Abstract
DUE TO HIGHER EMISSIONS IN FOUR STOKE PETROL ENGINE WHEN THE FUEL IS IGNITED WITH ONE SPARK PLUG IT WAS THE NEED OF AUTOMOTIVE INDUSTRY TO INVENT SOMETHING LIKE DTS-I. DTS-I TECHNOLOGY USES TWO SPARK PLUG TO GIVE BETTER BURNING OF FUEL AND HIGHER EFFICIENCY. THE SPARK PLUGS ARE CONTROLLED BY THE MICROPROCESSOR TO CONTROL THE IGNITION TIMING AT DIFFERENT RPM’s

DTS-I TECHNOLOGY

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DTS-i ENGINE TECHNOLOGY

- Digital Twin Spark Ignition has two spark plugs that use to ignite the charge in the combustion chamber.
- 2 spark plugs at either ends of the combustion chamber help in faster and better combustion.
- It only use in the petrol engine.

DTS-i technology is used because in 4-stroke petrol engine at ignition time the air and fuel mixture does not burn completely. But when DTS-i system use in engine the rich mixture completely burn and the ignition time decrease. And power of engine increases
DTS-i engine is used in 4 stoke petrol engines and every cylinder has 2 spark plugs.
WORKING OF DTS-i ENGINE

When the rich mixture of air and fuel enter in the combustion chamber, the two spark plugs Fixed at opposite end of engine cylinder generated spark and this spark burn the mixture that burned mixture gives power to the 4-stroke engine. Here spark generated by the microchip.

HISTORY

This technology was first used by Alpha Romeo and was known as Alfa Romeo Twin Spark (TS) technology was used for the first time in the Alfa Romeo Grand Prix car in 1914. In the early 1960s it was used in their race cars (GTA, TZ) to enable it to achieve a higher power output from its engines. And in the early and middle 1980s, Alfa Romeo incorporated this technology into their road cars to enhance their performance and to comply with stricter emission controls.
**Dtsi technology -:**

- The DTSi - Digital Twin Spark ignition - Technology is a Revolution in the modern motorcycling era in the country today and we would be the first to offer it to our consumers. This offers phenomenal performance augmentation and is patented by Bajaj Auto.

- Twin Sparkplugs for faster and better combustion. Currently one spark plug at one end of the combustion chamber is the conventional practice. The flame front created by the spark takes some time to reach the farthest portion of the combustion chamber. This leads to slower burning of the Air-fuel mixture and creates limitations in optimizing the combustion chamber characteristics. 2 spark plugs at either ends of the combustion chamber help in faster and better combustion. This combustion process of Twin Spark plugs is being patented by Bajaj Auto Ltd. (Digital Twin Spark ignition)
• Ignition with a Digital C.D.I.
  A Digital CDI with an 8 bit microprocessor chip handles the spark delivery. The programmed chip’s memory contains an optimum Ignition timing for any given engine rpm, thereby obtaining the best performance characteristics from the combustion chamber. Working together with the TRICSIII system, it delivers Optimum Ignition Timing for varying load conditions.

• TRICS III.
  Throttle Responsive Ignition Control System IIIrd generation. It is a means of controlling the Ignition by operating the Throttle. Depending on the needs of the Rider whether it be cruising, acceleration or max speed, the ignition requirements constantly change. Based on a particular amount of Throttle opening, the Magnetic field generated by the Magnet opens or closes the Reed switch. The Reed switch is connected to the Digital CDI, which signals the CDI to change/switch, the desired Ignition Advance Timing Maps. This helps in achieving a good balance between driveability
and Optimum Ignition Spark advance, resulting in an almost perfect Ignition Spark advance for every Throttle opening and Engine rpm.

- Constant Velocity (CV) Carburetor: The CV carburetor continues to provide high level of performance.

**DTS-i CONSTRUCTION**

**DTSI ENGINE:**

A patented technology that has made Pulsar the most A patented technology that has made Pulsar the most followed bike both on the road and in competition R&D labs.
At the heart of every Pulsar is one of the most sophisticated engine technology this country has ever built. The DTS-i System. A technological marvel that ensures maximum performance with the lowest consumption and emission levels possible.

TRICS III

Power and torque requirements constantly change, depending on whether the rider is cruising, accelerating or is at high speeds/max speed.

Throttle Responsive Ignition Control System - III is an intelligent system which can quickly adapt ignition timing to suit different riding characteristics.

Benefit:

- TRICS III helps in achieving a good balance between low-to-mid range torque and top-end power.
- This helps to ride easily in different conditions like flyovers, hilly areas, dense traffic and highway cruising
The Intelligent Capacitor Discharge Ignition contains a microprocessor, which continuously senses different speeds and load on engine and responds by altering ignition timing.

Working together with the TRICSIII system, the microprocessor's memory provides optimum ignition timings for any given engine rpm, thereby obtaining the best combustion performance.

Benefit:
Improves fuel-efficiency and reduces engine noise and vibration through smoother power delivery.
EXHAUST TEC

Exhaust TEC is a device incorporated in the exhaust system. TEC stands for Torque Expansion Chamber. It is a tuned box (resonator) fitted onto the header pipe of the exhaust.

In the lower rpm zones, the Exhaust TEC helps to build a negative pressure pulse (vacuum) at the exhaust valve, thereby sucking in more air-fuel mixture into the cylinder during intake valve opening.

Benefit:

- Exhaust TEC produces high torque.
- Frequent gear shifting is not required in traffic, as vehicle has ability to pull in higher gears even at lower speeds.