WORKSHOP MANUAL

SPRITE

Marks II and III

MIDGET

Marks I and II

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INTRODUCTION

This Manual has been prepared to provide service operators with the necessary information for the correct maintenance and repair; it also serves as a ready-reference book for service supervision and covers items of procedure for guidance of both the fully qualified and the less-experienced mechanic. The pages and illustrations are numbered consecutively within each Section, and the Section title and letter are shown at the top of each page.

Maintenance items within the Sections should be carried out at the intervals specified in the Passport to Service or Driver's Handbook.

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Getting the Best from your Car

(Compression ratios 8·9:1 and 9:1)

The high-compression engine is a highly developed unit, and it is essential that you should know something about the specialized maintenance it requires if you are to maintain it at the peak of its mechanical efficiency. Special recommendations on the sparking plugs, ignition settings, and fuel to be used are given by the manufacturers, and it is stressed that failures are bound to occur if these are not strictly adhered to. Particular care is needed with this engine owing to its high compression ratio, which makes it extremely sensitive to variations in fuel, ignition timing, and the heat range of the sparking plugs.

In lower compression engines a much wider range of fuels can be tolerated without causing serious damage to the engine, and ignition settings will stand variations of a reasonable amount. Also, even if the incorrect sparking plugs are used, no more damage may be incurred than burnt-out plugs or leaky valves. But with an engine having a very high compression ratio the range of fuels, sparking plugs, and ignition settings is much narrower and it is essential that the mixture should always be correct, and particularly never overweak at maximum load or power.

High-compression engines are very sensitive to variations in spark advance (over-advance) and to fuel/air ratio (mixture). Variations in these settings will increase the combustion temperature, and if the variation is excessive pre-ignition will cause high shock waves, resulting in damage to the engine.

The engine should be decarbonized at regular intervals as excessive deposits of ash from the combustion of lubricating oil and fuel can cause pre-ignition difficulties.

Choice of fuel

When fitted with H.C. engine (*compression ratios* 8·9 : 1 *and* 9 : 1)

The octane number of a motor fuel is an indication given by the fuel technicians of its knock resistance. High-octane fuels have been produced to improve the efficiency of engines by allowing them to operate on high compression ratios, resulting in better fuel economy and greater power. Owing to the high compression ratio of this engine, fuels with an octane rating below 98 are **not** suitable; should it be necessary to use a fuel with a lower octane number, the car must be used very carefully until the correct fuel can be obtained.

It is necessary to use Super grade fuels in the 100-octane range unless Premium fuels of minimum 98-octane Research are available.

When fitted with L.C. engine (*compression ratios* 8·1 : 1 *and* 8·3 : 1)

Premium fuels of minimum 93-octane Research up to 97-octane are required, with preference to 95/97.

Super grade fuels in the 100-octane range can be used if preferred.

Sparking plugs

The correct grade of sparking plug for use under normal driving conditions is the Champion N5. Plugs of a lower heat range (hotter running) should not be used, otherwise pre-ignition will occur, with consequent rise in combustion temperature and resulting engine damage. For competition work or hard driving where high output is consistently sustained the Champion N3 sparking plug should be used. This is a cooler-running plug and will ensure lower combustion temperatures and an increased margin of safety. Accumulated deposits of carbon, leaking or cracked insulators, and thin electrodes are all causes of pre-ignition. The plugs should therefore be examined, cleaned, and adjusted at the specified intervals and defective ones renewed. New plugs should be fitted at regular intervals.

Ignition setting

It is of the utmost importance that the correct setting should always be maintained. It will be appreciated that any variation in the contact breaker gap will affect the ignition setting, and your particular attention is called to the check and adjustment of the distributor points specified in Section B. After adjusting the contact breaker gap to the correct setting (see **'GENERAL DATA'**) it is advisable to check the ignition timing, and to correct it if necessary.

An accurate static check can be carried out by a very simple electrical method. To do this, connect a 12-volt lamp between the low-tension terminal on the side of the distributor and a good earth point on the engine. With the ignition switched on and the sparking plugs removed, turn the crankshaft until the crankshaft pulley T.D.C. pointer is exactly at the correct number of degrees as stated under **'GENERAL DATA'.** If the ignition timing is correct the lamp will light at exactly this point. Any discrepancy in the ignition setting can be rectified by turning the vernier adjusting nut on the distributor until the test lamp lights at exactly the correct setting. If pinking should occur due to the use of a fuel of a lower range than our recommendations, retarding the ignition 2 to 3° can be tolerated. Under no circumstances should the ignition be advanced beyond the correct setting.