

Don't Get Taken for a Ride!

By Eric Peters

The owner's manual for my 1976 Trans-Am (the Great Pumpkin) is only about 30 pages long, cover to cover. You can read it in about 5 minutes or so.

The Trans-Am is almost self-explanatory.

It takes an owners' manual almost as long as *Moby Dick* - more than 700 pages is usual - to explain all the systems, technologies and features the typical 2017 model year car has - and how to use them.

When my Trans-Am was new, there were three major American brands of cars, one minor (AMC, RIP) and just a handful of imports. There were no Japanese-brand luxury cars; and no Korean cars, period.

There are currently at least *44 different brands* of cars - including three Japanese luxury lines and (soon) a Korean luxury line, Hyundai's Genesis brand.

Each of those 44 brands sells a full *line* of cars - often as many as a dozen individual models ranging from compacts to full-size SUVs and everything in between.

It's a lot of ground to cover.

Factor it all out over the time you've got available on weekends and evenings - in between work and family - to research and test drive and get to know the specific models you might be interested in.

It makes *my* teeth ache - and I'm a car journalist; I do this stuff for a living.

It can be overwhelming - even for someone like me, whose business is cars.

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And when you're overwhelmed by something, it's harder to focus, easy to get emotional - and more likely you'll make a mistake.

That's how you end up driving home in the *wrong* car.

Or a car you just paid too much for.

The purpose of this book is to help you figure out which is the *right* car for you - and buy the thing at the right *price*.

To help you *prioritize* and *compartmentalize*. To deal with one thing at a time - and in the right order.

In order to avoid getting taken for a ride.

Whether it's new - or just new to you.

If it doesn't do that, I owe you an oil change!

-Eric

Your Libertarian Car Guy

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Extras

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I: Thinning the Herd

It sounds straightforward - but this part might just be the most complicated (and anxiety-inducing) thing about car shopping.

Some background: Until the late 1990s, there were usually three or four different models to choose from within a given *segment*, or class of vehicle. Today - 2017 - there are often twice that many and sometimes, three times as many.

For example, in the entry-level compact crossover SUV segment, there are currently at *least* the following:

- *Honda CR-V*
- *Toyota RAV4*
- *VW Tiguan*
- *Mazda CX-5*
- *Ford Escape*
- *Chevy Trax*
- *Jeep Renegade*
- *Subaru Forester*
- *VW Golf Alltrack*
- *Fiat 500L and X*
- *Buick Encore*

Even more confusing, some of these are related.

Meaning, they are corporate (and mechanical) cousins. Like the Jeep Renegade - and the Fiat 500L. Fiat owns Chrysler . . . which owns Jeep.

Though the brands - and names - and skins - are different, the two vehicles are very similar *under* the skin. They share drivetrains - engines and transmissions - and many other mechanical parts. The underlying chassis is basically the same one used to build both cars.

Another case in point: BMW and Mini. Though Mini has its own dealer network and the brand is historically British, the cars are actually BMWs under *their* skins. For example, the BMW X1 and Mini Cooper are both powered by the same BMW-sourced engine.

There are also nicer - and pricier - versions of the same basic car, each sold under different labels.

The Cadillac XTS *luxury* sedan is a fancy version of the Chevy Impala *family* sedan.

Or vice-versa, depending on your point-of-view.

Both have the same 3.6 liter V6 engine that powers the Chevy Camaro - and a bunch of other GM vehicles, too.

The badges are different, but what's under the hood isn't.

Sometimes, the number of doors doesn't make much difference, either.

The Dodge Charger sedan is a sportier version of the Chrysler 300 sedan. Both are also four-door cousins of the two-door Challenger muscle car. They are all built on the same underlying platform - which traces its DNA to the Mercedes E Class sedan of about ten years ago, if you really want to get geneological.

They all share the same engines, too.

Did you know that a Lexus ES350 luxury sedan is a high-end Toyota Avalon? And that both descend from the Toyota Camry - and all three are related to the Lexus RX350 - which is a luxury crossover SUV?

You'll find the same Toyota-built 3.5 liter V6 under the hoods of all four, too.

I won't say anything, if you won't.

And it's not just Toyota. They all do this.

GM sells the same full-size SUV under *three* different badges - first as the Chevy Tahoe, then as the GMC Yukon and finally, as the Cadillac Escalade.

Ford only sells its big SUV *twice* - as the Ford Expedition and then once again as the Lincoln Navigator.

Nissan's Armada is upsold by its Infiniti luxury line as the Q56. But it's the same basic ride.

Well, price excepted... .

Red-headed Stepchildren -

- Fiat's new two-seat roadster, the 124, is a re-bodied Mazda Miata.
- The Subaru BRZ sports car and the Toyota 86 coupe are identical, mechanically - each of them powered by the same Subaru-built engine.
- The tiny SmartCar is made by Mercedes-Benz.
- The VW Touareg and Porsche Cayenne are close cousins.
- Every Lincoln except the new Continental has a nearly identical Ford (and Ford-priced) counterpart.
- Volvo is *Chinese* (Geely Motors).
- Jaguar and Land Rover are . . . Indian (Tata Motors).

Eyes getting heavy yet?

But this cross-pollination is actually a major benefit to you - the buyer.

If car *A* is close mechanical kin to car *B* - and if car *A* has a good reputation, in particular for its mechanicals (i.e., its

engine and driveline) then you can safely assume that car B is *also* a safe bet.

And car *B* may carry a much lower price tag.

A good example of this is the kinship between the various Lexus and Toyota models, several of which are - cosmetics, trim and price aside - fundamentally the same vehicles.

The Toyota Avalon/Camry and the Lexus ES350, for example. The Lexus ES350 will have more luxury features and trim, but the nuts and bolts - the things that make it go - are literally interchangeable and designed and made by the same people.

So when you buy a Toyota, you are in a very real sense buying a *Lexus* . . .

You're just not paying for one.

Car-talk

- Platform* - This is industry-speak for the underlying architecture, or structure, of a car; the chassis/frame it is built on. It is common for several vehicles to be built on a common platform and so share a common mechanical foundation, including suspension components. As an example, the BMW X1 and the Mini Cooper are built on the same platform; if you like the way one rides/drives, you will probably like the way the *other* rides/drives. It's easy to find which vehicles share

platforms; just Google the make/model you're researching and "shared platform."

- *Segment* - Another industry-insider term that refers to a *class* of vehicle, as defined by its general configuration, size and price range. For example, the premium full-size SUV segment includes models like the Cadillac Escalade, Infiniti Q56 and Lexus LX470.

- *Badge Engineered* - A car that is built on the same platform and is mechanically and otherwise almost identical to another model sold under a different nameplate, or badge. The GMC Yukon, for example, is a *badge-engineered* version of the Chevy Tahoe. You can save a lot of money by purchasing the less-prestigious *badge* (e.g., Chevy) but get the same basic *vehicle* (e.g., the Yukon) for less.

- *Powertrain* - This means the engine, transmission and drive axle(s). In a front-wheel-drive or all-wheel-drive car, the transmission and axle are combined in a single component called the *transaxle*. Usually, these parts are covered by the vehicle's *powertrain warranty*, which lasts longer than the *basic* (or "whole car") warranty.

Then there are the more distant familial relationships.

For example, the well-regarded Honda Civic - which is a small sedan - serves as the basis for the HR-V crossover. They look like completely different vehicles, but under the skin - and most of all, under the hood - they are *fraternal* twins.

It's not hard to suss out this info. Just Google the name of the car you're interested in and *shared platform*.

You might be surprised by what you find!

Another confuser is the proliferation of sub-models and *overlap* of price and size and features.

There used to be a relative handful of *segments*: economy cars, luxury cars, family cars, sporty cars, minivans, trucks and SUVs - each being clearly different from the others, each serving a pretty specific need and filling a specific *niche*.

That, too, has changed.

Many new vehicles are *segment-busters* that have one tire in one segment - and the other in another.

It all began with *crossovers* - which look like rugged SUVs - but actually have more in common, mechanically and functionally, with the passenger car *platforms* they are generally based on.

One of the very first of these crossovers was the Lexus RX - which came out in the late '90s as the RX300. It was based on the same platform as the Camry/Avalon/ES sedans, but featured more ground clearance, a higher-up seating position (and view of the road) for the driver, much greater cargo capacity (due to the hatchback layout and raided roof profile) as well as the availability of all-wheel-drive.

But because it was based on a car platform, the RX rode and drove and handled like a car - and not a clunky, truck-based SUV.

It was a huge hit. It busted the segment wide open.

Since then, crossovers have exploded in popularity - while sedans have become slow-sellers.

The lines between entry-level, mid-priced and luxury have blurred, too.

In a *good* way.

To a great extent, it's no longer about what the car comes with - the amenities and features it has - or even its *price* - but the *badge* it wears on its fender.

At least as far as things that used to clearly separate a "basic" or "entry level" car from a higher-end car.

For instance, it is almost impossible to find a 2017 model year car that *doesn't* come standard with air conditioning - often climate control air conditioning - power windows and locks and a pretty good stereo.

Most bread-and-butter family cars - even the lower-cost models - now offer - and more and more come standard with - features such as LCD touch screens, a suite of apps (Bluetooth cell phone integration, voice recognition) and an *excellent* stereo with at least *six* speakers. Things like in-car WiFi, multi-stage heated seats, roof-length panorama

sunroofs and cabins trimmed out in leather and carbon fiber are common amenities in cars with sticker prices *under* \$35,000.

Cars costing twice that (or more) may have *nicer* leather and eight or twelve (or more) speakers - but the take-home point is that no one's slumming it anymore. Today's inexpensive new cars have more standard amenities than the luxury cars of 30 years ago even *offered*.

Or, could.

It's analogous to your cell phone, which has technology that didn't exist at any price just ten years ago - and which gets less expensive each year while offering *more* technology.

Another thing to know:

Nothing new *drives* like an old-school Basic Transportation Appliances - something like a Chevette or Pinto, for those old enough to remember the not-so-good-old-days.

This is *really* good news.

No matter what you end up with - and even if you only spend \$15k or so - you won't be driving around in a depressing, drafty, leaky, under-engined automotive atrocity.

The least powerful new economy cars get to 60 in about 9 seconds - and can easily and comfortably cruise all day at 80 MPH or even faster.

For reference, economy cars used to take 15 and sometimes as much as 30 seconds to get to 60. And their *top speeds* were 80 MPH.

Most new economy cars are capable of getting to 60 in 8 seconds.

Some current family sedans - a V6 powered Honda Accord or Camry, for instance - are quicker and faster than V8 muscle cars were back in the '60s and '70s.

And a new V8 Camaro or Mustang GT can get to 60 in a little over four seconds - quicker than the exotics (Ferraris and Porsches) of the '70s and '80s.

Your choice is between fast . . . and *faster*.

The take-home point here is that most new cars - entry level cars especially - come standard with more power/performance than was optional in mid-priced cars not that long ago. And the engines available optionally in most new cars are indulgently powerful.

Power - and speed - are great. But don't buy them unless you really need them. Marketing hype - and many salesmen - will try to convince you to buy more than you need or can use by convincing you that you do need it - even though you don't. And - worst of all - can't realistically do much with it anyhow.

Where, for instance, are you going to drive 150? Or even 100? For how long? If a car has power enough to accelerate

competently and merge/pass, it has enough power for everyday driving.

More is great - but not necessary - like buying a three scoop sundae, plus whipped cream and fudge, too.

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There are other choices to weigh as well.

Such as whether to go with *rear-wheel-drive, front-wheel-drive, all-wheel-drive or four-wheel-drive.*

And transmission choices have expanded to at least four: *Manual, automatic, CVT automatic and automated manual.*

Let's have a look at these:

Drive types -

- Rear wheel drive - This means the car is *pushed* by its rear wheels rather than *pulled* by the front wheels. But it's more than just that the car is driven by its rear wheels. It also means the weight of the drivetrain is spread out more evenly, front to rear. This is generally good for ride and handling but because there is less weight over the wheels that drive the car, traction in poor weather tends to be poor. RWD cars (and 2WD trucks) are a great choice for a performance/sporty car but a not-as-good choice for winter driving.

- Front wheel drive - This means more than just that the front wheels pull the car along; in a FWD layout, the engine/transmission/axle are combined into a single assembly - the transaxle - and this is mounted on top of the drive wheels, which greatly improves traction in poor weather. The downside is that there is a weight bias toward the front of the car, which isn't optimal for high-speed handling.

Also, FWD cars can be harder to work on - particularly if the engine is a V6 - because in a FWD car, the engine is mounted *transversely* - sideways - and half of the engine will be snugged up tightly against the firewall. In a RWD car, the engine is mounted front-to-back, or *longitudinally*.

- All-wheel-drive - All four wheels propel the car, but (in most cases) AWD systems are front-biased, which means that most of the time, most of the engine's power (usually 90 percent) goes to the front wheels; if they begin to lose traction, the system will automatically route engine power to the rear wheels (as much as 90 percent, if need be). Some AWD systems can module power to individual wheels, as well as front to rear. However, most AWD systems do not have low-range gearing and so are not as capable for off-road driving or operating in deep, unplowed snow.

Most AWD systems are also completely automatic. No action is required by the driver; the system is always on and will route power to the wheels that have traction, as conditions dictate.

The main upside of AWD is that, in addition to increased poor weather traction, you also get improved dry/wet

weather handling. This is why many sporty/performance cars offer AWD.

The main downside of AWD is the additional weight of the AWD components, which tends to lower gas mileage.

AWD also usually increases the purchase price of the car - as well as down-the-road maintenance and repair costs, simply because there are more parts and so, more things that could possibly break or which will eventually need servicing.

- Four wheel drive - Similar to AWD in that all four of the vehicle's wheels are powered, but different in that unlike most AWD systems, which are front-biased, most 4WD systems are *rear-biased*. They are designed around a rear-wheel-drive layout (hence found mostly in trucks and truck-based SUVs).

They are also - typically - *part time*.

Which means that unless engaged by the driver - usually by turning a knob or pulling lever - the vehicle will be operating in two-wheel-drive (*rear-wheel-drive*) mode.

All of the engine's power will flow to the rear wheels only.

When engaged, most 4WD systems split the power flow 50-50, front to rear. Most do not have the ability to route most of the engine's power to the front wheels, if the rear wheels are slipping.

However, most 4WD systems do have the leverage advantage of a *two-speed transfer case* and 4WD Low

Range gearing, which makes a vehicle so equipped very capable in deep, unplowed snow, mud and off-road.

But, be aware that most 4WD systems are meant to be engaged *only* in poor weather - such as when it's snowing - or when driving *off* paved roads. In most case, 4WD should not be engaged on dry, paved roads - and does not help handling or cornering.

Also, components such as the transfer case are very heavy and the additional weight usually results in noticeably worse gas mileage vs. the same vehicle with 2WD (rear-wheel-drive).

Transmissions -

- Manual transmission - The driver must engage and disengage a clutch and change gears manually. Most new cars that offer manual transmissions offer six-speed manuals, though there are still a few five-speed transmissions available and a few new cars have seven speed manual transmissions.

The chief upside is more driver control - and fun. Also, it is typical that the manual-equipped car costs less than the same car with an automatic, which usually costs extra. The chief downsides are the likelihood that, at some point, you will have to replace the clutch. And that it can be a chore to shift gears manually in stop-and-go traffic.

- Automatic transmission* - Shift operation is automatic and controlled by a *hydraulic circuit* within the transmission. Many new cars have a manual shift control function but the transmission still controls the

actual gear changing; the manual mode just controls *when* the shifts happens.

Most modern automatics - believe it or not - are *more efficient* than manuals because they are programmed to shift at exactly the right moment for optimum gas mileage. The old rule that you get the best mileage with a manual is no longer necessarily true. In many - in most - cases, a given model new car with an automatic will get *better* mileage than an otherwise identical car with a manual.

However, the usually higher up-front cost of the automatic-equipped version may negate any fuel saving advantages.

While you will never have to worry about a clutch with an automatic, many modern automatics are very complex pieces of equipment (some of the newer ones have *ten* speeds). In the event of a major failure, post-warranty, the replacement cost can be as high as four or five thousand dollars - not including the labor charges.

Before you commit to buying a new car with one of these automatics, do yourself a huge favor and search around for complaints, lemon reports and so on.

An extended powertrain warranty (more on this later) might be a very sound investment.

- *Continuously Variable Transmission* - CVT for short; this is a type of automatic which is becoming very common. It features a single, *infinitely variable* forward speed. Instead of shifting through a fixed set of gears (e.g., first through sixth) the transmission varies the ratio *continuously* in order to keep the engine always

operating at the ideal RPM for the road speed and other conditions.

A CVT-equipped car will accelerate almost turbine like, without "shift shock"- the snap you feel in a car with a conventional automatic or manual when it shifts up from one gear to the next. No more coffee spilling! But CVTs tend to be noisier than conventional automatics - especially during full-throttle acceleration. The engine RPM will climb to a high speed and *stay there*, until you let off the gas pedal.

The chief advantage is fuel efficiency. CVTs save a few MPGs vs. a conventional automatic, all else being equal.

- *Direct shift/automated manual transmissions* - These are a kind of hybrid between an automatic and a manual transmission. They operate fully automatically, but have a clutch. Clutch engagement/gear changing are controlled entirely by the computer and electronic actuators.

These types of transmissions combine ultra-precise/ultra-quick shifting *and* efficiency with the ease-of-use of a conventional automatic. The downside is they can be extremely, even prohibitively expensive to repair when they fail. In some cases, the cost to repair/replace can be so high that you face the choice of either throwing away an otherwise perfectly good car or spending more to fix the car than it's worth.

Again, do some research into the make and model you are looking at before you commit.

Maybe used? Or . . . Not?

Should you even be thinking about a *new* car?

Maybe a *used* car would be a better choice? Let's have a quick look at some of the reasons you might go one way. . .

. . . or the other way.

First and foremost, if you decide on new, you won't have to worry about the *car*.

A new car is *new*; it has zero miles - so no wear and tear. It will also be completely warranted, tires to roof. If *anything* turns out to be wrong with it, *you* won't have to pay for it.

That's *huge*.

One new car is also *exactly* like every other make/model new car of its type and trim/color.

This includes the one on Dealer *X's* lot and the one on Dealer *Y's* lot. Whether you buy here - or there - you end up with exactly the same car.

This leaves you free to worry about the *price* of the car - which is the biggest *downside* to buying new. Even if you negotiate a fantastic deal (which we'll get to later on) you will still be paying new car money.

Also new car taxes and insurance.

And, you'll be paying in another way - *depreciation*.

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Whatever you buy, it will likely lose about 30-40 percent of its original sticker price value during the first five years you own it. This will matter come re-sale/trade-in time. But on the other hand, if you plan to "drive the wheels off it" - keep the car for at least 10-12 years - depreciation will hurt less at the end of that time. By which time the value of pretty much all cars, whether they were bought new or used, has reached a plateau - generally between \$2,500 and \$5,000 or so.

With used cars, the main worry is the car.

This one might be good. . . while *that one* might be a water-logged, bent-framed, odometer-rolled-back disaster.

Unlike a new car, each used car is unique. It will have a unique Life History. Even two examples started out exactly the same year/make/model/color/trim.

Five years down the road, one will have more - or less - miles on the odometer. Another will have more - or less - wear and tear. One will have been garaged all its life and taken exceptionally good care of by its previous owner. Another will have coffee stains on the seats or been parked outside and neglected.

The scary thing, if you're the prospective next owner, is that after it's been professionally *detailed* by a dealership, it will be very hard to tell the latter car from the former.

This is what makes buying any used car inherently more risky.

There are things you can do to reduce the risk - a thorough inspection by a competent independent mechanic, the purchase of an extended warranty - but risk is always there by dint of the fact that a used car has been . . . *used*.

It is a *machine*, after all. And machines that get used wear - no matter how well they're treated. Modern cars are also laden with *electronics* and suffused with software.

Out of warranty, *replacing* electronic parts (they are never *repaired*) often gets pricey. Sometimes, it's hard to figure out what's ailing the car because electronic/software problems can be intermittent.

They come - and go.

The car doesn't work right when you're driving it but - *shazam!* - it works just fine once it's at the dealership.

That gets annoying - as well as expensive.

As far as mechanical wear and tear, there are the obvious things: brakes, tires and - if it has a manual transmission - the clutch. But you will also want to take into account things that aren't necessarily obvious but nonetheless potentially Big Ticket, such as major scheduled service items.

For example, timing belt replacement. Many new cars with *overhead cam engines* need to have this done every 75,000 miles or so. This isn't something you can ignore without consequences. If you skip or delay the getting it done and

the belt breaks, the engine will just stop running one fine day - and you will be stuck.

As this is a major repair, you don't want it to become necessary when you're not ready. Like when you're on a road trip and the belt fails in an unfamiliar town and now you're not just stuck but also at the mercy of whatever shop is nearby.

If the car you're looking at is going to need a timing belt replacement soon (check the owner's manual; scheduled service intervals according to mileage will usually be listed in the appendix; if the car doesn't have an owner's manual, you can usually find a PDF copy online) or any other major service, find out what it will cost and try to haggle down the price of the car accordingly.

The *other* downside of buying used is that there is pressure on you, the buyer, to snap up a car you found that *is* the color you like, *hasn't* got too many miles on the clock, *seems* to have been well-cared for - and so on.

Because it may be the *only one* just like it that you can find. Heading down the road to another dealership isn't an option. You may have to make a snap decision. If you wait until tomorrow, someone else may have bought that particular car.

This gives the seller a big advantage. He's got the only one in stock.

With a new car, it is possible to order *exactly* the way you want it - color, trim, equipment. You may have to wait for it - if he has to order it - and you will probably pay more for it (dealers tend to be less haggle-friendly on cars that are special-ordered because they want to sell you a car in their inventory, on the lot right now) but you will end up with everything you wanted and nothing you didn't.

This includes the peace of mind that comes with zero miles on the clock and a full-coverage warranty, as well as being able to get exactly what you want. These things may not have an exact dollar value but are definitely worth something.

Conversely, with a used car, you generally will have to compromise.

You can't special order one the way you want it to be fitted out. You will probably have to accept one with *most* of the features you want but some you might not.

A color that's not your favorite - but the mileage is really low.

Some door dings - but hey, it's got the sunroof.

Someone smoked it in . . . but the price is really attractive.

Etc.

On the other hand you'll pay less. This is the major upside of going used.

Not only for the car - but also for the depreciation. Because when you buy used, you pass the Depreciation Bill onto someone else - the guy who bought the car when it was new.

You're buying it at 30-40 percent off sticker.

You also pay lower taxes (sales as well as property taxes, where applicable) and - probably - lower insurance premiums, since one of the major factors affecting their cost is the replacement cost of the vehicle insured.

And if you're careful, do your due diligence - including a careful inspection of the car by a competent, trustworthy, independent mechanic (*not* the dealership's mechanic) prior to purchase, or as a condition of the purchase, you can improve your odds of not getting stuck with big repair bills.

While there will always be some risk involved when you buy used, this is compensated to a great extent by the much longer service life of late-model cars (that's anything made during the past ten years or so).

75,000 miles on the clock of such a car is functionally equivalent to 15 or 20,000 miles on a '70s-era car.

It's more than that, actually.

Because a '70s (or even '80s) car with 20,000 miles on it had fewer miles *left* on it. Most of them became unreliable money pits right around the 75,000 mile mark and often began to need major work after 100,000 miles or so.

You will, of course, have to spring for maintenance sooner - things like tires and brakes, maybe even a timing belt change - because there will be some wear and tear on these things - but the major, kill-the-car stuff (such as an engine failure) is not likely to happen until the car is more than 15 years old and has at *least* 200,000 miles on the odometer.

Rust is also less of a worry today than it used to be. Which is another huge plus.

This doesn't mean you shouldn't still look for it. It means it's less apt to be a serious (as in structural) problem unless the car is 15 years old or older or was driven for years in severe winter weather, in a part of the country where lots of road salt is used to keep the roads clear.

So, which fork in the road should you take?

Will it be new - or used?

That's a decision you'll have to make - based on your needs, your comfort level and, of course, your budget.

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Mr. Spock vs. Dr. McCoy... Some General Thoughts About Car Shopping:

In the original *Star Trek* series, Mr. Spock was the cold, logical one; he never let emotions cloud his judgment. Dr. McCoy, on the other hand, was *very* emotional. Which sometimes clouded *his* judgment.

Captain Kirk would come to a decision after hearing them both out - striking a sensible middle ground between purely *rational* and overly *emotional* criteria.

That is a smart way to shop for a car, too.

Let's consider some rational criteria -

There's money, obviously. How much do you want to spend?

Your maximum will automatically rule out a bunch of cars. We'll get into this in much more depth shortly.

Next, you will want to weigh general characteristics, such as:

What size?

This is can be more challenging than you might think. Big *outside* doesn't always mean roomy *inside*. And small on the outside doesn't always mean it's tight inside, either. There are nominally "compact" cars - the current (2017) Toyota Corolla is a good example - that have as much or even more interior space as many mid-sized and even some full-sized cars.

On the other side other of the aisle, some large-on-the-outside cars are startlingly cramped on the inside, particularly in the back seats.

A mid-sized Mercedes E-Class luxury sedan, for example, has much less back seat legroom than the nominally "compact" Corolla!

Meanwhile a tiny car like the BMW Mini Cooper is roomier up front (including headroom) than some cars twice its overall size.

You can fit a full-sized bicycle inside the compact Honda Fit - a car that's almost small enough to fit inside the bed of a full-sized pick-up truck.

Full-size *sedans* - which have *trunks* - generally have *less* cargo capacity than mid-sized hatchbacks, which are taller - and in which the entire passenger compartment doubles as potential cargo space.

Most crossover SUVs have more space inside than the next-up-in-size SUV, because they are based on *cars* rather than trucks and this (the *car platform*) is more space-efficient than the truck-based platform used to build most SUVs.

Minivans also usually have more space inside than larger-on-the-outside full-size SUVs.

Lesson? Don't assume that *exterior size* necessarily equals *interior room*. Read - and compare - all the specifications; not just within a segment but vs. other segments.

What type?

Do you need a truck-based SUV - with heavy-duty four-wheel-drive and Low range gearing? Or would a front-wheel-drive minivan - or car-based crossover with full-time all-wheel-drive (but no Low range gearing) fill the bill?

Will you use the vehicle to tow? How *much* do you need to tow?

Do you *like* the idea of a sporty two-seater coupe? Can you live with only two seats? And a very small trunk?

Or do you *need* four seats - and four doors?

Would a 2-plus-2 (a sporty two-door car with back seats, tight, but there) work?

Maybe it make more sense to get a *hatchback* or wagon to cart the dog around?

Do you often carry passengers?

Or mostly cargo? How much cargo?

Is ground clearance - or ride height - a consideration?

What brand?

Toyota - or Chevy? Maybe a Lexus this time. How about a Hyundai?

Or a Honda?

Why?

What is it about a given brand that inclines you that way? The reputation? The resale values? The warranty coverage? There's a lot of variety here. Some of the "blue chip" brands - Toyota and Honda - have great reputations, but offer fairly skimpy warranty coverage. They can get away with that chiefly *because* of their reputation - which is based to a great extent on how good they were in the *past* and relative to how bad the other stuff (especially American-brand stuff) *was* in comparison.

Toyota and Hondas are still very good cars - but everyone else's cars have gotten much better.

Brands trying to *achieve* blue chip status like Hyundai and Kia may not have the bulletproof rep - yet - but do have bulletproof warranty coverage: as long as ten years/100,000 miles on major components like the engine and transmission.

Which is more important to you? The reputation?

Or the coverage?

Prestige - or bread-and-butter?

If you buy a *prestige* brand vehicles (today's preferred term for *luxury* vehicle) you will enjoy a nicer dealership experience, including a nicer waiting room and - probably - things like free loaner cars when yours is in for service.

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But you'll pay more for the *car* to enjoy those things.

Be aware, also, that prestige-brand cars will be more complex and have more electronic gadgets and (often) more inscrutable, awkward-to-use controls. While flashy and entertaining it also means more things to go wrong, eventually. And because *everything* on or in a high-end car is marked up - *including service* - it will cost you more to maintain and repair the car, too.

High-end cars also tend to depreciate more quickly - but not because they are poorly built or unreliable. It is because their value is bound up with being the "latest thing" - and that only lasts for a couple of years.

Some of the best deals going are on 2-3 year-old luxury cars, especially those coming off lease. They are no longer the latest thing. But they are still very luxurious. If you go this route, give thought to buying an extended warranty (more on this to come).

What features?

Per the above, this is more challenging than it used to be because so many things that used to be expensive extras found mostly in higher end cars have been filtering down to modestly priced cars.

For example, LCD touch screens. These can be very impressive-looking and some of them make it easier to access/operate the car's various systems.

But some make it *harder*.

Keep in mind, too, that some of these systems are used to control many different functions and if the screen ever goes dark, post-warranty, so will those functions. Manual controls - knobs and buttons - aren't as flashy, but they are simpler, cheaper and tend to last longer and will almost always cost you less to repair/replace.

What's under the hood?

You have at least four options to consider: gas, diesel, hybrid or electric.

Each has its pros - and its cons.

Gas engines tend to . . . use more gas. But, they are (generally) the least expensive engines to *buy* and that can make up for what they cost to feed. Be aware, though, that many modern gas engines are turbocharged - which adds a layer of complexity and potential down-the-road repair costs. Also, many of these turbocharged gas engines need premium fuel to deliver on their advertised mileage (and power/performance).

Diesel engines use less fuel - typically, about 20-30 percent less than an otherwise-comparable gas engine - but they also usually cost 20-30 percent more to buy than the gas engine. This takes away from the savings at the pump.

Diesel fuel is often more expensive than gas - the reverse of the way things used to be. This is due mainly to increased

refining costs, but the point here is that it may not save you any money to drive a diesel-powered vehicle.

Diesel fuel can be harder to find, too, depending on where you happen to live.

On the *other* hand, diesel-powered vehicles - especially trucks - also tend to command a premium at resale/trade and (generally) hold their value better than an otherwise identical vehicle with a gas-burning engine.

We'll get into a detailed discussion about diesels - including the recent contretemps over VW's "cheating" on emissions tests - toward the end of this book.

Hybrids are vehicles that have both a gas-burning engine and an electric motor/battery pack. In most hybrids, the gas engine operates part-time and has two roles: It helps move the car and it helps to keep the battery charged, acting as a kind of on-board generator.

The electric motor/battery pack also help propel the car - and boost the power of the gas engine when extra acceleration is needed. One exception to this is the Chevy Volt, which has a gas engine and an electric motor/battery pack, like other hybrids. But it differs from other hybrids in that the gas engine plays a very background role, serving mainly as a generator for the electric motor/battery pack - which are primarily responsible for propelling the car.

Some hybrids can be *plugged in* to a household electrical outlet and recharged without relying on the car's gas-burning

engine. However, it usually takes at least several hours for the batteries to recharge and, of course, electricity isn't free, either.

The main financial upside to hybrid ownership is lower gas bills. But they also have a higher price tag than otherwise similar non-hybrids, which - especially when gas isn't particularly expensive - makes it harder to make your money back by driving them.

However, maintenance costs such as oil and filter changes with hybrids are usually lower - because the gas engine runs less often. Hybrids also have electrically rather than engine-driven accessories (e.g., power steering and in some cases, AC) and so don't have the drive belts and hydraulic fluid maintenance issues that you have to deal with in a conventional (non-hybrid car).

The biggest downside to buying a hybrid, other than the higher up-front cost, is the potential down-the-road cost of the battery pack.

Just like the much smaller (and much less expensive) 12 Volt battery that starts the engine in a non-hybrid car, it will eventually lose its ability to hold a charge. When that happens in a hybrid, the electric-only range will decline and the car will become more and more reliant on the gas-burning engine for propulsion. Your mileage will go down - possibly a lot. And the only fix is to replace the battery pack - which can cost several thousand dollars.

If you think you will keep your hybrid for more than about ten years and 150,000 miles, you should definitely take

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battery deterioration - and replacement costs - into consideration.

Also: All hybrids currently on the market (as of 2017) *except* the Toyota Prius are *converted* hybrids. Meaning, they were originally designed as conventional (non-hybrid) cars but were later modified to accept a hybrid drivetrain.

Most of these are not as economical to drive as a purpose-built hybrid like the Prius -or the Chevy Volt - because they are heavier and because buyers usually expect them to be more than *just* fuel-efficient. Most try to be "sporty" in addition to trying to be efficient. That's kind of like trying to lose weight by eating ice cream. The mileage advantages aren't spectacular. And these hybrids tend to be even pricier to buy.

Also, because these other-than-Prius hybrids were not designed from the get-go to be hybrids, they usually suffer from small trunks (the battery pack has to go somewhere) and not much cargo-capacity compared with the non-hybrid version of the same car. As an example, the BMW 7 Series hybrid - which is a full-size luxury sedan - has *less* room in its trunk than a compact-sized Corolla does.

A cautionary word about electric vehicles:

There are several models available now, not just the high-dollar Tesla. Others include the Nissan Leaf, the VW eGolf and the BMW i3. They use no gas at all - but the least expensive of them cost about \$30,000 - which is about twice the cost of a current-year non-hybrid/non-electric economy

car. Unless gas prices at least double, it is hard to make an *economic* case for any electric car.

Recharge times are the other big problem with electric cars.

Range - the lack thereof - is usually talked about as the electric car's main liability. And it is a liability, if your daily driving *both* ways (there and back) is close to or exceeds the car's *real-world* driving range.

That's italicized for good reason.

EV manufacturers tout the maximum range an EV can deliver - but this is advertising copy and doesn't reflect the fact that an electric car's range can be pretty dramatically affected by such variables as temperature, driving style and use of accessories, including the lights, heater (in winter) and AC (in summer). Real-world range might turn out to be only 60 percent (or less) of the advertised/best-case range. It is very important to find out before you buy what the real-world range of an electric car is.

A hybrid can fall back on its gas-burning engine to keep you going, even when the batteries are at low ebb. Range is a non-issue and recharge times irrelevant. You can refuel in less than five minutes, as you would with any ordinary car.

But if an EV's batteries run down, you will be stuck for at *least* 30-45 minutes while the car recharges its batteries. Best-case scenario.

That's assuming you have access to a "fast charger," which uses high-voltage to reduce the time hooked up from hours to about half an hour or so. But if you don't have access to a fast charger, it will take several hours for your electric car to juice back up. That can be a drag when you want to get home in time for dinner.

Or, breakfast.

On the other hand, electric cars can reduce your gas bill to zero if your trips are within the car's range and in most states, there are generous tax rebates (at the federal level, too) and in some areas, special parking and other privileges.

What The Heart Wants . . .

What do you *like*?

This is really important. Buying a car is a major financial decision, one you will have to live with for a long time.

You'd better be happy in the morning ...

Will you be happy with a sedan? Will you *regret* not having bought that hot-looking coupe?

Does a certain brand just *appeal* to you more than others? What kind of *vibe* do you get from the thing?

Does it speak to you?

How does it *feel* to you?

The seats - and seating position? The view forward - and the sides and rear? How does your rear end and backside feel after an hour behind the wheel (we'll get into the test drive later on).

It's one thing to be excited on the showroom floor - or that first time you drive it home and show it off to your friends and family. It is another thing after two or three years . . . and plugging away in traffic every day.

Color is really important, too. Don't settle. You want the car to be painted a hue that *does it* for you. Don't make the mistake of driving home one that's just . . . *eh*.

If you do, you'll regret it.

Be sure that not only can you live with it - but that you really *want* to live with it.

It's a lot of info... and a lot to think about.

You will want to read up - before you show up.

The good news is that this info is no longer as hard to find as it once was.

Most of the *manufacturers* - this is what car journalists and industry people call the car companies - have media-access web sites where press kits and detailed technical information

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about all their vehicles is available. Most of these "press-only" web sites used to be password restricted and the only way to get a password was to be a credentialed member of the automotive media. But most of these sites no longer require a password and are now effectively public access . . . *if you know where to look.*

So . . . *where* to look?

Google the make you're interested in (e.g., "BMW") and "media." This will take you to the *press-access web site*, which will have a lot less in the way of marketing fluff and a lot more in the way of hard specifications and details, including detailed info about individual options and options packages, their availability and so on.

There will often be cross-reference material available about the features available in rival/competitor models, too.

These "press only" web sites are a little-known but hugely helpful resource. You should make use of them.

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II: Money

How much can you afford to spend?

This is the *first* thing and the most important thing you should think about *before* you get serious about shopping for a car - whether new or used.

Note the distinction between *afford* and *can* spend.

It is the difference between what they will loan you and the amount you can *comfortably afford*.

You might not appreciate this distinction until after you sign the paperwork; and that can lead to a world of financial hurt.

Such as: Being on the edge of broke for the next six or seven years. And - worse - not having enough ready cash left for *other* things that come up during the next six or seven years, *after* you make your monthly payment. When that happens, you face the not-good alternatives of going into additional debt (credit cards) or not being able to pay for the thing that "came up" which you can't afford because you can *barely* afford the car.

There is a rule-of-thumb in real estate that a monthly mortgage payment should not exceed 28 percent of your annual income before taxes. If you have a mortgage - or rent - consider that your car payment will be a percentage of whatever you have left *after* you pay the mortgage/rent - *plus* whatever it costs you for utilities, food, clothes, Internet and other basic expenses.

For most people, these incidentals eat up another 25-30 percent of annual income. Don't forget to factor in health insurance - or the Obama Fine you'll be forced to pay if you don't buy a policy - as well as any other expenses, such as alimony or child support.

While your mileage may vary, for most people there is about 30-35 percent of whatever you make each year available for *additional* or *discretionary* spending. Some people have much less; for instance, those who got in too deep on their credit cards and now have a monthly payment for *that* to figure in.

Hopefully, you can see that it is *really* important to do this math.

And *then* ask yourself: How much can I *comfortably afford to spend* on a car payment each month, given what I have to spend on *other* things - and taking into account what I *may* have to spend on things that "come up."

This number will be significantly less than what you could, in theory, *afford* to spend.

And it will also be well below what the salesman will almost certainly do his very best to convince you to spend, since that's how he makes his money (on commission, as a percentage of the sale price of the car).

But, consider: How likely do you suppose it is that, over the next six or seven years, you will face a big bill for something you didn't expect? What if your pet gets sick and has to have surgery? What if your roof springs a leak or the washer/dryer croaks?

Such things happen.

Several of them could happen.

If they do, will you be able to afford that *and* the car?

Speaking of which: Even if it's new, you will eventually be paying for tires and brakes and oil changes, too.

And before you've paid off the loan, probably.

Many new car *basic warranties* - the warranty that covers the whole car - often don't last more than three years and 36,000 miles. If something fails that's no longer covered by the warranty, *you* get the bill.

Have you got cushion enough to cover it?

...

So - how do you figure out what you can *comfortably afford*?

You calculate the maximum you could theoretically afford to spend each month, leaving almost nothing left over for discretionary purposes or savings for things that "come up."

And then cut that amount by at least a fourth if not a full third.

That is what you can *comfortably afford* to spend on a car - whether new or used - as opposed to what can be *financed*, the *debt load* they will try to saddle you with.

It will probably seem like not much to spend. That's because we've become so used to over-spending, to equating *credit*

with affordability. To spending the maximum possible and living on the edge rather than living within - or even below - our means.

Here's a stat for you: The *average* new car loan is now six years, going on seven - about twice as long as it was 30 years ago. The longer duration of loans today is done to spread the principle out and make the huge sum *appear* manageable. This is a financial pratfall - because by the time most cars are seven or eight years old, they have depreciated to about half or even less what they originally sold for.

It's easy to find yourself *under water* - owing more than the car is worth.

But the reason for the rise of the Endless Loan isn't because cars have become so much more expensive. In fact, there are many new cars available that, on an inflation-adjusted basis, cost about what a new car cost back in 1970.

The catch is that *other* cars cost two or three times as much as the typical car used to cost - and *these* cars are the cars it takes six or seven years to finance, at a payment that's often not far off what an average person/family pays for rent or toward their *mortgage* each month.

For example, it is not uncommon for people to spend \$40,000 on a *minivan* - or \$50,000 on a pick-up truck. These formerly utilitarian and once modestly priced vehicles are frequently loaded up with heated leather seats, DVD entertainment systems, ten speaker stereo rigs, 19-inch wheels and automated/electrically operated pretty much

everything (even including a power-actuated sliding rear window in new trucks).

All very nice. Just not very affordable.

Unless your income is high enough to allow you to *comfortably afford* such a car, as outlined above.

If so, good for you.

If not, think twice.

Part of the lure is very low (or even nonexistent) interest on the loan - if it's a new car. But even at zero percent, keep in mind that your *payment* isn't going to be zero.

And there is also the *opportunity cost* of the money you've committed toward that car payment. Meaning, money that won't be available for other things - including things you can't anticipate but which (when they pop up) you'll have to find the money to pay for- like a medical bill or necessary home repair.

Hence *comfortably afford*.

It's a smart rule to live by.

Keeping things under control -

One way to keep payments manageable - and not interminable - is to save up a large down payment - 20

percent of the purchase price, at least - so that you *finance* less, and for a *shorter* period of time.

"Zero down" on a car loan is, arguably, even more reckless than a "zero down" mortgage - not only because it encourages you to bite off more than you can chew but also because a car, unlike a house, is a *depreciating appliance* and not an "investment."

A car is a very expensive toaster that you use for a period of time, until it wears out - and then it generally gets thrown away. It is not a store of value as a house or land still is.

What you are buying is *transportation* - a way to get around for a period of time.

And your ticket to ride has an expiration date.

Saving up a large down payment also disciplines you to get a handle on what you can *comfortably afford*. It is also a way to treat yourself to a little more than you can afford, since the payments will be less (and the loan shorter) if you start out with a smaller principle, based on a 10 percent or even more down payment.

How about *leasing*?

First, understand that this is basically a form of *renting*.

You will never own the car - unless you decide to purchase it at the end of the lease; more on that in a minute. Instead, you sign what amounts to rental contract for two or three

years (typically) and at the end of the lease contract, you return the car.

There are several upsides - and several downsides - to leasing.

Upsides:

- Your monthly payment will be significantly lower vs. buying the same car because you are not *buying* the car. You are *renting* it, the rental/lease payment based on the car's expected depreciation over the duration of the lease.
- Because the monthly lease payments are lower, you can afford more car than if you bought. For example, you could lease a luxury car for say \$400 a month vs. buying a generic family car for about the same monthly payment.
- You will not have to worry about repairs or maintenance - or resale/trade-in value. Most lease contracts include regular scheduled maintenance and any repairs needed should be covered by the warranty, which will generally last as long as the lease does. Resale value is irrelevant because at the end of the lease, you do not sell the car or trade it in. You simply hand the keys over.
- You drive a new car in perpetuity.

Downsides:

- You will be making payments in perpetuity; you will have no equity or ownership stake in the car. At the end of the lease contract, you will have to either: Buy the car (the price will usually be based on the amount negotiated at the lease inception), buy or lease another car . . . or walk.
- Lease payments are based on expected depreciation rates; vehicles that have higher-than-average depreciation rates will cost more to lease.
- There may be hidden/unexpected costs associated with the lease. The two biggest are fees associated with exceeding mileage restrictions and any damage to the car found at the end of the lease.
- Most lease contracts stipulate a maximum allowed mileage, for the obvious reason that the more miles accrued, the less the car is worth on the secondary market (at the end of its lease, when it goes back on the lot for sale as a used car). If you put more miles on the car than the maximum allowed, the lease issuer will ding you for every mile over the maximum. It can add up to a lot of money.

So should you lease?

Or buy?

It depends!

For some people, it can make more financial sense to lease because they pay less per month for the car they need, which frees up money they would otherwise have had to

spend on a monthly car payment (toward purchase). The *opportunity cost* is lower. There may also be tax advantages, if you can write-off the cost of the monthly lease payment as a business expense. Realtors and others who use their car for work can do this; ask your accountant.

For others, the payoff is a paid-for car - eventually - that eliminates monthly car payments entirely. And there is the equity stake you will have in the car as the owner of the car. Also, as the owner of the car, you are free to modify it to your liking - and if someone dings the door, you don't *have* to get it fixed.

Cash on the table -

Another option is to buy the car outright. Not easy, but possible. Much more so with a used car.

The obvious upside being you won't have a monthly payment at all. Which means you will have money for things that inevitably come up. There will be *no* opportunity costs to bear.

Zero dollars will be tied up each month making payments.

Also, if you buy a car outright, you will have equity in the car itself - right now, not five or six years from now.

If things got tight, financially, you could always sell the car - and the money would go in your pocket, not to a lender. A paid-for car is *fungible* - a thing of value that can be converted into other things of value, such as cash.

You can also save money on insurance if you pay cash - because if there is no lienholder, you can choose to buy a basic/state minimum/liability-only policy. This will cover any damage you do to *someone else's car*, but not pay to fix your car.

Is it a risk worth taking?

It depends on how safe a driver you are. Most "accidents" aren't; they are the result of human error, not acts of god. That means they can be avoided. If you are the type of driver who doesn't cause "accidents," a liability-only policy is a reasonable risk and can save you a lot of money, especially when you factor it over a period of years.

But this is an option only if you aren't making payments. If you are, you will have to carry full-coverage insurance. Because it's not *your* car until the loan has been paid off.

Finding the money -

All right. You have crunched the numbers, done the math - and have a figure. You know what you can *comfortably afford* to spend. Now the question is - *where* will you get the *money*?

That is, where will you get the *loan*?

After the Big Mistake of spending too much money on the car, the Next Worst Mistake is spending too much money on . . . *money*.

If you haven't already shopped for money before you go car shopping, you will probably be turned over to the dealership's Finance and Insurance (F&I) guy, who will present you with a really great deal. . . for the *dealership*. Which you will be under a lot of pressure to accept, having (at this point) probably spent a lot of time haggling over the price of the car.

Having clawed your way through *that* mess, you're invested in the deal - and worse, *tired*. You just want to sign the papers and go home.

Easy meat for the F&I guy.

Instead, shop for the money *first*.

A good place to start is the bank where you normally do business. But don't stop there. Check out other banks and - if you have access to them - credit unions. Sometimes you have to be a member in order to get the deals on offer. Depending on the deal, it may be well worth joining a credit union.

Find out.

Also check out the financing deals offered by the *captive financing arms* of the various car companies - for example, GMAC and Ford Credit.

Sometimes, their deals are better than the deals offered by banks, but be aware there is always fine print. For example, the deal may only apply to certain (usually high-trim/high-

cost) models, or some other thing. Also be aware that sometimes, these deals can't be combined with other offers (such as cash back) and that could mean you end up spending more rather than less.

Be aware that your credit score will greatly affect the cost of money - the interest you end up being charged. Run a credit check on yourself *before* you do anything else and if your credit report has issues, address them. It could literally save you thousands of dollars in interest costs over the life of a car loan.

Bottom line: You want to walk into the dealership knowing *exactly* how much the *loan* is going to cost you - and *where* you are going to get it - as well as exactly how much you are able to spend.

This will leave you free to concentrate on the car rather than worrying about how you're going to finance it.

Also, you can challenge the dealer's F&I guy to make you a *better* offer.

Important: If the salesman asks how you plan to finance, don't respond with specifics until *after* you have negotiated the sales price of the car. Reason? If you leave him with the impression that you haven't already lined up financing, he will assume the dealership (via the F&I guy) will make a nice profit on *that* end of the deal and so be more apt to give you a better deal on the car.

Only discuss financing/payment arrangements once you have the sales price of the car nailed down in writing.

. . .

Do not neglect to factor in *everything* - not just the cost of the car.

This is the other Big Mistake people often make.

They forget to take into account the *peripheral expenses* associated with a car and its purchase and ownership that are just as real as the monthly payment. Things like insurance and personal property taxes, in states that have those.

Just as you shopped money prior to shopping for the car, you also ought to shop insurance - and get a handle on property taxes, too.

Cost to insure can vary hugely from car to car. If you are going from an older, paid-for car to a new car that you will be making payments on for the next six or seven years, it's possible your insurance costs will double or even triple. Especially if you had a basic/state minimum/liability-only policy on the old (and paid-for) car vs. a full-coverage/comprehensive policy on the new.

Most insurance companies will give you a pretty specific quote over the phone; make the call.

Know - before you buy.

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Same goes for the personal property tax on motor vehicles that several states have. These are based on the current retail value of the vehicle. You will pay more for a brand-new \$30,000 car than you would for your eight-year-old car that has a book value of just \$8,000.

You could end up paying \$5,000 in property taxes over the next eight or ten years.

Again, know what you're looking at before you pull the trigger. If you don't, you could end up not only losing the car (to repossession) but also your credit.

Car-talk

- *Captive finance arms* - These are the car manufacturer's in-house lenders. General Motors Acceptance Corporation (GMAC) is an example. They can be a good way to obtain financing, especially if you are a first-time buyer without an established credit history.

- *Red tag sale* - Watch out for these as they can be dodgy. The sale prices may only apply to certain high mark-up vehicles or vehicles not equipped the way you want. The dealers know this, but their goal is to get you into the store - where they can work on you to buy what you didn't plan on buying.

- *Under water* - This simply means your loan balance is higher than the value than the car; it is a very real danger on long-term loans, due to depreciation - the fact that almost all cars lose value each year, on average about 5 percent for the first five or six years and then 10 percent or more after that point.

- *Opportunity cost* - This refers to what you could have done with money you don't have because it's been committed to some other thing, like a new car payment.
- *Manufacturer* - This is car industry jargon for the car companies. Ford is a manufacturer.
- *Residual value* - what the car is worth at the end of a lease. If you decided to buy the car at the end of the lease contract, this is the pre-agreed amount you'd have to pay.

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III: The Test Drive

A good car is a lot like your favorite pair of shoes. The ones you would wear every day if you could.

That's the kind of car you want to end up with.

It won't matter how much you like the way it looks, how much horsepower it has - or even what you paid for it - if you end up not liking it much.

If it has terrible blind spots. If it's noisy. If the seats make your back sore after half an hour behind the wheel.

Hence the importance of the test drive. And the first thing to do is . . .

Lose the salesman.

This is - by far - the most important thing about the test drive. If you let the salesman ride shotgun, it will be hard to concentrate on the *car*. Instead, you'll be concentrating on the salesman's *spiel*.

He is an expert dissembler, trained to *spiel*.

To tout the car's virtues - and obscure its less-than-virtues. He'll talk up *this* - but try to make sure you don't notice *that*. He may try to steer you toward smooth roads - so as to avoid the potholes. Keep you in traffic - so you don't get a chance to check out the car's ability to overtake and pass a slowpoke.

Talk a lot - and loudly - so you don't notice the drone of the tires or the sound of the air rushing past.

Also, if he's riding with, you will be reluctant to do what you *ought* to - like floor it. And the slam on the brakes. Abruptly turn the steering wheel hard to the left, then right - to simulate an accident-avoidance maneuver.

This is not juvenile. It is the only way to get a handle on how the car performs in real-world driving, with you behind the wheel - which stats don't convey.

Things to know about modern cars -

Drive by wire -

Almost all new cars have what's called *drive by wire* throttle - which means there's no longer a physical cable connecting

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the accelerator pedal to the engine. Instead, sensors detect how much you're pushing down on the gas pedal and relay that data to the computer that controls the engine, which then speeds up the engine accordingly. But sometimes, in some cars, there is a noticeable delay between your foot pushing down and the engine reacting.

Sometimes, this only happens when you floor it; so you'll only notice it if you *do* floor it.

Or, the throttle reacts too *sharply*.

Anything more than eggshell pressure and the car feels as though it's leaping forward.

Turbos -

Many new cars - including many family and economy cars, as well as crossover SUVs - have very small, turbocharged engines - designed to give the good mileage of a smaller engine with the on-demand power of a larger engine. Turbos used to be found almost exclusively in sporty/performance cars.

Most of them work seamlessly, but not all of them. Some still suffer from *turbo lag* - the second or so it takes for the turbo to build boost before the engine makes power. If you encounter turbo lag, it's probably normal for the car - but that doesn't mean you have to buy the car.

Lane Departure Warning-

This has become a very popular new car safety feature. There are cameras built into the front end of the car and these scan the painted lines on either side of the lane. If a tire touches a painted line, a buzzer will typically go off, or a light will flash on the instrument cluster; in some higher-end cars, the steering wheel will also vibrate.

The problem is that sometimes the line painters don't do a great job and it's impossible to not drive over a painted line without also no longer keeping in your lane. Some of the systems are also extremely sensitive. In either case, the ongoing buzzer/light/vibration can itself be more distracting - *more of a safety issue - than a tire grazing a painted line.*

Steering Assist -

This is usually *bundled* with Lane Departure Warning and works in tandem with it. The car's sensors and cameras can "read" the road ahead and impart minor course corrections to keep the car in its lane. It is not quite automated steering, but it's a step in that direction. Though marketed as "assist," the system can sometimes feel as though it's fighting you - trying to steer the car one way or prevent you from steering it another way. For example, if you do not signal before beginning a lane change, the car will try to keep you from making the lane change. The resistance isn't strong and it's easy to overcome, but it's disconcerting to have to fight the car to make a lane change.

Active Braking and Collision Avoidance-

These safety systems can be similarly over-nannyish. The brakes will be applied automatically in some situations

without you having touched the pedal. It can be startling when they kick in.

You will want to ask whether the system can be turned off.

Auto Stop/Start -

When you come to a stop - as when waiting for a red light - the car's computer shuts the engine off. When the driver takes his foot off the brake and presses on the accelerator, a high-speed starter re-starts the engine and off you go.

Auto Stop/Start is touted as a fuel-saving technology, but the fuel savings per car aren't much; the truth is these systems are being installed to improve the *automaker's* Corporate Average Fuel Economy (CAFE) numbers. A 1 MPG difference isn't much to you, the individual car owner - but factored over the tens of thousands or hundreds of thousands of cars just like yours the automaker built this year, a 1MPG difference matters a great deal.

The problem with Auto Stop/Start - for you, the prospective owner - is that the start-stop sequence isn't always seamless. There is sometimes a lag as the engine restarts - accompanied by the noise and vibration of the engine starting. There are also real concerns about the long-term, down-the-road effect of repeated start/stop cycles on engine/starter/battery longevity.

You will want to find out whether there is an Off switch. And whether you will have to turn the system off *every single time* you go for a drive.

Transmissions -

Many new cars have seven, eight - even ten speed automatic transmissions. These may shift abruptly - or strangely. Especially when the car is being driven downhill. Sometimes, the transmission will shift up several gears (this is to reduce engine RPM and save gas, which is why these seven, eight and ten speed automatics are being made) and this can make the car feel as though it is surging forward, even though you are not pushing down on the gas pedal.

You will want to know about this before you commit.

Clutch action - if the car is a manual - varies a lot from car to car.

Because all modern cars with manual transmissions have hydraulically assisted clutches, pushing the clutch pedal in is almost always *easy*. The issue (particularly in stop-and-go driving) is the *abruptness* of clutch engagement - the "take-up."

It can be hard to drive some cars with manual transmissions *smoothly*.

This will matter if you are going to be driving the car in stop and go traffic.

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All of the above should be checked out by you, solo - sans the salesman.

Your priority should always be the car.

Most dealers won't balk at a solo test drive if you ask. They will check your DMV rap sheet first - and probably run a credit report on you immediately next. Dress nicely, act like a responsible person. Assuming you pass muster, they'll hand you the keys. If they don't - if they *insist* that a salesman ride along - tell them that doesn't work for you. No need to explain why. Thank them for their time and make it clear you - and your potential business - are on your way out.

If they relent, great!

If not, *great!*

You just saved yourself a problem - either with the car (what are they trying to hide?) or with a *dealership* you should be grateful you won't be doing business with. If they are not on Best Behavior - and super accommodating - when they're still trying to *get* your business, imagine how they'll behave once they've *got* it . . . and you no longer have the leverage of saying . . . *good-bye!*

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Ok, you've got the keys.

Did you budget the *time*?

A meaningful test drive needs to be at *least* an hour. A piddle around the block is akin to asking to marry someone you just met, after a five minute chat at Starbucks.

Sometimes, that works out - but not often.

Assume not often.

The walk-around:

Before you get behind the wheel, do a walk around. It's the first thing car journalists like me do before they test drive the new cars they get to evaluate.

View it from all angles. Is there anything about the car's physical shape that could be an issue? For example, overly vulnerable headlights or tail-lights? How is its length (and height) relative to your garage - or the spot you've got for parking?

How is it relative to your *height*?

Some SUVs are so tall they're hard to climb into. The beds of modern full-size trucks are so high even a tall man needs a step ladder to access them. (Ford literally builds one into the tailgate of its F-150 pick-up for just that reason!)

And some sport cars sit so low, they're awkward to get in and out of.

Pop the trunk. Or lift the liftgate, if it's a hatchback. Some are powered - and the powered ones sometimes take forever to open and close (thank liability lawyers for that). If it's not powered, how easy is to to open and close by hand? How high is the of the trunk/cargo area lip? How low is the floor of the cargo area?

Open the rear doors - if it's a sedan or wagon. Sometimes, these are cut smaller and don't open as wide as the front doors.

Sit back *there* first. Does your head hit the roof? Do your knees have to be tucked up against your belly?

Now get behind the wheel. You are almost ready to go.

The drive -

Be sure the gas tank is full first. If it's not, fill it up. It's a small expense, well worth making. Here's why:

Your mileage will vary.

Whatever the EPA says the car will deliver in city/highway driving, it's not what the car will actually deliver with *you* behind the wheel. Everyone's driving style is different and the numbers touted on the window sticker are based on how EPA's test drivers drive the cars on the EPA's test loop.

By filling the tank - and zeroing out the odometer - you get an exact read for the real-world mileage the car will give with you behind the wheel, the way you drive. Just before the end

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of the test drive, top off the tank. How many gallons did it take to refill? How many miles did you drive?

Now do the math.

Now, you know.

This is also a good time to find out whether the car's engine is designed to run best on regular unleaded or premium (assuming it's a gas-engined car). Some engines *require* premium. Others *recommend* it. Using regular won't hurt the engine in either case, but if it was designed to operate on premium, using regular will probably result in poorer mileage and performance as the car's computer adjusts to the lower-octane fuel.

If the car has a diesel engine, it will probably also require Diesel Exhaust Fluid (DEF), which is added to a separate tank via a fill hole usually located near the fuel filler. DEF is sprayed into the exhaust stream to lower emissions; the tank typically needs to be topped off every couple of months or so. Ask the salesman about this - and the cost of the DEF fluid.

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Before you key the ignition - which will probably be a push-button (most new cars no longer have a traditional, physical key that you stick in a slot and turn to start the engine; they have a fob you keep with you in your purse or pocket and a Start button on the dashboard) have a look forward. Can you see where the car ends? This will be important when it comes

time to try to park the car - and when you are maneuvering the car in traffic.

How is the view to the side?

Because of federal roof crush standards that require that a new car's roof be strong enough to support the weight of the car if it turns upside down - the *pillars* that support the roof have become 2-3 times thicker than they used to be.

There are six pillars in most new cars - one at either side of the windshield (the "A") two more at the rear glass (the "C" pillars on either side) and two more in the middle - the "B" pillars - located usually right about where you'll be looking when you're trying to see what's coming at you from the right or the left.

Sometimes, the obstruction of view is severe and the car is arguably dangerous for that reason - no matter how strong its roof might be in the event you roll the thing over.

Sometimes, the view to the rear is equally terrible - in part because of the styling trend toward fastback rooflines and rear glass that is almost horizontal and often just a slit and also in part because of *another* federal safety requirement: anti-whiplash headrests. These are great to have *if* you get rear-ended.

They are not so great to have when you are trying to see what's behind you.

In some cars, you can fold/stow (or even remove) the top portion of the head rests, and see where you're headed.

Still, the view to the rear in many new cars is terrible - which is why (as a kind of Band Aid) all new cars have remote view back-up cameras. The problem with these is that the view is often distorted and grainy. It is also a limited view - potential problems on the periphery, outside of the view range of the cameras - won't be visible until they come into range, which may not be in time to stop.

While the cameras are mandatory, some cars have much better cameras than others. The best ones give you a bird's eye view of the car and its immediate surroundings, as if you were viewing it from above. Make sure you try out the camera - and try reversing the car out of a low-visibility parking spot.

This is also the time to check the mirrors - including their adjustability. Like seats, these have a certain range and one (or even several) sizes don't necessarily fit all. If you are taller or shorter than most people, you may find the mirrors are hard to position for you.

Same goes for the pedals and other controls.

Everything should be adjustable such that the end result fits *you*. If anything about the car doesn't fit you - feels awkward or not-comfortable - that's your cue to move on to the *next* test drive.

Assuming the car *fits*, what *else* to check?

One of the most important things is the operating ease of the secondary controls, *especially while you are actually driving*.

It is one thing to play with a neat-looking touchscreen and mouse or *haptic feedback* tap/slide controls. It is another thing to get the car's systems - like the audio and the climate control systems - to do the thing you want while the car is moving.

The advantage of traditional buttons, knobs and switches is that you have something physical to manipulate with your fingers; and you can rotate a knob (to raise or lower the stereo volume, for instance) without *looking* at the knob.

Touch screens, on the other hand, require looking while trying to touch the correct icon on the screen. They are inherently distracting and some are very frustrating to use. Many new cars also use mouse-like inputs in addition to the touchscreen and these, too, can sometimes be awkward/frustrating to operate.

Try to drive the car on a sunny day - in order to see whether glare makes it difficult to see what's on the touchscreen.

The good news is that - for now - not all cars have touch screens and mouse inputs. In cars priced under \$35k or so, it is often possible to skip the touchscreen in favor of a more conventional layout. And the better-designed cars (at any price point) will usually have secondary buttons and knobs in addition to the touchscreen/mouse inputs, so that you can operate things like the car's audio system that way, if you prefer.

If it does have a mouse-type input, be sure to try it out - with the car moving - and decide whether it's something you will be comfortable dealing with every day for the next several years.

Audio system: You will want to test-drive the standard and optionally available rig. Particularly if you are an audiophile. This isn't only because some systems are better than others. It's because you will be stuck with whatever you end up buying. Because it is hard - or at least, very expensive - to change out a head unit in a modern car once the car has been built. Because the factory stereo is *built in* and integrated with the rest of the car, including its computer/anti-theft systems. A stereo removed from car "A" will often not work in car "B."

So be sure you like the system you're buying.

Climate control system -

Air conditioning used to be pretty simple; it's not anymore. Like everything else in a modern, computer-controlled car, the AC system is controlled by the *computer*. Which may preempt you in annoying ways, such as restricting the flow to the vents you want the air to come out of - or pushing too much air out of the vents you'd like less to come out of.

In some new cars, there isn't much in between full-blast and next-to-nothing.

Make sure you are happy with the way the air flows - and that there is *enough* airflow. And heat. And cold. Some

brand-new cars have not-great heaters that seem to never get hot enough to really warm up the car on a cold day. And some cars have AC systems that seem to struggle cooling the car down on a hot day.

Lighting system -

Most new cars have very good headlights, but some are better than others. If your initial test drive checks out and you really like the car, come back again at night and do a quick run around the block to see how well the headlights illuminate the road and the periphery the road.

Suspension/ride -

Try to find some bad roads. Look for potholes. And drive over them. On purpose. While you'd want to avoid this once the car's yours, you also want to know how the car's suspension reacts *before* it's yours. If you feel as though you're about to lose a filling, it's a problem.

It may be due to the wheels and tires.

Many new cars have large diameter wheels with tires that have very short - and so, stiff - sidewalls. These give sharp/sporty steering response but the downside is the ride quality is frequently also stiff and on anything but ultra-smooth roads, the car can be tough to live with.

It may be possible to equip the car with a less aggressive (and more backside and pothole- friendly) wheel/tire

package. This is onemore thing to look into/ask the salesman about.

Brakes -

You want to experience how they feel when you need them in an emergency - not just for gradual slowing down. All new cars have anti-lock brakes (ABS) so the car won't skid. But you might be surprised to find out how long it takes a given car to come to a complete stop vs. a competitor car.

Find an empty road and - from about 30 MPH or so - slam on the brakes. Now, you'll know.

Wind/road noise -

This is another reason to fly solo - or at least, without the salesman around. Take the car out on the highway and - with the stereo off - have a listen at various road speeds and also as you accelerate/decelerate. Is the level of background noise bothersome? Are you okay with the pitch of the exhaust? Do the tires drone?

Drive the car home - and see how it fits in your garage, or the spot where you usually park. It sucks to buy a car, drive it home - and find out it east up so much space in your garage that you can barely open the door to get out.

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Vet the car for minor annoyances that - over time - can become infuriating.

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For example, some cars have extremely nannyish buzzers that will erupt in distracting noise if you drive with a laptop unbuckled on the passenger seat - or the trunk/liftgate open (sometimes, you need to do that, as when carting home an object that would not otherwise fit in the trunk/cargo area).

Assuming the item is secured, there is nothing dangerous involved - but the car will nonetheless hit you with that buzzer. Find out about it now, before the car is *yours*. If the car does have a buzzer, it may be possible to program it off (or otherwise shut it up).

Ask the salesman about that.

Another one: Turn signals that don't allow you to give a *single* blink. They are set up to blink multiple times. This may annoy you.

Miscellaneous -

Cup holders, power (and USB) points: Nothing like owning a car with cup holders that aren't deep enough (or wide enough) to secure the size coffee cup you usually get. Stop at Starbucks or wherever you usually go mid-way through your test drive - and try out the cup holders. Be sure the cup size you usually get fits, is secure - and that you can get at your coffee without spilling it.

Most of us have gadgets - cell phones and iPods, etc. Most new cars have USB points to plug these into. Sometimes, a car's USB ports are located in difficult to reach areas - for example, inside the center console storage bin, on one of the

interior walls. It may be difficult to plug in without stopping, unbuckling and ferreting around in there.

Or there's just one. You may need two.

This is also a good time to try out your gadgets - and see how well the car's Bluetooth and so on work with your gadgets.

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Now, how about your significant other?

Unless you're flying solo, this is almost as important a consideration as how much *you* like the prospect. If your SO doesn't like it, isn't comfortable in it or driving it, it's not going to be comfortable for you to own the car.

So, take them with you when shopping. Besides, it's always good to have a wingman for this adventure anyhow.

And swap with them.

Let *them* drive - and you try riding shotgun. If you think you'll be spending significant time in the passenger seat, you should be sure you don't hate being in the passenger seat.

Think also about who may be riding in it down the road - like kids you haven't got right now but might two or three years from now.

Will this car work then?

Just before you drop the car back off at the dealer, stop in a parking lot nearby and do *another* walk-around. This time, with your phone, using the audio record function to make notes to yourself and the camera to snap a few pictures for you to review later. You want to do all this while the experience of driving the car is still fresh in your mind - especially if your next stop is another dealership and another test drive.

It's easy to forget - and confuse - likes and dislikes.

Ideally, at the end of several test drives, you will have a really good sense of which car is the right one for you.

At which point, it's time to get down to business.

Car-talk:

- Haptic feedback - This refers to touch-sensitive controls pulse/push back slightly to let you know you've touched them.
- Bluetooth* - Wireless connectivity that allows you to pipe music or call into the car's sound system via your smartphone or iPod.
- Active cruise control* - This form of cruise control automatically slows/accelerates the vehicle as traffic ahead slows/accelerates - without any input needed from the driver. Some of the more advanced systems can bring the car to a complete stop in the event traffic

stops - and then resume your set speed once traffic gets going again.

- *Auto-stop/start* - Many new cars have this feature, which automatically shuts the engine off whenever the car is standing still - and then automatically starts the engine again when the driver takes his foot off the brake and presses down on the accelerator. Some of these systems have noticeable noise/vibration issues; most can be disabled by pushing a button, usually mounted somewhere on the center console or dashboard.

- *Steering assist* - This system uses cameras built into the car to track the lines painted on the road and partially steer the car through the curves and keep it within its lane on straight sections.

- *Panorama sunroof* - This is an extra-large sunroof that extends almost the entire length of the car; the downside to many of them is that they are fixed in place and cannot be opened.

- *Cylinder deactivation* - In order to save fuel, a number of new cars have engines that can operate on just some of their cylinders - for example, a V8 that shuts off fuel and spark to four of its eight cylinders.

- *Adaptive or auto-leveling suspensions* - These can fine-tune ride quality from softer to firmer (and ride height from higher to lower). Most have driver selectable positions that let you select the mode that suits you best. Be careful if you are looking at a used luxury car that has such a system as the repair costs can be very high.

- *Flex-fuel capable* - This means the car (gas engine) is set up to operate on normal pump gas as well as gas that is up to 85 percent ethanol alcohol.
- *Telematics* - This refers to in-car systems that communicate with the external world, including a manufacturer's concierge service (such as GM's OnStar) as well as (in other cars) the Internet, via mobile WiFi.
- *Load height* - This refers to the height of a car's trunk or cargo floor, or the floor of a pick-up's bed. The higher off the ground it is relative to you, the more difficult it will be to load/unload the vehicle.
- *Turning circle* - A measurement of how many feet a car needs to make a complete 180 degree turn in a single sweeping movement, i.e., without stopping to reverse and reposition. A car with a wider turning circle than a rival may not be able to make a U turn without backing up.
- *Direct injection* - This is a very high-pressure form of fuel injection that almost all cars made after about the 2016 model year now have. It boosts fuel efficiency by about 3-5 percent, but the downside is the complexity of the system as well as potential down-the-road maintenance issues - specifically, carbon build-up on the engine's internals. Cleaning that off can require partial disassembly of the engine, a not-cheap job. The car companies are attempting to deal with this by adding an additional port-fuel injection circuit (the fuel spray keeps the internals from crudding up) but this means you've now got two fuel systems to potentially worry about, post warranty.

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IV 4: Closing the Deal

Now the time has come to negotiate how much you'll pay.

Something to keep in mind is that *dealers finance cars, too*. This works very much to your advantage during the haggling process.

A dealer generally does not have the cash on hand to buy his inventory outright. So - just like us - he takes out a *loan*. And each month, at the end of the month, he has another month's payment to make. This is his *carrying cost*.

If he sells you a car, it's one less payment he has to make.

Naturally, he wants to sell you a car!

Plus, the clock is always ticking.

For the dealership.

The new cars on his lot have at the most a 12 month shelf life.

Some - depending on when they were built and the time of year - a lot less than that.

Come Jan. 1 of the new calendar year, they will *all* be last year's models. Even if a given car has zero miles on the odometer and the plastic's still on the seats. It's not *used*, but it is a *leftover* - "last year's" model - and its value just dropped about 10 percent vs. an otherwise identical model that was "born" on or after Jan. 1 of the new calendar year.

This is why some of the best deals going are in late fall. By Thanksgiving, dealers are beginning to get desperate to get rid of their getting-stale inventory.

Particularly because the *new* inventory is on its way.

Just be aware that you will probably have to compromise on something - such as color or trim - because you'll have to pick from whatever's still lingering on the lot. You probably won't be able to order what you want. Also, your "new" car will be almost instantly a year-old model. While you saved some money on the purchase, you've already lost some on the depreciation.

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Avoid car shopping early in the calendar year - or shopping for a brand-new/just-updated model. You will almost always pay a premium for driving home in the latest thing.

But there is another really good reason to *not* go shopping for a brand-new/heavily updated model: These are the ones most likely to have some built-in flaw that won't be

discovered - and dealt with by the factory - until the *second* year of production.

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Ok. You've settled on the *car* - now it's time to negotiate *price*.

Where to start?

Not with the monthly payment.

That is a major mistake many people make - and which a salesman will happily take advantage of.

He *wants* you to focus on the monthly payment because *that* number seems more manageable. Just a few hundred bucks per month . . . but it's the other number - the price of the car - that you ought to focus on.

\$400 per month maybe sounds ok; it's in your comfort zone. But over six years, that is almost \$30,000 - which may be well *outside* your comfort zone.

Focusing on the monthly payment is also a good way to lose track of the amount of interest you're paying. The salesman folds it into the payment - and keeps the payment "low" by extending the loan an additional year. He wants you to focus on how "little" you're paying each month - not that you're paying for *another* twelve months.

Always focus on is the sales price of the car; you can figure out the payment schedule afterward.

And you should know what a fair price for the car is *before* you get to haggling.

Note that "fair price" is *not* the window sticker price - the MSRP, or Manufacturer's Suggested Retail Price - *nor* is it the dealer invoice price (what the dealer *allegedly* paid the manufacturer for the car).

A fair price is somewhere above invoice - and below MSRP.

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So, how do you find out what the MSRP is? And the dealer invoice price?

The MSRP is easiest.

It's right there on the window sticker - and will also usually be published online (at the manufacturer's web site as well as the dealer's web site). Be sure that the number you find is *the* number - and not one inflated with "processing and handling" charges.

On the other hand, Destination and Delivery charges - generally, a few hundred bucks - *are* legitimate. These are the fees charged to the dealer (and then to you) to ship the car by rail and truck from the assembly line to the dealership. Still, D&D should be clearly separate from the MSRP.

Also be sure to separate out options - both individual ones and packages. The MSRP should be the price for that particular car, in a particular trim - with extras being . . . *extra*.

Be aware, also, that there is a mark-up on options just like there is on the car itself. In general, the same scale applies.

Invoice price is a little trickier.

Several car-buying sites like Edmunds.com and Consumer Reports publish them, but - again - be aware that they do not always or necessarily represent exactly what the dealer paid the manufacturer for the car.

But it's usually in the ballpark.

Which is why you should begin your haggle by trying for a price *below* invoice.

Don't worry, the dealer will still make a profit if you succeed.

There are manufacturer to dealer incentives and other not-made-public deals between the car companies and their dealers that make it possible for them to sell certain models *below* invoice - or at invoice - and not lose money. If you successfully negotiate such a deal, rest easy that the dealer did *not* lose money on the deal.

In general - a good deal is about 3 percent over invoice.

For example, let's assume we are looking at a car with an MSRP of \$24,900.

If the dealer invoice price is \$22,500 it's likely the actual cost to the dealer was around \$20,000 - but it could be \$18,200 or even less, depending on not-publicized incentives between the dealer and manufacturer.

Or it could be closer to \$21k, assuming his carrying costs - such as financing/interest he is paying to keep the car in inventory.

But based on the public invoice price of \$22,500, it's reasonable to assume his actual cost is in the neighborhood of \$21,000.

On that basis, a fair offer would be around \$20,600. This allows for his costs above invoice plus a reasonable (3 percent) profit, or \$630.

Naturally, the salesman will balk - it's what he is trained to do. But wait. We are getting ahead of ourselves.

You shouldn't even be *at* the dealership yet.

Not in person.

This is, after all, the age of the Internet.

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Haggling in person is a hassle - for most people (though some enjoy the back-and-forth; don't worry, that's still an option). But if it's not for you, here's what you do:

Get your offer in order - a fair price, based on a reasonable middle ground in between the dealer invoice price and the MSRP. Be sure it's fair - and takes into account the Destination and Delivery fees, as well as the cost of trim/options you want.

Now make the offer - via e-mail.

Most dealers have web sites and on the web site, you should be able to find the contact info for a salesman (or the sales manager, who can hook you up with a salesman).

Email the person, giving your name and contact info and explain that you are interested in buying (name the model, trim and options) and can offer (give your fair price).

Click "send" - and wait.

Send the same e-mail to multiple dealerships, including those as far out of your immediate neighborhood as you are willing to drive to, assuming the sale goes through. It is well worth a two-hour (or six hour) drive if it means saving a a thousand bucks (or more) on the car.

Keep in mind: You do *not* have to have the car *serviced* where it was purchased, including warranty-related issues that may crop up.

Any authorized dealer will do.

In a best-case scenario, you will have multiple salesmen/dealers competing for your business. If dealer X counters your offer with 4 percent over invoice, contact dealer Y and ask whether they can do better.

Once you have an offer that looks good, make an appointment to come in person to finalize the deal. If, when you get there, the offer they present differs - immediately get up and begin to beat feet.

Do not permit them to play games. Remember: As long as you have not signed anything - and are holding the money - you hold all the cards.

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When you finally get to signing time, carefully read everything *before* you sign. There will be several pages of inscrutable Fine Print. Ask that they make it scrutable. *Understand everything* you are about to get into before you get into it.

Once you sign, you've committed.

Be sure.

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Haggling Cheat Sheet -

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- If you plan on paying cash, don't say so until after you've negotiated the purchase price. A big chunk of the dealer's potential profit is built into financing; that means the salesman may be more likely to negotiate a lower sales price - *if he thinks he can make it back on the financing.*

- *Never* discuss how you'll pay for the car until *after* you've negotiated the sales price.

- Don't shop on a weekend (or weeknights) - The law of supply and demand doesn't work in your favor when there are lots of other customers milling around; if you don't buy, the odds are the next guy will. But when you hit a dealership mid-week, ideally in the middle of the day, when there aren't nearly as many (if any) other customers around, interest in you and the potential sale you represent) will go up. You've got a better chance of negotiating a great deal when the salesman sees you as possible the only sale he'll make today.

- Forget about the monthly payment - Worry about the price of the car. This goes for leases as well as purchases, since your monthly lease payment will be based in part on the purchase price you sign onto at lease inception. A "low" monthly payment does you no good if it is based on a higher-than-it-should be purchase price - with those "low" payments stretched out over an extra year (or obliterated by an obnoxiously high balloon payment to buy the car at the end of your lease).

- Keep quiet about your trade-in. *Never* discuss what you plan to do with your current car until *after* you have completed negotiating the price of the new car. There are two reasons for this. First, you don't want to add an

additional factor (negotiating your old car's trade-in value) to an already complicated process before you've dealt with the first one (negotiating the price of the new car). Second, if the salesman can get you talking about your trade-in before you've come to an agreement on the price of the new car, he may be able to shift your attention to the "great deal" he's giving you on the trade - causing you to forget all about the not-so-great deal he's giving you on the new car.

- Focus on one thing at a time; deal with your trade-in after you've tied down the deal on the new car.
- Do not, if possible, drive up to the dealer in an expensive car. Ideally, park down the street and walk - so the salesman can't form an impression of you based on the car you're driving. *Whatever* he sees you roll up in will give him information (accurate or not) about you. The best policy is to give him as little information as possible.
- Beware "no haggle" pricing - Whenever you hear something that sounds too good to be true, it always is.

"No haggle" is the same as walking into a standard dealership and agreeing to pay the full MSRP sticker price on the window. You don't "haggle." You just pay what they tell you to. Such a deal! This may be less stressful for those who hate the back-and-forth of the typical new car purchase process, but it's far from being a great deal. PS: If the brand/car you want is only sold at a "no haggle" dealership, that doesn't mean you can't negotiate. It's not against the law to make an offer.

- Worry about incentives and rebates after you negotiate your best deal, not before.

Like haggling over your old car's trade-in value, it's best to stay focused on the Main Event and not confuse the issue by adding factors that can distract you from negotiating the best possible price before subtracting manufacturer incentives and rebates. If there's a \$1,000 cash back offer, you can subtract it from your final deal - or better yet, just have them send you the check, if that's an option. Remember: *It's the sales price of the car that matters most*; everything else is secondary.

- Don't take the car home for the night.

This is a common offer designed to get you emotionally attached to the vehicle; to get you thinking of it as *your* new car before you've come to terms on its price. Remember: Anything that clouds your judgment or tends to make you emotional should be avoided. *If* you buy the car, you'll have plenty of time later on to gaze lovingly at it and think how nice it looks in your driveway. Don't fall into this trap before you get the deal nailed down.

- Add-on fees are always negotiable.

Don't let yourself be talked into paying a couple hundred bucks above the "final" sales price you just agreed to for things like "detailing" (read: teenage kid washes the car with probably dirty rag) or "paint sealers" (\$1.50 worth of Turtle Wax they charge you \$150 for) and "fabric treatments" (a \$5 spray can of Scotch Guard they charge you \$50 for). Etc. The only extras you're obligated to pay for, above the sales price of the car itself, are any applicable sales taxes, title and vehicle registration fees mandated by your state/local government (payable to *them*, not the dealership).

Before you go shopping, call the DMV and find out what the fees are - so you don't get charged higher fees.

- Be friendly.

Just as car salesmen get you to drop your guard by getting you to think of them as "nice guys" with friendly chit-chat, your cause will be well-served if you get the salesman to like you as a person. Being hostile or confrontational needlessly adds tension to the process. The salesman's a human being, just like you - and most of us prefer doing business with people who are warm and friendly. If it helps you get a better deal, being nice pays for itself.

- Be ready to use your trump card.

Which is to simply get up and walk away if the salesperson is pressuring you, or you just don't like the way the deal's going. Never forget: *You are under no obligation to buy the car until you sign a contract.* This is your number one ace to play. Be polite, but tell the salesperson you don't think this is working out and that you think it's time to try your luck elsewhere. It helps if you pretend to be really disappointed. Not mad - but sad that the deal's not working out. Sighs are good here. Ham it up! Nine times out of ten (unless you are being completely unreasonable) the salesperson will do whatever it takes to get you back to the table and close the deal....

A word about warranties:

New cars come with several warranties. There is the *basic* - or "whole car" warranty, which covers everything *except* wear and tire components such as brake pads.

The *powertrain warranty* covers the car's engine, transmission, drive axle/transaxle and related systems. The powertrain warranty usually lasts longer than the basic warranty - in some cases for as long as ten years and 100,000 miles. Given the sometimes very high cost of repairing - or replacing powertrain components in modern cars, factoring the duration of the powertrain coverage into your buying decision is a good move.

There will also usually be a separate warranty for the tires - issued by the manufacturer of the tires (not the car manufacturer or the dealer). These warranties are typically on a *pro rata* basis - meaning that coverage decreases as the tires are used. If there is a problem after say 20,000 miles of driving, you will get a portion of the replacement value of the tire credited back to you.

The last type of warranty is the *extended* warranty. This is a warranty that picks up after the factory basic/powertrain warranty coverage has expired. Some of these warranties are offered as manufacturer-backed deals, meaning they are issued by the car company (Ford, for instance) while others are secondary or issued by the *dealership* or another third party.

Basically, you are buying *insurance* - and it's not necessarily a bad idea to do so given the complexity - and potential repair cost - of modern vehicles. An extended warranty might cost you \$1,500 or so.

Replacing a late-model vehicle's automatic transmission can easily cost \$3,000 or more.

Read up on the car you're buying and find out not just whether it's generally considered to be reliable but how much it costs to fix/replace major components.

Take into account how long you plan to own the vehicle - and how many miles you think you'll put on it before you trade it back in or sell it. The longer you own it - and the more you drive it - the greater the risk that something will break or need to be repaired.

Also, the cost of an extended warranty is *negotiable* - and the best time to negotiate is before you've committed to a purchase price on the car itself.

Ideally, have the extended warranty included in the deal.

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Before Your Drive it Home Checklist:

- Be sure that all your papers are present and in order - including title and registration (most dealers will process these for you, though you're free to do it on your own) and that you have all warranty documents and owners' manuals - which should be in the car's glovebox.

- If the car has a keyless/push-button ignition with a remote fob - which is almost all new cars at this point - try to get the dealer to give you *three* of them.

Many cars only come with two.

These fobs are expensive. They are not like traditional/physical keys that you can make copies of at any hardware store for less than \$10. Keyless fobs can cost as much as several hundred dollars apiece to replace, depending on the make and model of the car. What are the odds you'll lose a key over the next six or seven years? Or accidentally run one through the wash?

If you lose a fob after you've bought the car, you'll have to pay to replace it. But if you wrangle them into giving you an extra fob to sweeten the deal before you buy the car, you just got it for *free* - our *favorite* price.

- Do a thorough walk-around of the car prior to accepting delivery. You want to be certain that there are no door dings, paint scratches, stains on the seat or physical/cosmetic damage of any kind - before you drive it off the lot.

This is critical.

If you drive it home and then discover that it's got a ding in the passenger side door and take it back to the dealer, he can easily claim *you* did it - or at least, that it wasn't him (or someone on his lot) who did it. You just paid for a new car. It should be undamaged, pristine. Be sure it is - before you leave the lot.

- Also be sure it has every option/feature you paid for.

It sometimes happens that an option you wanted - and paid for - gets lost in the mix. The car got ordered with six of the seven things you wanted. But you paid for seven. If you discover that the car is missing something you paid for, you are obviously entitled to a refund for the cost of the option and it may be basis for cancelling the sale or at least for getting another car that is equipped as ordered (and paid for).

- On your way home, take it easy. Not because the car needs a "break in" period - but because *you* do.

It's a new car - you're not used to it yet. In addition to things like the sensitivity of the gas pedal, brakes and clutch, you've got all that new *stuff* to deal with, too.

The touchscreen/menus/mouse. The GPS and apps; the new audio rig. It is easy to become distracted. It is not uncommon for people to get into accidents on the way home from the dealership for exactly this reason.

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A word about diesels -

Diesel engines were making something of a comeback after an almost-30-year hiatus - chiefly the result of a lingering bad taste in buyers' mouths going back to the '80s and some not-so-great diesels produced by General Motors especially.

Volkswagen, in particular, was making headway with its turbo direct-injection (TDI) diesels, which approached hybrid (gas-electric) economy with less complexity and at a lower

cost. Then the company was accused of - and admitted to - programming its TDI-powered cars to circumvent federal emissions control tests.

Huge fines - civil and criminal - and a massive recall ensued.

What's interesting about the recall is that - from the point of view of the owners - there is nothing wrong with the cars. They work perfectly - and (often) actually exceed the advertised mileage numbers.

So what's the problem?

It depends on where you're sitting.

If you are the owner of one of the affected cars - VW (and some Audi) models made between roughly the 2001 model year and the 2015 model year - you have probably already received a notice from VW offering to either buy the car back (at a very attractive price) or "fix" the car (no cost to you) which generally involves reprogramming the computer that controls the engine's operation and (in some cases) adding a urea (Diesel Exhaust Fluid, or DEF) injection system to the exhaust.

You are not required to do anything, though. And - at least for now - the Feds are not insisting the cars be "fixed" and there are no worries about passing smog tests, where applicable, to renew the vehicle's registration.

On the other hand, the resale/trade-in value of these cars has been hit pretty hard by the scandal - and an "unfixed"

car will probably be worth even less come trade-in/resale time than a car that has been "fixed" by VW.

It is also possible that - at some point in the future - the Feds (or states, especially states like California, which have very strict pollution control laws) will change their mind about waiving smog tests for cars not "fixed." Given that in areas where successfully passing a smog test is necessary in order to get or renew vehicle registration, this could effectively force you to have the car "fixed." And if VW is no longer offering to do it for free . . .

The problems transcend VW, too.

Just as happened back in the '80s, a dark cloud hangs over diesel-powered vehicles in general. At the time this book was written in early summer 2017, Mercedes-Benz had announced it would no longer be selling diesel-powered vehicles in the United States and others (including Mazda) that had been planning to introduce diesel-powered vehicles appeared to be thinking twice about doing so.

If you are thinking about a diesel-powered vehicle, you should be aware of the following:

Most diesel-powered vehicles made since about 2013 have urea injection (DEF) and require periodic topping off of the DEF tank. The DEF - which typically comes in gallon jugs - is not a huge expense (about \$20 per gallon; sometimes less, depending on where you buy) but it is an additional expense - and an additional hassle.

Some diesel-powered vehicles also have particulate traps - an emissions control built into the exhaust to tamp down soot. These may have to be cleaned periodically. Some, on the other hand, regenerate automatically - without any action needed by the driver or service required by the dealer.

All modern diesels are more complicated than diesel engines of the past - and may be as or even more expensive to maintain than a gas burning engine. For example, most have electronic rather than mechanical fuel injection (as diesel engines used to).

Diesel fuel is often as or more expensive than premium unleaded gasoline - chiefly because of federal requirements that all on-road diesel be Ultra Low Sulfur (ULS) diesel.

Because of higher diesel fuel costs - and the fact that modern diesel engines aren't as fuel efficient as diesel engines once were - you may not be saving money by purchasing a diesel-powered vehicle and may be spending more overall.

Also: One of the big advantages diesel engines used to have over gas engines was more low-end torque, a boon to both acceleration and towing capability (if you're looking for that). But there are now numerous gas engines on the market equipped with turbos that produce diesel-comparable torque, both the quantity and where it is produced in the RPM band. Some make peak torque at 1,500 RPM or less - very much like a diesel.

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Lemonaid?

What should you do if - despite your best efforts - you end up with a lemon?

First, let's *define* "lemon."

In each state, there is a formal/legal definition - easily found by web searching your state and "lemon laws." But, in general, a car is a candidate for official Lemonhood when it has a *recurrent objective* problem covered by the warranty that the dealer either can't fix or which won't *stay* fixed.

For example, a prematurely and repeatedly failing head gasket.

As a rule, most states require three attempts to fix a problem before it's deemed chronic or built-in, the result of defective

design, materials or workmanship - and the car a *certified* lemon.

Some state lemon laws have a so-called "presumptive period" - for example, 18 months or 18,000 miles, whichever comes first, as in California - during which there must be *tangible evidence* of an abnormal, recurrent problem(s) in order for the full force of a lemon law's protections to be available *after* the manufacturer's new car warranty has run out.

This is why it is critical to bring any problems that crop up to the attention of the dealer as soon as they are discovered - *and to document them*. Keep records of every service visit - and make sure the work order/receipt clearly lists the *reason* why the car was brought in, as well as the date and the odometer reading at the time of service.

The longer you wait - and the shorter the paper trail - the more the odds are stacked against you.

It happens sometimes that the owner is accused of having *abused* the vehicle - and that the problem is the result of abuse.

The legal definition of "abuse" includes such things as failure to maintain and service the vehicle according to the factory recommendations, including the use of only factory-approved oil/filters.

Most state lemon laws do not apply if the problem is deemed to be the result of "abuse" - which is why it's really important

to keep up with and keep track of all service work done to the vehicle, especially routine oil and filter changes. Keep receipts that show the brand/type of fluid/oil/filters used, too - as warranties can be voided and lemon law protections evaporate if you use fluid/oil/filters and so on that do not meet the manufacturers' specifications.

It's still ok to change your own oil and filter - or to do other service work - but for lemon law purposes, you must be able to produce *proof* that you did, in fact, change the oil and filter as per the factory time/mileage interval - and with the correct weight and American Petroleum Institute (API) service specification (e.g., API specification SE, CD; 5W-15) oil and an Original Equipment Manufacturer (OEM) or equivalent "approved" brand of oil filter - not a generic or unapproved off-brand part.

A log book in which you record the dates/mileage readings when you performed the work is vital. If a problem develops and you can't produce such records - or use generic brand parts not specifically approved by the manufacturer - you could be left holding the bag.

If you believe you have a lemon on your hands - unusual, recurrent problems, peeling/fading paint, leaks, "unfixable" electrical problems, premature failure of major components; constantly having to bring the car back to the shop, etc. - consult with an attorney who specializes in this type of consumer law. Most will not charge you for an initial consultation to determine whether you have a valid cause of action.

If you do have a solid case, you and your lawyer should be able to get the dealer/manufacturer to either buy back the lemon (less an "adjustment" for the mileage on it), or replace it with another vehicle of equivalent value - if that's acceptable to you. Sometimes, the dealer will offer "unlimited free service" for the life of the car - or something along those lines - instead of a buy-back or replacement offer.

For a state by state listing of lemon laws and their provisions, see www.123car.com/lemon/lemonbystate.html or www.lemonlawamerica.com.

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