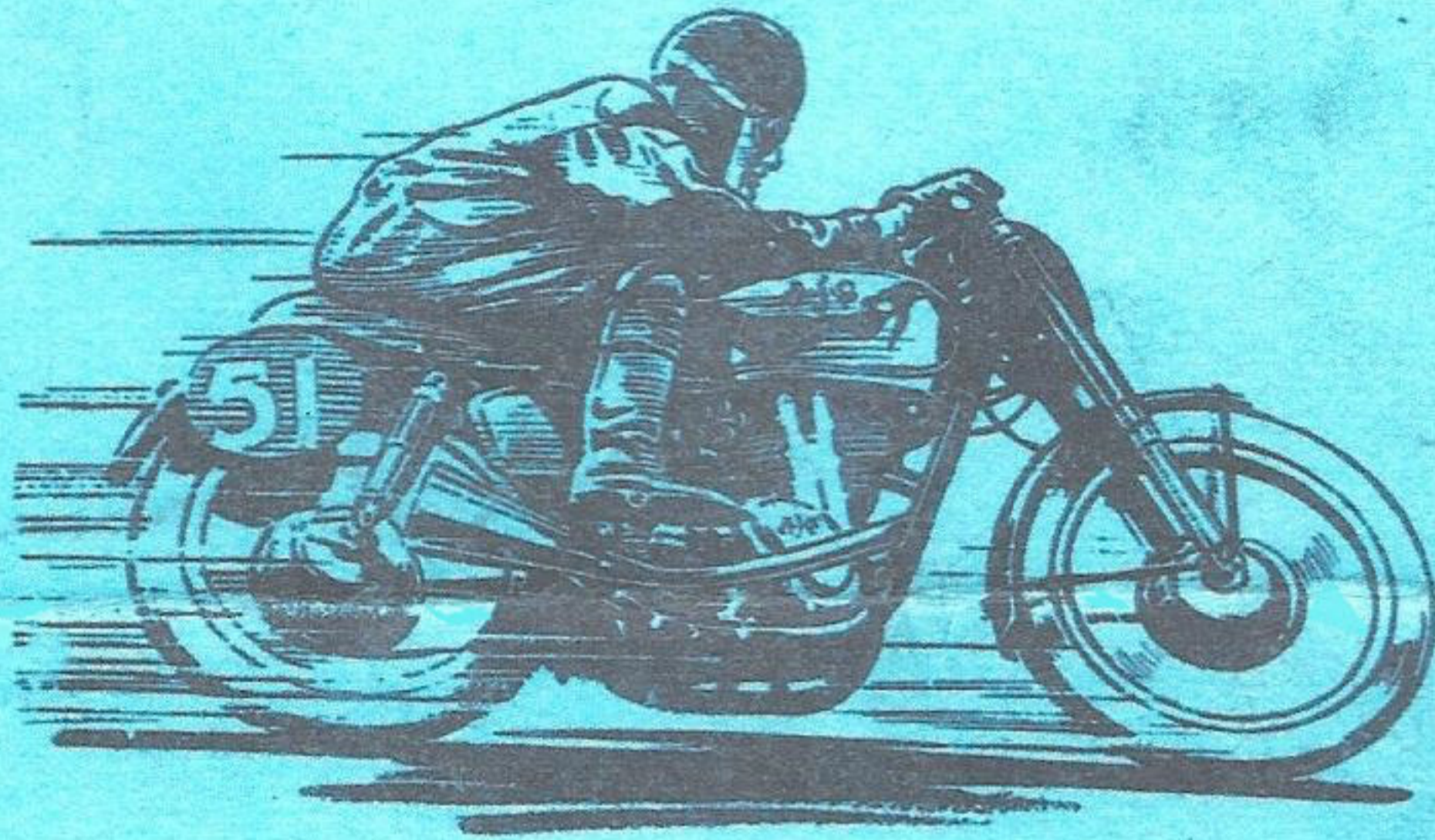


AJS



MODEL 7R. 348 C.C. O.H.C.
RACING MODEL INSTRUCTION SHEETS

— Motor **AJS** Cycles —

PLUMSTEAD ROAD · LONDON · S·E·18



SPECIFICATION AND TECHNICAL DATA

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ENGINE

Single cylinder - chain driven O.H.C.
Bore 75.5 m.m. (2.972") Stroke 78 m.m. (3.070")
Capacity 349 cc. (21.35 cu.in.)
Compression ratio 11.5 : 1.
Fuel Petrol 100 octane (RM)
Oil Castor base racing oil.
Carburettor Amal 1 $\frac{3}{8}$ " type 5 G.P. (see notes on carburation)
Remote mounted top feed float chamber.
Magneto Lucas racing - type 2 MIT.
Sparking Plug K.L.G. type. E258/2

FRAME

Welded duplex cradle type.
Front forks Patented Teledraulic.
oil capacity 200cc. (7 fluid oz.) in each leg.
Use oil SAE.5.
Rear suspension units - sealed racing Girling.

Gear Box A.J.S. racing type 4 speed. 4 plate clutch.
Gear box lubrication 1 pint S.A.E. 50 mineral oil.
Overall gear ratios (suitable for I.o.M.)
Top 4.88 : 1. Third 5.36 : 1. Second 6.49 : 1. Bottom 8.7:1.

Standard sprockets
Engine 23T, Clutch 42T, Gearbox 21T, Rear wheel 56T.

Transmission chains
Primary $\frac{1}{2}$ " x .305 - 72 links.
Secondary 5/8 x .305 - 112 links.

Chain lubrication
Oil contained in frame top tube. Filled through nozzle on L.H. side of steering head. Tap, for convenience when servicing and overhauling, adjacent to seat nose (normally left turned ON).

Another tap for general use situated above twin feed block. This must be turned OFF when machine is stopped.

Jet size 20 suitable for SAE 30 mineral oil, is fitted as standard but this may require altering to suit varying temperature conditions.

Front number plate
In glass-fibre material incorporating tachometer mounting and transparent face screen.

Racing seat
Constructed of glass-fibre, padded with sponge rubber and covered with leather cloth.

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<u>Fuel Tank</u>	Light alloy	5.3 gallons.	24 litres.
<u>Oil Tank</u>	Light alloy	1 gallon.	4.5 litres.
<u>Wheels</u>	Light alloy rims. Front W.M.1. Rear W.M.2.		
	Tyres Front 2.75"x 19" Rear 3.25" x 19"		
<u>Brakes</u>	Front brake	-	Double leading shoe type.
	Rear brake	-	Conventional single cam.

NOTE:

The front brake link rods must not be adjusted except when relining. After relining and turning the front brake linings, subsequent adjustments must be made only on the cable. The leading ends of the liners should be kept well "backed off" and this relief must be maintained at all times. The rider will realise that as the liners wear so the relief becomes less.

Total dry weight of machine as delivered - 286-lbs.

NOTES ON CARBURATION

Carburettor Amal 1 $\frac{3}{8}$ " Type 5 G.P.

Throttle Valve

No.5 throttle valve is fitted as standard but as the optimum one depends partly on the driving technique of the individual rider it is possible that either No.4 (less cutaway) or No.6 (more cutaway) might give better results in certain cases. Generally however, No.5 will provide the cleanest "opening up" with minimum "megaphone effect".

Needle

The standard fitting is 5 G.P/6.

It should be realized that the needle position influences the selection of the throttle valve to some extent. The standard position for the needle is in the middle notch (or third notch from top) but if for example, the needle is raised to the fourth notch from the top, although the mixture strength will be increased mainly in the speed range corresponding to about 2/3 full throttle, a small enrichment will be noticeable also in the first third of throttle opening. In this case a No.6 throttle valve could provide a compensating effect. It is unlikely that it should be necessary to lower the needle below the third notch in any circumstances and generally, a 5 G.P/6 needle in the third notch should give best results.

Pilot Jet

It is important that the pilot jet should be carefully adjusted. The slowest possible, regular 'tickover' should be obtained: then slightly enriched by one or two notches on the finger adjuster.

(Screw IN to weaken, screw OUT to richen)

When once set satisfactorily, do not readjust unnecessarily.

It is desirable to realise that each adjustable point, viz pilot jet, throttle valve and needle, have some (though small) effect on the other settings.

Main Jet

The standard main jet fitted is 330. However, engines are accepted for rated power output and specific fuel consumption having main jets varying between 320 and 340. This is invariably due to changes in ambient temperature and air density, e.g. when the barometer is 'high' and air intake temperature 'low' a 340 main jet gives the best power output: conversely, a 320 jet might be necessary to restore maximum performance. The range between 320 and 340 covers all normal atmospheric changes and should not be exceeded.

Fuel level

The fuel level should frequently be checked to ensure that the standard setting has not inadvertently been disturbed. When the machine is standing on level ground and upright, the level should be in line with the bottom of the circle inscribed on the air jet cover plug. This is conveniently achieved with the aid of a length of transparent tubing attached to the float chamber outlet. An alternative but less accurate method is to remove the air jet plug and lean the machine over at about 10° from the vertical. At this angle petrol should just "weep" through the air jet.

Air jet

This jet has the effect of providing some compensation for the varying air and fuel flow characteristics as gas velocity increases with the engine speed. The standard air jet fitted is a .136, e.g. the diameter of the orifice of the jet is .136". Any change will adversely effect other settings so that no alteration is in this respect recommended.

NOTES ON IGNITION SETTING AND VALVE TIMING

The ignition point is critical. The optimum setting is 34° b.t.d.c. when the contact breaker points are set at .012". If the contact breaker gap varies, the ignition point varies. If it is suspected that the ignition angle is not precisely 34° it should be checked and if necessary reset after ensuring that the contact breaker points gap is set at .012".

Sparking Plug

K. L. G. type E.258/2 sparking plug is fitted as standard.

(Only this particular type will enable full power output to be developed)

Valve Timing

If the engine has been dismantled and the original timing lost, it is necessary to mount a Test Dial indicator on a suitable bracket in order to read, accurately, the valve movement in relation to crank angle. This latter should be set by means of a degree plate on the drive side mainshaft. Top dead centre can be found by means of a special tool screwed into the sparking plug hole. This tool can easily be made up since it merely consists of an old sparking plug body into which a length of rod is attached. When the tool is screwed into the sparking plug hole, the length of the rod is such that the end touches the piston about $\frac{1}{4}$ " before t.d.c. Thus, in finding true t.d.c. the degree plate is adjusted until 0° is opposite a pointer attached to the crankcase at exactly half the total crank angle permitted by the protruding rod.

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The timing of the valves is performed with standard tappet clearances, i.e. .008" inlet and .012" exhaust (engine 'cold')

Inlet opens	..	53 to 56 degrees b.t.d.c.
Inlet closes	..	75 to 78 degrees a.b.d.c.

The highest or 'peak' lift should occur at 77° to 80° before b.d.c.

Exhaust opens	..	75 to 78 degrees b.b.d.c.
Exhaust closes	.	43 to 46 degrees a.t.d.c.

The highest or 'peak' lift should occur at 75° to 78° after b.d.c.

Manufacturing tolerances on the cams and valve operating mechanism are held to close limits. Nevertheless, the building up of these tolerances can account for small differences in the precise opening and closing points of the valves as between one engine and another. The valves therefore, should be timed within the limits given, aiming at the mean.

NOTE: In order to obtain a definite reading on the Test Dial indicator, the first .001" movement should be considered as the datum by adjusting the clock pointer to zero when the actual lift shown is .001"

POWER RANGE AND GEAR RATIOS

The top gear ratio should be selected which will allow the engine to run generally between 7300 rpm. and 7900 rpm. and 8000 rpm. must be considered as the upper limit for a very short time, since at this speed power output tends to fall off. The 'mean' rpm. to aim for when selecting the top gear ratio should be 7600 rpm. this giving a margin of 300 rpm. above 7600 rpm. for downhill and following wind conditions while 300 rpm. below 7600 rpm. still provides nearly maximum power and improved torque for uphill and head wind work in top gear. The best average speed should be obtained by gearing as suggested above.

ATTENTION TO TRANSMISSION PARTS

Adequately lubricated chains and sprockets in good condition and in perfect alignment and adjustment have a very high mechanical efficiency, but a rapidly increasing loss in efficiency and a corresponding reduction of effort at the rear wheel takes place when quite small defects in lubrication, alignment and adjustment appear. This point is made in order to emphasize a recommendation that as much care should be given to ensuring a minimum loss of power in transmission as is usually given to obtaining maximum engine power output.

Tyre pressure has an effect on tractive resistance which is not generally appreciated - it is relevant therefore to consider this aspect under the heading of "transmission parts". The highest pressure consistent with riding comfort on wet or dry road surfaces should always be employed. The tyre manufacturers recommendations should be followed as closely as practicable.

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