

FREE SAMPLE

The opening pages of

1970 Chevrolet Chevelle SS Restoration Guide

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RESTORATION ESSENTIALS

1970 Chevelle SS

Restoration Guide

Model Year 1970 • RPO Z25 SS 396 • RPO Z15 SS 454

KEY SPECS AT A GLANCE	
SS options	Z25 SS 396 (\$445.55) — L34 350 hp or L78 375 hp
	Z15 SS 454 (\$503.45) — LS5 360 hp or LS6 450 hp
LS6 454	450 hp / 500 lb-ft — one-year-only, 4,475 built
Body styles	Malibu sport coupe, Malibu convertible, Custom El Camino
Drivetrain rule	SS 454 required Muncie M22 or TH400; all SS cars got 12-bolt axle
Authentication	No SS VIN in 1970 — proof is paperwork + stampings, section 14

Factory-correct data for the hands-on restorer. Every specification in this guide was checked against published factory and marque references.

1. Chevrolet and the Super Sport Idea

Chevrolet was founded in 1911 by William C. Durant and Louis Chevrolet and absorbed into General Motors in 1918, becoming the corporation's volume division — the brand whose sales paid for everyone else's experiments. That volume role is the key to understanding the Super Sport: the SS was never a separate car line with its own engineering. It was a package of the division's best existing hardware — big engines, heavy-duty transmissions, stiffer suspension, distinctive trim — assembled on the regular production line and sold through the regular dealer network. That is why SS cars are restorable today with production parts, and also why they are so easily faked: every SS part was, by design, a bolt-on.

The SS idea predates the Chevelle. It began with the 1961 Impala SS — initially a trim and bucket-seat package — and grew teeth as Chevrolet's big-block program matured. By the late 1960s the division was the industry's performance benchmark, its small-block and big-block V8s the engines every competitor measured against. The 1970 Chevelle SS sits at the intersection of that engineering confidence and a closing window: federal emissions and insurance pressures were already gathering, and everyone inside Chevrolet knew the unrestricted big-blocks would not last. The LS6 was built like a farewell — because it was one.

There is a second, practical reason the SS matters to a restorer: Chevrolet's performance parts pipeline. Because SS equipment was regular production equipment — ordered by code, built on the line, serviced by dealers — it is documented in the same factory literature as everything else: the Assembly Instruction Manual shows how SS-specific parts were installed, the Chassis Service Manual covers the drivetrain, and the parts catalogs list the SS-only numbers. You are never guessing what 'correct' means; you are looking it up. That is the deep advantage of restoring a factory package instead of a dealer special or a home-built tribute — the factory wrote down the answers.

2. SS Model History: From Trim Package to 454

The Super Sport story on the Chevelle has three distinct chapters, and knowing which chapter your car belongs to determines how you authenticate it.

1964–1965: SS as trim

The 1964–1965 Malibu SS was an appearance and interior package — bucket seats, console, SS emblems and trim — available with any engine, including the six. The exception that proved the rule was the 1965 Z16: a limited-production Malibu SS fitted with the 396 big-block, built to test whether buyers wanted a true big-block intermediate. They did.

1966–1968: SS 396 as its own series

For 1966 the SS 396 became a separate series with its own 138-series VIN. Order an SS and you got a 396 — no six-cylinder SS, no small-block SS, no ambiguity. This is the authentication golden age: the VIN itself proves the car. Through 1968 the formula held, with the 325-, 350-, and 375-horse 396s marking the steps up the ladder.

1969–1970: SS becomes an option

In 1969 the SS reverted to option status (RPO Z25), and for 1970 Chevrolet split it in two: Z25 for the SS 396 and Z15 for the SS 454. The SS could now be ordered on the Malibu sport coupe, the Malibu convertible, and the Custom El Camino — and, crucially, the VIN no longer distinguished an SS from the Malibu it was based on. A 1970 SS 396 coupe carries the same 13637 VIN prefix as a 307-powered Malibu coupe. Everything in section 14 of this guide exists because of that single administrative decision.

2.1 1969: the transition year

1969 deserves attention because it set up everything about 1970. It was the first year of the SS as an option package (RPO Z25) rather than a separate series, and the year the COPO system put 427s into Chevelles for connected dealers — proving the demand that the 1970 SS 454 would meet through regular production. Styling was evolutionary, which is why 1970 wagons and El Caminos could carry 1969 sheet metal without looking dated. If you are cross-shopping a 1969 SS against a 1970, know the trade: the 1969's lower production and COPO lore appeal to specialists, but the 1970's quad-headlamp front end, 454 availability, and one-year-only status make it the more valuable car. This guide covers the 1970 only — but the 1969 context explains why 1970 happened the way it did.

3. What Is Unique About the 1970 SS

3.1 The one-year-only constellation

Step back and look at what 1970 assembled in one model year: the only SS 454, the only LS6, the only year of the quad-headlamp SS front end, the first year of functional cowl induction as a regular option, and the last year before compression ratios fell. No other model year offers this combination, which is why 1970 SS values lead the 1968–1972 generation by a wide margin — and why the incentive to fake a 1970 SS exceeds that for any other year. Every section of this guide is written with that incentive in mind.

3.2 Two SS options, four engines

1970 is the only year with two distinct SS options on the order sheet:

Option	Price (1970)	Engines	Required transmission
RPO Z25 — SS 396	\$445.55	L34 402/350 hp (base), L78 402/375 hp	M20/M21 4-speed or M40 TH400 REQUIRED (no 3-speed, no Powerglide)
RPO Z15 — SS 454	\$503.45	LS5 454/360 hp (base), LS6 454/450 hp	Muncie M22 or TH400 (M40) required — \$221.80; total \$725.25

Table 1 — The two 1970 SS options at a glance.

3.3 The 1970 SS order sheet, reconstructed

To understand what an SS cost and why take rates look the way they do, here is the SS portion of the 1970 order sheet as a buyer would have seen it: