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A CASE STUDY ON EMISSION IN SPARK IGNITION ENGINES AND THEIR CONTROL FACTORS

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Abstract: Now a days many automobile industry working to trying reducing emission from vehicle, mostly of them used alternate fuel but its not sufficient some more reasons are to increased pollution. We are trying to reduced emission from vehicle to used devices or improving octane number of petrol fuel. In this paper we show that how we increased performance of engine with reducing of gases. It is clearer that many gases are present in exhaust gases and to find out how much percentage contribution each gas is to be calculated by catalytic convertor. Our object is to aware the sources for how we reducing the exhaust gases and decreased the temperature of global warming.

Keywords: Causes of Emissions and Controlling Methods

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INTRODUCTION

Every engine life is depends on many factor in which one of the factor is exhaust emission it is ma major cause of recently increased the pollution in environment. Most of the researcher is found that improper combustion of fuel and improper mixing of air-fuel ratio or low rating of octane numbers is cause for it.

The alternative is now used to reducing petrol and diesel due to lack of availability and we calculate that after20 years very less percentage of fuel is available in earth. So we are improved efficiency of engine by reducing emission so that such tpe of technique is used catalytic convertor, blends, dual spark plug concept etc.

In this paper all techniques used most of them we focusing on concept of dual spark plug and how to increased octane rating of fuel. For investigation we are found that carbon deposition in engine cylinder give major caused for improper combustion because during expansion process piston comes from BDC to TDC in between when piston moves upwards direction due to deposition of carbon temperature already rise and when fuel mixture entre the camber already some fuel is burning and remaining fuel is burning after that so total fuel is not bur in same time which increased emission more to reducing we take dual spark plug concept in which all furl burn properly and reducing chances of emissions is high. The catalytic convertors it help identify how much percentage contribution of each gases are present tin emissions.

Causes of emission

1. Unburnt hydrocarbon (HC)
2. Improper mixture of fuel
3. Deposition of carbon composition in cylinder
4. Exhaust process is not being completely held on etc.

Emission Control Method

1. **Catalytic Converter: -** A catalytic is a device used to reduce the toxicity of emissions from an industrial combustion engine. In which oxidize the effluents like COx, NOx and He to CO_2, NO_2 etc. are calculated how much percentage of gases are present in total emission with the help of highly detective sensors. This device is normally used now days for find out the engine performance or engine life. The automobile industry tae care specially engine design to provide long life without too much emission.

2. **Exhaust Gas Recirculation**: - In this Process the exhaust gases is reused again transfer to inlet valve for increasing temperature of gases initially for better combustion and reducing the percentage of emission. Now a days this methods is mostly used in automobile sector due to its better advantages. It help to reduced emission approximately 30 percent from total emission out to exhaust chamber.

3. **By increasing Octane Rating number: -** In SI engine the petrol quality is checked by their octane rating of fuel at he high presences of octane number more chances the performances of engine high or long time survival. It is clear that some researcher in this field they found octane number is not only a single criteria for performance its also depends upon air quantity presence is sufficient or not with hydrocarbon because in some case lack of air is reason to not burning of proper fuel due to combustion process is incomplete and causes to increase emission, So for reducing emission octane rating play a also important role maximum octane presence reducing of emission is more.

4. **Concept of dual spark plugs: -** Many automobile industry working on dual spark plug for last few years due to it found that combustion process is proper and less emission is occur, various methods are presort for reducing emission but this concept is used for completed combustion held on combustion chamber. In some cases found that during suction process the air fuel mixture comes inside the chamber and spread out but some portion of chamber is not cover so it's being a reason of incomplete combustion. For that this problem researchers found out a dual spark plug technology its very help full complete burning of fuel on whole cylinder.

CONCLUSION

1. It expressed in the paper by applying the sudden above method the emission should be controlled.
2. The low fuel octane number is a cause difficulty in the beginning of the operation and the delay is accelerating the result of self-primers for fuel and the occurrence of knock.
3. For reducing emission dual spark plug concept is also helpful for complete combustion of fuel and its help also for providing high speed vehicle.
4. Some detective device like catalytic convertor help full for find out percentage how much quantity of different gases present in exhaust gases

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