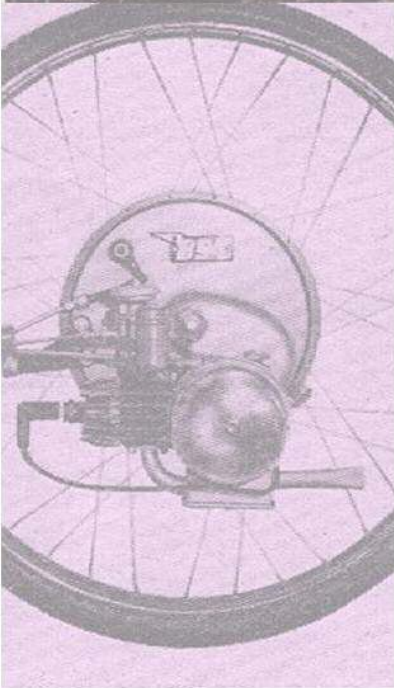


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Motor Cycle & Cycle TRADER

TRADER AID SERIES

Servicing Data Sheet No. 26

RALEIGH MOPED

Manufacturer: Raleigh Industries, Ltd.

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The Raleigh moped has been designed and developed as a reliable, economical and easily maintained form of mechanical transport to be sold at a really competitive price. A large market undoubtedly exists for such a product, and the initial success of this sturdy machine seems certain to continue. The manufacturers are to be congratulated on refusing to over-complicate the design and, as a consequence, add to the cost. All the necessary servicing can be quickly carried out, as ease of dismantling and good accessibility are noteworthy features of the design.

USEFUL DATA

Engine. (Sturmey-Archer design and manufacture). Single-cylinder two-stroke. Cast-iron cylinder, aluminium-alloy cylinder head, piston and crankcase.

Bore 38 mm. (1.496 in.); stroke 44 mm. (1.732 in.); capacity 49.9 c.c. (3.04 cu. in.); compression ratio 6.2 to 1; B.H.P. 1.3 at 4,300 r.p.m.

Aluminium-alloy piston (flat-top) has two pegged rings. Welcrom top ring (ESP4762/A) has "top" marked on upper surface and must be fitted with bevelled edge facing upwards. Bottom ring is plain (ESP4726/B/1). Ring end gap—maximum (worn) .016 in.; minimum (new) .007 in. measured in unworn (lower) portion of cylinder bore.

PISTON/CYLINDER CLEARANCES

Top of piston	.0061 in. (min.) to .0078 in. (max.)
Bottom of skirt	.0014 in. (min.) to .003 in. (max.)

The single-sided crankshaft runs on:

- (1) a ball journal bearing, located in crankcase; and
- (2) a needle roller-bearing, located in cast-iron housing bolted to crankcase. The crankshaft oilseal is fitted in this housing also.

The connecting-rod small-end is fitted with a plain bush. The big-end eye runs on uncaged 5 mm. by 5 mm. steel rollers.

CRANKSHAFT BEARINGS AND OIL SEAL

Ball-journal main-bearing (1 off)	Hoffman LS7 or SKF RLS5 or R & M LJS.
*Needle-roller main-bearing (1 off)	Ina HK1516 or Torrington J1516.
Big-end bearing-rollers (16 off)	Hoffman 5 mm. by 5 mm.
Crankshaft oilseal (1 off)	Weston WO9405927/R4 or Pioneer 11/PO9405927/MP802.

*Fit needle-roller bearing with maker's identification (or thick end of shell), facing outwards.

CRANKSHAFT AND CONNECTING ROD BEARING

Component	Minimum Maximum	
	Con. rod big-end eye diameter	1.2205 in.
Crankpin diameter	.8265 in.	.8267 in.
Crankshaft diameter at needle roller-bearing position	.5906 in.	.5909 in.

Free length of decompressor (valve) spring is .425 in.

Three Metalastik bonded-rubber bushes, pressed into a cast-aluminium bracket, carry the engine unit.

Self-mix petrol mixture in the ratio of 1 part oil to 16 parts petrol is used for engine lubrication (pre-mix, 1-20).

Carburettor. Amal type 385/1, with cold-start enrichment device. Combined air silencer and filter fitted.

Main jet—No. 40; throttle valve—No. 1; needle jet—.0745.

Flywheel magneto. Lucas type 7F1. LT output 6v 18w. Contact-breaker gap .015 in. (.014/.016 in. permissible). Ignition timing 5/32 in. (.156 in.) BTDC (marks on magneto housing and flywheel in line, with contact points just breaking). Capacitor—insulation infinity; capacity .2 mfd.

See Electrical Equipment panel for bulb sizes and lighting equipment.

Spark plug. Lodge HH 14 or Champion LSJ. Points gap .020 in.

Transmission. Gear ratio (engine to rear wheel) 15 to 1. Pedal-gear ratio, 1 to 1.6 or 41.6 in. Driving belt (engine to bottom-bracket countershaft) Fenner A26 (or A26R) or Goodyear V480 belt. Adjust by swinging engine forward. Power-drive (bottom-bracket countershaft to rear wheel)—112 links of 1/4 in.

by 3/8 in. chain. Driving sprocket—12T; rear wheel sprocket 55T. Adjust by rear wheel chain-adjusters. Pedal-drive (bottom-bracket to rear wheel)—105 links of 1/4 in. by 1/4 in. chain. Standard 6 1/2 in. cranks and 4 1/2 in. pedals, 32T chainwheel and 20T Villiers freewheel. Adjust by jockey sprocket. Power-drive is selected by engaging driving pin in pulley assembly. Pedal axle rotates in needle-roller bearings within countershaft. The countershaft, in turn, rotates in needle-roller bearings within sleeve pressed into bottom-bracket.

BOTTOM-BRACKET SLEEVE AND COUNTER-SHAFT BEARINGS

Location	Bearing type
Bottom bracket sleeve bearing (2 off)	Ina needle shell cage bearing SC1812 or Torrington drawn cup roller bearing J1812.
Countershaft bearing (2 off)	Ina needle shell cage bearing SC108 or Torrington drawn cup roller bearing J108.

Notes: When the respective bearings are in position:

- (1) The makers identification marks must face outwards.
- (2) The bearing cage faces must be flush with ends of bottom-bracket sleeve (use tool MS18) and with ends of countershaft (use tool MS19).

Bearing assemblies lubricated by greas nipples beneath bottom-bracket and on RH end of pedal-shaft.

Wheels.

Front. Rim—Dunlop Endrick 26 in. by

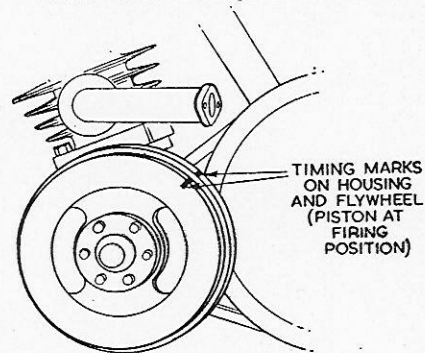


FIG. 1.—Timing marks.

2 in. Tyre—Dunlop 26 in. by 2 in. Spokes—(LS) 14 swg. 10 $\frac{1}{8}$ in. long, 16 off; (RS) 14 swg. 10 $\frac{1}{4}$ in. long, 16 off. Brake—Sturmey-Archer BFC internal expanding. Bearings—K67Z ball cages, 2 off, 1 fixed cone (RS) and 1 adjustable cone (LS) with notched cone-adjuster.

Rear. Rim—Dunlop Endrick 26 in. by 2 in. Tyre—Dunlop 26 in. by 2 in. (1755 mm.). Spokes—(LS) single butted 12/14 swg. 10 11/32 in. long, 20 off; (RS) single butted 12/14 swg. 10 11/32 in. long, 20 off. Brake—Sturmey-Archer BRM internal-expanding. Bearings—K67Z ball cages, 2 off, 1 fixed cone (RS) and 1 adjustable cone (LS) with notched cone adjuster.

Note: Wheel bearing cups on both wheels are integral with hub shells.

Frame head bearing consists of—locknut S179A, spacing washer MF104, top head screwed race P832A, $\frac{1}{8}$ in. steel balls (21 off), head-race, S417, top head-cup P830, bottom-head cup P831, head race S417, $\frac{3}{8}$ in. steel balls (21 off), fork crown race S418.

Dimensions and weight. Dry weight 84 lb.; saddle height 35 in. (lowest); maximum width 23 in.; height 38 in. (alternative saddle available giving 2 in. lower riding position); length 72 in.; wheelbase 44 $\frac{1}{2}$ in.; tank capacity 6 $\frac{1}{2}$ pints (including 1/3 pint reserve).

Engine number. Stamped on front of crankcase.

Frame number. Stamped on nearside top of saddle tube.

SPECIAL SERVICE TOOLS

- MS1 Crankshaft Jig, comprises MS22 Jig baseplate; MS31 Jig top plate; MS36 Assembly and removal bolt; MS34 Bearing support sleeve; MS35 Bearing support sleeve locknut; MS30 Nuts (2 off).
- MS2 Crankshaft removal adaptor.
- MS3 Crankshaft assembly adaptor.
- MS4 Crankshaft thread adaptor-nut.
- MS6 Crankshaft bearing rolling-in-tool.
- MS7 Oilseal assembly tool.
- MS8 Flywheel extractor.
- MS9 Crankshaft-pulley extractor.
- MS10 Crankshaft-pulley assembly tool.
- MS11 Crankcase-dowel extractor.
- MS12 Piston stop.
- MS13 Gudgeon-pin assembly and removal tool.
- MS14 Engine-needle bearing assembly tool.
- MS15 Engine-mounting bush tool.
- MS16 Bottom-bracket sleeve bearing assembly tool.
- MS19 Driving-shaft bearing assembly tool.
- MS20 Driving-shaft spring ring assembly tool.
- MS21 Driving-pin ball and spring assembly tool.

LUBRICATION

Engine. Petroil mixture, 1 part oil to 16 parts petrol ($\frac{1}{2}$ pint Castrol self-mixing oil to 1 gallon petrol).

Bottom-bracket. Using Shell Retinax 'A', Wakefield Castrolase LM or Energolase L2 grease, lubricate by grease gun, nipples underneath bottom-bracket and on RH end of pedal shaft.

Chains. Lubricate with oil-can. Every 2,000 miles remove, wash in paraffin, immerse in warm grease, remove surplus and refit to machine (closed end of spring-link facing direction of travel).

Carburettor air-filter elements. According to conditions, remove every 1,000 to 3,000 miles, wash in petrol, dip in thin oil, drain and refit.

Control cables. Lubricate monthly, using light oil (a force-feed oil-can with a rubber sleeve helps to force oil along cable).

Wheel hubs. Bearings are packed with grease on assembly.

Contact-breaker cam lubricator. Every 10,000 miles (or annually) renew the cam lubricating felt.

Contact-breaker pivot-post. Every 4,000 miles apply 2 drops of engine oil.

ELECTRICAL SYSTEM

The Lucas 7F1 magneto alternator supplies HT current for ignition and LT current for lighting. It consists of a flywheel (rotor) the centre of which is tapered to mate with the crankshaft. A woodruff key locates the flywheel which is secured to the crankshaft by a RH thread nut and washer. The flywheel centre is threaded to take the extractor MS8. The stator-plate carries the ignition coil, lighting coil, capacitor (or condenser), contact-breaker and cam lubricator. The stator-plate is secured to the housing by 2 screws, the stator holes for which are slotted, thus allowing movement of the stator to vary the ignition timing.

ELECTRICAL EQUIPMENT PANEL

Component	Type	Part No.
Magneto Alternator	7F1 (Lucas)	
Flywheel		469430
Stator and coil assembly		42376
H.T. Lead (1 foot)	5mm. P.V.C.	A79917
Contact set		54440026
pivot pin clip		154660
Capacitor		469153
Headlamp	Lucas MCH64	58206
rim		517332
clip		517333
lens		656105
fixing clip	(3 off)	524991
seating		656118
reflector		517296
bulb holder		517388
bulb	6v. 15/15w. SBC	386
parking bulb	3.5v. .15a. MES	974
switch		31766
knob and screw		54330355
wiring harness		5490046
body		517382
Tail Lamp	Lucas L590	53555
lens		526563
seating		526565
bulb	6v. 3w.	990
Stand-by Lighting		
Dry battery	(less batteries)	GA393
s/assembly	Drydex	T20 or T21
Batteries	Ever-Ready	U2 or LPU2
	Ray-O-Vac	2LP

(1) Ignition

Checking and adjusting contact-breaker gap. Rotate engine until the contact-breaker points are fully open, as seen through slot in flywheel. The gap should be .015 in. (.014/.016 in. permissible). To alter, slacken fixed contact-plate securing screw and, using screwdriver,

move the fixed contact-plate until .015 in. feeler gauge is a sliding fit. Re-tighten fixing screw and re-check gap. Check contact-breaker gap after first 400 miles running and thereafter every 4,000 miles.

Checking ignition-timing. Check that contact-breaker gap is correct. Turn engine until mark on flywheel coincides with mark on housing (see Fig. 1). The piston is then 5/32 in. before TDC (ignition position). At this position the contact points should be just commencing to break (a .0015 in. feeler-gauge should just slip between the points). If not, adjust the breaking point by slackening the stator-plate securing screws (2) and rotating the plate (anti-clockwise to retard and clockwise to advance). Re-tighten screws and re-check timing.

Testing. Remove HT lead from spark plug, remove plug and, holding the end of the HT lead $\frac{1}{4}$ in. from the cylinder, turn over engine. The HT spark should jump the gap regularly. If not, check (1) the HT lead for shorting or lack of continuity, and (2) the contact-breaker points for adjustment and cleanliness. If still no spark, remove flywheel and check capacitor either by (1) substitution or (2) means of a tester (such as Crypton Magmaster) for insulation and capacity. A simple check for continuity of the primary circuit can be made by connecting a bulb in series with a flash-lamp battery between engine earth and the capacitor terminal (with a piece of paper between the contact-breaker points). If the bulb lights the continuity is satisfactory. (A more searching test of both ignition and lighting performance can be made if the magneto is tested by the Magmaster).

(2) Lighting

No lights or poor lights (engine running). Ensure that bulbs are not "blown", and that they are of correct wattage. Note: The lamp load must balance the generator output of 18 watts. Failure of headlamp bulb (or faulty switch operation) will cause over-loading and blowing of tail-lamp bulb. If bulbs satisfactory, then check generator output by disconnecting generator LT cable (grey) at snap connector and:

- (1) Connecting an AC moving coil voltmeter (1 o.h.m. load) across the generator LT output cable and earth. At approximately 2,000 r.p.m. the meter should register 3 volts.
- (2) If voltmeter not available connect a test lamp (a 6v 15 watt headlamp bulb and a 6v 3 watt tail bulb connected in parallel) across the same points. At approximately 2,000 r.p.m. the bulbs should light brilliantly.

If output satisfactory, then check wiring-circuit and headlamp switch for open circuits (if no lights) or for bad connections (if lights poor).

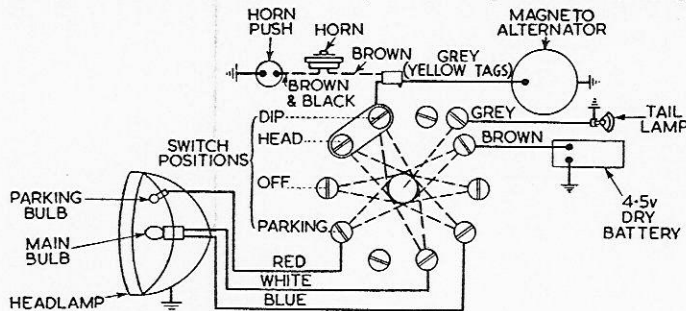
If output unsatisfactory, check continuity of generator coil with flash-lamp battery and bulb (in series) across generator output lead and earth. If bulb lights, the continuity is satisfactory.

Loose or dirty connections and shorts due to faulty insulation can cause lights to flicker. Poor bulbs with sagging filaments and poor earthing are causes of insufficient illumination.

ENGINE REMOVAL AND REFITTING

Removal. Remove fairings, held by 7 screws. Close fuel-tap and pull fuel-pipe off carburettor. Loosen clamp screw on carburettor, remove carburettor and tie up to frame. Disconnect lighting cable at snap connector. Unhook decompressor cable from anchor-plate at cylinder-head. Loosen engine mounting bolts, move engine back to full extent of adjustment slot, unhook drive-belt from bottom-bracket pulley. Remove engine-mounting bolts and remove engine from frame.

Refitting. Reverse removal procedure, ensuring that (1) steel washer is fitted between crankcase lower lug and frame-mounting bracket, (2) engine is moved backwards until



Wiring diagram showing lighting circuit.

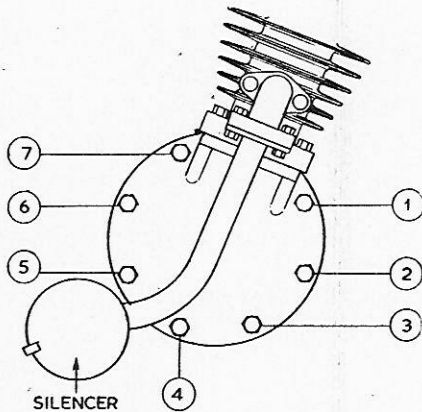


FIG. 2.—Crankcase bolts and dowels:

Bolts (1) to (4) are 1/4 in. dia. (long).
Bolts (5) to (7) are 1/4 in. dia. (short).

crankshaft pulley and bottom-bracket pulley are in line. Correct any mal-alignment by loosening frame-mounting bracket-bolts and turning mounting bracket on frame tube. (3) engine is levered firmly forward to tension drive belt before finally tightening engine mounting bolts.

ENGINE DISMANTLING AND REASSEMBLING

Dismantling. Special tools detailed under Useful Data are required for further operations and are mentioned by Part numbers only.

Plug inlet port with rag and wash unit thoroughly. Remove 2 exhaust-to-cylinder bolts and 1 silencer-to-crankcase bolt, remove exhaust system. Loosen magneto cover clamp-screw, remove cover. Remove spark-plug, screw MS12 into plug-hole, slowly rotate flywheel anti-clockwise (facing flywheel) until piston contacts MS12. Using 1/2 in. BSF box spanner remove flywheel retaining nut (RH thread). Fit thread protector on crankshaft, screw extractor MS8 into flywheel, tighten extractor centre bolt and withdraw flywheel. Remove flywheel locating key from crankshaft. Remove crankcase fixing bolts 1 to 4 (counting from front on exhaust side of unit). Using MS11 withdraw dowels from bolt holes 1 and 4 sufficiently to release magneto housing and crankcase spacer. Remove pulley retaining circlip from crankshaft. Fit MS4 on crankshaft and withdraw drive pulley using MS9. Remove 4 needle-bearing housing bolts. Withdraw housing from crankcase, tapping lightly round the rim with copper drift to ease joint face (exercise caution, as housing is cast-iron and easily broken). Lever out and discard oil-seal from housing. If needle-bearing in housing is serviceable, do not disturb. If unserviceable, drive out with suitable diameter drift. Do not refit a needle-bearing once it has been removed from housing. Using 1/2 in. BSF box spanner remove bolts holding cylinder-head.

Remove cylinder-head and dismantle decompressor valve. Remove 4 cylinder-base nuts and washers, lift cylinder straight up off piston. Scribe a mark on piston top at front as guide for assembly. Using circlip pliers and MS13, remove piston. If piston rings are removed, note top ring is chromed, and has bevelled edge upwards. Remove remaining 3 crankcase bolts, tap crankcase cover lightly and ease off dowels. Using MS11 remove dowels. Fit MS22 with MS31 and MS36 in position, into vice with MS22 toward operator. Remove crankshaft circlip, mount crankcase on MS22 using 4 needle-bearing housing-bolts. Position MS2 on crankshaft bearing outer ring, tighten MS36 firmly against MS2. Screw MS34 into MS22, fit MS4 over crankshaft, press crankshaft

through bearing using MS9. Remove crankshaft, file off punch marks on big-end retaining screw, scribe guide mark on conrod outer face, dismantle big-end by removing retaining screw, plate and rollers. If crankshaft bearing (in crankcase) serviceable, do not disturb. If replacement bearing required, remove rolled-over aluminium round bearing outer ring with scraper.

Heat crankcase (on sheet steel plate over gas ring) to approximately 200 degrees C., mount in MS22, screw MS34 into MS9, lock with MS35, screw MS34 into MS22 against journal bearing, pressing bearing from crankcase. If stator-plate has to be removed from magneto housing, scribe guide line across stator-plate and housing edges, near ignition timing adjustment slot, remove 2 fixing screws, ease cables through grommet in magneto housing and remove stator-plate. Place flywheel over stator-plate. Clean all components other than magneto assembly, in petrol, remove jointing compound and old gaskets from joint faces. Examine all bearings surfaces for wear.

Fitting replacements and re-assembly. If crankshaft journal bearing, crankshaft needle bearing and crankshaft oilseal have been removed, DO NOT REFIT original parts.

To fit crankshaft journal bearing, heat crankcase to 180 degrees C., using gas ring, as for bearing removal, place bearing into crankcase bearing recess and lightly tap home. Allow crankcase to cool, mount in MS1, place MS6 over bearing, screw in MS36 exerting slight pressure on MS6. Using open-ended spanner on squared head of MS6, rotate until edge of bearing recess is turned over sufficiently to lock journal bearing in its housing.

Replacement crankshaft assemblies are obtainable if required. If original crankshaft and conrod assembly are to be used, mount crankshaft in vice with crankpin upwards, place conrod with scribed side upwards over crankpin, fit 16 rollers round crankpin and secure assembly with retaining plate and big-end screw, locking over threads of screw with pointed punch when screwed full in. Lightly oil rollers. To fit crankshaft and conrod assembly into crankcase, mount crankcase in MS22, screw MS34 into MS22 until contact is made against journal bearing and lock MS34 with MS35. With conrod at TDC pass crankshaft through journal bearing. Fit MS31 and MS36 to MS22. Fit MS3 against crankshaft and with conrod held at TDC screw MS36 against MS3 pressing crankshaft into place within journal bearing. Remove crankcase assembly from jig and fit crankshaft circlip. To fit crankshaft needle bearing assembly to crankcase, place needle bearing with maker's identification marks (or thicker end of bearing shell) outwards into bearing housing and draw into place with MS14.

Apply jointing compound to crankcase and bearing housing joint faces, keeping oil-feed hole on housing clear of jointing compound. Place gasket over housing and press housing into crankcase with oil hole upwards. Fit 4 bolts and washers and screw down evenly. Lightly oil needle bearing and inner lip of oilseal. Place oilseal over MS7, lip outwards, and fit MS7 over crankshaft and against bearing housing. With metal tube of O/D similar to MS7, tap MS7 until outer edge of oilseal is flush with needle-bearing housing. Remove MS7.

To fit drive pulley and magneto housing fit pulley on crankshaft driving flats, screw sleeved stud of MS10 onto crankshaft, place sleeve-tube of MS10 against pulley and with special nut of MS10, press pulley into position on crankshaft driving flats. Fit crankshaft circlip and drive belt on pulley. Fit 2 dowels into crankcase, apply jointing compound to crankcase and crankcase cover joint faces, fit gasket over dowels and fit crankcase cover securing finger-tight with 3 short bolts (at crankcase rear). Fit crankcase spacer and magneto housing over dowels. Fit 4 long bolts (at crankcase front) and tighten down all crankcase bolts evenly. Trim off protruding edges of gasket.

Warm piston in boiling water and, with scribed mark to front, fit to conrod inserting gudgeon-pin with tool MS13 and ensuring circlips fit correctly into piston circlip-grooves. If original piston rings are re-fitted, ensure chrome ring to be in top groove with bevelled edge upwards. If new rings are fitted, the chrome ring is marked "top" on bevelled face. Lightly oil piston and cylinder, locate piston-ring ends on pegs and pass cylinder straight down over piston. Using new cylinder-base gasket, with jointing compound, tighten cylinder-base nuts evenly. Grind in decompressor valve lightly and wash off all grinding paste from valve and valve port. If valve spring free length is less than .425 in., replace with new spring. Fit valve, tighten locknut and fit cylinder-head, using new gaskets without jointing compound, and tighten fixing bolts evenly. Fit HT and lighting cable through magneto-housing grommet, fit stator-plate securing with 2 screws, and aligning scribed marks on stator plate and magneto housing. Fit flywheel key to crankshaft. Screw MS12 into plughole. Ensure mating tapers are clean, and fit flywheel onto crankshaft aligning flywheel keyway with crankshaft key. Fit flywheel retaining-washer and nut, rotate flywheel clockwise until piston contacts piston-stop MS12 and tighten flywheel nut. Remove MS12 and fit spark-plug. See Electrical System for check on ignition timing and contact-breaker points gap. Fit exhaust system using new gaskets at exhaust-flange and elbow.

DECARBONISING

The exhaust-silencer exit tubes should be kept clear of carbon by probing with tool supplied.

Every 1,500 miles (or when lack of power is evident) remove exhaust assembly from engine, remove exhaust elbow and immerse silencer in hot caustic-soda solution until carbon deposits are loosened. Flush out thoroughly with running water and repaint with cylinder-black. Remove spark plug. Remove cylinder-head and with piston at TDC, remove carbon from piston top and from cylinder-head (using a soft metal scraper). Clean off all loose carbon and turn engine until piston is at BDC, and then scrape carbon out of exhaust port. Dismantle, clean and grind in decompressor-valve. Remove all traces of grinding paste and re-assemble valve assembly. Refit cylinder-head and exhaust assembly using new gaskets. Clean spark-plug, set electrode-gap to .020 in. and refit plug. Connect decompressor cable.

Every 5,000 miles, remove cylinder to check on piston-ring end-gap and freedom of rings in grooves. Replace rings when end-gap is more than .016 in. (measured in lower end of cylinder-bore).

CARBURETTOR

Before starting a new machine for the first time, disconnect the petrol pipe and run off a small quantity of fuel. This helps to remove sediment from the petrol-tank.

Starting cold engine—hold cold-start needle

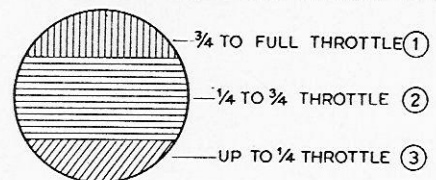


FIG. 3.—Carburettor tuning:

- (1) MIXTURE STRENGTH CONTROLLED BY MAIN JET (LARGER NUMBER MEANS LARGER CALIBRATED ORIFICE).
- (2) MIXTURE STRENGTH CONTROLLED BY JET NEEDLE (GROOVED FOR ADJUSTMENT AND LOCATED BY SPRING CLIP).
- (3) MIXTURE STRENGTH CONTROLLED BY THROTTLE VALVE CUTAWAY (LARGER CUTAWAY AND NUMBER GIVE WEAKER MIXTURE).

up for 5 to 7 seconds, set throttle $\frac{1}{4}$ open and start engine.

Starting warm engine—do not raise cold-start needle. Set throttle slightly open and start engine.

Maintenance. The main jet can be removed for cleaning without removing carburettor from machine. Remove jet cover nut and unscrew main jet. Never use wire to clean jet calibrated orifice—always use airblast. Do not over-tighten jet when refitting.

To remove carburettor, turn off fuel, disconnect fuel-pipe from carburettor, slacken fixing-clip screw and pull carburettor from induction stub. Wash exterior of carburettor with clean petrol. Unscrew mixing-chamber knurled top and withdraw throttle valve complete with needle. Remove (1) main-jet cover nut and main jet; (2) mixing-chamber base nut and needle jet; (3) float-chamber cover (secured by 2 screws), then the float and needle; and (4) dismantle air-cleaner assembly. Wash all

parts in clean petrol and blow out all passages with airblast. Clean and oil air-filter elements (see Lubrication). Check (1) float for punctures; (2) needles for wear or bends; and (3) jets, etc., for cleanliness.

When re-assembling, ensure that (1) jets are not over-tightened; (2) float-chamber gasket is undamaged; (3) that starting and float needles enter their seatings correctly; and (4) that the carburettor body key engages the keyway (opposite cable slot) in throttle valve, and that the jet needle enters the needle jet.

When refitting carburettor to induction stub, lightly oil stub and push home with a twisting motion. When fully home and upright, tighten fixing-clip screw.

Tuning. To cure an over-rich or over-weak mixture at various throttle openings (see Fig. 3) proceed as follows:

(1) At $\frac{1}{4}$ to full throttle, fit smaller jet to weaken, or larger jet to richen (non-standard jets obtainable from Amal Ltd.).

(2) At $\frac{1}{4}$ to $\frac{3}{4}$ throttle—lower jet needle to weaken or raise jet needle to richen.

(3) At idling position (up to $\frac{1}{4}$ throttle)—fit throttle valve with larger cutaway to weaken or valve with smaller cutaway to richen.

Idling speed is set by throttle cable adjuster on mixing-chamber top.

The next servicing data sheet in this series will deal with the

PHILLIPS PANDA 50 c.c. Moped
and will be included in the issue dated
May 22.

TRADER DATA SHEETS

NOW available to "Trader" subscribers are 25 other servicing data sheets dealing with cycle repairs and maintenance and with motor cycle repair and overhaul. They are:

No. 1—Sturmey-Archer Dynohubs, types GH6, AG and FG.

No. 2—B.S.A. Winged Wheel Model W1.

No. 3—Cyclo Benelux gear.

No. 4—Villiers Mk. 8E—197 c.c. 2-stroke engine.

No. 5—Sturmey-Archer AW hub.

No. 6—Douglas Vespa 125 c.c. GLS scooter.

No. 7—Cycle lighting sets; maintenance, repair and fitting.

No. 8—BSA 125 c.c. Bantam motor cycle.

No. 9—Norman Cyclemate.

No. 10—Royal Enfield 350 c.c.

No. 11—Sturmey-Archer SW hub.

No. 12—Velocette LE.

No. 13—AJS and Matchless 350 c.c. models.

No. 14—Simplex Tour de France derailleur gear.

No. 15—Triumph Tiger Cub 200 c.c. model.

No. 16—Cycle frame and fork repairs.

No. 17—Ariel Colt 200 c.c. model.

No. 18—Hercules Her-cu-Motor.

No. 19—Carrier-cycle servicing.

No. 20—Lambretta scooter.

No. 21—Phillips' Gadabout moped.

No. 22—BSA Dandy lightweight scooter.

No. 23—Villiers two-stroke twin.

No. 24—Norman Nippy de luxe moped.

No. 25—Miller AC4 generator.

Copies of these Service Sheets, which are invaluable to dealers' repair departments, may be obtained by readers at 1s. each or 11s. a dozen.