

MOTOR VEHICLE SAFETY POCKET GUIDE

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**The *Motor Vehicle Safety Pocket Guide* is
available with your organization's name
imprinted on the cover.**

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I. INTRODUCTION



Hey, park it a minute, will ya?

That's right - I'm a car. No, not your car or "Your Mother the Car" either.

In fact, I'm the car your parents prayed you'd never own. I'm the car "that psycho kid" down the block always worked on at night; the one your mom hoped you'd never ride in.

I got dual fours exploding out of the hood on a nine-inch tunnel ram bolted to a venerable 327 cubic inch small block bored .30 over with forged crank and pistons, a roller valve train, plus other goodies. "I'm built strong to be beat on, ready to run, but not on the street." That's my owner's little saying. He's a pretty cool guy, as far as organic life forms go; found me DOA in a junkyard. (My original owner was a slug who didn't know crank case oil was something that needed to be changed regularly!)

You see, my owner grew up in the 60's when "muscle cars" ruled the road. His first car was a new 1965 Chevelle SS and he did a lot of stupid and dangerous things in it. He was lucky and survived - some of his friends didn't. In fact, about 45,000 of you a year don't make it.

These days, he saves the racing for sanctioned drag strips, where rules and regulations make it safer, legal, and more fun.

I could go on and on about drag racing and cruising, but that's not why I'm here. You see, I was sittin' idle one day with a couple of my buddies who have cushy government jobs - you know, the ones with white plates marked "Official Use" that you usually see parked at a fast food joint or under a shade tree. (Just kidding guys!) They were tellin' me about a new government standard coming out called *Occupant Protection in Motor Vehicles*, and we were thinking, what a break for us! If you humans learned about this, we'd get a little more respect and better treatment. It could also help you lead a safer, longer life.

Your employer has given you this booklet to help make your job a little safer and allow you (and us motor vehicles) to be more productive.

In this guide, we'll take a look at the law itself and why it was written, and how it's designed to make you a safer, smarter driver. We'll look at why alcohol, drugs, and gasoline don't mix. And we'll get you a little more familiar with what makes us vehicles tick, along with maintenance, warning signs, and trouble-shooting tips.

Heck, you might even learn a few things to keep your personal vehicle runnin' stronger and longer. Since new ones cost more than your parents' house did, it makes sense to treat 'em right. Right?

What's that? Did you say a car can't talk, let alone narrate a book? Hey pal, we've got a lot more brains than some of the folks who turn the keys in our ignitions every morning. And with bigger, better, on-board computers, we're getting smarter every year. So like the license plate holder on my owner's old '65 said, "Get in, shut up, hold on!"

Let's motor . .

II. STANDARD REVIEW

The *Occupant Protection in Motor Vehicles* standard is not complex. In fact, it only contains the following three requirements:

1. Use of safety belts

The law mandates that belts/harnesses must be worn by the vehicle operator(s) in all motor vehicles that are equipped with safety belts or are required by Federal law to have safety belts installed.

2. Use of head protection

Employees who operate or occupy a motorcycle must wear a motorcycle helmet that meets the requirements of Federal Motor Vehicle Safety Standard NO. 218 (49CFR 571.218).

As required by NHRA (National Hot Rod Association), my owner is safely strapped in at the drag strip. He wears a five-point harness with shoulder straps, lap belt, plus a "submarine strap" (a strap that's bolted to the floor in front of the seat between the driver's legs), in case we forget to stop at the end of the track and hit the proverbial "immovable object." Plus, he wears a helmet, and he's wrapped in 2000 pounds of good lookin' sheet metal - me! Motorcycles don't offer even a fraction of that protection.

Did you know that many new motorcycles can go from a dead stop to 120 mph in less than 11 seconds? Pretty incredible! That means that, from a dead stop, in about a quarter of a mile, you're doing around 120 mph in less time than it takes to find a good radio station. It's faster than many cars and much faster than any van or utility truck. And when all you've got between you and the nearest telephone pole is air, you're not gonna make it without a helmet. The bike can be fixed, or used for parts, or sold for scrap, but unless you carry a donor's card, your body won't even be worth that much.

III. VEHICLE FAMILIARIZATION

You drive to work, then you drive some more as part of your job, then you drive home. Sometimes you drive to get something to eat, or to take the kids to "practice" or maybe to the mall to shop, and then home again.

You humans sure do drive a lot! Ten or twenty thousand miles a year, maybe? Maybe more? And most people don't have the first clue how their vehicles run or that their vehicles have specific identifiable needs that have to be met to ensure reliability, longevity, and safety. But you know all that . . . don't you?

Well, I'm here to tell you what you *think* you already know! You don't have to be an ace mechanic, or even know how to "turn a wrench" yourself. It doesn't matter whether or not you can perform a simple tune-up or major surgery like replacing a broken camshaft. Most diagnostics and repairs require the skill of a qualified mechanic. What you should do is become familiar with a lot of the "little stuff" - drive belts, brake pads, fluid levels, etc., 'cause they're the little things that usually lead to big problems.

I got a buddy who's a tow truck . . . "The Hook" we call him. He told me that almost 90% of vehicle breakdowns are caused by poor maintenance. 90%! That means that nine out of ten breakdowns could be avoided if we vehicles were properly maintained.

Let's take a look at the little stuff as it relates to a vehicle's major components, how to recognize unsafe conditions, and what causes them. Pay attention and maybe you can avoid being stranded alone on a highway some dark, cold night. And your vehicle can avoid the embarrassment of having everyone know that its driver didn't pay attention when he was "crying out" for some simple maintenance.

IV. VEHICLE SAFETY FEATURES

Vehicle safety is serious business. Ever since the *National Traffic and Motor Vehicle Safety Act* was passed in 1966, the Department of Transportation, along with automobile manufacturers, have been working to improve the safety of both motor vehicles and the highways they run on.

My owner brags about the 60's and all those great muscle cars, and he's right! They built some pretty impressive combinations of mega motors and sleek sheet metal. But compared to today's vehicles, they were real "sleds" in the safety department.

Before we take a closer look at seat belts, air bags, and helmets, let's look at some safety features that you may have forgotten, or maybe didn't even know about.

Built-In Safety Features

Padding - Added padding on many interior surfaces, including roof frames, sun visors, arm rests, steering wheels, doors, and gear levers. All this extra padding is designed to lessen injuries that may occur when occupants are thrown around during impact.

Hood locks with safety catches - Prevents hood from accidentally opening.

Flush mounting - Flush mounting interior hardware, such as door handles, to reduce injuries caused by impacting protruding objects.

Improved windshield wipers - Dual speed, with integral washers to improve occupant's visibility.

Covered metal surfaces - All metal surfaces within the driver's view must be manufactured or coated to reduce glare.

V. BASIC SAFETY TIPS

It's time to motor down the highway, but before we go, listen up, 'cause I've got some safety tips for you. But first you gotta take a basic safety quiz. Don't worry, it'll be easy. Comfortable? Did you adjust the rear and side mirrors? Okay, let's go . . .

The Quiz

Passing on the right

It is safe to pass on the right when:

- A. You're in a hurry to get home to watch one of those intelligent, probing talk shows interviewing people who have travelled to Uranus with space aliens and lived to tell about it.
- B. The driver in front is moving too slow and you want to get around him, even if it means endangering innocent pedestrians.
- C. The vehicle in front is signalling or turning left or when driving on a roadway with two or more moving traffic lanes in each direction.

The correct answer is "C".

You can pass a vehicle on the right under these conditions, but only if it can be done safely.

Hand Position

You must have good steering skills to keep control of your vehicle. The correct hand position is:

- A. Right hand at 12 o'clock, left hand and arm dangling uselessly out the window.
- B. Left hand at 6 o'clock position, right index finger cleaning out right ear. (Come on, I've seen you do it!)
- C. Both hands on the wheel at the 9-and 3-o'clock positions.

VI. DRUG AND ALCOHOL ABUSE

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Earlier in this guide I tried to impress upon you the need to wear your safety belts and helmet by hitting you with some grim statistics. Well, when it comes to mixing drugs or alcohol, or both, with driving, the facts just get worse:

- The violent crime most often committed in America is done with a vehicle and a drunk driver, not a gun.
- Every 23 minutes, someone dies in an alcohol-related auto crash.
- On a typical weekend night, one out of ten drivers on the road is legally drunk.
- There are an estimated 20 million licensed drivers who are chronic alcohol/drug abusers who continue to menace the roadways.
- Sixty-five percent of single car fatalities are caused by drunk drivers.
- In the last ten years, 11 million Americans have been injured or killed by drunk drivers.

Alcohol

How much is too much?

This is a difficult question to answer. Most states consider you to be legally drunk when your Blood Alcohol Concentration (BAC) reaches .10%. This means that at .10 BAC, alcohol comprises 1/10 of one percent of the total amount of blood in your system. There are graphs that approximate BAC levels based on a person's weight, but these are misleading because there are a number of factors that affect how much you can safely drink:

1. **Sex** - men and women tend to metabolize alcohol differently.
2. **Stomach content** - alcohol is absorbed faster on an empty stomach.
3. **Rate** - the rate at which alcohol is consumed.

VII. TRAFFIC LAWS

Traffic laws in the form of signs, signals, and markings are used to inform you about highway rules, to warn you of traffic and road conditions, and to help you find your way. Each type of traffic marking looks the same in *every* state.

Signs

Signs are divided into three basic categories, each with its own special shape:

1. Regulatory Signs

They tell you about traffic laws and regulations such as speed limits, the direction of traffic, turning restrictions, parking, etc.

Usually, regulatory signs are vertical rectangles or squares. But STOP and YIELD signs are different. The STOP sign is the *only* octagon-shaped (eight-sided) sign on the highway. At an intersection with a STOP sign, you *must* stop and wait for pedestrians and cross traffic to clear the intersection before you proceed. Slowing down without completely stopping is illegal. How many of you are guilty of that?

When you see a crosswalk or a stop line, stop *before* reaching the painted line.

YIELD signs are triangular. When you see this sign, you *must* slow down and check for traffic, and give the right-of-way approaching cross traffic. Stop only when necessary.

DO NOT ENTER and WRONG WAY signs work as a team. The DO NOT ENTER sign is put at the beginning of one-way roads and ramps. When you see this sign, do not drive onto that road.

WRONG WAY signs are placed farther down the ramp or one-way street. They are placed

VIII. GLOSSARY

Here's a list of terms and abbreviations commonly used to describe components and conditions in a typical vehicle. By becoming familiar with these terms, you'll not only amaze your friends, you'll be better able to describe and relate any problems that may need the attention of a qualified mechanic.

Air bag. Protective device designed to serve as a "cushion" between front seat occupants and vehicle interior immediately following a "head-on" or front angle crash.

Air cleaner. A device for filtering, cleaning, and removing particulates from intake air to an engine.

Alternator. Generator in which alternating current is changed to direct current by means of rectifiers (diodes).

Antifreeze. A liquid, usually ethylene glycol, added to water to lower freezing point.

Anti-lock brake system (ABS). Provides rapid and repeated brake pulsations to bring vehicle to a stop without wheel lockup or skidding.

Anti-smog device. A special part or system designed to reduce or eliminate emission of harmful gasses caused by incomplete combustion.

Axle. Shaft or shafts of a vehicle upon which wheels are mounted.

Bleed. To remove air from hydraulic brake system while fluid in system is under pressure.

Booster. A mechanical or hydraulic device attached to brake or steering system to increase power or ease of operation.

Brake cylinder. A cylinder in which a movable piston or pistons converts hydraulic pressure to mechanical force to move brake