1973 LS4 (454CI) Engine Guide: Specs, Features, & More

Last updated:September 5, 2021

Table of Contents [hide]

For the avid automotive performance enthusiast, the 1970s served as a rather unremarkable time. The power wars of a decade prior came to an abrupt end, at the hands of mounting regulatory pressure regarding noxious emissions. Formal mandates were handed down from the federal government, limiting permissible emissions output. This, unfortunately, spelled the beginning of the end for the American muscle car.

Caught up in this inescapable wave of change, was the Corvette, which had spent the better part of the 1960 toppling performance milestones and captivating the public. Though the Corvette had been motivated primarily by small-block power during the earliest days of its tenure, subsequent big-block offerings had begun taking center stage.

However, almost as quickly as these offerings began to appear, they were once again wiped from the Corvette's option sheet, in a bid to achieve compliance with terms of the newly passed Clean Air Act. The 454 cubic-inch LS4 would serve as one of General Motors' final big-block powerplants, to take up residence beneath the Corvette's hood.

LS4 History

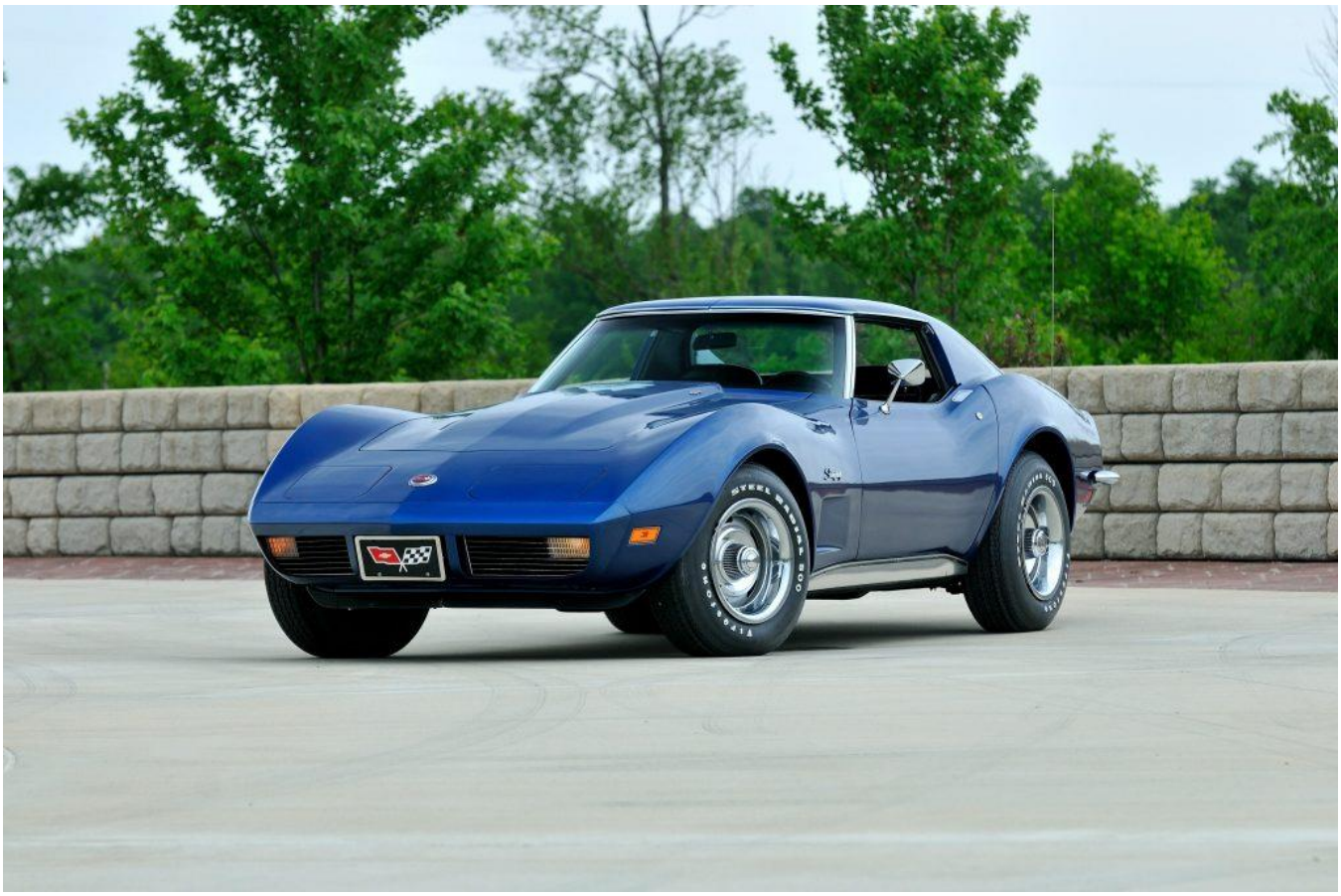
The Corvette was first offered with an optional big-block engine in 1965, as the 396 cubic-inch L78 V8 was introduced. At the time of its release, the L78 was a force to be reckoned with, carrying a total output rating of 425 HP. However, these performance statistics would soon be superseded by the next iteration of GM big-block development.

The 427 cubic-inch L88 served as the king of Chevrolet big-blocks, producing 430 HP at 5,200 RPM. When introduced in 1967, this engine achieved near-mythical status, though its production numbers remained relatively low throughout its tenure.

As successful as GM's big-block development had been to this point, significant hardship laid just over the horizon. Increased concern over environmental pollution spurred governmental agencies to action, thereby leading to the introduction of a flurry of new legislation. The vast majority of this legislation was aimed at the automotive industry, most notably at the upper echelon of the performance scale. Further complicating matters, was the insistence toward increasing premiums for high-horsepower vehicles, by numerous insurance agencies.

As if overnight, big-block powerplants were falling from favor, and top automakers began detuning various engines, which had been deemed “excessive”, in terms of output. General Motors introduced the 454ci LS5 in 1970, which served as a somewhat stifled variant of earlier big-block powerplants carrying the same displacement. However, even this engine’s output would be subsequently dwindled down, to further adhere to emissions standards of the era.

Finally, in 1973, GM introduced the 454ci LS4 as an available engine option for the Corvette. Rated at 270 HP, the LS4 was a far cry from the L88 of less than a decade prior, yet impressive nonetheless, when compared to other manufacturer’s offerings of the era.



1973 LS4 Specifications and Technical Configurations

The LS4 featured a cast-iron engine block, which was fitted with a crankshaft of similar composition. This crankshaft was of a two-bolt construction and supported a set of forged steel I-beam connecting rods.

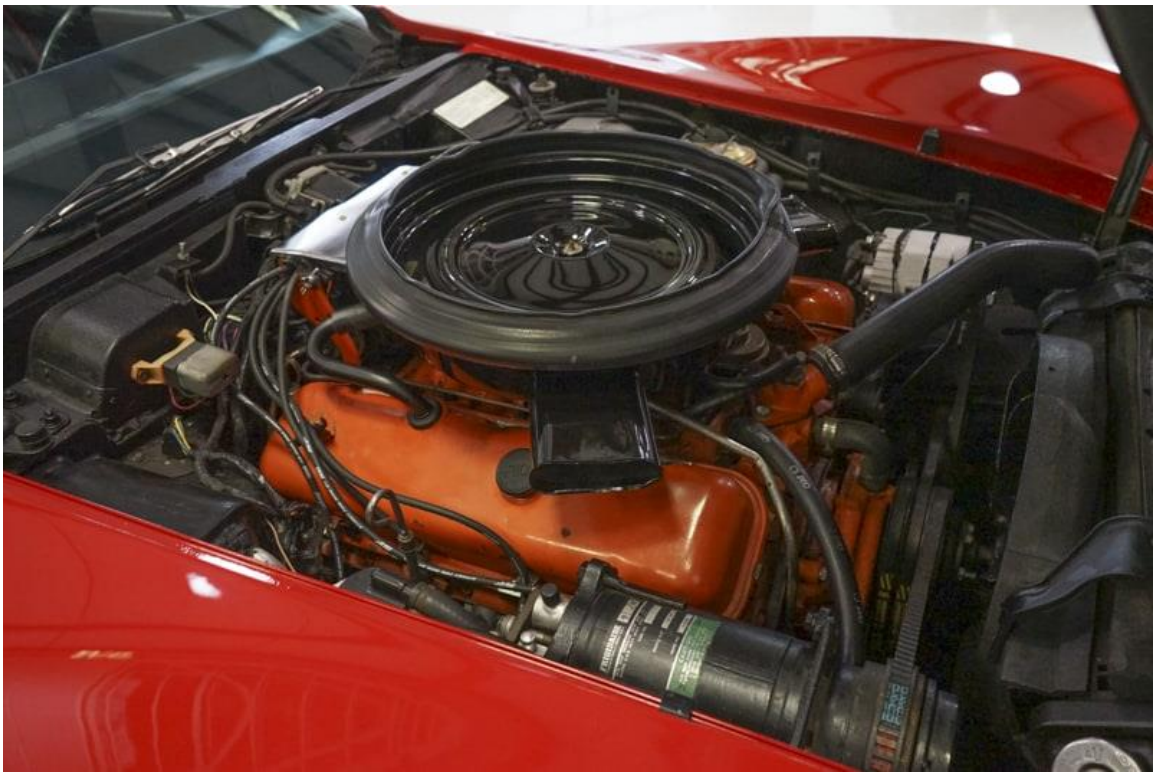
Cast aluminum pistons were anchored to the small end of these connecting rods, via chamfered wrist pins. The LS4’s pistons reciprocated within 4.251” cylinder bores, and exhibited a stroke of 4.00”. The culmination of these two values presented this big-block with a compression ratio of 8.25:1.

Atop the LS4's engine block, sat a pair of oval-port cast iron cylinder heads, which were somewhat more restrictive in nature than those utilized in earlier big-block production, yet more than noteworthy in their own right.

These heads were fitted with identical intake and exhaust valves, to those used in the prior LS5 big-block. These valves measured 2.06" (intake) and 1.72" (exhaust) in diameter, respectively. These valves were driven by a mild hydraulic lifter camshaft, which was selected for reasons related to emissions compliance.

The LS4's cylinder heads were fed air through a low-rise cast iron intake manifold. This manifold was topped with a Rochester four-barrel QuadraJet carburetor. Additionally, the LS4 was fitted with GM's Air Injection Reactor emissions System (AIR), though catalytic converters were excluded from the engine's exhaust system.

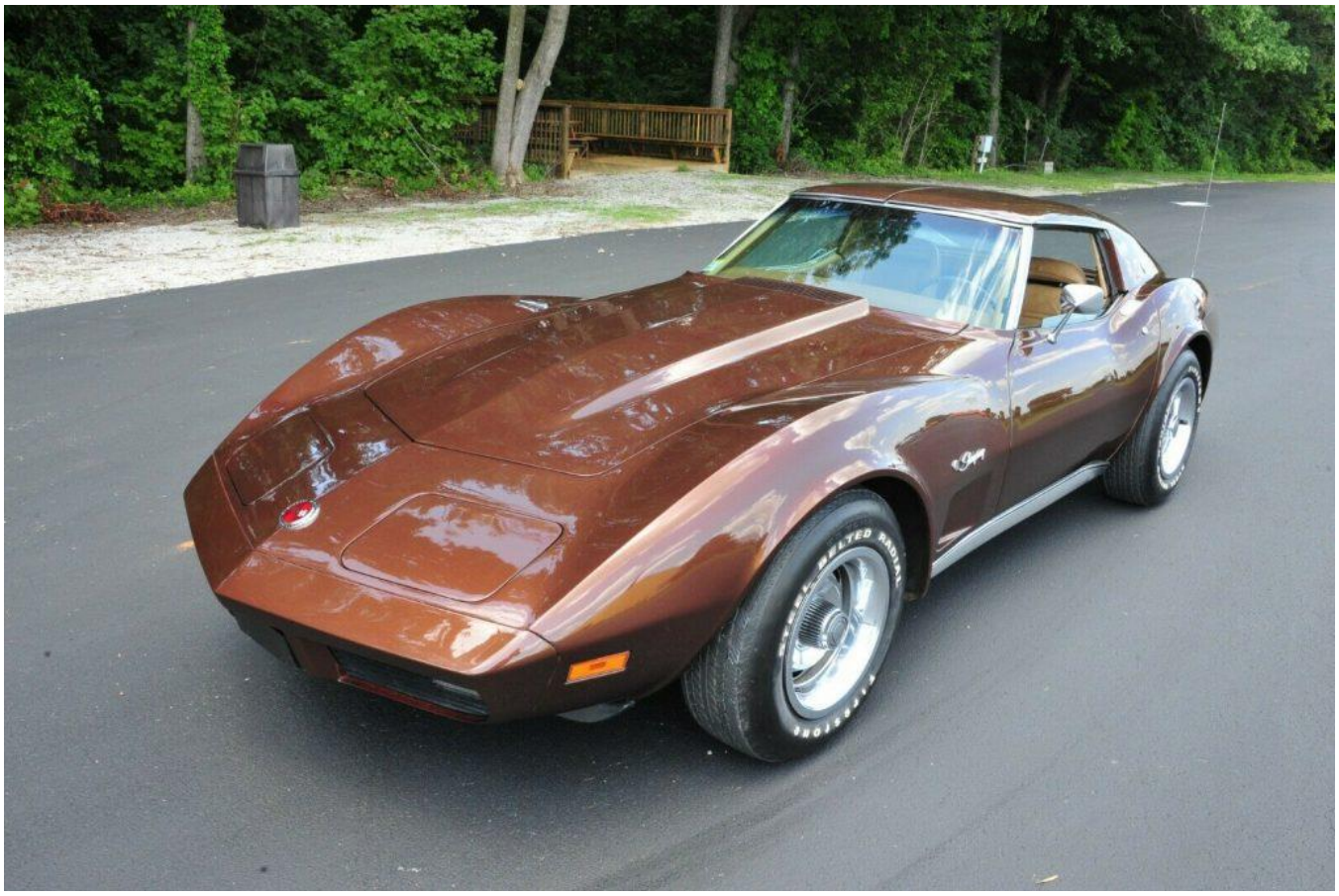
Though the LS4 was simply incapable of stacking up against early iterations of the Corvette big-block, it did carry a performance pedigree all its own. The LS4 produced 270 HP at 4,400 RPM and 380 lb.-ft. of torque at 2,800 RPM. This mark of performance was sufficient enough to propel the LS4-equipped Stingray to 0-60 MPH times of just over six seconds.



Credit: Schmitt.com

LS4 Specs Index

- **Horsepower:** 270 hp @ 4,400 RPM
- **Torque:** 380 lb./ft. @ 2,800 RPM
- **Compression Ratio:** 8.25:1
- **Displacement:** 454 cubic-inches (7.4 L)
- **Cylinder Bore:** 4.251 inches (107.98 mm)
- **Stroke:** 4.0 inches (101.6mm)



Additional LS4 (454CI) Uses

The 454 cubic-inch LS4's reign was relatively short-lived, as it was nixed from production after only two years. However, during these two years, the LS4 found itself beneath the hood of numerous GM models, including the Chevelle, and Monte Carlo.

At the conclusion of the 1974 model year, the LS4 was unceremoniously put out to pasture, as GM again scaled back its available engine offerings. In the years to follow, consumers were left with no big-block powerplants to choose from on the Corvette's options sheet.

The End Of An Era

Was the 454 cubic-inch LS4 one of General Motors' most powerful big-blocks? Absolutely not. However, it is historically significant nonetheless. The LS4 served as the end of the road for the big-block Corvette, as America's sports car returned to its small-block roots.

Today, many collectors seek out LS4 equipped Corvettes, as a cost-effective means of procuring a big-block Vette for their collection. Those lucky enough to locate such a car will also find themselves in possession of some of the final high-displacement beasts of a foregone era.