

# **FINAL PROJECT REPORT**

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**TO INVESTIGATE AND DIAGNOSE THE ENGINE  
PROBLEMS AND USED IT AS A STUDY PURPOSE**

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## **ACKNOWLEDGEMENTS**

**‘ IN THE NAME OF ALLAH SWT, THE MOST BENEFICIENT AND MOST MERCIFUL ‘**

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## **ABSTRACT**

As an auto mechanic, we will need knowledge, diagnostic skills and repairing skills. As a mechanic, we must check automotive systems to find the causes of many kinds of problems. But that is not enough. We must check related systems and components to be sure that the problems will not occur again. This kind of checking requires a skill called diagnosis.

In this project, we got an old engine model Triumph Spitfire Mk4 (1296 cc) and it's in a poor condition. Two of the cylinders, i.e. cylinder 1 and 2 are rusted and piston number 3 and 4 are seized. The cylinder liners are full of water. From the history of the engine, we come to know that the engine was overheating while running. So we need to find out, why and where are these problems occur. From our diagnose, we found that the cause of this problem is coming from the **COOLING SYSTEM**. Hence, we investigate the cooling system and try to find out the problems by the help of the symptom from the engine.

This engine is an old model design and has a simple arrangement. Therefore, we want to use the major parts of the engine as a study purpose for other students who want to know about the systems in the engine. We hope that it will be a useful learning material to the next UiTM students.

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# ENGINES

The engine of a motor vehicle has captured the interest of motor mechanics more than any other automotive component. Engine designers share this fascination, as engine development has proceeded almost non-stop since the first engines wheezed and clanked into motion. Engines has been designed with one cylinder to as many as thirty-six cylinders. They have also been manufactured in many shapes and sizes. Different types of engines have run on petrol, kerosene, methane, propane, hydrogen or safflower oil. Many of the shapes, designs and fuels have proven impractical for everyday use. The purpose of this chapter is to illustrate the types of engine that became accepted and have found widespread commercial application.

## COMPONENT IDENTIFICATION

Modern automotive engine components are manufactured and assembled to exacting specifications. The correct identification of these components is essential for:

- Understanding the operation of the engine
- Ordering replacement parts.

## MAJOR ENGINE PARTS

Of the major parts of an automobile, its take many parts. However, to build a complete engine that will do useful work. The following parts are common to typical four-stroke internal combustion engines.

## THE FUNCTION OF COMPONENTS

The **cylinder block** is usually manufactured from iron or aluminium castings and forms the main body of the engine. A number of circular holes (cylinder bores) are machined vertically through the block and the lower block section (crankcase) is reinforced to provide the engine structure. All other components are housed in or mounted on this unit.

