



M A T C H L E S S

MODELS G3/LCS AND G80CS  
MOTO-CROSS MODELS

\*\*\*\*\*

SUPPLEMENTARY INSTRUCTIONS AND  
TECHNICAL DATA  
1 9 5 6

---

SUPPLEMENTARY INSTRUCTIONS AND TECHNICAL, DATA  
FOR  
SCRAMBLES MODELS 1956

\*\*\*\*\*

The new Scrambles Models introduced for 1956 differ in several major respects from the earlier models. The following special information and data is therefore provided:

New features to be found in the engine are -  
a shorter stroke (the 500cc. engine is "over-square"), a bi-metal cylinder barrel (the light alloy muff is bonded to the iron liner) with a cast-in push rod tunnel, steel flywheel discs, an improved big end bearing, connecting rod and crankpin. A large roller bearing in conjunction with a bronze bush, forms the timing side bearing.

The camshafts are designed for maximum performance with an open exhaust pipe, the use of the recommended exhaust rocker clearance is most important.

For details other than those mentioned in this Instruction Sheet, please refer to the main Instruction Book which is issued free with each new machine.

#### ENGINE SERVICE

A ground joint is used on the cylinder head and barrel. Heat resisting oil sealing rings are located in the top of the cylinder surrounding the push rod tunnels. Two similar sealing rings, larger in diameter, are positioned in the cylinder base. The two top rings must be removed before grinding takes place.

A solid skirt type piston is a standard fitting in these engines and whilst the cutaways for valve clearance in the piston crown are symmetrical, the piston if refitted after removal, should be replaced in the same position as removed.

#### TAPPET ADJUSTMENT

When valve clearances are checked and the tappets adjusted, the flywheels must be revolved until the piston is at T. D. C. on the compression stroke. This procedure will ensure that the tappets rest on the base circle of the cam. The recommended valve clearances are -

Inlet	. . Nil	) Engine cold.
Exhaust	. . 0.005"	)

The exhaust clearance is best obtained by adjusting for nil clearance and then slacking the adjusting screw one-sixth of a complete turn, or one flat on the hexagon.

continued . .

## VALVE TIMING

The timing gears are marked to facilitate refitting when they have been disturbed.

Use Mark 2 for the Inlet cam and Mark 1 for the Exhaust cam.

To retime:

- (a) Rotate the flywheels until the marked tooth on the half-time pinion (on the mainshaft) is in line with the centre of the inlet-camshaft bush (left hand side).
- (b) Insert the shaft of the inlet cam into its bush and mesh the marked tooth space (2) with the marked tooth of the half-time pinion.
- (c) Rotate the flywheels forward until the marked tooth of the half-time pinion is in line with the centre of the exhaust-camshaft bush (right hand side).
- (d) Insert the shaft of the exhaust cam into its bush and mesh the marked tooth space (1) with the marked tooth of the half-time pinion.

(See also illustration 10, Page 31 of the Standard Instruction Book)

The opening and closing points are -

Inlet opens	B.T.D.C.	59°	)	Nil clearance
Inlet closes	A.B.D.C.	69°	)	
Exhaust opens	A.T.D.C.	69°	)	0.05" clearance
Exhaust closes	A.T.D.C.	48°	)	

Reading taken with valve .001" off valve seat.

## IGNITION

Magneto - Lucas 'Wader' type  
Contact gap 0.012"

Timing fully advanced  
- 350cc engine .. 41° B.T.D.C.  
- 500cc engine .. 39° B.T.D.C.

## CARBURETTOR

The jet sizes etc., given in the table are for use with an Open Exhaust pipe.

(Correct pipe length for maximum power is 42" along centre line)

## GEAR RATIOS

The internal gear ratios are identical to the touring models. A table of ratios with various types of engine sprockets are shown on Page 7. of the Instruction Book.

## REAR WHEEL REMOVAL

The rear wheel is not quickly detachable and is similar to the Trials Model described on Page 60 of the Instruction Book.

continued . .

TECHNICAL DATA

	<u>MODEL</u> <u>350</u>	<u>MODEL</u> <u>500</u>
Engine capacity .....	348cc.	497cc
Bore & Stroke .....	72 x 85.5 mm .	86 x 85.5 mm .
Compression ratio .....	9.9	8.7
Carburettor AMAL, Monobloc ...	376/55	389/12
Choke Diameter .....	1. 1/16"	1. 3/16"
Main Jet No. ....	240	440
Pilot Jet No. ....	30	30
Slide No. ....	3	3
Needle position .....	Centre Notch	Centre Notch.
Needle Jet .....	.106	.106
Petrol Tank capacity .....	2 gallons	2 gallons
Oil Tank capacity .....	4 pints	4 pints
Brakes .....	7" x 7/8"	7" x 7/8"
Rear chain .....	5/8"x 0.380" ) 97 links )	97 links
Primary chain .....	½" x 0.305" ) 64 links )	65 links

\*\*\*\*\*