Compression Ratios

Ford advertised compression ratios for each small block V8 it produced; however, not all Ford sources agreed on the numbers. The chart in this section will list all the "Advertised" compression ratios along with what will be called "Revised" compression ratios. These "Revised" ratios are based on evaluating the "Advertised" ratios in comparison to actual components that determined the compression ratio. These components included the cylinder heads, pistons and head gaskets. In predicting actual engine performance, the stated "Revised" ratios should be given due consideration.

It should be noted that precise calculation of compression ratios based on clean engines and accurate measurement of components can be made. This has been done and is shown as the "Calculated" ratio. Note that these ratios are much lower than "Advertised" ratios. The "Calculated" ratios are useful in comparing one engine against another, but are unrealistically low for in-service engines. In-service engines rapidly develop carbon deposits which cause a compression ratio rise. This is why compression ratios were sometimes called "nominal"—meaning that the value was "existing in name only and not in actuality" (*American Heritage Dictionary*). In the same way that peak horsepower ratings were used instead of the much lower taxable horsepowers, nominal compression ratios were preferred over actual ratios, particularly in light of competing products in the marketplace.

Engine	Year	Advertised Ratio	Revised Ratio	Calculated Ratio*	Notes
221	62/63	8.7	9.0	8.4	1
260	62/64	8.7/8.8	9.0	8.4	2
289 2V	63/64	9.0	9.3	8.6	3, 4
	64(late)	9.0	9.3	8.6	4, 5
	65/67	9.3	9.3	8.6	4, 6
	68	8.7	8.7	8.0	7
	68	8.7	8.4	7.7	8
289 4V	64(early)	9.0	9.3	8.6	9
	64(late)	9.0	9.3	8.6	10
	65(early)	10.0	10.0	9.2	11
	65(late)/67	10.0	9.8	9.0	12
289 HiPo	63/64	11.0/10.5	10.5	9.5	13
	64/67	10.5/10.0	9.8	8.9	14
302 2V	68	9.0	9.0	8.3	15
	68	9.0	8.7	8.0	16
	68(late)	9.5/10.0	10.0	9.2	17
	69	9.5	9.5	8.7	18
302 4V	68	9.5/10.0	10.0	9.2	19

***** Compression Ratio equals compressed volume at top dead center, divided by total volume at bottom dead center. Total volume is equal to compressed volume plus piston sweep volume (cross-sectional area of cylinder times stroke). Compressed volume equals head chamber volume, plus head gasket volume, plus deck clearance volume, plus piston top relief volume, plus piston-to-cylinder clearance volume above the top compression ring. (In the table above, all volumes except head chamber volume were calculated directly. Head chamber volume was determined by measuring the amount of fluid required to fill the chamber with the spark plug and valves installed. Vegetable oil was the fluid used for performing this task. Each of the different type head chambers were filled from a burette through a piece of Plexiglas sealed against the head surface with white grease. When the chamber was full, the volume difference in the burette was equal to the chamber volume.)