

## ENGINE ASSEMBLY COMPONENTS — continued

66. Foot change pedal.
67. Timing side inspection cover grommet.
68. Foot change pedal clamp nut.
69. Foot change pawl carrier washer.
70. Foot change indicator.
71. Foot change indicator washer.
72. Foot change indicator bolt.
73. Foot change crank clamp bolt.
74. Kickstart crank clamp bolt.
75. Kickstart crank.
76. Kickstart crank clamp washer.
77. Kickstart crank nut.
78. Kickstart pedal rubber.
79. Kickstart pedal.
80. Kickstart pedal nut domed.
81. Kickstart pedal plain washer.
82. Kickstart pedal spring steel.
83. Kickstart shaft "O" ring.
84. Kickstart shaft bush.
85. Kickstart shaft.
86. Kickstart bush inner.
87. Kickstart shaft pawl spring.
88. Kickstart shaft pawl pin.
89. Kickstart stop plate rivet.
90. Kickstart stop plate.
91. Kickstart pawl.
92. Mainshaft ball bearing.
93. Mainshaft bearing locking ring.
94. Kickstart return spring.
95. Push-rod.
96. Clutch lever pivot pin circlip.
97. Clutch lever pivot pin.
98. Clutch lever.
99. Clutch adjuster screw.
100. Clutch adjuster screw locknut.
101. Clutch operator bush.
102. Clutch operator roller.
103. Gearbox outer cover.
104. Gearbox outer cover fixing screws.
105. Gearbox drain plug.
106. Gearbox drain plug washer.
107. Gearbox outer cover gasket.
108. Foot change ratchet shaft "O" ring.
109. Dowel, gearbox inner cover.
110. Foot change stop piece rivet.
111. Foot change stop piece.
112. Foot change shaft bush.
113. Gearbox inner cover.
114. Gearbox inner cover gasket.
115. Foot change ratchet shaft.
116. Foot change pedal return spring.
117. Foot change ratchet spring.
118. Foot change ratchet.
119. Foot change ratchet actuating plate.
120. Foot change ratchet segment shaft.
121. Foot change ratchet segment shaft.
122. Striker shaft. ["O" ring.]
123. Selector fork.
124. Camplate plunger.
125. Camplate plunger spring.
126. Foot change pawl carrier bush.
127. Crank pin rollers.
128. Con rod.
129. Gudgeon pin.
130. Crank pin roller cage.
131. Crank pin.
132. Piston.
133. Small end bush.
134. Ring pegs.
135. Circlip.
136. Piston ring.
137. Gearbox sprocket nut.
138. Gearbox sprocket lockwasher.
139. Gearbox sprocket.
140. Gearbox sprocket spacer.
141. Sleeve gear oil seal.
142. Sleeve gear ball bearing.
143. Sleeve gear 3rd.
144. Mainshaft 2nd gear.
145. Mainshaft 1st gear.
146. Mainshaft 1st gear locating circlip.
147. Mainshaft bearing nut.
148. Mainshaft.
149. Layshaft pinion locating circlip.
150. Clutch fixing nut.
151. Clutch fixing spring washer.
152. Layshaft 3rd gear.
153. Layshaft 2nd gear.
154. Layshaft 1st gear.
155. Gearbox layshaft bush.
156. Gearbox layshaft and cap.
157. Gearbox to crankcase stud.
158. Washer for stud.
159. Nut for stud.
160. Gearbox inner cover fixing stud.
161. Gearbox inner cover fixing nut.
162. Gearbox inner cover dowel [109].
163. Gearbox shell.
164. Oil filler cap and dip stick washer.
165. Flywheel.
166. Flywheel fixing set.
167. Stator unit.
168. Grommet and lead set.
169. Carburettor fixing bolt.
170. Carburettor fixing washer.
171. Carburettor spacer.
172. Carburettor complete.
173. Carburettor air filter.
174. Clip air filter fixing.
175. Nut air filter fixing.
176. Screw air filter fixing.
177. Recessed bolt.
178. Contact breaker.

**LUBRICATION OF ENGINE.** For full instructions on Petroil lubrication refer to pages 9 and 10.

**ENGINE MAINTENANCE.** Periodical decarbonising is the only maintenance job the average owner will want to tackle on the 15T engine and full instructions are given on page 28.

The exploded drawings herewith are self-explanatory, but despite the apparent simplicity of the engine we strongly advise the average owner not to attempt major repair jobs himself, but to entrust the work to an authorised Service Agent or to our own Repairs Department. Splitting and re-assembling the crankcase halves, for instance, is a difficult matter demanding great care and skill, whilst considerable experience is needed to replace a big end assembly and true the shafts. Major repairs undertaken by the Factory Repairs Department carry a full three months' guarantee. With these facilities at the disposal of owners, we feel that it will repay our customers not to attempt too much, but to keep within the limits of this book.

**LOCATING TROUBLES.** For the satisfactory running of the engine it is essential that three main conditions are fulfilled, and by making a systematic and intelligent investigation the faults can usually be located. If the engine stops, symptoms will generally give a clue to the cause, but where this is not the case, the trouble can be more easily traced by following a definite method of investigation. The three conditions mentioned above are as follows:

- (1) The required quantity of petrol-and-air mixture must be available for the engine, which means that a proper supply of fuel has to be available from the carburettor, and that the throttle should open and close freely.
- (2) The sparking plug must give a good spark, at the right time in relation to the position of the piston on its upward stroke.
- (3) The engine must be in good mechanical condition, with no air leaks at the various joints.

There must also be efficient compression of the air in the cylinder and crankcase. This can be easily checked by putting the gear-box into the neutral position, and rotating the crankshaft by means of the kickstarter. On every revolution a definite resistance should be felt, caused by the air in the cylinder being compressed.

**Making a Preliminary Check.** When the cause of the trouble is not evident, carry out a preliminary check covering the following points: if this fails to trace the cause reference should be made to the "Tracing Faults" Chart (pages 38 and 39).

Having made sure that there is "petrol" in the tank, and that the tap is in the ON position, depress the tickler on the carburettor to ensure that there is no blockage in the fuel supply, either in the tap, fuel pipe, banjo union or fuel needle seating. If the fuel supply is clear, fuel will spurt from the vent hole in the side of the tickler cap.

Being satisfied that fuel is reaching the carburettor, next unscrew the sparking plug, and with the high tension lead still attached, lay the plug on the cylinder head. Turn the engine by means of the kickstarter, and if there is a good spark, it is possible that the ignition timing is incorrect. If there is no spark, hold the H.T. lead  $\frac{1}{8}$ " from cylinder head. Clean or change the sparking plug if there is a good spark from the H.T. lead.

Finally examine the carburettor controls to make certain that the throttle is actually opening when the twist grip lever is moved and that the strangler control is operating correctly.

**PETROL CONSUMPTION.** The carburettor is correctly set before the machine leaves the factory. An alteration to the main jet or throttle slide is unnecessary, as the correct sizes for best performances and petrol consumption have been selected after prolonged tests. Alteration to the carburettor setting must be confined to the location of the taper needle, attached to the throttle slide, or the pilot mixture regulating screw.

A guaranteed petrol consumption cannot be given as so many factors are involved, and once the carburettor is correctly set the petrol consumption is governed by the internal condition of the engine, the speed at which the machine is driven and, most important of all, the amount of throttle used.