Appendix C

Off-Road Compression-Ignition Engine Standards

TABLE 1
Off-Road Compression-Ignition Engine Standards
NMHC+NOx/CO/PM in g/hp-hr (g/kW-hr)
Standards Include an Emissions Durability Period[c,d,e]

hp (kw)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008+
<11 (8)[c,f]	See Table 2					7.8 (10.5) 6.0 (8.0) 0.75 (1.0)					5.6 (7.5) 6.0 (8.0) 0.60 (0.80)			
≥11 (8) <25 (19)[c,f]	See Table 2					7.1 (9.5) 4.9 (6.6) 0.60 (0.80)					5.6 (7.5) 4.9 (6.6) 0.60 (0.80)			
≥25 (19) <50 (37)[c,d]					7.1 (9.5) 4.1 (5.5) 0.60 (0.80)					5.6 (7.5) 4.1 (5.5) 0.45 (0.60)				
≥50 (37) <100 (75)[e]				N/A[a] 6.9 (9.2) N/A N/A						5.6 (7.5) 3.7 (5.0) 0.30 (0.40)				3.5 (4.7) 3.7 (5.0) (b)
≥100 (75) <175 (130) [e]			N/A[a] 6.9 (9.2) N/A N/A						4.9 (6.6) 3.7 (5.0) 0.22 (0.30)				3.0 (4.0) 3.7 (5.0) (b)	
≥175 (130) <300 (225) [e]		1.0 (1.3)[a] 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)							4.9 (6.6) 2.6 (3.5) 0.15 (0.20)			3.0 (4.0) 2.6 (3.5) (b)		
≥300 (225) <600 (450) [e]		1.0 (1.3)[a] 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)					4.8 (6.4) 2.6 (3.5) 0.15 (0.20)					3.0 (4.0)[g] 2.6 (3.5) (b)		
≥600 (450) <750 (560) [e]		1.0 (1.3)[a] 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)						4.8 (6.4) 2.6 (3.5) 0.15 (0.20)				3.0 (4.0)[g] 2.6 (3.5) (b)		
>750 (560) [e]						1.0 (1.3)[a] 6.9 (9.2) 8.5 (11.4) 0.40 (0.54)						4.8 (6.4) 2.6 (3.5) 0.15 (0.20)		

(a) Standards given are HC/NOx/CO/PM in g/hp-hr (g/kW-hr).
(b) PM standards have not been specified.
(c) For all engines rated under 19 kW, and for constant speed engines rated under 37 kW with rated speeds greater than or equal to 3,000 rpm, the durability period and useful life is a period of 3,000 hours or five years of use, whichever first occurs.
(d) For all other engines rated at or above 19 kW and under 37 kW, the durability period and useful life is a period of 5,000 hours or seven years of use, whichever first occurs.
(e) For all engines rated at or above 37 kW, the durability period and useful life is a period of 8,000 hours of operation or ten years of use, whichever first occurs.
(f) Prior to the year 2000, these engines were classified as small off-road engines. Refer to the small off-road engine standards for model years prior to 2000.
(g) Manufacturers have agreed to comply with these standards by 2005.