



- Connecting Rods: Material EN.24. Length, centre to centre 4.826"  
End play .002"/.006". Shells - Trimetal (steel backed).
- Valves - Inlet: Material Nimonic alloy. Head diameter 1.40".  
Seat angle 45°. Stem dia. 9/32" nominal.
- Exhaust: Material Nimonic alloy. Head diameter 1.25"  
Seat angle 45°. Stem dia, 9/32" nominal.
- Valve Springs: Double Springs, outer variable-pitch wound,  
Rate 260 lb/in. Free length 1.65", fitted  
length 1.29"/1.31" (both measured on outer).  
Close coils to be fitted at head end.  
Hardened steel spring cups and titanium retainers.
- Pistons: Special Cosworth/Hepolite, forged in RR59:  
one compression ring, one oil control ring.  
When fitting crown to be .002" - .004" down bore  
at T.D.C.
- Gudgeon Pins: Hollow taper bored. Ground o/d. 13/16" dia.  
nominal. Clearance .0002" - .0005". Retained  
by flat circlips.
- Compression Ring: Material C.I. Plain high radial pressure.  
Ring gap .019".
- Oil Control Rings: Two separate scrapers in single groove.
- Water pump: Driven by toothed steel pulleys and belt.
- Lubrication: See diagram - page 5.  
Dry sump full pressure system.  
Main bearings - pressure fed.  
Connecting rods - pressure fed.  
Gudgeon pins - splash.  
Cylinder walls - splash.  
Camshaft Bearings - pressure fed.  
Tappets - jet and splash.  
Timing gears - jet and splash.
- Oil Pumps: 'Hobourn-Eaton' type, Cosworth designed, mounted  
integral with timing cover.
- Oil Filter: Not supplied with engine. Should be full-flow  
with special felt cartridge, and by-pass valve  
blanked off.
- Ignition: Lucas. Opus 3 transistorised. Rotation anti-clockwise  
(looking from rotor arm end.) Firing order 1 2 4 3.  
For wiring diagram see Page 4.

Carburation: Weber 40 DCOE using one choke, mounted on adaptor with regulation 30 mm x 3 mm orifice. Machined for 'O' ring flexible mounting.

Inlet Manifold: Cast aluminium alloy

modatek

MAINTENANCE AND RUNNING DATA

Oil Pressure: 70 min. p.s.i. - 80 - 85 p.s.i. normal at running speeds.

Max Oil Temperature: 100° C. Measured in tank.

Tappet Clearance: .018" - .019" exhaust (cold)

Note: Engines before No. MAE 66037 have KE 965 Inlet Valves and tappet clearance (cold) should be .014" - .015". Engines after No. MAE 66037 have nimonic valves and tappet clearance (cold) should be .011" - .012".

Oil: Vegetable 30. Mineral 40/50 S.A.E. Running at 90 - 100° C. Any oil starvation will cause big end shell failure.

Fuel: Normally Esso Golden Extra, but any equivalent should be satisfactory.

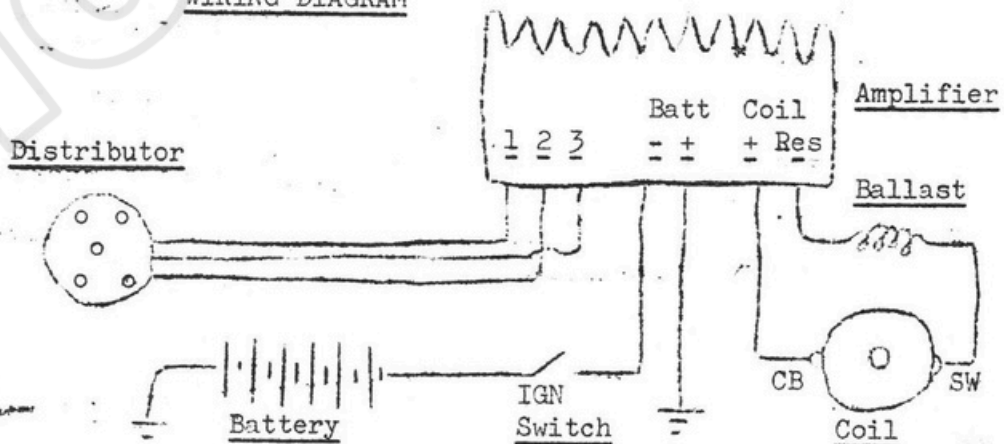
Carburettor Mounting: The nuts should not be tightened right down, but a gap between the manifold and the carburettor faces should be left to allow the rubber 'O' ring to take up vibrations. The nut on the forward end of the manifold adaptor should not be tight, but allow .015 Feeler between washer and manifold.

Ignition Timing: Marks in distributor line up when No.4 cylinder is about to fire, approx. 40° B.T.D.C. - N.B. Line up notch in crank pulley rear flange with centre of web on front cover.

Lucas Transistor Assisted Ignition Opus 3 - 12 volt  
This equipment replaces the earlier type of contact breaker ignition and comprises four main parts: distributor, amplifier, coil and ballast.

The Amplifier. is a separate unit having seven Lucar terminals and provision for bolting to the car chassis. This unit should preferably be kept cool.  
Coil and Ballast. should be mounted together as in the wiring diagram and it should be noted that the coil is type S.A. 6 or marked lutronic 12v.

WIRING DIAGRAM



Notes: It is most important that the battery is connected with the correct polarity (which is positive earth). The three wires coming from the distributor are all numbered and it should be noted that No.3 is connected between Nos. 1 and 2. This is so that Nos. 1 and 2 wires are kept apart.

Sparking Plugs: Lodge 10RL 50 or equivalent.

Bolt and Nut: Cylinder Head 70 - 75 lb. ft. torque

Tightnesses:

Main Bearing Cap	55 - 60 lb. ft. torque
Rocker Pillar Bolts	35 - 40 lb. ft. torque
Big End	43 - 45 lb. ft. torque
Flywheel to Crank	45 - 50 lb. ft. torque

Head Tightening: Number bolts starting from 1 - 5 on manifold side. 6 - 10 on distributor side, then order of tightening is 8, 3, 7, 4, 9, 2, 10, 1, 6, 5.

Rev. Limits: Safe limit 9,500 r.p.m. 9,000 in first and second gears. Do not allow the engine to 'tick-over' for long periods. Running below 3,000 r.p.m. will shorten camshaft life.

OILING CONNECTIONS

