



JEPPIAAR ENGINEERING COLLEGE

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SAE INDIA Collegiate Club Monthly Newsletter

THE MECHANICAL ENGINEERING DEPARTMENTS PUBLICATION



TORQUE

YOUR AUTO-INFO NAVIGATOR

JUNE 2011 ISSUE



WriteLine

I would like to take this column to thank my seniors for the wonderful job they have done in bringing out this newsletter. I would like to congratulate my club mate S.Jayachandran for being elected as one of the member in the Student executive council. It has been a great delight for me to work with this fresh team and we hope to bring more sophistication to our work.

There has been great developments going in our FSAE team 'Formula Jeppiaar'. We finished our solid model a few days back and our design reports have come out well. Our new team have already started working on BAJA 2011. They are doing well in the preparatory stages. This is the first time we are venturing in to the effi-cycle race and we believe it will bring positive results to our club.

I wish to see TORQUE develop into a more technical oriented newsletter and we'd be pleased to hear your feedback

CHIEF EDITOR
MADHUSUDHAN.P

HOT RELEASES'11

ASTON MARTIN



ONE-77

The One-77 features a full carbon fibre monocoque chassis, a handcrafted aluminium body, and a naturally aspirated 7.3 litre V12 engine with 750 hp (560 W). Aston Martin claims that this will be the most powerful naturally aspirated production engine in the world when the car is delivered.

The car will also use a strengthened version of the DB9's 6-speed automated manual transmission and height-adjustable pushrod suspension coupled with dynamic stability control. It will feature Pirelli P Zero Corsa tyres (255/35 ZR20 front, 355/30 ZR20 rear) and Carbon Ceramic Matrix brakes.

The top speed was estimated to be 200 mph (320 km/h) but actual tests in December 2009 showed a figure of 220.007 mph!

XKR-S

The most focused mainstream Jaguar ever is a stand-out, grin-inducing blast, but one more comfortable and composed than the aggressive looks suggest, too. The XKR-S is Jaguar's fastest and most driver-focused series production model ever. The XJ220 was faster, sure, but that was low-volume exotic: there's to be no limit on how many XKR-S are built. Confidence is high, products are great - and here's the new good-times halo car.

It is intentionally bold and brash (not least the XKR-S-specific French Riviera Blue paint option). It costs Rs 73 lakh. This is a very expensive Jaguar XK, then (Rs 14 lakh more than the 510hp XKR). By the standards of the class to which it aspires, however, it is not: the Aston Martin V12 Vantage, for example, retails for Rs 1.01 crore.



JAGUAR

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**ECO
FRIENDLY**

GO GREEN

Raising fuel prices means the demand of Alternate fuels. What do we actually have right now? Either we can opt for a CNG,LPG or go for a battery car. And if you are rich and like to be eco-friendly, hybrids will suit you. Here are some technical advantages played by these hybrid cars.

Continuously Variable Transmission

Unlike manual and automatic transmissions, the CVTs used in most hybrid cars (and a growing number of non-hybrids) don't have a set number of gears. Operating a CVT vehicle is a unique experience, and although driving one might seem weird at first, it will soon become second nature. If you give it a chance, you'll find that the CVT is smoother and more efficient. Its design allows for an infinite variability between the high and low gear ratios, so it can keep the engine near the most efficient RPM while smoothly shifting the transmission to accelerate or decelerate.

Regenerative Braking

To power their electric motors, hybrid cars need to keep their batteries charged. They can do this in two ways: by using the gasoline engine as a generator, or by capturing energy that would otherwise be lost as heat when braking. They do the latter by using the electric motor as a generator. During deceleration, instead of using the brake pads, the hybrid car will use the resistance created by that generator to slow down the car, generating electricity that is then stored in the batteries. This is one of the reasons why hybrid cars get better fuel economy in the city than on the highway: All those stop signs and red lights help recharge the battery.

Some eco friendly cars in India

1. Toyota Prius
2. Honda Civic Hybrid
3. Reva electric
4. Chevrolet a-spark
5. Chevrolet Aveo CNG
6. Hyundai Santro LPG

Stop-Start System

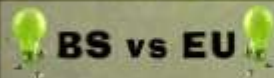
When a car is idling at a red light, it is getting zero miles per gallon. Hard to get more wasteful than that! Hybrid cars solve that problem by shutting down the gasoline engine when the car is stopped. That wouldn't be much fun if the restart was as rough as in a regular car, but hybrids have over-sized starter motors that allow them to smoothly and instantly re-start the gasoline engine as soon as the driver takes his or her foot of the brake pedal. This doesn't make much difference on the highway, but it is a big help in city driving, helping increase fuel economy, and also improving air quality.

Low-Rolling Resistance Tires

According to the U.S. Department of Energy, between 5% and 15% of the fuel burned in a typical car is used to overcome rolling resistance. Low-rolling resistance tires are simply tires that are designed to minimize the effort that the vehicle's engine has to deploy to make them roll. This is a bit like the difference between an under-inflated tire and a well-inflated one. Most hybrid cars are equipped with them, and according to the Union of Concerned Scientists

Plug-In Hybrid Cars

The next generation of hybrid cars will be "plug-in" hybrids. Two things separate them from the current type of hybrids that you never have to plug in: a longer all-electric driving range, and the ability to not only recharge the battery both from the gasoline engine and from regenerative braking, but also from plugging the car into an electrical outlet. This might seem like a small difference, but in practice, it can mean huge fuel economy benefits. For example, if you drive a plug-in hybrid with an electric range of 40 miles, and on the average day you drive less than 40 miles, you will not use a drop of gasoline and the car will act just like an electric car. It's only for trips longer than 40 miles that the gasoline engine would turn on.



The Bharat Stage norms have been styled to suit specific needs and demands of Indian conditions. The differences lie essentially in environmental and geographical needs, even though the emission standards are exactly the same. For instance, Euro-III is tested at sub-zero temperatures in European countries. In India, where the average annual temperature ranges between 24 and 28 degree Celsius, the test is done away with. Another major distinction is in the maximum speed at which the vehicle is tested. A speed of 90 km/h is stipulated for BS-III, whereas it is 120 km/h for Euro-III, keeping emission limits the same in both cases. In addition to limits, test procedure has certain finer points too. For instance, the mass emission test measurements done in g/hm on a chassis dynamometer requires a loading of 100 kg weight in addition to unladen car weight in Europe. In India, BS-III norms require an extra loading of 150 kg weight to achieve the desired inertia weight mainly due to road conditions here.

MEND IT LIKE MECHANICS

Tips to Make Your Brakes Last Longer

You can make your brakes last for a very long time if you are a little careful. We will tell you some money-saving driving techniques that won't clog the traffic but will help you enhance the life of your car's brakes.

Slow Down

Unexpected stops from high speed can cause serious damage to your car's brakes. You would think that a little more speed does not hurt your brakes at all, but it does. Stopping the car from 100kmph rather than 70kmph forces the brakes to dissipate about a third more energy. So keeping the car's speed in check would definitely make the brakes last longer.

No Left Foot

Avoid using your left foot on the brake pedal. By braking only with your right foot, you can avoid pushing both pedals at the same time. Also, it becomes easier to resist unnecessary brake taps. You must have seen a lot of people braking with their left foot while driving; this takes a huge toll on the car's brakes.

Good Quality Brakes

Invest a little more in buying good quality brakes. Buying cheap brakes may save you some money, but only in the short-run, because you will need to change them more frequently. Eventually all brakes wear down, but the good quality ones last much longer than the cheaper ones. Generally, semi-metallic or hybrid brake pads are recommended over ceramic.

Memory Factor

Try to remember the places where other drivers inappropriately slow down. Most of these drivers brake for no apparent reason, but that does not mean that you have to slow down too. So you either coast down to the pace of the car ahead of you or plan ahead and change your lane around them. That way you not only save on fuel but brakes too.

Look Up and Save

Try to look far enough ahead and you'll be able to correctly guess the stoplights, see traffic backing up or see cars that are slowing on an incline that's just become visible. But Practice makes a man perfect, and once you have mastered the art of guessing the traffic lights correctly, you would save much on braking unnecessarily.

Lose Some Weight

It's always advised to rid your car of unnecessary stuffs. Aftermarket parts such as tyres and wheels, can add a lot of unnecessary weight to your car, which in return would take a toll on the brakes. More importantly, consider vehicle weight before your next purchase.

OVERVIEW

The New Verna also called as the New Fluidic Verna boasts of an aerodynamic design, superior interior, spaciousness, safety, and advanced technology. The New Verna is packed with various attributes including outstanding performance, innovative fuel economy, sophisticated security, and high levels of reliability. Offering sleek design, advanced technology and superior driving safety features.

This sedan is a cut above the rest, and a revolution ahead. The new Fluidic Verna is designed to set the next level of automotive excellence. The New Verna is available in a range of attractive colors including Steel Silver, Carbon Grey, Snow White, Phantom Black, Crystal White, and Fluidic.

THE ALL NEW HYUNDAI FLUIDIC VERNA



POWER TRAIN AND PERFORMANCE

The new Hyundai Verna, with aerodynamic efficiency at its heart, is a treat to drive. Verna's New Verna boasts of a 1600 cc engine, two petrol and two diesel, it is available in four petrol variants and four diesel variants. The Hyundai New Verna comes with two petrol engines, 1.4 VTVT (variable valve timing technology) that generates a power of 105.5 bhp @ 6300 rpm and a torque of 135.5 Nm @ 5000 rpm, while the 1.6 VTVT engine puts out a power of 121.5 bhp @ 6200 rpm and a torque of 154.9 Nm @ 4200 rpm. The diesel 1.4 CRD VGT (Variable Geometry Turbocharger) engine generates a power of 86.4 bhp @ 4000 rpm and a torque of 218.8 Nm @ 1750-2750 rpm, while the 1.6 CRD VGT engine puts out a max power of 128.5 bhp @ 4000 rpm and a torque of 239.8 Nm @ 1700-2750 rpm. Compliant to Euro V emission norms, the engine features advanced performance and self-cleaning fuel injectors. Both the petrol engines are equipped with a 5-speed manual transmission, while the diesel engines are mated to 8-speed manual transmission. However, the top end petrol and diesel variants of the Verna are available with an option of 4-speed automatic transmission.

The Hyundai Verna is a remarkable model from Hyundai in its own right segment. It is offering you in the current times. With a perfect blend of style, superior interior, outstanding performance, superior fuel economy, sophisticated security, and high levels of reliability it has lived the driving experience. The new Hyundai Verna is a testament to Hyundai's commitment in safety, appearance, performance and comfort.

SOME IMPORTANT FEATURES:

- ✓ 16" Alloy Wheels, Chrome Trimmed Dual Mirrors, LED Turn Indicators on Outer Mirrors
- ✓ Chrome Front Grille, Door Blinds (on Tera, Blue Interior Illumination and Two Tone Chrome Rear Grilles)
- ✓ Sun Diffuser with Tera
- ✓ Chrome Interior Package, Power Windows with Driver Side Auto Down
- ✓ Suspension Cluster, Automatic Air Conditioning
- ✓ Radio/Cassette (Auto DAB) Receiver
- ✓ Rear View Mirror (ECR), Electrically Foldable Outside Rear View Mirror
- ✓ Chrome Front Grille, Door Blinds (on Tera, Blue Interior Illumination)
- ✓ Blue Parking Sensors, Bluetooth Connectivity with Hands Free Call Controls
- ✓ MyKey Entry - Integrated in Folding Key, Auto Hold Ready

BUILD AND STYLING

As mentioned above in the overview, the new Hyundai Verna is a product of Hyundai's Fluidic Styling Philosophy. The Hyundai New Verna is probably the best-looking Hyundai in the current times. The new Verna is sleek, aggressive, rounded and sophisticated. It looks that Verna's design philosophy is fully in-line with the European design philosophy. The new Verna with its flowing features looks confident and life pleasing. The new Verna is a rich looking car with chrome-like features coupled with tastefully selected alloy wheels that give Verna a sporty stance.

SPECIFICATIONS

Engine Type	1.4, 1.6 VTVT Petrol
Displacement	1418 cc
Max. Power	105.5 bhp @ 6300rpm
Max. Torque	135.5 Nm @ 5000rpm
Transmission	5 Speed Manual
Fuel Tank	50L / 55 L
Ground Clearance	170 mm
Warranty	5 Year / 100,000 km
Price (ex-manufacturer)	Start 14.99 Lakh

The highlights of the new Verna pretty much resembles the new Hyundai i10's headlamps, Hyundai's exclusive, dual LED-based foglamps along the new Verna show sporty. The interior of the new Verna is also European in nature while designed to the new Fluidic Verna Philosophy. The interior quality is enhanced by leather with dark wood paneling the rest of the interior. The dashboard, legroom, armrests in the new Verna is quite spacious and certainly gives the a better feel. The electronically adjustable and power folded outside mirrors with turn indicators is a first in its class and just according to the interior of the new Verna. Verna being the first in its segment it can boast of such an advanced cluster with blue illumination, parking camera and sensors and so on.





GUESS WHO?

A well renowned auto pioneer hails from Mumbai who did his UG and masters from Harvard

QUIZ QUESTIONS

1. *Genesis of a Genius' is a book on which famous automobile designer?*
2. *Troller is an SUV maker of which country?*
3. *What is the nickname given to the car Nissan GTR?*
4. *In which country did the world's first organized motor race occur?*
5. *How many Ford Model T cars were produced between 1908 and 1927 was it 7, 11 or 15 million?*
6. *How did car manufacturer Charles Stewart Rolls die?*
7. *Who designed the Volkswagen Beetle?*

1. FERDINAND PORSCHE
2. BRAZIL
3. GODZILLA
4. FRANCE
5. 15 MILLION
6. IN A FLYING ACCIDENT
7. FERDINAND PORSCHE

TUBE WATCH



A SNEAK PEAK ON THE 2012 MERCEDES SLS-AMG ROADSTER

<http://www.youtube.com/watch?v=Fw2QO1NM6A&feature=share>

SNAPSHOTS

Powertrain Workshop
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Formula Jeppiaar Solid Model

Baja 2012- Our preliminary
PVC model



Spare Parts at a local hardware
store

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