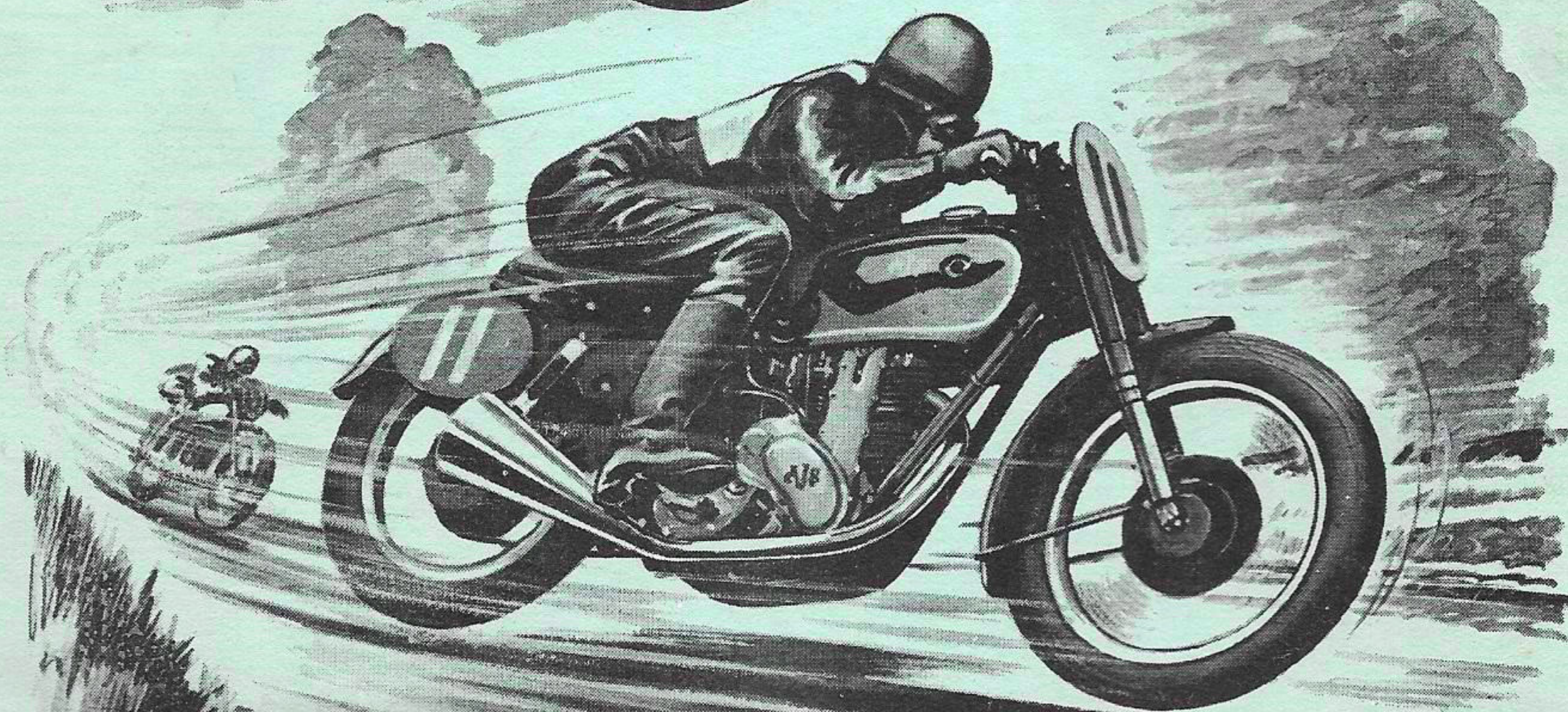


AJS



*The Race-bred
Motor Cycle*

INSTRUCTIONS & TECHNICAL DATA

ENGINE

CARBURETTOR

NOTE: -

SPARKING PLUG

- KLG. 689.

MAGNETO

BTH. type M.D.1. or Lucas NTT.1.

VALVE TIMING

Inlet	Opens	61°	B.T.D.C.	Closes	71°	A.B.D.C.
Exhaust	Opens	74°	B.B.D.C.	Closes	44°	A.T.D.C.

VALVE ROCKER

CLEARANCE

For timing and tuning Inlet .005" Exhaust .014"

OIL

- Castor base racing oil.

FUEL CONSUMPTION

Approximately 40 m.p.g. on average circuit at
Racing speeds.

ENGINE R.P.M.

- Motor to be raced as near to 7000 r.p.m. as possible. R.P.M. should not exceed 7400.

PRIMARY CHAIN LUBRICATION

- Oil is fed from bottom of oil tank through a jetted on-off tap. Standard Amal jets of from 80 to 110 are suitable according to temperature conditions, the smaller sizes being used in hot weather or on small circuits with low gear ratios. The flow of oil should be controlled to 15-20 drops per minute after the motor has been thoroughly warmed up.

FRAME

- The Frame and suspension system has been specially developed for racing.

FRONT AND REAR

SPRING UNITS

- are filled with Mineral Oil as follows:

Front Forks 250 cc's ($8\frac{3}{4}$ fluid ozs) oil each leg.

Rear suspension .. 85 cc's (3 fluid ozs (max.)) oil each leg.

Recommended brands. Castrolite, Single Shell, Mobiloil "Arctic"
Essolube 20, Motorine 'E'.

continued ..

TYRE PRESSURES

Front Dunlop ribbed racing tyre 21" x 3.00" = 21-lbs.
Rear Dunlop studed racing tyre 20" x 3.25" = 21-lbs.

GEAR RATIOS

Standard gear ratios 5.24, 5.95, 7.07, 10.14.
Standard sprockets, 21-tooth engine, 55 tooth rear wheel.
44-tooth clutch, 22 tooth gear box.

ALTERNATIVE GEAR RATIOS

<u>Engine Sprocket</u>		<u>Rear Wheel Sprocket</u>		<u>Top Gear</u>
22	.....	56	.....	5.08
21	.....	54	.....	5.14
22	.....	57	.....	5.18
21	.....	55	.....	5.24
21	.....	56	.....	5.33
20	.....	54	.....	5.40
21	.....	57	.....	5.43
20	.....	55	.....	5.50
20	.....	56	.....	5.60
19	.....	54	.....	5.68

GEAR BOX RATIOS

<u>TOP</u>	<u>THIRD</u>	<u>SECOND</u>	<u>BOTTOM</u>
1 to 1	1.136 to 1	1.35 to 1	1.936 to 1

6.750 r.p.m. with top gear of 5.24 represents 100 m.p.h.

GEAR BOX

Correct amount of Lubricant 1 pint Summer Grade Mineral Oil.

WEIGHT AND TANK CAPACITIES

Approximate weight (tanks empty) .. 298-lbs. or 135 kilos.
Fuel tank capacity 4.75 galls or 21.5 litres.
Oil tank not to have more than .. 1 gall. or 4.5 litres.

COMPRESSION RATIOS

<u>FUEL</u>	<u>Comp. ratio.</u>	<u>Piston Part No.</u>	<u>Main Jet</u>	<u>Needle Jet.</u>	<u>Magneto Timing B.T.D.C.</u>
72 Octane ...	8.45-1	014081	320-350	109	40°
80 Octane ...	9.5 -1	016832	320-350	109	40°
50/50 Petrol- Benzol ...	10.75-1	014526	320-350	109	37°
90% Methanol- 10% Benzol ...	13.0 -1	016417	750-850	118-120	35°

(These pistons are also suitable for '49 and '50 type engines)

BRAKES

These are special A.J.S. double leading shoe brakes adjusted and ground before assembly to machine. Link rods between two brake levers on each hub are not to be adjusted except when relining brakes.

Important:

The leading ends of the brake liners must be kept well "backed off" and this relief must be maintained at $1\frac{1}{2}$ " at all times. The rider must bear in mind that as the liners wear, so the relief becomes less.

The A.J.S. double-leading shoe brakes are exceedingly powerful and light in operation and care should be taken before employing the full braking which is available. The rider is strongly advised to learn the 'feel' of the brakes before taking part in serious racing.

M A I N T E N A N C E (MODEL 51/7R)

Following notes will ensure quick and safe adjustments and replacements to be made and are intended only to cover items of unusual design calling for a special sequence of operations not immediately obvious on inspection:

1. Removal of cylinder head for grinding in valves, etc.,

Remove domed cap on camshaft chaincase. Do this slowly and carefully to ensure retention of camshaft oil feed bush in domed cap.

Remove chaincover. Remove two nuts at end of camshaft and then washer carrying driving peg for camshaft sprocket taking care to mark timing. This can best be done by marking the sprocket hub through the holes in the sprocket each side of one from which peg is withdrawn and by marking this hole only on the sprocket. The correct setting can then be selected on re-assembly by lining up the markings.

Remove engine steady plates from top of cam box and all bolts holding cam box to cylinder head, leaving four extended head bolts in the middle until last.

(When re-assembling fit these first, using pressure to squeeze rubber ring between cam box and chaincase to allow bolts to screw into cylinder head by hand. It is important that these bolts shall assemble freely to avoid damage to threads in cylinder head)

Remove cam box while sliding chain sprocket off hub and as soon as sprocket is clear, fit support tool provided in tool list to hold sprocket in position.

Use long box spanner provided to loosen four nuts holding cylinder head after removing carburettor control wires and slides from carburettor and disconnecting exhaust pipe by slackening clips to frame and megaphone and undoing cylinder head nut using special pen spanner provided.

2. Adjustment of camshaft chain tension before fixing cam box finally.

When cylinder head has been replaced, slide cam box into position without shims and slip sprocket on to camshaft. Check thickness of shims required to tighten chain until $\frac{1}{4}$ " dia. bolt will just slip between chain tensioner blade and the long coil spring which forces blade against chain.

If it is necessary to add more packing to the shims already provided, there is a laminated shim supplied in tool kit. By carefully scraping all edges of this shim to remove slight burr that may be there, it is possible to insert a sharp knife between the laminations and peel off carefully, using knife as a wedge, shims of .004", .006", .008", etc., thickness, and if necessary a single lamination of .002" thick which will not be useable again can be removed to correct an error in thickness should this have been made when splitting the shim.

It is important that combined thickness of shims used on inlet and exhaust sides are the same or joint will not be solid or oil tight.

continued ..

(MAINTENANCE - MODEL 51/7R - Continued)

3. Setting valve clearance after above operations and before tightening four centre cam box bolts:

Remove long narrow caps, held by 6 screws each, from cam box to permit entry of feelers between rockers and cams.

NOTE: It is only possible to adjust clearance when extended head cam box bolts are loose.

Loosen nut clamping edge of rocker spindle and rotate spindle by means of tommy bar across slots provided in end of spindle. This adjusts rocker clearance. Tighten clamping nut when clearance is correct, tighten cam box bolts and replace covers.

4. A damper is fitted to camshaft chain tension blade and consists of a rectangular steel block slotted to receive the edge of the blade and sliding in a slot in the chaincase casting. It is controlled by a cranked spring blade which retains it in the slot. Adjustment of the damping is by altering pressure of the spring blade which is controlled by screwing the upper retaining screw, which is slotted crosswise in or out. Chain tensioner blade should take up slack in chain easily but not violently when released.
5. Before removing cylinder barrel from crankcase loosen two crankcase clamping bolts at base of cylinder also upper magneto clamping strap nut and afterwards the top rear crankcase bolt which also retains the strap. Cylinder will then slide out freely.
6. A very slight smear of graphite paste is desirable before assembling exhaust pipe nut, sparking plug and four centre cam box bolts. A liberal quantity should be used on splines and cam face of engine shaft shock absorber when assembling.
7. Apply grease gun to nipple on engine shaft shock absorber each time machine is run.
8. Should oil accumulate in crankcase after motor has been standing remove camshaft chaincover. This will expose the oil pumps, the upper of which is the delivery pump. Remove this and see that ball valve is clean and seating properly before replacing.

