



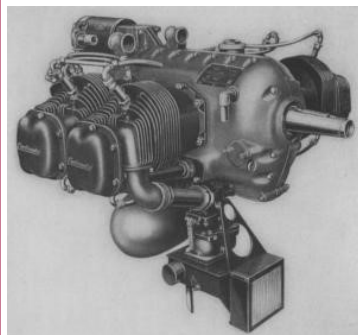
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Continental C-series Aircraft Engines and their Derivatives

The C75 and C85

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Continental C75-12

By the early 1940s, Continental had pushed the 171 in³ 4-cylinder A-series engines as far as it could. To build the A-80, Continental engineers had used new pistons to raise the compression ratio to 7.5:1, and upped the maximum rpm to 2,700. But reliably getting 80 hp may have been a bridge too far, as the engine reportedly suffered from overheating and reliability issues. The higher compression ratio also necessitated use of 80 octane fuel.

Around 1943, Continental began work on an engine series based on a new cylinder with a 4.0625" bore, an increase of 0.1875" from the 3.875" bore used in A-series engines. Stroke remained at 3.6250", and the compression ratio remained at the same 6.3:1 value that had been used in A-65s and A75s, allowing the use of 73 octane fuel. The larger diameter cylinders raised the cylinder displacement from 42.75 in³ to 46.99 in³, and the displacement for a 4-cylinder engine to 187.95 in³. Induction and exhaust passages were enlarged accordingly. This became the C-series, first of which was the C75. Although notice of the C75 appears in trade publications starting about 1943, the C75 did not receive a type certificate until sometime in 1945. C-series crankcases were designed from the outset to accommodate starters and generators, which had been afterthoughts in the A-series.

Careful readers will note that some engine designations in these articles include a dash while others do not. The author has elected to follow the designation system that currently appears in the engine Type Certificate Data Sheets. This article collection covering C-series engines and their Derivatives is organized by 4-cylinder and 6-cylinder engines that have common cylinder displacements (bore x stroke).

Representative Continental Small-Bore Engines

Designation	TCDS	Bore (in)	Stroke (in)	Disp (in ³)	Takeoff HP	RPM	Comp Ratio	Weight (lb)	HP/lb	HP/in ³	lb/in ³	Takeoff BMEP
A-50-1	E-190	3.875	3.625	171.00	50	1,900	5.4:1	160	0.31	0.29	0.94	121.88
A-50-6 ¹	E-190	3.875	3.625	171.00	50	1,900	5.4:1	176	0.28	0.29	1.03	121.88
A-65-8	E-205	3.875	3.625	171.00	65	2,300	6.3:1	170	0.38	0.38	0.99	130.89
A-65-9 ¹	E-205	3.875	3.625	171.00	65	2,300	6.3:1	177	0.37	0.38	1.04	130.89
A75-8	E-213	3.875	3.625	171.00	75	2,600	6.3:1	170	0.44	0.44	0.99	133.60
A75-9 ¹	E-213	3.875	3.625	171.00	75	2,600	6.3:1	173	0.43	0.44	1.01	133.60
A-80-8	TC 217	3.875	3.625	171.00	80	2,700	7.5:1	173	0.46	0.47	1.01	137.23
A-80-9 ¹	TC 217	3.875	3.625	171.00	80	2,700	7.5:1	176	0.45	0.47	1.03	137.23
A100-1 ²	E-241	3.875	3.625	256.50	100	2,350	6.3:1	249	0.40	0.39	0.97	131.39
A100-2 ²	E-241	3.875	3.625	256.50	100	2,350	6.3:1	250	0.40	0.39	0.97	131.39
C75-8	E-233	4.063	3.625	188.00	75	2,275	6.3:1	177	0.42	0.40	0.94	138.88
C75-12 ²	E-233	4.063	3.625	188.00	75	2,275	6.3:1	182	0.41	0.40	0.97	138.88
C85-8	E-233	4.063	3.625	188.00	85	2,575	6.3:1	178	0.48	0.45	0.95	139.06
C85-12 ²	E-233	4.063	3.625	188.00	85	2,575	6.3:1	180	0.47	0.45	0.96	139.06
C-115-2 ²	E-236	4.063	3.625	282.00	125	2,550	6.3:1	252	0.50	0.44	0.89	137.67
C-125-2 ²	E-236	4.063	3.625	282.00	125	2,550	6.3:1	252	0.50	0.44	0.89	137.67
C-140-1 ³	None	4.063	3.625	282.00	145	3,000	6.3:1	298	0.49	0.51	1.06	135.75
C90-8	E-252	4.063	3.875	200.96	95	2,625	7.0:1	184	0.52	0.47	0.92	142.63
C90-12 ²	E-252	4.063	3.875	200.96	95	2,625	7.0:1	188	0.51	0.47	0.94	142.63
O-200 ²	E-252	4.063	3.875	200.96	100	2,750	7.0:1	190	0.53	0.50	0.95	143.31
C145 ²	E-253	4.063	3.875	301.44	145	2,700	7.0:1	268	0.54	0.48	0.89	141.10
O-300 ²	E-253	4.063	3.875	301.44	145	2,700	7.0:1	268	0.54	0.48	0.89	141.10
GO-300 ³	E-298	4.063	3.875	301.44	175	3,200	7.3:1	318	0.55	0.58	1.05	143.68
IO-240 ²	E7SO	4.438	3.875	239.77	125	2,800	8.5:1	246	0.51	0.52	1.03	147.46
IO-360-C ²	E1CE	4.438	3.875	359.66	210	2,800	8.5:1	298	0.70	0.58	0.83	165.16

¹ Starter. ² Starter, Generator. ³ Starter, Generator, Geared

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