Save Money !

National Bestseller

Get Smart

Fuel Conservation Tips And Secrets Your Mechanic Won't Tell You!

E. U. Randolph

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Make	Model	Year	Engine Size (Litres)	City Driving (Kilometers per gallon)	Expressway (Kilometers per gallon)
BMW	330i	2005	3.0	20	29
BMW	330xi	2005	3.0	19	27
Audi	A4	2005	1.8	22	31
Audi	A4 Quattro	2005	1.8	21	28
Volvo	S40	2005	2.5	22	31
Volvo	S40 AWD	2005	2.5	21	28
Mercedes	E320	2005	3.2	20	28
Mercedes	E320 4Matic	2005	3.2	19	25

Data from www.fueleconomy.gov

15.3

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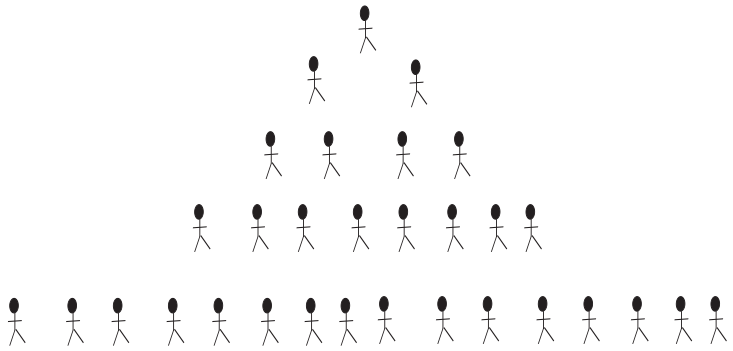
Carol Ponzi
The ultimate in fuel economy?



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A brief history

Carol Ponzi was the Italian immigrant to America in 1924 who originated the scam popularly known as the Ponzi Scheme.

The basic principle of this scam is:
The more people you co-opt to join the triangle , the richer you get and the much richer the guy that co-opted you to co-opt others.

The objective of the triangle is not relevant, what is relevant is the size of the triangle, time of entry into and exit from the triangle. Actually, there is no physical triangle which you join.

However, there is a conceptual triangle formed by the fact that one person initiates two people into the scheme and each of the two people initiate two more people and so on . Another name for this scam is the Pyramid scheme since a triangle is also the shape of a Pyramid.

There are many variations of this scam. Some variations hide under the name: network marketing or multi-level marketing.

A popular example of this scam is the selling of useless paper certificates or forms promising high dividends to people and encouraging them to sell it to other people and you get a commission depending on the number of people you sell to and the people those people sell to also.
The only known solution to the Ponzi scheme is to get in early and leave early but because of the infinite variations of this scam , its best not to join at all because you don't know how late you came into the triangle.

All Ponzi schemes eventually collapse because there is no real

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fund being generated or the product being sold as part of the scheme has dubious value or is overpriced.

Can you recognize him !

Identifying Ponzi is an art that is easily acquired if you drop your yearning for the fast and easy way. Investing time gathering essential information on any subject of interest is also an added asset. This is because contrary to what most people believe, very few people are scam-proof. To a large extent, even the financial market is an advanced form of Ponzi. Remember, if it looks, feels or smells like Ponzi , it usually is.

Fuel saving by Voodoo Engineering!

There are several products on the internet and on the local market promising outstanding fuel economy improvements for a small fee.

Some of these products claim up to a fifty percent fuel economy improvement when used. The advertisements for these products are backed by detailed technical descriptions of how these improvements were obtained as well as bogus customer satisfaction responses published to support the product.
The major problem is that these technical descriptions, though quite detailed, are incomprehensible to the average car user. Under scrutiny, the explanations given as to how most of these products work are incorrect but most car owners have to buy these products before discovering if the claims are true or not

The first hint that there is Ponzi in the mix is the method by which some of these products are sold: Multi-level marketing

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The advert sounds logical, Is it true ?

Expand your knowledge of how the automobile engine works by reading the last section of this book: Owners Guide to the Automobile Engine.

The overall efficiency of the four stroke internal combustion engine is not likely to exceed twenty five percent. This is because only one out of the four strokes of the piston produces power and manufacturers have pushed this limit with advanced materials, computer controls, regenerative fuel systems and state of the art components.

The modern automobile engine already incorporates several control systems to ensure that very little unburnt fuel mixture can exist in the combustion chamber.
Over ninety eight percent of the fuel mixture inside the engine is burnt leaving less than two percent room for improvement.

And When in doubt !

The Environmental Protection Agency (EPA) USA, has independently carried out several tests on many of such products and their conclusion was that only a very few of them shown any statistically significant improvement in fuel economy when used.

If you must use any of these devices or products ensure it has been tested by the EPA, the EPA also provides information and forms for any company wishing its products to be tested.

Point your browser to *www.yourcarlab.com/car care* to see a list of previously tested devices and the reports published by the EPA. Otherwise, head directly to the EPA's website for the

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latest information on the subject.
Www.epa.gov/otaq/consumer/devices

Several manufacturers are already incorporating any device that help in reducing fuel consumption .

For example, the Automatic Cylinder Deactivation System is already being used in most SUV's by several manufacturers under different names. For example, this same technology is renamed the Active Fuel Management System by General Motors.

This technology is used to shut down some of the engine cylinders if the power demands of the driver is at a minimum in order to reduce fuel consumption.
Other improvements include more energy efficient air conditioning and power steering systems.

Fuel Additives and Adulterated Fuel

Its hard to know how well some of these fuel saving products will fare with adulterated fuel. However, one thing is clear , the additives are not really improving the fuel economy of good quality fuel .

The best known way to purify muddy water is by filtration or by pouring enough clean water to clear up the muddy water.

Adding any chemical as a way of treating bad fuel is likely to lead to the coagulation of some particles which might harm the fuel system of a vehicle.

If you happen to buy adulterated fuel , drain the fuel tank of your vehicle and find the best fuel you can get to fill up with.

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Some polymers used in the manufacture of many recent fuel systems become unstable when in contact with certain additives contained in some products. I have had cause to replace fuel pumps in 2007 model vehicles ruined by bad fuel and additives.

Finally one has to consider the cost of the additive that has to be bought each time you fill up and compare it with the expected improvements in fuel consumption as well as the above risks involved.

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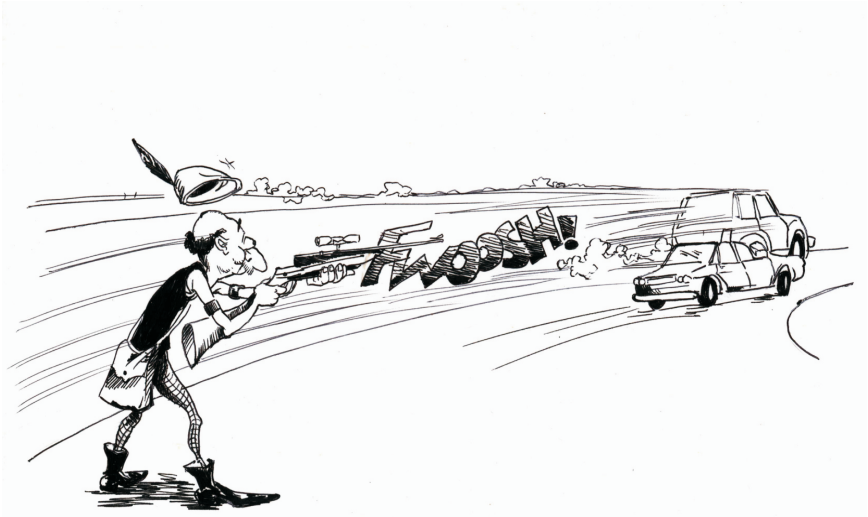
Aim low!!!



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There ain't no substitute for cubes.

In the United States, the size of an engine is measured in cubic inches and it is generally accepted that when it comes to power production of an engine, all things being equal, there is no substitute for size. Simply put, big engine equals big power.

For fuel conservation purposes, size is definitely a disadvantage because there is no way in the world you are going to make an eight liter eight cylinder vehicle as fuel efficient as a one liter vehicle three cylinder Suzuki.

Be not deceived

Never make the mistake of assuming that because a vehicle is small externally that it is necessarily more fuel efficient. What you want to be small is the engine not the body.

Certain brands of German vehicles should be handled with care. This is especially important for used car buyers. Please, do not be tempted to purchase these vehicles even if their prices are low .

My cup is bigger than yours

You must have seen those baby BMW's on our roads. I mean the 316, 318,320,323, 325, 328, 330s'. These cars have the same body type but have different fuel consumption abilities. This is because their engine sizes (displacement) are 1.6liter , 1.8liters, 2.3liters, 2.5liters, 2.8 liters and 3.0 liters respectively. The engine size basically represents the fuel consumption capability of an engine.The bigger the cup, the bigger the liquid that can fill the cup. And that liquid is fuel!

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Also avoid those Mercedes 190s with a 2.6 badge at the back or that golf with VR6 written at the back or side. However, do not trust these numbers, you have to open the hood and possibly read the manual if you can find one or ask for the engine size (displacement) before making a purchase.

It is advisable to look for engines of 1.8 liters capacity or less if fuel economy is your ultimate goal. Also remember that due to engine wear, when the vehicle is older, the fuel consumption can increase by up to thirty percent.

Table 17.1 shows the fuel consumption of different vehicles with differing engine capacities. A cursory look at this table should convince anyone to avoid fairly used vehicles with large capacity engines regardless of their low initial cost .

All vehicles are equipped with automatic transmission.

MANUFACTURER	MODEL	YEAR OF MFCT.	Cup Size in liters	City Driving (Kilometers per gallon)	Express way (Kilometers per gallon)
GM	Hummer H2	2005	6.3	16	19.2
LEXUS	LS 430	2005	4.3	28.8	40
AUDI	S4 AVANT	2005	4.2	28.8	38.4
FORD	TAURUS	2005	3	32	43.2
CHEVROLET	OPTRA	2005	2	35.2	48
TOYOTA	Corolla	2005	1.8	48	60.8
HONDA	Civic	2005	1.7	49.6	60.8

Data from www.fueleconomy.gov

Table 17.1

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Shine your eyes!

Wakefulness
is not indicated by open eyes

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Are all your fingers equal

If you are among the lucky many whose fingers are not equal then it will be quite unrealistic to expect all fuels to be equal. Do not expect all filling stations to be equal, and even inside the filling stations, all pumps do not have the same glory.

Chemistry 101

For those who did not take any course in chemistry and are forced to deal with liquids - Petrol-. Below is a summary of some useful tips:

- ☛ All liquids do not burn. Whatever you try, you can not make clean water to burn. This may not apply if you are a Magician or a Particle Physicist.
- ☛ All liquids do not burn at the same rate. Some liquids burn very slowly. Examples include palm oil and diesel oil , while others like petrol explode on contact with naked flame .
- ☛ Burn rate of a liquid can be reduced by mixing with other liquids while the volume can be simultaneously increased with little or no change in its physical properties- e.g color
- ☛ Most automobiles require petrol - the one that explodes

Chemistry 101 Practicals

See if you can find real Petrol in any Filling station near you.

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Procedure:

If you left a full uncorked can of the real petrol in a hot afternoon for about thirty minutes to forty minutes, you get about half of the liquid remaining. This is because the high volatility of the Petrol causes it to evaporate rather quickly.

Creation of petrol

Where petrol is created , they come out in different grades . The higher the grade , the higher the quality and the better the petrol will burn and of course, the costlier the Petrol .

For sake of simplicity , lets assume that there are three primary grades of fuel namely: Premium , Super and Regular . In countries where there is some form of consumer protection or quality , you are sure to get whatever is written on the pump where you fill up your vehicles fuel tank so you can make a choice, depending on your wallet (or pocket if you don't have a wallet), of exactly the type of Petrol you want to buy

The making of the Petrol importer.

Lets say you finally got license to import fuel into the country and have to convince your investors or banks to advance you a loan.

To get any form of loan , you must promise some unrealistic return on investment or at least produce a chart or multimedia presentation with the graph of profit rising like a Concorde aircraft into the deep blue sky.

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Some of your investors will disagree with such over optimistic estimate and will insist to know how exactly you wish to deal with stuff like import duty , volatility of fuel prices and exchange rate issues .

At this point you must appear confident , smile and assure them that you have every thing worked out and lean on the years of experience doing business in the country and possibly your outdated MBA experience.

On the other side of the negotiation with the refiners of the crude oil your questions will likely follow the pattern below:

You
How many grades of fuel do you have:
Reply
Premium , super , regular , Fanta , Coke ,Sprite and Bournvita .

You
What can be mixed with Sprite and still retain the look and feel of Premium
Reply
Bournvita.
You
What is the minimum amount of Bournvita that can give this effect
Reply
One percent

Your refiners:
We do not think it is a good idea , the cost benefit ratio is not worth it for the customer.

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You
At this point you must get angry or appear to be, and give any or all of following responses

Leave that to me!
Its none of your business!
I know my market!
I have investors to repay!.

The making of the independent Petrol marketer

It is impossible for the uninitiated to imagine the amount of hassle you have to go through to become an independent petroleum marketer.

Even after paying the necessary official fees , attending burials and naming ceremonies related to the person that will give final approval, Thanksgiving in church and consistent tithing, there still remains the possibility, though remote, that you might not get the licence.

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If you are lucky to finally get the licence , you must have borrowed from your banks and friends.

With a tight heart and red eye , you are likely to start your journey to profitability as follows:

- To reduce your operating cost, you must find out how to run your filling station on doughnuts or meat pies. So find the most illiterate attendants that you can feed and pay no salary.

- Learn how to re-tune both the digital and analog fuel dispensing units so that what they are showing on the display is not what they are doing on the discharge nozzle.

- Experiment on that margin of error that even the most astute customer will not notice but will yield huge dividends when thousands of liters have been sold.

- Intensify your study of alchemy. As a primary point of research, keep searching for that inexpensive liquid or solid that will increase the volume of fuel while reducing its volatility

- Early versions of this liquid may lead to a total breakdown of vehicles so proper research and development must be done to find the exact proportions of fuel and your 'patented' liquid or solid. A wrong proportion will send you out of business because everybody will know what you are doing

The making of the fuel station attendant

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You just managed to finish secondary school and all financial support has been erased from your life. Like every one else you have to survive and trying to get into information technology requires some capital outlay for training which you don't have. So re -educate your self along the following lines:

Learn to spot wealthy guys - and of course realize that big ride does not equate to money- in- the-pocket. You have all the data for this conclusion having met case after case of Lexus owners buying five liters of petrol after queuing for one hour

Couples issues - Couples in love don't look at the pump reading, they look into each others eyes - (profit). Quarreling couples don't look at the pump they look at each others throat or look away- (profit)

Smile your way to success - you first have to spot the wealthy guy - a very difficult exercise if you don't have proper training -so that you can vector your smile properly. The smile has two primary functions :

- *It gives men the idea that you are more than just an attendant and can render other services*
- *To distract the victim so that your magical skills can work more effectively.*

Wealthy in this case means the person who can drop money for you or who won't mind being cheated , in some cases a motorcyclist could have a much higher rating than your regular 'wealthy guy'.

Study stage magic- Particularly the use of the magic wand.

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This involves the pulling the zeroing lever of the analog or digital fuel dispensing unit without actually zeroing the reading and simultaneously pumping fuel to the vehicles fuel tank.

When you are finally caught, as you will be, lean heavily on your newly acquired religion and learn to avoid playing such tricks on middle aged married women and transporters. Also cry and submit the gory details of your difficult upbringing as the primary reason for your misconduct. Swear it will never happen again while changing or updating your current strategy.

Be positive: Always remember that there is always room for improvement in any process or strategy and do not use the above tips too often. Be inventive and creative with your god given gifts.

The Bottom of the food chain.

At the bottom of this complex food chain lies you and me, the consumer. Actually, we are the ones being consumed in this business jungle.
Even if you can empathize with the scenarios above, you still need to save money on fuel. Being aware can be the greatest fuel saver.

Sample different filling stations and watch your fuel consumption (my car has a meter that tells me exactly how much fuel the vehicle uses). If you suspect any increase in fuel consumption after buying fuel from a particular station, blacklist the fuel station and inform your friends.

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Aim High!!!

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Believe and you shall see

All this talk about fuel economy presupposes that you cannot buy a new vehicle. The ultimate in fuel economy is to buy a new vehicle. To do this, one does not require money as much as the resolve to break away from the 'used car mentality'.

This is where the solution lies. You must decide today, that your next vehicle, will be a new one and by the grace of God so it shall be! Don't be scared of the price of a new vehicle, humans not aliens are supposed to pay for it !

Look who is talking

Better to drive a brand new Honda, VW, Nissan, Kia or Toyota than a thirteen year old used Jaguar. The strange thing is that it would probably cost about the same amount to purchase both cars in the third world.

Stranger still, is the fact that most men would prefer the Jaguar even if it will bankrupt them. In general, women seem to be most reasonable when buying new vehicles and their choices usually tend towards vehicles with good fuel economy.

Please do not forget that this book is about fuel conservation, not lifestyle choices. One is free to drive anything so long as you can afford to bear the cost.

You actually gain

If you can afford to replace your new vehicle every four years with a brand new one, you will be surprised that you can get up

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to sixty percent of the original cost of the vehicle if its well maintained.

Look around and count the number of people with borrowed hair styles, borrowed postures and borrowed lifestyle, and smile, because you are looking at your potential customers.

The cumulative savings in fuel and maintenance cost on your new car will more than compensate for the sacrifice you made in acquiring a brand new vehicle.

Go High tech -Small engine

Do your research well and look for vehicles with very good fuel economy. Do not bother so much about durability because you cannot park most new vehicles near a wall without breaking both front headlamps.

Fuel Efficiency improvement of later model vehicles with manual gear box

MANUFACTURER	MODEL	YEAR OF MFCT.	ENGINE CAPACITY	City Driving (Kilometers per gallon)	Ecpress way (Kilometers per gallon)
TOYOTA	COROLLA	2007	1.8	51.2	65.6
TOYOTA	COROLLA	2003	1.8	51.2	64
TOYOTA	COROLLA	1999	1.8	49.6	60.8
TOYOTA	COROLLA	1995	1.8	43.2	54.4

Data from www.fueleconomy.gov

New vehicles are just like Television sets and Cell phones. Every major manufacturer knows how to build them.

Within certain limits , all new vehicles provide the same functionality and whatever extra cost that is associated with some of them is due to the customers perception of the brand name and that indescribable property of a vehicle called ‘Class’.

The major components of these cars are usually bought from

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the same suppliers by the manufacturers.

For example, Robert Bosch makes fuel injectors, kick starters , ignition systems, brakes and computer controls for virtually all the manufacturers in Europe, while Mitsubishi makes most of the Semi-automatic gearboxes fitted to most non-Mistubishi vehicles.

In America, Teves and AC-Delco does the same thing Bosch does in Europe.

Generally speaking, there is not much of difference between a Mazda, a Jaguar, a Ford and a Volvo from the standpoint of reliability except in cases of known factory defects.

Is it really worth it?

A friend of mine bought a **very used** Mercedes E-class vehicle. It was delivered to him with a bad Air Mass Sensor***** which did not appear to be a serious problem at first .

The vehicle further developed the following faults within the first two months of driving. Broken down Fuel Pump*****, Air Conditioner Compressor failure*****, Left and Right Wheel ABS Sensor failure***** and Throttle Position Motor failure*

The cost of repair with **used** spare parts was equivalent to the cost of another **used** Mercedes 190e he was seriously considering purchasing . At this point you must refer my friend to a psychologist except you need one yourself.

For the price of replacing these components with new ones in a certified service center, My friend would have made a down payment for a fuel efficient 1.8 litre Honda, Kia, Toyota or

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Volkswagen and at the same time enjoyed a hassle-free three to four years of driving. There is really no substitute for a new vehicle.

I know you don't like maths but...

The difference between a car that goes thirty two kilometers on a gallon of fuel and one that goes forty eight kilometers on a gallon of fuel can amount to about sixty five thousand Naira difference in fuel cost per year. This is based on an estimated twenty thousand kilometers of driving per year.

Driving the more economical vehicle for a period of four years will result in a fuel saving of about a quarter of a million Naira. The saving is likely to be more if you allow for increase in fuel prices within those four years as well as the loss of efficiency of a fairly used vehicle over the same period.

This information supports the argument in favor of buying or looking for the most fuel efficient vehicle you can afford at least for your daily transportation.

Diesel to the rescue

Before the recent increase in price of diesel fuel , buying a diesel powered vehicle made a lot of sense because diesel powered vehicles are more fuel efficient than petrol powered vehicles for technical reasons beyond the scope of this discussion.

In general, diesel powered vehicles from European manufacturers provide enough fuel efficiency to justify the initial purchase cost as well as the higher price of the diesel fuel.

* just know that these components cost a lot of money

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Most Diesel powered vehicles have a' D' written somewhere on the vehicle , for example, Mercedes 220CDi, VW Jetta Tdi. However, the initial cost of purchase is from twenty five to fifty percent higher than their petrol equivalent.
A Diesel powered vehicle may be necessary if you already own a Petrol powered vehicle so that in the event of petrol scarcity, you can still be mobile.

Table 15.3 shows the fuel consumption of different petrol and diesel powered vehicles.

Note that the Volkswagen diesel is almost eighty percent more economical than the petrol equivalent.

MAKE	MODEL	Fuel Type	YEAR OF MFCT.	Engine Size in litres	City Driving (Kilometers per gallon)	Express way (Kilometers per gallon)
Mercedes	E320 CDI	Diesel	2005	3.2	43.2	59.2
Mercedes	E320	Petrol	2005	3.2	32	44.8
Volkswagen	Golf TDI	Diesel	2005	1.9	60.8	73.6
Volkswagen	Golf	Petrol	2005	1.8	38.4	49.6

Data from www.fueleconomy.gov

Table 15.3

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15.4 Blue motion to the rescue

Source: www.greencar.com

This **VW Polo 1.4 Tdi** in Fig 15.4 can average one hundred and twelve kilometers on a gallon of diesel fuel ! Perfect for school run?

High Technology vehicles

When shopping for a new vehicle or even a fairly used one , look for the following acronyms anywhere on the vehicles body or engine: VVTi (Variable Valve Timing with Intelligence), IVTEC (Intelligent Valve-timing Technology) , TDI (Turbo Diesel Injection) , GDI (Gasoline Direct Injection) , FSI (Fuel Stratified Injection) ,TSI(Turbo Sequential Injection - turbocharger and supercharger), Hybrid - Petrol and Electric driven.

Vehicles incorporating advanced technology are generally more efficient than their non high-tech counterparts.

However , if you are in love with road side mechanics , very thrifty and dream of living to a ripe old age, avoid these vehicles for the sake of your health (heart) .

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Yeah, but how many of us can really afford a new vehicle?

I really have nothing against a fairly used vehicles. If you must buy one, at least buy a certified pre-owned vehicle.

This is a vehicle that has been refurbished and certified by the manufacturer and they usually cost several thousands less than a new vehicle.

Some of these vehicles are even better than new ones because many new vehicles come with manufacturers defects (factory faults) and by buying a certified used vehicle ,you are sure all known defects must have been rectified.

Also, some dubious car dealers sell imported certified pre-owned vehicles as new vehicles and of course charge the price as new.

For most customers, so long as there is some form of polythene covering on the seats(can be arranged),new leather scent (can be sprayed on), brand new tires (can be bought) and a low milage on the odometer (can be reset with a computer), the vehicle is brand new.

Another reason to buy a certified used vehicle is that they always come with the complete set of master and valet keys as well as any remote unit associated with the vehicle.

Buying a used vehicle with only one ignition key is not a wise idea because the vehicle might have been stolen or in many cases the cost of acquiring and programing a replacement key can exceed one hundred thousand naira.

Finally, ensure you trust and know who is doing the repairs for you because a large percentage of the problems you are likely to encounter are created by your service technician regardless of whether you own a new vehicle or a used vehicle and regardless of where you service your vehicle.

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PART B