

Sampark

SAEINDIA
NORTHERN SECTION

The Engineering Society
For Advancing Mobility
Land Sea Air and Space

It is my privilege to reach out to the entire SAENIS fraternity through 'Sampark'. This newsletter has been started with the intent of being a regular communication channel among members of SAENIS.

I thank the entire editorial team of 'Sampark' for their remarkable efforts, in bringing about 'Sampark' regularly every month, over the last year.

We at SAENIS believe in sharing knowledge among mobility practitioners besides grooming the student talent pool. For fulfilling these objectives we at SAENIS regularly organize Technical Seminars and Conferences. Events like Supra India, BAJA India, Efficycle and AWIM are being regularly conducted by SAEINDIA to promote innovation among students who are going to drive mobility in India in the years to come.

To make 'Sampark' a better communication channel, I earnestly request all the members to give their feedback and suggestion so that we can improve in terms reach to members, making 'Sampark' more informative and useful for members. Please feel free to give your feedback at www.saenis.org/feedback

Happy Reading!!

Sanjay Thakar
GM, MSIL
Vice Chair Conference & Communications
Editorial Board
SAE Northern India Section



SAENIS thanks all its members,volunteers and organizers for astounding success of SAE India International Mobility Conference 2012!!!!

In this Issue...

Chairman's message-----	1
BAJA SAEINDIA 2012 -----	2
Tech Buzz-----	2
Member's Corner -----	3



BAJA SAEINDIA 2012

BAJA SAEINDIA is an intercollegiate design competition organized by the Society of Automotive Engineers (SAE). Students from universities all over the world design and build off-road vehicle that can withstand the harshest elements of rough terrain. Organized at the NATRAX, Pithampur (Indore), Madhya Pradesh, this year's edition took place from 16th-20th Feb' 12 and saw a participation of 100 teams which were selected to participate in the main event after teams were eliminated in the Virtual BAJA round. The event comprised of static and dynamic events. The teams had to undergo technical evaluation and static check to first in order to participate in the dynamic events. There were a total of 96 judges from leading automotive companies like Cummins, Mahindra, NATRIP and Maruti. The judges checked the fitness of the vehicles. In the dynamic check, the vehicles had to go through maximum acceleration, brake test, slope test and maneuverability. This was followed by an excruciating durability test which lasted for 4 hours.

SRM University, Chennai emerged as the Overall winner of the 3-day event.

Cylinder Deactivation

TECH BUZZ

It is a method used to create a variable displacement engine that is able to supply the full power of a large engine under high load conditions as well as the fuel economy of a small engine for cruising.

In typical light load driving with large displacement engines (e.g. highway cruising), only about 30 percent of an engine's potential power is utilized. Under these circumstances, the throttle valve is only slightly open and the engine has to work hard to draw air through it. The result is an inefficient condition known as pumping loss. In this situation, a partial vacuum occurs between the throttle valve and the combustion chamber—and some of the power that the engine makes is used not to propel the vehicle forward, but to overcome the drag on the pistons and crank from fighting to draw air through the small opening and the accompanying vacuum resistance at the throttle valve. By the time one piston cycle is complete, up to half of the potential volume of the cylinder has not received a full charge of air.

Deactivating cylinders at light load forces the throttle valve be opened more fully to create constant power, and allows the engine to breathe easier. Better airflow reduces drag on the pistons and the associated pumping losses. The result is improved combustion chamber pressure as the piston approaches top dead center (TDC) and the spark plug is about to fire. Better combustion chamber pressure means a more potent and efficient charge of power is unleashed on the pistons as they thrust downward and rotate the crankshaft resulting in improved highway and cruising fuel mileage.



AFM - and switches back from 4 to 8 cylinders in high demand conditions (e.g. hill climbing)

AFM - Seamlessly switches from 8 to 4 cylinders in low demand situations (e.g. highway cruising)



Link for reference:

<http://alternativefuels.about.com/od/researchdevelopment/a/cylinderdeact.htm>

<http://oee.nrcan.gc.ca/transportation/ghg-memorandum/7702>

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