51	32	31
52	38	54
53	38	47
54	9	55
55	10	50
56	33	55
57	48	56
58	49	47
59	33	44
60	52	43
61	55	43
62	59	38
63	44	28
64	24	37
65	12	44
66	9	47
67	12	52
68	34	21
69	29	44
70	44	54
71	54	62
72	62	57
73	72	56
74	88	71
75	100	69
76	100	34
77	100	42
78	100	54
79	100	58
80	100	38
81	83	17
82	61	15
83	43	22
84	24	35
85	16	39
86	15	45
87	32	34
88	14	42
89	8	48
90	5	51
91	10	41
92	12	37
93	4	47
94	3	49
95	3	50
96	4	49
97	4	48
98	8	43
99	2	51
100	5	46
101	8	41
102	4	47
103	3	49
104	6	45
105	3	48
106	10	42
107	18	27
108	3	50
109	11	41
110	34	29

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Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)	Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
111	51	57	183	36	25
112	67	63	184	36	24
113	61	32	185	38	40
114	44	31	186	40	50
115	48	54	187	27	48
116	69	65	188	19	48
117	85	65	189	23	50
118	81	29	190	19	45
119	74	21	191	6	51
120	62	23	192	24	48
121	76	58	193	49	67
122	96	75	194	47	49
123	100	77	195	22	44
124	100	27	196	25	40
125	100	79	197	38	54
126	100	79	198	43	55
127	100	81	199	40	52
128	100	57	200	14	49
129	99	52	201	11	45
130	81	35	202	7	48
131	69	29	203	26	41
132	47	22	204	41	59
133	34	28	205	53	60
134	27	37	206	44	54
135	83	60	207	22	40
136	100	74	208	24	41
137	100	7	209	32	53
138	100	2	210	44	74
139	70	18	211	57	25
140	23	39	212	22	49
141	5	54	213	29	45
142	11	40	214	19	37
143	11	34	215	14	43
144	11	41	216	36	40
145	19	25	217	43	63
146	16	32	218	42	49
147	20	31	219	15	50
148	21	38	220	19	44
149	21	42	221	47	59
150	9	51	222	67	80
151	4	49	223	76	74
152	2	51	224	87	66
153	1	58	225	98	61
154	21	57	226	100	38
155	29	47	227	97	27
156	33	45	228	100	53
157	16	49	229	100	72
158	38	45	230	100	49
159	37	43	231	100	4
160	35	42	232	100	13
161	39	43	233	87	15
162	51	49	234	53	26
163	59	55	235	33	27
164	65	54	236	39	19
165	76	62	237	51	33
166	84	59	238	67	54
167	83	29	239	83	60
168	67	35	240	95	52
169	84	54	241	100	50
170	90	58	242	100	36
171	93	43	243	100	25
172	90	29	244	85	16
173	66	19	245	62	16
174	52	16	246	40	26
175	49	17	247	56	39
176	56	38	248	81	75
177	73	71	249	98	86
178	86	80	250	100	76
179	96	75	251	100	51
180	89	27	252	100	78
181	66	17	253	100	83
182	50	18	254	100	100

Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)	Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
255	100	66	327	1	55
256	100	85	328	7	55
257	100	72	329	62	60
258	100	45	330	80	28
259	98	58	331	23	37
260	60	30	332	39	58
261	43	32	333	47	24
262	71	36	334	59	51
263	44	32	335	58	68
264	24	38	336	36	52
265	42	17	337	18	42
266	22	51	338	36	52
267	13	53	339	59	73
268	23	45	340	72	85
269	29	50	341	85	92
270	28	42	342	99	90
271	21	55	343	100	72
272	34	57	344	100	18
273	44	47	345	100	76
274	19	46	346	100	64
275	13	44	347	100	87
276	25	36	348	100	97
277	43	51	349	100	84
278	55	73	350	100	100
279	68	72	351	100	91
280	76	63	352	100	83
281	80	45	353	100	93
282	83	40	354	100	100
283	78	26	355	94	43
284	60	20	356	72	10
285	47	19	357	77	3
286	52	25	358	48	2
287	36	30	359	29	5
288	40	26	360	59	19
289	45	34	361	63	5
290	47	35	362	35	2
291	42	28	363	24	3
292	46	38	364	28	2
293	48	44	365	36	16
294	68	61	366	54	23
295	70	47	367	60	10
296	48	28	368	33	1
297	42	22	369	23	0
298	31	29	370	16	0
299	22	35	371	11	0
300	28	28	372	20	0
301	46	46	373	25	2
302	62	69	374	40	3
303	76	81	375	33	4
304	88	85	376	34	5
305	98	81	377	46	7
306	100	74	378	57	10
307	100	13	379	66	11
308	100	11	380	75	14
309	100	17	381	79	11
310	99	3	382	80	16
311	80	7	383	92	21
312	62	11	384	99	16
313	63	11	385	83	2
314	64	16	386	71	2
315	69	43	387	69	4
316	81	67	388	67	4
317	93	74	389	74	16
318	100	72	390	86	25
319	94	27	391	97	28
320	73	15	392	100	15
321	40	33	393	83	2
322	40	52	394	62	4
323	50	50	395	40	6
324	11	53	396	49	10
325	12	45	397	36	5
326	5	50	398	27	4

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Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)	Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
399	29	3	471	52	45
400	22	2	472	61	79
401	13	3	473	29	70
402	37	36	474	15	53
403	90	26	475	15	60
404	41	2	476	52	40
405	25	2	477	50	61
406	29	2	478	13	74
407	38	7	479	46	51
408	50	13	480	60	73
409	55	10	481	33	84
410	29	3	482	31	63
411	24	7	483	41	42
412	51	16	484	26	69
413	62	15	485	23	65
414	72	35	486	48	49
415	91	74	487	28	57
416	100	73	488	16	67
417	100	8	489	39	48
418	98	11	490	47	73
419	100	59	491	35	87
420	100	98	492	26	73
421	100	99	493	30	61
422	100	75	494	34	49
423	100	95	495	35	66
424	100	100	496	56	47
425	100	97	497	49	64
426	100	90	498	59	64
427	100	86	499	42	69
428	100	82	500	6	77
429	97	43	501	5	59
430	70	16	502	17	59
431	50	20	503	45	53
432	42	33	504	21	62
433	89	64	505	31	60
434	89	77	506	53	68
435	99	95	507	48	79
436	100	41	508	45	61
437	77	12	509	51	47
438	29	37	510	41	48
439	16	41	511	26	58
440	16	38	512	21	62
441	15	36	513	50	52
442	18	44	514	39	65
443	4	55	515	23	65
444	24	26	516	42	62
445	26	35	517	57	80
446	15	45	518	66	81
447	21	39	519	64	62
448	29	52	520	45	42
449	26	46	521	33	42
450	27	50	522	27	57
451	13	43	523	31	59
452	25	36	524	41	53
453	37	57	525	45	72
454	29	46	526	48	73
455	17	39	527	46	90
456	13	41	528	56	76
457	19	38	529	64	76
458	28	35	530	69	64
459	8	51	531	72	59
460	14	36	532	73	58
461	17	47	533	71	56
462	34	39	534	66	48
463	34	57	535	61	50
464	11	70	536	55	56
465	13	51	537	52	52
466	13	68	538	54	49
467	38	44	539	61	50
468	53	67	540	64	54
469	29	69	541	67	54
470	19	65	542	68	52

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Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)	Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
543	60	53	615	25	44
544	52	50	616	14	53
545	45	49	617	13	64
546	38	45	618	23	56
547	32	45	619	21	63
548	26	53	620	18	67
549	23	56	621	20	54
550	30	49	622	16	67
551	33	55	623	26	56
552	35	59	624	41	65
553	33	65	625	28	62
554	30	67	626	19	60
555	28	59	627	33	56
556	25	58	628	37	70
557	23	56	629	24	79
558	22	57	630	28	57
559	19	63	631	40	57
560	14	63	632	40	58
561	31	61	633	28	44
562	35	62	634	25	41
563	21	80	635	29	53
564	28	65	636	31	55
565	7	74	637	26	64
566	23	54	638	20	50
567	38	54	639	16	53
568	14	78	640	11	54
569	38	58	641	13	53
570	52	75	642	23	50
571	59	81	643	32	59
572	66	69	644	36	63
573	54	44	645	33	59
574	48	34	646	24	52
575	44	33	647	20	52
576	40	40	648	22	55
577	28	58	649	30	53
578	27	63	650	37	59
579	35	45	651	41	58
580	20	66	652	36	54
581	15	60	653	29	49
582	10	52	654	24	53
583	22	56	655	14	57
584	30	62	656	10	54
585	21	67	657	9	55
586	29	53	658	10	57
587	41	56	659	13	55
588	15	67	660	15	64
589	24	56	661	31	57
590	42	69	662	19	69
591	39	83	663	14	59
592	40	73	664	33	57
593	35	67	665	41	65
594	32	61	666	39	64
595	30	65	667	39	59
596	30	72	668	39	51
597	48	51	669	28	41
598	66	58	670	19	49
599	62	71	671	27	54
600	36	63	672	37	63
601	17	59	673	32	74
602	16	50	674	16	70
603	16	62	675	12	67
604	34	48	676	13	60
605	51	66	677	17	56
606	35	74	678	15	62
607	15	56	679	25	47
608	19	54	680	27	64
609	43	65	681	14	71
610	52	80	682	5	65
611	52	83	683	6	57
612	49	57	684	6	57
613	48	46	685	15	52
614	37	36	686	22	61

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Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)	Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
687	14	77	759	23	60
688	12	67	760	20	56
689	12	62	761	26	50
690	14	59	762	28	55
691	15	58	763	18	56
692	18	55	764	15	52
693	22	53	765	11	59
694	19	69	766	16	59
695	14	67	767	34	54
696	9	63	768	16	82
697	8	56	769	15	64
698	17	49	770	36	53
699	25	55	771	45	64
700	14	70	772	41	59
701	12	60	773	34	50
702	22	57	774	27	45
703	27	67	775	22	52
704	29	68	776	18	55
705	34	62	777	26	54
706	35	61	778	39	62
707	28	78	779	37	71
708	11	71	780	32	58
709	4	58	781	24	48
710	5	58	782	14	59
711	10	56	783	7	59
712	20	63	784	7	55
713	13	76	785	18	49
714	11	65	786	40	62
715	9	60	787	44	73
716	7	55	788	41	68
717	8	53	789	35	48
718	10	60	790	29	54
719	28	53	791	22	69
720	12	73	792	46	53
721	4	64	793	59	71
722	4	61	794	69	68
723	4	61	795	75	47
724	10	56	796	62	32
725	8	61	797	48	35
726	20	56	798	27	59
727	32	62	799	13	58
728	33	66	800	14	54
729	34	73	801	21	53
730	31	61	802	23	56
731	33	55	803	23	57
732	33	60	804	23	65
733	31	59	805	13	65
734	29	58	806	9	64
735	31	53	807	27	56
736	33	51	808	26	78
737	33	48	809	40	61
738	27	44	810	35	76
739	21	52	811	28	66
740	13	57	812	23	57
741	12	56	813	16	50
742	10	64	814	11	53
743	22	47	815	9	57
744	15	74	816	9	62
745	8	66	817	27	57
746	34	47	818	42	69
747	18	71	819	47	75
748	9	57	820	53	67
749	11	55	821	61	62
750	12	57	822	63	53
751	10	61	823	60	54
752	16	53	824	56	44
753	12	75	825	49	39
754	6	70	826	39	35
755	12	55	827	30	34
756	24	50	828	33	46
757	28	60	829	44	56
758	28	64	830	50	56

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Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)	Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
831	44	52	903	93	24
832	38	46	904	93	23
833	33	44	905	93	27
834	29	45	906	93	34
835	24	46	907	93	32
836	18	52	908	93	26
837	9	55	909	93	31
838	10	54	910	93	34
839	20	53	911	93	31
840	27	58	912	93	33
841	29	59	913	93	36
842	30	62	914	93	37
843	30	65	915	93	34
844	27	66	916	93	30
845	32	58	917	93	32
846	40	56	918	93	35
847	41	57	919	93	35
848	18	73	920	93	32
849	15	55	921	93	28
850	18	50	922	93	23
851	17	52	923	94	18
852	20	49	924	95	18
853	16	62	925	96	17
854	4	67	926	95	13
855	2	64	927	96	10
856	7	54	928	95	9
857	10	50	929	95	7
858	9	57	930	95	7
859	5	62	931	96	7
860	12	51	932	96	6
861	14	65	933	96	6
862	9	64	934	95	6
863	31	50	935	90	6
864	30	78	936	69	43
865	21	65	937	76	62
866	14	51	938	93	47
867	10	55	939	93	39
868	6	59	940	93	35
869	7	59	941	93	34
870	19	54	942	93	36
871	23	61	943	93	39
872	24	62	944	93	34
873	34	61	945	93	26
874	51	67	946	93	23
875	60	66	947	93	24
876	58	55	948	93	24
877	60	52	949	93	22
878	64	55	950	93	19
879	68	51	951	93	17
880	63	54	952	93	19
881	64	50	953	93	22
882	68	58	954	93	24
883	73	47	955	93	23
884	63	40	956	93	20
885	50	38	957	93	20
886	29	61	958	94	19
887	14	61	959	95	19
888	14	53	960	95	17
889	42	6	961	96	13
890	58	6	962	95	10
891	58	6	963	96	9
892	77	39	964	95	7
893	93	56	965	95	7
894	93	44	966	95	7
895	93	37	967	95	6
896	93	31	968	96	6
897	93	25	969	96	6
898	93	26	970	89	6
899	93	27	971	68	6
900	93	25	972	57	6
901	93	21	973	66	32
902	93	22	974	84	52

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Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)	Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
975	93	46	1047	93	18
976	93	42	1048	93	37
977	93	36	1049	93	48
978	93	28	1050	93	38
979	93	23	1051	93	31
980	93	19	1052	93	26
981	93	16	1053	93	21
982	93	15	1054	93	18
983	93	16	1055	93	16
984	93	15	1056	93	17
985	93	14	1057	93	18
986	93	15	1058	93	19
987	93	16	1059	93	21
988	94	15	1060	93	20
989	93	32	1061	93	18
990	93	45	1062	93	17
991	93	43	1063	93	17
992	93	37	1064	93	18
993	93	29	1065	93	18
994	93	23	1066	93	18
995	93	20	1067	93	19
996	93	18	1068	93	18
997	93	16	1069	93	18
998	93	17	1070	93	20
999	93	16	1071	93	23
1000	93	15	1072	93	25
1001	93	15	1073	93	25
1002	93	15	1074	93	24
1003	93	14	1075	93	24
1004	93	15	1076	93	22
1005	93	15	1077	93	22
1006	93	14	1078	93	22
1007	93	13	1079	93	19
1008	93	14	1080	93	16
1009	93	14	1081	95	17
1010	93	15	1082	95	37
1011	93	16	1083	93	43
1012	93	17	1084	93	32
1013	93	20	1085	93	27
1014	93	22	1086	93	26
1015	93	20	1087	93	24
1016	93	19	1088	93	22
1017	93	20	1089	93	22
1018	93	19	1090	93	22
1019	93	19	1091	93	23
1020	93	20	1092	93	22
1021	93	32	1093	93	22
1022	93	37	1094	93	23
1023	93	28	1095	93	23
1024	93	26	1096	93	23
1025	93	24	1097	93	22
1026	93	22	1098	93	23
1027	93	22	1099	93	23
1028	93	21	1100	93	23
1029	93	20	1101	93	25
1030	93	20	1102	93	27
1031	93	20	1103	93	26
1032	93	20	1104	93	25
1033	93	19	1105	93	27
1034	93	18	1106	93	27
1035	93	20	1107	93	27
1036	93	20	1108	93	24
1037	93	20	1109	93	20
1038	93	20	1110	93	18
1039	93	19	1111	93	17
1040	93	18	1112	93	17
1041	93	18	1113	93	18
1042	93	17	1114	93	18
1043	93	16	1115	93	18
1044	93	16	1116	93	19
1045	93	15	1117	93	22
1046	93	16	1118	93	22

Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
1119	93	19
1120	93	17
1121	93	17
1122	93	18
1123	93	18
1124	93	19
1125	93	19
1126	93	20
1127	93	19
1128	93	20
1129	93	25
1130	93	30
1131	93	31
1132	93	26
1133	93	21
1134	93	18
1135	93	20
1136	93	25
1137	93	24
1138	93	21
1139	93	21
1140	93	22
1141	93	22
1142	93	28
1143	93	29
1144	93	23
1145	93	21
1146	93	18
1147	93	16
1148	93	16
1149	93	16
1150	93	17
1151	93	17
1152	93	17
1153	93	17
1154	93	23
1155	93	26
1156	93	22
1157	93	18
1158	93	16
1159	93	16
1160	93	17
1161	93	19
1162	93	18
1163	93	16
1164	93	19
1165	93	22
1166	93	25
1167	93	29
1168	93	27
1169	93	22
1170	93	18
1171	93	16
1172	93	19
1173	93	19
1174	93	17
1175	93	17
1176	93	17
1177	93	16
1178	93	16
1179	93	15
1180	93	16
1181	93	15
1182	93	17
1183	93	21
1184	93	30
1185	93	53
1186	93	54
1187	93	38
1188	93	30
1189	93	24
1190	93	20

Time(s)	Normalized speed (per-cent)	Normalized torque (per-cent)
1191	95	20
1192	96	18
1193	96	15
1194	96	11
1195	95	9
1196	95	8
1197	96	7
1198	94	33
1199	93	46
1200	93	37
1201	16	8
1202	0	0
1203	0	0
1204	0	0
1205	0	0
1206	0	0
1207	0	0
1208	0	0
1209	0	0

PART 1051—CONTROL OF EMISSIONS FROM RECREATIONAL ENGINES AND VEHICLES

Subpart A—Determining How To Follow This Part

- Sec.
- 1051.1 Does this part apply for my vehicles or engines?
- 1051.2 Who is responsible for compliance?
- 1051.5 Which engines are excluded from this part’s requirements?
- 1051.10 How is this part organized?
- 1051.15 Do any other regulation parts apply to me?
- 1051.20 May I certify a recreational engine instead of the vehicle?
- 1051.25 What requirements apply when installing certified engines in recreational vehicles?
- 1051.30 Submission of information.

Subpart B—Emission Standards and Related Requirements

- 1051.101 What emission standards and other requirements must my vehicles meet?
- 1051.103 What are the exhaust emission standards for snowmobiles?
- 1051.105 What are the exhaust emission standards for off-highway motorcycles?
- 1051.107 What are the exhaust emission standards for all-terrain vehicles (ATVs) and offroad utility vehicles?
- 1051.110 What evaporative emission standards must my vehicles meet?
- 1051.115 What other requirements apply?
- 1051.120 What emission-related warranty requirements apply to me?
- 1051.125 What maintenance instructions must I give to buyers?
- 1051.130 What installation instructions must I give to vehicle manufacturers?