

CAMARO FOR '82 AN ENGINEERING PROFILE



FROM DRAWING BOARD TO REALITY

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The 1982 Camaro—An Engineering Profile

The Objective

Camaro. An automobile enthusiast's dream since it was introduced in 1967. In 1982, an engineering challenge to refine the car's classic appearance, impressive handling and exciting performance to meet the needs of the 'eighties.

The world has changed radically since the first Camaro came on the scene. And, over the years, Camaro has kept pace with the trends.

Camaro for '82 reflects Chevrolet's commitment to offer one of the finest examples of its breed. A sporty car that will provide a standard from which others can be judged.

That commitment required millions of dollars in design and development, the application of new manufacturing technologies, and a wealth of engineering creativity. The end result is proof of this dedication.

We invite you to take a closer look into the '82 Camaro in this Engineering Profile.

An Important Word About This Brochure—

This brochure has been prepared to give you an insight into the many aspects of Camaro's design and engineering. However, it is important to note that some information may have been updated since time of printing. Also, some of the equipment shown or described is available at extra cost.

Chevrolet also reserves the right to make changes at any time, without prior notice, in prices, colors, materials, equipment, specifications and models.



Glossary of Engineering Terminology

The following terms and definitions will help you better understand the '82 Camaro.

Throttle Body Fuel Injection—A method of metering fuel to an engine that replaces a carburetor. The electronic injection system uses a constant flow fuel pump and a solenoid injector to feed the proper amount of fuel, at the right time, from a point upstream from the cylinders.

Solenoid Injector—An electronically controlled injector nozzle that opens and closes upon timed impulses sent from the vehicle's on-board computer system. Compared to a carburetor jet valve, the solenoid delivers a finer mist of fuel which mixes more easily with the incoming air for good combustion.

Throttle Body—The base plate of the solenoid injector or typical carburetor system. It houses the butterfly valve, controlled by the accelerator pedal, which increases or decreases the air flow into the engine.

Lateral Acceleration—The sideways acceleration of a vehicle caused by the effects of inertial force created when the car is driven through a corner. It is a function of the mass of the vehicle, its tires, its speed and the degree of the maneuver.

"G"—A measure of lateral acceleration. The maximum "G" limit is calculated when the car's tires begin to lose traction with the road surface. The higher the "G" number for a particular car, the greater traction it delivers.

Aerodynamics—Air Motion. The science involving four fundamental factors—weight, lift, thrust and drag. By far the greatest in importance as applied to the automobile is drag.

Drag—The resistance of the air to the passage of a body through it. Wind-tunnel testing is used to determine the coefficient of drag (Cd) of a vehicle's exterior design. The lower the Cd number, the less air resistance is encountered. Total aerodynamic drag is the product of Cd and the vehicle's projected frontal area.

Ergonomics—The science of human comfort and accommodations. Applied to a vehicle's interior, it includes such factors as head-, leg-, shoulder and hip room, seat support, outward visibility, reach of controls, and legibility of instruments.

Development Team Insights

The Engineering

"We wanted to create a car that would reflect our technical capabilities and compete with the best the world has to offer, and a car that a driver would be comfortable in on a day-to-day basis.

"We started with the Z-28, which we feel represents our handling and performance capabilities and objectives; and once having achieved those objectives, created Berlinetta and Sport Coupe. We feel that with the advent of the new Camaro we are about to put some romance back into our business and provide the opportunity for our customers to indulge themselves, enjoy the opportunity of driving a fine automobile, and just plain have fun."

—Tom Zimmer
Chief Engineer
Camaro Project Team

The Exterior Design

"If we have ever achieved balance, design efficiency and beauty in a vehicle, it most certainly is in the '82 Camaro. Contemporary and aerodynamic, it's in keeping with the flavor and heritage of all the great Camaros.

"Every surface of the new Camaro is designed and modeled like a piece of sculpture . . . a lasting individual statement. A marked departure from the flat-sided, angular look of today's sports cars. The Z-28's aggressive appearance places it in the styling forefront; Berlinetta offers a subtle touch of sophisticated performance; Sport Coupe is the clean expression of a contemporary sporty car.

"They're all part of the new wave in automotive design. A designer's dream come true."

—Jerry Palmer
Chief Designer
Camaro Project Team

The Interior Design

"From the start, our design staff wanted the '82 Camaro's interior to be consistent with the high degree of mechanical engineering and exterior styling. Equally important, we wanted to make efficient use of the available space.

"The finished product reflects that theme. The totally new interior package provides performance-oriented seating for comfort and convenience, and the versatility of the hatchback helps make Camaro right for today.

"We believe that what we have accomplished has added the finishing touch to a truly exceptional automobile."

—William Scott
Chief Interior Designer
Camaro Project Team

The Result

"The sporty, futuristic character of the 1982 Camaro declares that Chevrolet leads the way with cars that are fun to drive.

"Our engineers and designers have given us three exciting versions of Camaro—the performance-oriented Z-28 . . . the luxurious, grand-touring Berlinetta . . . and the popular Camaro Sport Coupe.

"When you explore Camaro, you will find it satisfies not only the outright sports-minded but also the economy-oriented motorists who are looking for performance and styling."

—Robert D. Lund
General Manager
Chevrolet Motor Division

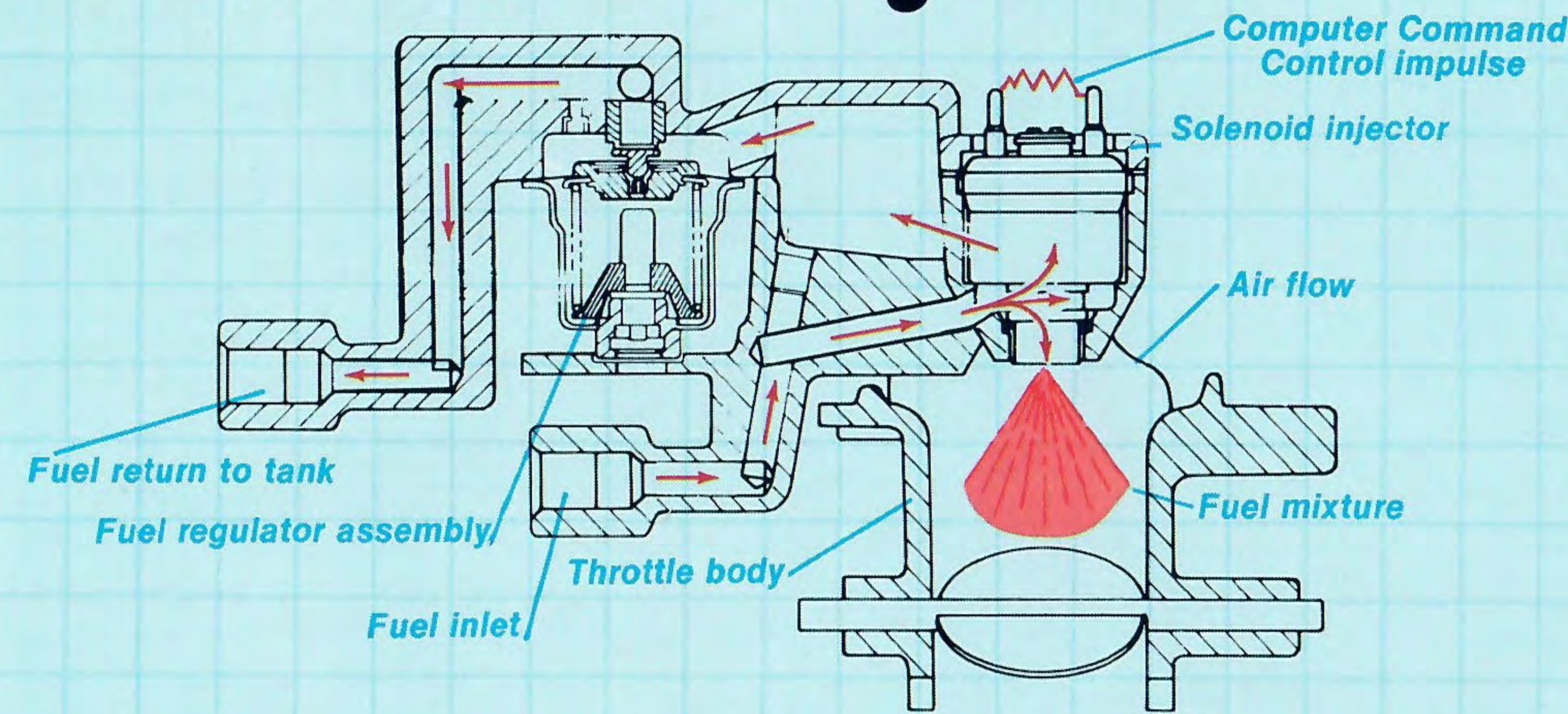
Element 1—Electronic Fuel Injection

Electronic Fuel Injection. A fuel metering system that helps deliver a high level of energy from each drop of gasoline. Electronic Fuel Injection is standard on Z-28's optional 5.0-liter Cross-Fire Injection V-8 and Sport Coupe's base 2.5-liter L-4 engine.

The microprocessor technology of the Computer Command Control system helps make it possible.

Standard for all gasoline-powered Chevrolets, this on-board system continually monitors information from up to 12 sensors or information-gathering centers throughout the powertrain. These sensors include throttle position, engine coolant temperature, exhaust oxygen readings and vacuum pressure.

Information is transmitted from these sensors and analyzed by the computer, which then makes precise adjustments in up to eight powertrain systems (such as the exhaust gas recirculation, air injection reactor and fuel evaporation control systems) and to the ignition timing. All help determine the correct air-to-fuel mixture.



Cross-Fire Injection V-8

The computer transmits signals to the Z-28's optional Cross-Fire Injection V-8 engine.

This engine has two complete solenoid/throttle body assemblies mounted side by side on a new lightweight cast-aluminum intake manifold. These two compact injector nozzles have few moving parts, eliminating the need for the typical carburetor and its related choke, float bowl, fuel circuits and venturi mechanisms.

This electronic system is so sophisticated that the air/fuel ratio can be adjusted a minimum of 80 times per second to maintain the proper mixture under various operating conditions.

"Cross-Fire" design means that the fuel mixture, injected by the solenoid unit on one side of the engine, is sent through the manifold passages to the cylinders on the opposite side.

As a result, each cylinder receives a more equalized amount of the air/fuel mixture for a fast, even combustion. This contributes to a smooth-running engine and good fuel economy. There is also a significant increase in horsepower compared to Z-28's standard 5.0-liter V-8 without Electronic Fuel Injection.

Together with a specific higher compression ratio, new higher lift camshaft and tuned exhaust system, this "Cross-Fire" engine helps make the all-new Z-28 one of the most exciting performance machines available today.

A single-solenoid Electronic Fuel Injection system is used for the Sport Coupe's standard 2.5-liter 4-cylinder engine.

It operates on the same basic principles as the Cross-Fire Fuel Injection system.

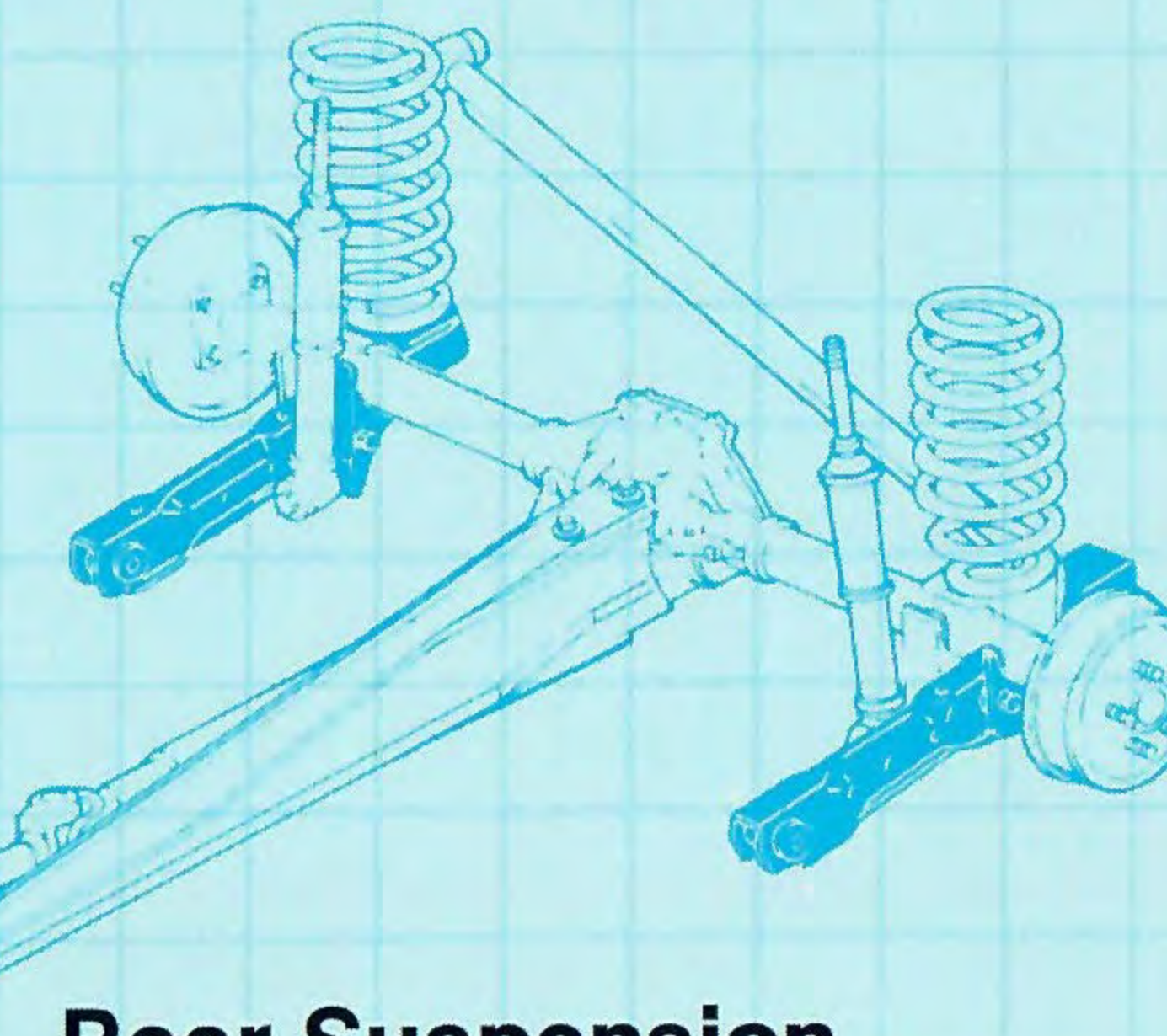
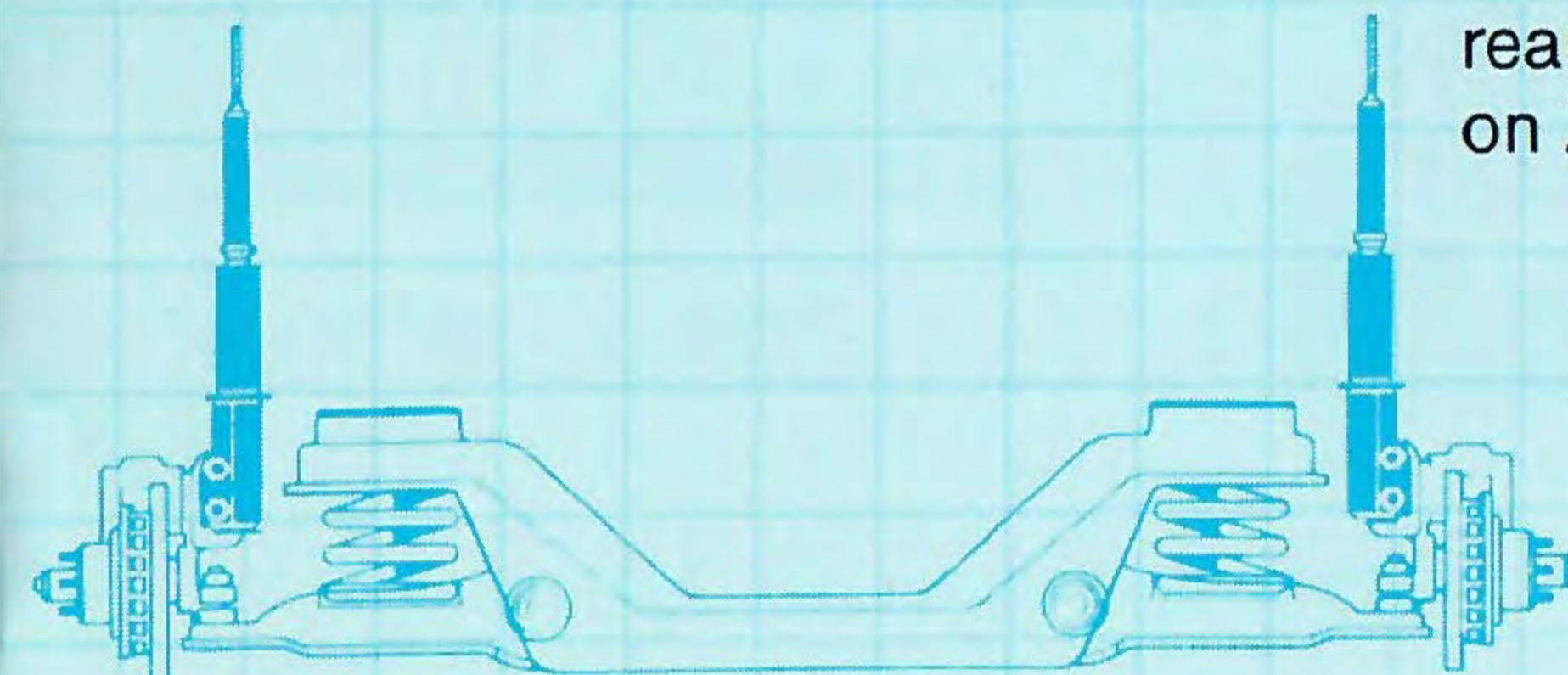
Element 2—Vehicle Dynamics

Basic Configuration

Camaro engineers agreed that the way to achieve the ride and handling objectives of this type of car was to utilize a front-engine/rear-wheel drive layout. It is a proven design used in previous Camaros as well as by Maserati, BMW, Jaguar and Porsche, and most of the world-class sports cars.

Front Suspension

Camaro's precise handling is achieved with a modified MacPherson strut design. The strut takes the place of a typical upper control arm and shock absorber, while the coil spring is located between the lower control arm and subframe. A standard stabilizer bar is also used. This overall design is space-efficient, allows for a lower hood line and requires less structural mass than some other conventional designs.

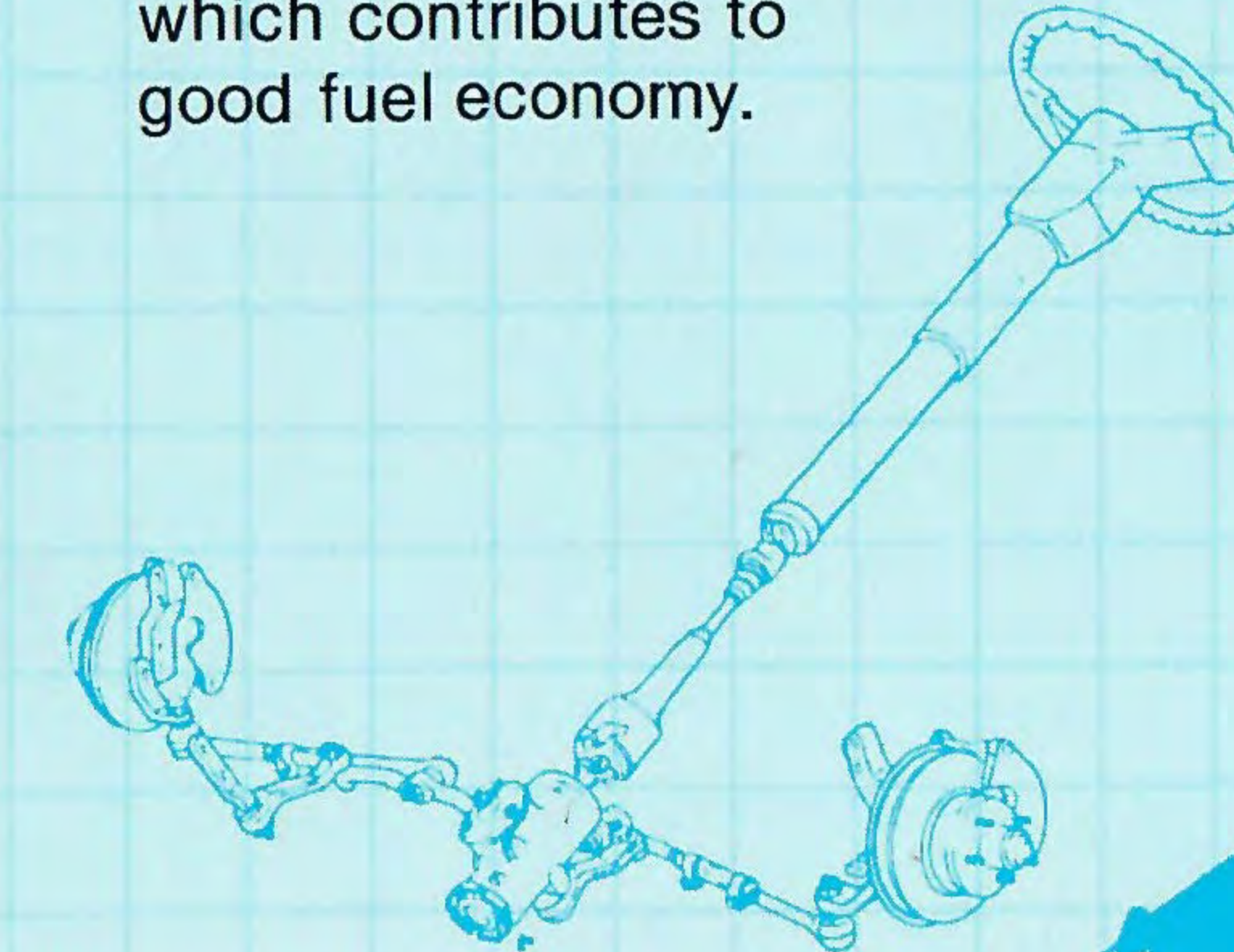


Rear Suspension

The rear suspension also features a compact, mass-efficient design. A single torque arm runs parallel to and alongside the drive shaft. It controls twisting forces exerted by the axle during acceleration and braking. Short control arms at each end of the axle and a Panhard rod help provide a high degree of on-center axle control during cornering. Coil springs are specially tuned for Z-28 and have less friction than typical leaf springs. A rear stabilizer bar is also standard on Z-28.

Steering System

A forward-mounted steering linkage is used on the '82 Camaro and works with specific body braces, redesigned steering knuckles and standard power-assist features to contribute to precise steering. Power-assisted front disc/rear drum brakes are standard for smooth stops. These discs have a low-drag design which contributes to good fuel economy.

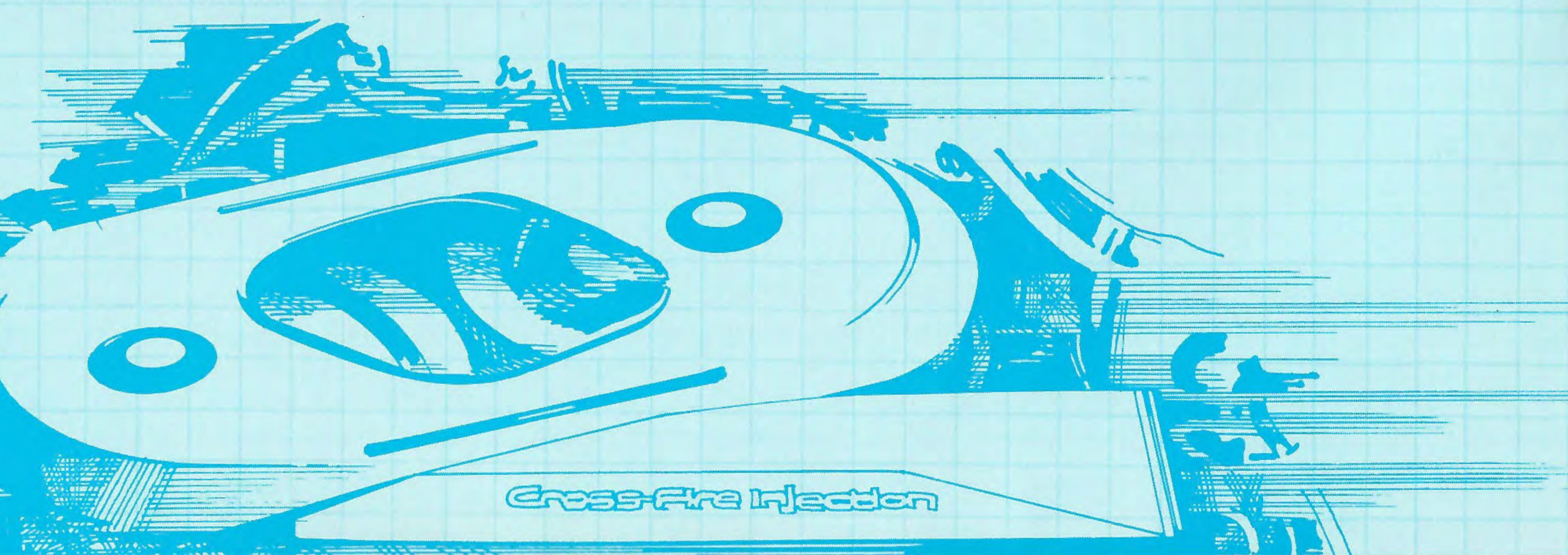


Unique 15" x 7" five-spoke aluminum wheels and special Goodyear Eagle GT 215/65R-15 steel-belted white-letter radial-ply tires are standard on Z-28. This package contributes to the car's impressive ride and road-hugging handling capabilities.

Lateral Acceleration

One measure of a vehicle's dynamics is its lateral acceleration, that is, its cornering characteristics. To determine lateral acceleration a vehicle is driven around a 108-foot-radius circle to determine the point at which the tires begin to lose traction with the road. This point is its maximum lateral acceleration.

During Chevrolet testing, engineers found the 1982 Z-28 to have a maximum lateral acceleration of .836 Gs.



Element 3—Aerodynamic Efficiency (Cd = .369)

The Importance of Aerodynamics

All things being equal, the more efficient the vehicle's shape, the greater the return in fuel economy. Aerodynamic drag constitutes about fifty percent of the total rolling resistance of a vehicle traveling 50 miles per hour.

That's why aerodynamics has become one of the most influential factors governing modern vehicle design.

Drag is air resistance. To feel the effects, put your hand out the window of a car at highway speed and you'll notice the pressure. Then rotate your palm toward the side of the car. The pressure decreases with the change in angle, requiring less energy to counteract the air movement.

"Downforce" is another important aerodynamic term. It's the downward pressure exerted on the car's body by the air moving over the car. The greater the downforce, the more traction can be applied by the tires, enhancing cornering and crosswind stability.

The egg is an example of near-perfect aerodynamics with an extremely low .03 drag coefficient (Cd) rating. Smooth on all sides, air flows almost undisturbed around the shape. Yet its shape does not allow for downforce pressures. If you put wheels on it, it would be difficult to keep on the road.

The egg, however, offers the auto stylist an outstanding

example of aerodynamics. It also offers a challenge—to design a vehicle of minimum air resistance while keeping the tires in road-hugging contact with the ground.

Wind-Tunnel Testing

Camaro's stylists met the challenge in the wind tunnel. Camaro's all-new shape is similar to one-half of an egg; a direct result of extensive wind-tunnel testing.

The recently completed wind-tunnel facility at GM's Technical Center in Warren, Michigan is the first full scale automotive aerodynamic wind tunnel to be built in the western hemisphere. Its proximity to the design studios and engineering offices allows the staff immediate access to test vehicles for evaluations.

Within the sealed test chamber, full-size clay models, prototypes and preproduction Camaros were subjected to a variety of wind speeds. Calibrated weight scales (so sensitive that they can detect the weight of a 50-cent piece) were used to monitor downforce pressures. Smoke probes and tracer dyes provided a visual tracking of the air flow over the body surface.

*Z-28's frontal design contributes to front downforce of +5.3 lbs.**

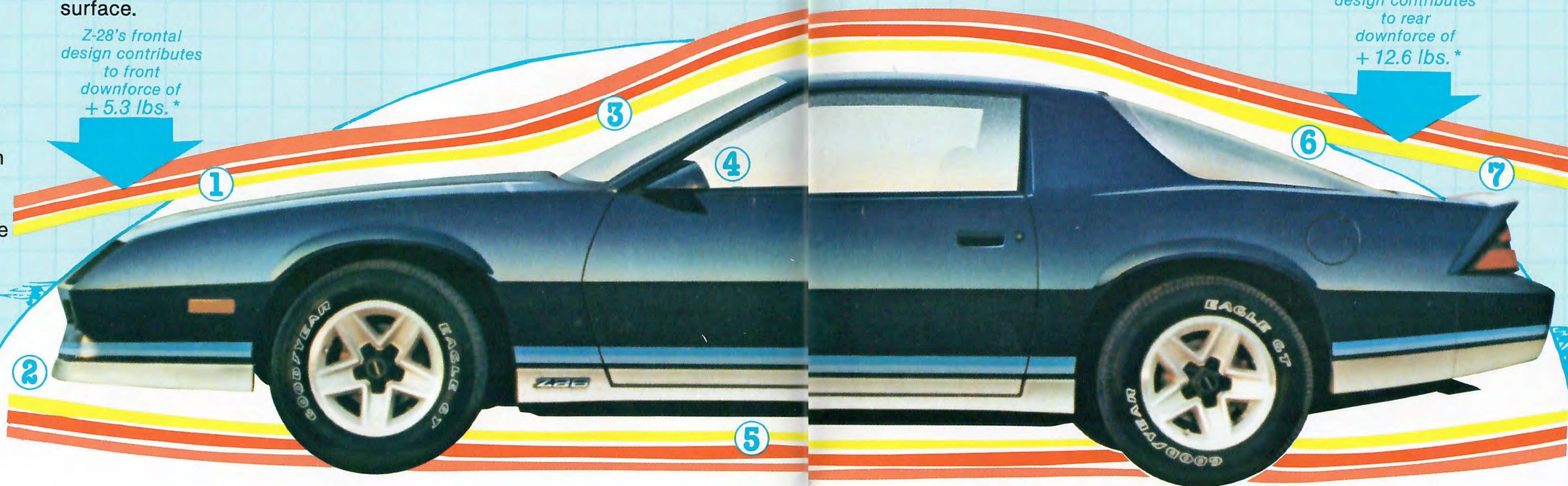
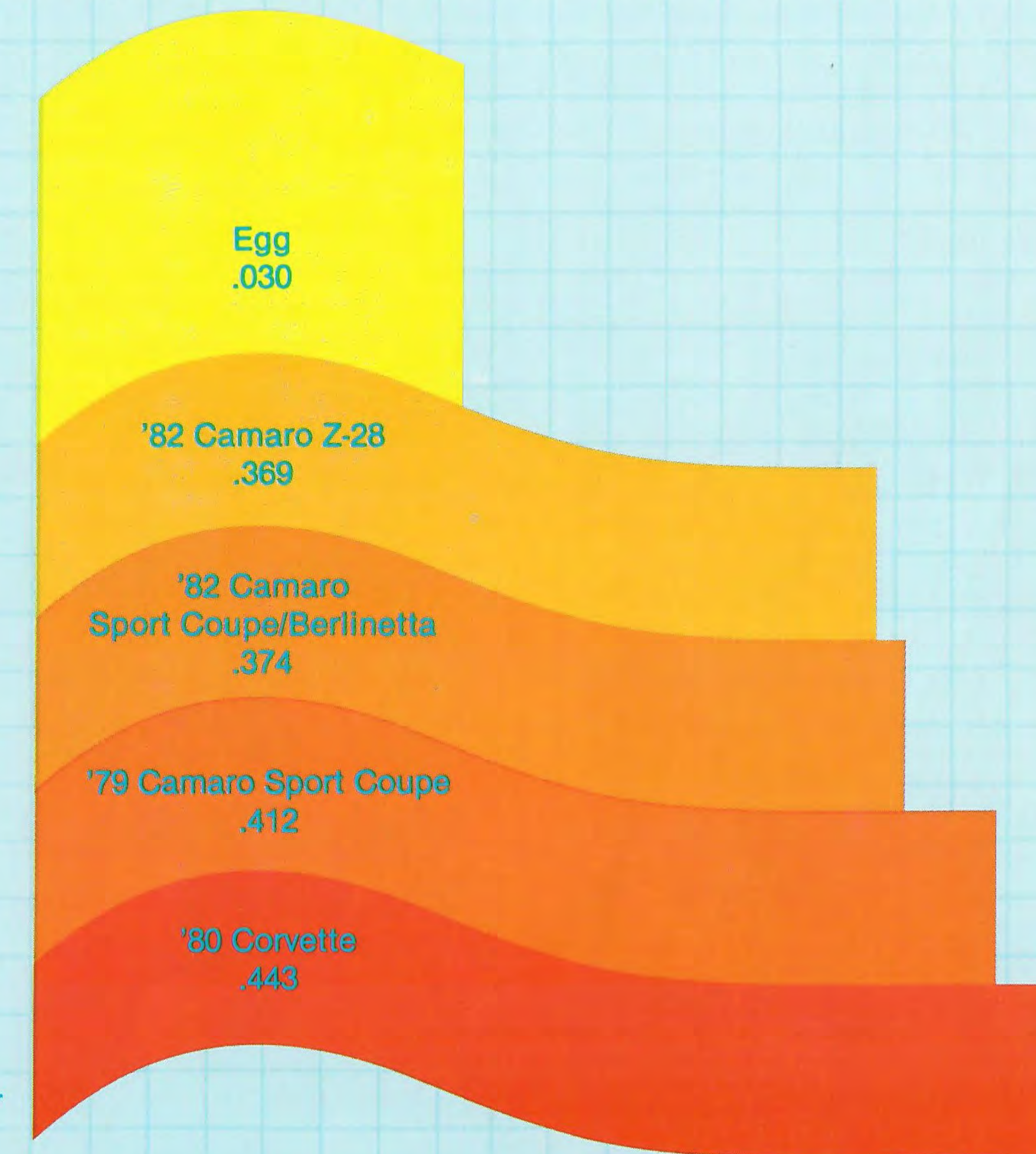
Data obtained from these experiments was recorded on closed-circuit television and analyzed by computers. Studies of the results enable stylists to make the necessary changes to smooth the shape. Alterations were as small as revised door handles and the location of a nameplate, or as large as complete fender panels.

The Payoff of Aerodynamics

Through such wind-tunnel testing and redesign, the '82 Camaro Z-28 has the "cleanest" aerodynamic shape ever offered by Chevrolet.

Its drag coefficient of .369 far surpasses the .380 target established at the start of the Camaro redesign project. As a result, the new shape represents a fuel economy increase over previous Camaro models.

Aerodynamic Drag Coefficient (Cd) Comparisons



The "Egg" .030 (Cd)

- 1 Reduced frontal area provides a streamlined wedge shape for smooth air flow. A unique fascia for Z-28 directs radiator air through an intake in the lower portion of the panel.
- 2 A deep air dam (projecting to the very front of the Z-28) helps reduce nose lift, aiding steering response and reducing drag pressures.
- 3 Flush-mounted windshield, raked at a 62-degree angle, promotes a smooth air flow over the vehicle.

- 4 Sport mirrors are streamlined for minimal air resistance.
- 5 Z-28 rocker panel extensions contribute to smooth air flow along the sides of the body.
- 6 Flush-mounted 71-degree hatchback glass also aids in the reduction of wind resistance.
- 7 Z-28's rear spoiler produces a net aerodynamic downforce reducing drag.

*Z-28's rear design contributes to rear downforce of +12.6 lbs.**

*Compared to Camaro Sport Coupe at 55 mph.

Element 4—Sporty Utility

The Hatchback Story

Camaro has been commonly described as a sporty car and rightfully so.

Now the word "utility" helps carry that sporty image one step further with an all-new hatchback design. For the first time, Camaro owners can enjoy the convenience of hatchback loading and unloading of cargo, as well as increased cargo capacity.

Sophisticated Hatch-Glass

The 966-square-inch hatch glass is curved from top to bottom and wraps around the sides. This allows for impressive rearward visibility as well as good

aerodynamics. It's one of the most sophisticated pieces of glass ever applied to a high-volume passenger car.

The design incorporates an integral frame around the full perimeter of the glass to limit flexing. Pressurized struts are a convenient assist for raising the hatchback with minimal effort.

Cargo Space Efficiency

A wealth of new features and designs points out the attention paid to optimize cargo space.

A fully inflated compact spare tire is stored out of the way in a convenient location in the right quarter panel area.* A lockable covered storage compartment for small items is found on the left side.

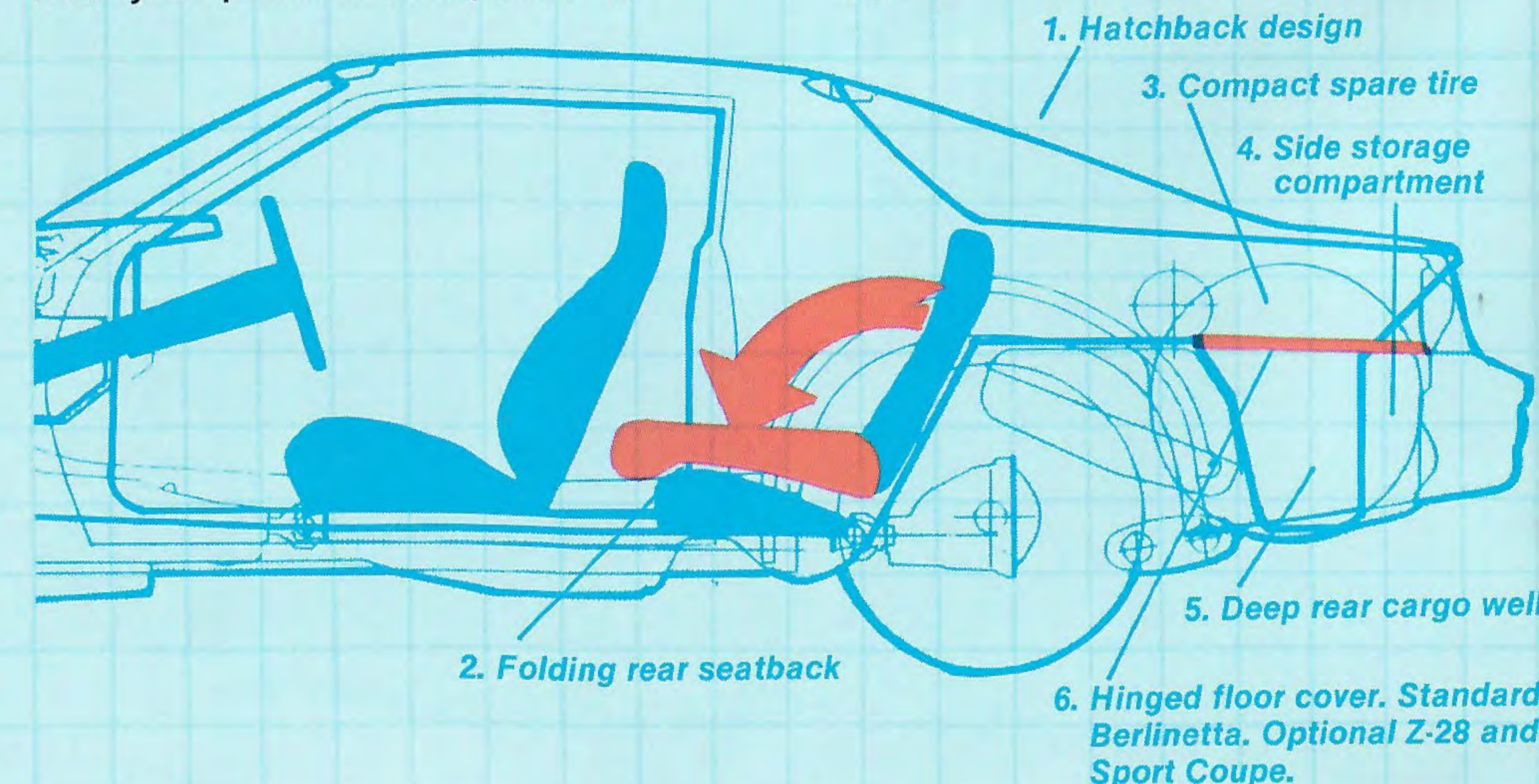
A deep full-width well between the rear panel and the axle can easily carry grocery bags and similar cargo. A hinged floor cover is available for added security and adds another dimension to the floor length.

With the rear seatback in the normal upright position, Camaro remains a 4-passenger sporty car with 11.6 cubic feet of cargo capacity. This is an increase of nearly 25 percent compared to

previous models and the usability of this volume has been improved by more than 40 percent.

The new fold-down rear seat adds to the versatility of '82 Camaro providing 31.2 cubic feet of cargo space. Engineering proof that good looks and utility can work together to help meet the needs of the 'eighties.

*Camaros equipped with optional limited slip differential include inflatable stowaway spare tire.



Element 5—The Interior of Tomorrow...Today

Designed for Comfort and Convenience

Seating plays a significant role in the comfort of every automobile. This holds true especially for sports-type models like Camaro.

Camaro is designed to accommodate passengers of all sizes comfortably. Even with the reduction of exterior size, interior roominess has not been sacrificed.

Ergonomic studies have shown that adjustments in increments of three degrees in seatback angle can enhance individual comfort. To reach that goal, reclining front bucket seats are standard equipment.

The seat cushions have pronounced lateral support and the seatbacks provide additional lumbar support for a firm feel. Increased front-to-back travel adjustments allow for improved pedal reach.

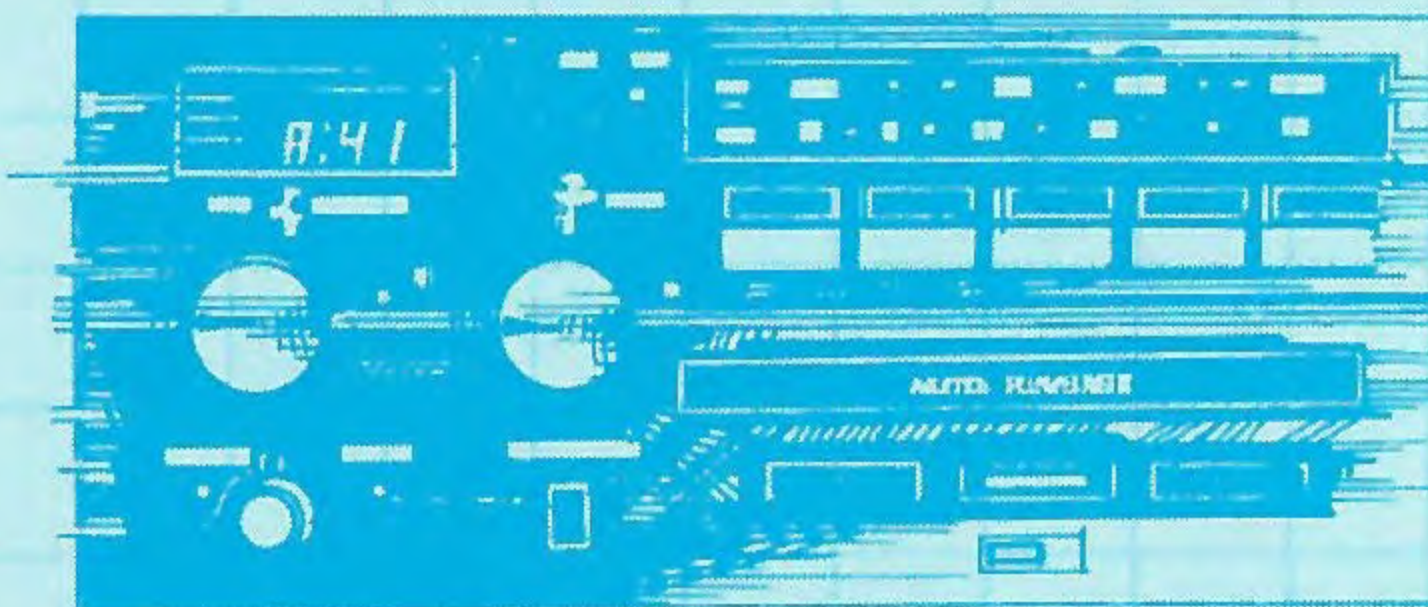
Convenience is another important comfort factor. For all Camaro models, including Z-28, a totally redesigned instrument panel features a dual-gage cluster, flanked by two vertical control panels. This arrangement conveniently places the items within sight and reach of the driver. Controls commonly used by both front occupants are mounted in the integral center console.

ERS...Extended Range Sound

Like all the interior features, this newly available sound system is tailored specifically to Camaro.

The system consists of a choice of three all-new Delco 2000 Series receivers (AM/FM Stereo, AM/FM Stereo 8-Track, and AM/FM Stereo

Cassette) matched with 4" x 6" dual coaxial front speakers and 6" x 9" dual-cone extended range rear speakers. Convenience functions include five preset station settings, automatic reverse on cassette models, tape selector switch, separate left/right balance control and front/rear fader, separate bass and treble controls, and a digital quartz clock.



This ERS sound system provides smooth frequency response and high sensitivity across the extended bandwidth. Not only does this

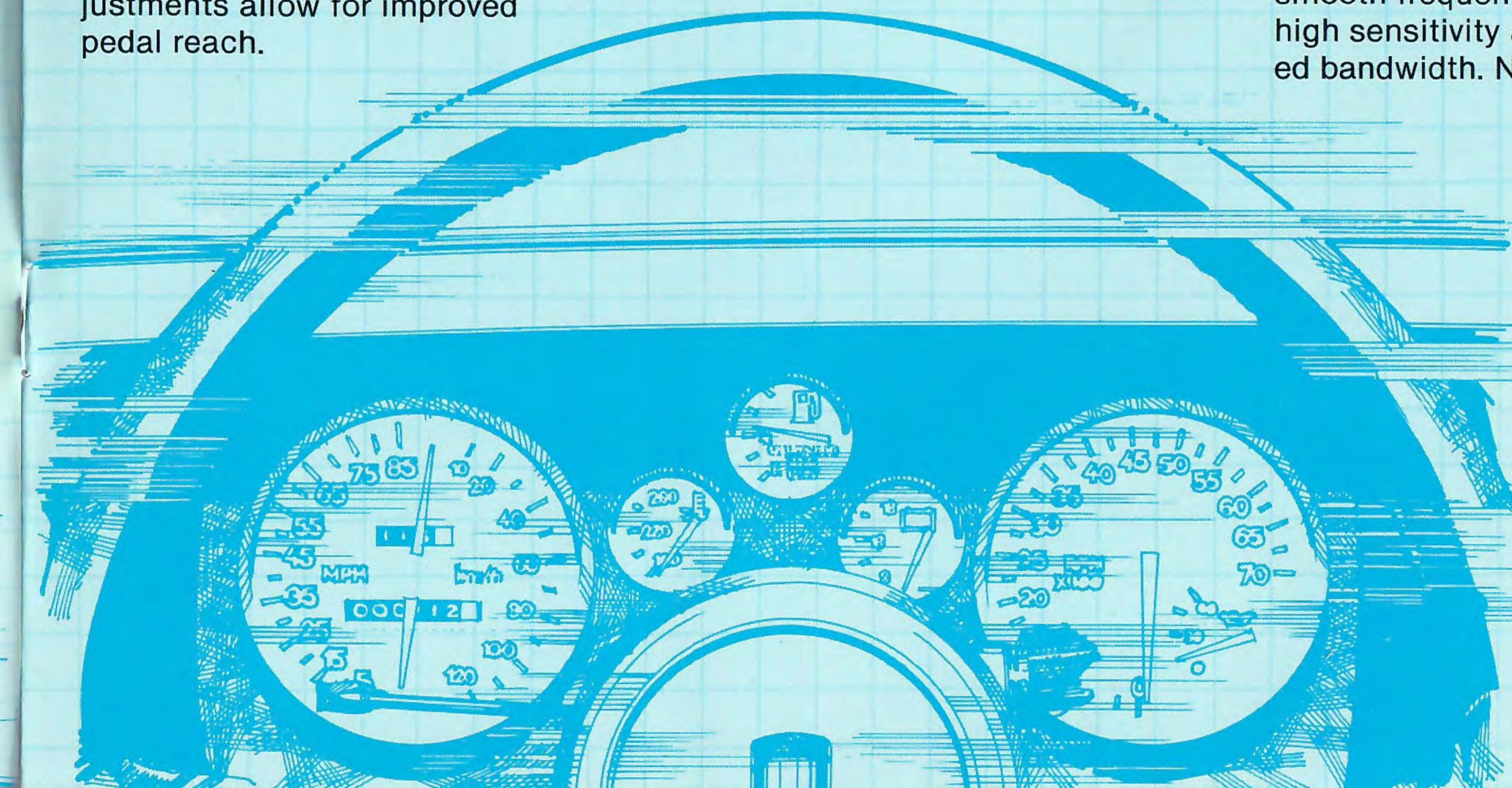
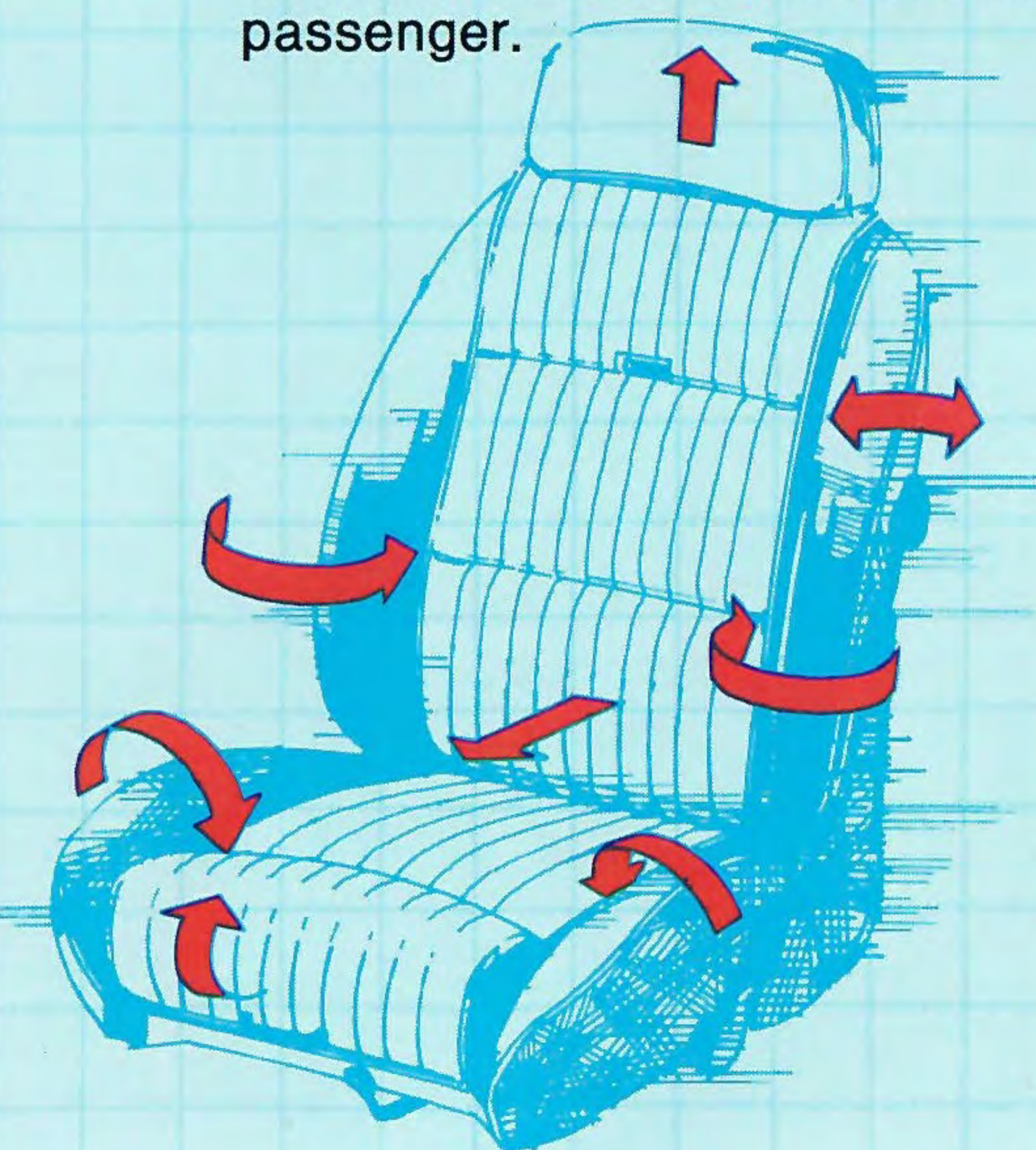
factory-designed system provide a performance sound, it's also factory installed. No installation worries and, like all Delco sound systems, service can be obtained at any GM dealership nationwide.

L/S Contour...The Ultimate Camaro Driver's Seat Design

The L/S Contour, optional for Z-28 only, is Camaro's ultimate driver's seat.

This luxury sport design extends performance-oriented seating to a new level. With the pull of a lever or turn of a knob, a variety of form-fitting adjustments can be made. A driver's upper body can be treated to changes in back lateral, lumbar, recliner and head-restraint. The lower body can enjoy cushion lateral and thigh variations.

Along with this specific driver's seat, a nonadjustable high lateral-restraint version is included for the passenger.



Berlinetta and Sport Coupe...Built in the Shadow of Z-28

Standard Features for All Models

Powerteams/Chassis/Mechanical—

- Fully unitized body construction
- Bolt-on front-end sheet metal
- Computer Command Control system
- High Energy Ignition system
- Delcotron generator
- Delco Freedom II battery
- Power-Protection-Plus Limited Warranty (See warranty for details.)
- Power-assisted steering
- Power-assisted front disc/rear drum brakes
- Front-disc-brake audible wear sensors

Exterior—

- Wedge-shape aerodynamic design
- Body-color soft-fascia front- and rear-end panels
- Recessed quad rectangular headlights
- Black windshield molding and concealed wipers
- Black door handles and locks
- Full-opening hatchback design
- Triple-unit tail lamps with amber turn signals
- Perforation-From-Corrosion Limited Warranty (Does not include exhaust system. See warranty for other limitations.)

Interior—

- 4-passenger seating
- One-piece cut-pile carpeting
- Carpeted cargo floor, storage well and rear-end panel
- Soft padded door trim panels
- Large padded armrests with integral pull handles
- Deluxe color-keyed seat and front shoulder belts
- One-piece molded acoustical headliner
- Integral console with shifter and parking brake lever
- Hinged-cover stowage compartment in center console
- Multifunction "Smart Switch" for headlamp beams, turn signals, windshield wipers and washer
- Side window defoggers
- Double-pointer speedometer
- Day/night inside rearview mirror

Berlinetta Standard Features

Powerteams/Chassis/Mechanical—

- 2.8-liter 2-bbl. V-6 engine
- Single muffler exhaust system
- 14" x 7" gold-tone aluminum wheels
- 205/70R-14 steel-belted radial-ply tires
- Dual-note horns

Exterior—

- Accent-color lower body paint with stripes
- Accent-color headlamp openings
- Body-color sport mirrors (left-hand remote, right-hand manual)
- Bright accent appliques for tail lamps
- Gold-tone emblems and nameplates
- Black-bordered hatchback glass
- Body-colored front and rear bumper fascia
- Fuel filler door



Interior—

- Custom Level interior with reclining front bucket seats and fold-down rear seatback in a choice of cloth or vinyl
- Carpeted door lower trim panels
- Carpeted wheelhousings and quarter panels
- Stowage well cover
- Padded, square hub steering wheel
- Electric quartz clock
- Special instrumentation includes speedometer, tachometer, trip odometer, fuel, voltmeter, oil and temperature gages

Sport Coupe Standard Features

Powerteams/Chassis/Mechanical—

- 2.5-liter 4-cylinder engine with Electronic Fuel Injection
- Single resonator exhaust system
- 14" x 6" steel wheels with hub-caps
- 195/75R-14 glass-belted radial-ply tires

Exterior—

- Body-color headlamp openings
- Amber lens parking lamps
- Black-bordered hatchback glass
- Body-color front and rear bumper fascia
- Fuel filler door

Interior—

- Reclining front bucket seats and fold-down rear seat
- Padded, square hub steering wheel



BERLINETTA POWERTRAINS

Engines	Transmissions	Rear-Axle Ratios
STD 2.8-liter V6	STD* manual 4-speed	3.23
	OPT automatic 3-speed	3.08
OPT 5.0-liter V8	OPT automatic 3-speed (Required)	2.73

Z-28 POWERTRAINS

Engines	Transmissions	Rear-Axle Ratios
STD 5.0-liter V8	STD manual 4-speed	2.73
	OPT automatic 3-speed	2.73
OPT 5.0-liter V8 w/Cross-Fire Fuel Injection	OPT automatic 3-speed (Required)	2.93

SPORT COUPE POWERTRAINS

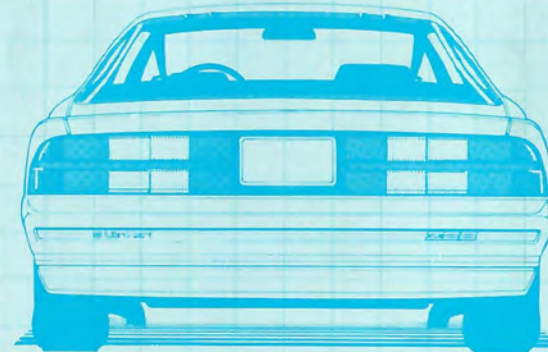
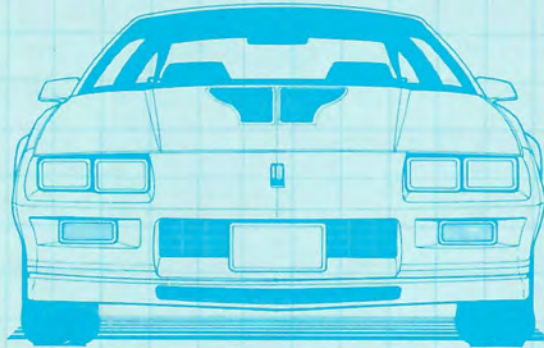
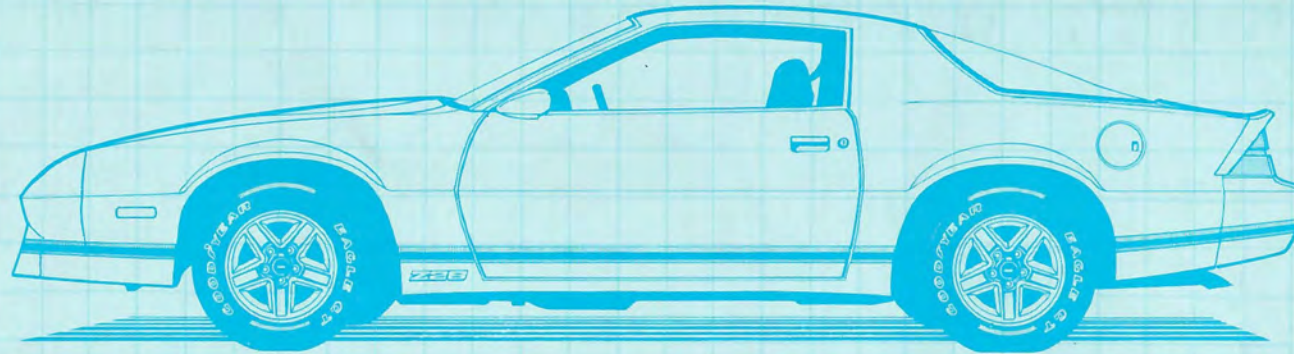
Engines	Transmissions	Rear-Axle Ratios
STD 2.5-liter L4 with Electronic Fuel Injection	STD manual 4-speed	3.42
	OPT automatic 3-speed	2.93
OPT 2.8-liter V6	STD* manual 4-speed	3.23
	OPT automatic 3-speed	3.08
OPT 5.0-liter V8	OPT automatic 3-speed (Required)	2.73

* Not Available in California.
STD—Standard
OPT—Optional

Some Chevrolets are equipped with engines produced by other GM Divisions, subsidiaries, or affiliated companies worldwide. Ask your dealer for details.

The '82 Camaro

An Engineer's Dream...A Driver's Reality



Dimensions/Specifications

Exterior (inches)

Wheelbase	101.0
Length (overall)	187.8
Width (overall)	72.8
Height (loaded)	50.0
Front Tread	60.7
Rear Tread	61.6
Turning Diameter (feet, curb-to-curb)	36.9

Interior (inches)

Front Compartment	
Headroom	37.0
Legroom	43.0
Shoulder Room	57.5
Hip Room	56.3
Rear Compartment	
Headroom	35.6
Legroom	28.6
Shoulder Room	56.3
Hip Room	42.8

Cargo/Luggage Compartment (inches)

Liftover Height	34.7
Interior Length (maximum)	61.3
Width Between Wheelhouses	45.1
Capacity (cubic feet)—	
Rear Seat Down	31.2
Rear Seat Up	11.6



Chevy makes good things happen