All along this manual, references are made to units of measurement with which you may not be familiar.

Therefore we take this opportunity to remind you that:

1 mm (millimeter) = 0.039 inch.
1 cm (centimeter) = 10 mm = 0.394 inch.
# TABLE OF CONTENTS GROUPED BY COMPONENTS

## BELT
- Tension ........................................ 13
- Special recommendation .................... 13

**BOTTOM BRACKET PULLEY**
- Replacing a bottom bracket pulley and spindle .......... 43
- Replacing bottom bracket spindle bushings .............. 44

## CLUTCH
- Removal ........................................ 22
- Refitting ....................................... 23-24
- Disassembly .................................... 36
- Re-assembly .................................... 36
- Adjustment ..................................... 36

## ENGINE
- Engine description and main data ..................... 5
- Removal ........................................ 14
  - Fixed engine .................................. 14
  - Repaired engine .............................. 16
- Refitted ........................................ 15
  - Hinged engine ................................ 17
- Complete disassembly ............................ 26
- Complete re-assembly ............................ 27-28-29-30
- Replacing the crankshaft in the crankcases ........... 27
- Fitting the piston in the cylinder ................... 29
- Straightening a rod ................................ 30
- Poor performance ................................ 46

## FORK
- Repair of a rigid fork ........................... 39
- Replacing a steering unit ....................... 39
- Repairing or replacing a telescopic fork ............ 40
- Complete disassembly of a telescopic fork ............ 41
- Repair of a lever action fork ........................ 42

## HUBS
- Removal of the bearings .......................... 45

## MAGNETIC FLYWEIGHT
- Removal ........................................ 18
- Refitting ....................................... 19-20
- Ignition timing adjustment ....................... 20
- Centering the armature .......................... 21
- Ignition trouble shooting ........................ 47-48

## UPPER HINGE "FLEXIBLOCS"
- Disassembly and re-assembly ..................... 45

## VARIATOR
- Description and operation ....................... 31
- Removal ........................................ 22
- Refitting ....................................... 23-24
- Disassembly .................................... 32
  - with fixed threaded cheek .................... 34
  - with fixed screwed cheek .................... 33
- Re-assembly .................................... 35
  - with fixed threaded cheek .................... 33
  - with fixed screwed cheek .................... 35
- Adjustment ..................................... 36
LIST OF CONTENTS GROUPED BY OPERATIONS

Description and main data of the Mobylette engines .................................................. 5
Tool board N° 1 .................................................................................................................. 6
List of tooling N° 1 .......................................................................................................... 7
Tool board N° 2 ................................................................................................................ 8
List of tooling N° 2 .......................................................................................................... 9
Tooling for all types of Mobylette cycles ........................................................................ 10
Engine stand (swivelig) .................................................................................................... 11
Stroke limiter .................................................................................................................... 12
Belt drive (special recommendation) .............................................................................. 13
Removing a fixed engine (operation n° 1) ..................................................................... 14
Refitting a repaired (fixed) engine (operation n° 2) ....................................................... 15
Removing a hinged variator engine (operation n° 3) ..................................................... 16
Refitting a repaired engine (operation n° 4) .................................................................. 17
Removing a flywheel magneto (operation n° 5) ............................................................ 18
Refitting a flywheel magneto (operation n° 6, adjusting the contact breaker) ............ 19
Refitting a flywheel magneto (continuation n° 1, operation n° 6, ignition timing) ..... 20
Centering the armatures on the flywheel magneto mounting plate .............................. 21
Removing a variator or a DIMoby clutch (operations n° 7 and 8) ............................... 22
Refitting a variator or a DIMoby clutch (operation n° 9) ............................................ 23
Refitting a variator or a DIMoby clutch (continuation) .............................................. 24
Marking cylinders and pistons ....................................................................................... 25
Complete disassembly of a Mobylette engine (operation n° 10) ............................... 26
Complete engine re-assembly (operation n° 11, side play adjustment and crankshaft assembly in the crankcases) ................................................................. 27
Complete engine re-assembly (continuation) ............................................................... 28
Complete engine re-assembly (continuation) (fitting the piston in the cylinder and straightening a rod) ................................................................. 29
Complete engine re-assembly (continuation) straightening a rod ............................ 30
Speed variator (description and operation) .................................................................. 31
Complete disassembly of a variator (operation n° 12) .................................................. 32
Re-assembling a variator ............................................................................................... 33
Complete disassembly of a variator with unthreaded fixed cheek (operation n° 14) ... 34
Re-assembling a variator with unthreaded fixed cheek (operation n° 15) ................... 35
Complete disassembly of a DIMoby clutch (operation n° 16) .................................... 36
Re-assembling a DIMoby clutch (operation n° 17) ..................................................... 37
Adjusting a DIMoby clutch without variator (operation n° 18) ................................. 38
Cycle section .................................................................................................................. 39
Sketch of a repair bench ............................................................................................... 40
Repairing a rigid fork or replacing a steering unit (operation n° 19) ......................... 41
Repairing or replacing a telescopic fork (operation n° 20) .......................................... 42
Complete disassembly of the telescopic forks (operation n° 21) ............................... 43
Repairing a lever action fork (operation n° 22) ........................................................... 44
Replacing a pulley and a bottom bracket spindle (operation n° 23) ......................... 45
Replacing the bottom bracket spindle bushes (operation n° 24) ............................... 46
Disassembling or re-assembling — a) Engine hinge flexible mounts b) Hub bearings . 47
Poor performance ........................................................................................................ 48
Poor ignition operation ............................................................................................... 49
Poor ignition operation (continuation) ....................................................................... 50
# Description and Main Data of the Mobylette Engines

<table>
<thead>
<tr>
<th>Engine Type</th>
<th>AV or AU Machine</th>
<th>Gurtner Carburettor</th>
<th>Compression Ratio</th>
<th>Advanced Spark (mm)</th>
<th>Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>AV 7 S</td>
<td>32 S</td>
<td>516</td>
<td>6.5</td>
<td>3</td>
<td>Clutchless</td>
</tr>
<tr>
<td>AV 7 Sb</td>
<td>41</td>
<td>516</td>
<td>6.5</td>
<td>3</td>
<td>Clutchless</td>
</tr>
<tr>
<td>AV 7 De</td>
<td>85 - 65 - 76</td>
<td>540 - 610**</td>
<td>7.5</td>
<td>2</td>
<td>DIMOBY clutch</td>
</tr>
<tr>
<td>AV 7 Db</td>
<td>42</td>
<td>540 - 610**</td>
<td>6.5</td>
<td>3</td>
<td>DIMOBY clutch</td>
</tr>
<tr>
<td>AV 7 Dbe</td>
<td>44</td>
<td>540 - 610**</td>
<td>7.5</td>
<td>2</td>
<td>DIMOBY clutch</td>
</tr>
<tr>
<td>AV 7 Dbg</td>
<td>BG or CG 43 - 44</td>
<td>525</td>
<td>6.5</td>
<td>3</td>
<td>DIMOBY clutch</td>
</tr>
<tr>
<td>AV 7 V</td>
<td>68 - 79</td>
<td>549</td>
<td>7.5</td>
<td>2</td>
<td>Variator with DIMOBY</td>
</tr>
<tr>
<td>AV 7 Vb</td>
<td>48</td>
<td>549</td>
<td>7.5</td>
<td>2</td>
<td>Variator with DIMOBY</td>
</tr>
<tr>
<td>AV 7 V 2</td>
<td>88</td>
<td>488</td>
<td>7.5</td>
<td>2</td>
<td>Variator with DIMOBY</td>
</tr>
<tr>
<td>AV 7 V 2.5</td>
<td>89 - SP 50 - SP 50 R</td>
<td>569</td>
<td>9</td>
<td>1.5</td>
<td>Variator with DIMOBY</td>
</tr>
<tr>
<td>AV 7 V 2.5 S</td>
<td>SP 50 R*</td>
<td>569</td>
<td>9</td>
<td>1.5</td>
<td>Variator with DIMOBY</td>
</tr>
<tr>
<td>AV 7 V 2.5 B</td>
<td>AV 98</td>
<td>626</td>
<td>9</td>
<td>1.5</td>
<td>Variator with DIMOBY</td>
</tr>
</tbody>
</table>

** - Adjustment 540 is superseded by adjustment 610.
# LIST OF TOOLS № 1 (Part № 1371)

This is a large set of tools intended to dealers who wish to own a very complete equipment required in disassembling, repairing and re-assembling the various Mobylette engines.

<table>
<thead>
<tr>
<th>Part №</th>
<th>DESCRIPTION AND FUNCTION</th>
<th>SUPPLIER</th>
<th>SUPPLIER'S PART №</th>
</tr>
</thead>
<tbody>
<tr>
<td>987</td>
<td>Truarc closing pliers</td>
<td>Var</td>
<td>420</td>
</tr>
<tr>
<td>988</td>
<td>Truarc opening pliers</td>
<td>Var</td>
<td>430</td>
</tr>
<tr>
<td>1.117</td>
<td>Clutch or variator nipple wrench</td>
<td>Var</td>
<td>367</td>
</tr>
<tr>
<td>1.179</td>
<td>Piston stroke limiter</td>
<td>Var</td>
<td>394</td>
</tr>
<tr>
<td>1.321</td>
<td>Clutch or variator cotter adaptor</td>
<td>Var</td>
<td>347</td>
</tr>
<tr>
<td>1.322</td>
<td>Tool for disassembling variator</td>
<td>Var</td>
<td>344</td>
</tr>
<tr>
<td>1.323</td>
<td>Magnetic extractor</td>
<td>Var</td>
<td>395</td>
</tr>
<tr>
<td>1.347</td>
<td>11 mm. dia. centering pin for clutch and variator</td>
<td>Var</td>
<td>395</td>
</tr>
<tr>
<td>1.348</td>
<td>10 mm. dia. centering pin for clutch and variator</td>
<td>Var</td>
<td>395</td>
</tr>
<tr>
<td>1.349</td>
<td>Piston pin adaptor</td>
<td>Var</td>
<td>396</td>
</tr>
<tr>
<td>1.350</td>
<td>Clamp for disassembling fixed cheek screwed on variator</td>
<td>Var</td>
<td>343</td>
</tr>
<tr>
<td>1.351</td>
<td>Belt tensioning tool</td>
<td>Var</td>
<td>348</td>
</tr>
<tr>
<td>1.352</td>
<td>Crankcase oil seal adaptor</td>
<td>Var</td>
<td>399</td>
</tr>
<tr>
<td>1.355</td>
<td>Piston ring pliers</td>
<td>Var</td>
<td>261</td>
</tr>
<tr>
<td>1.356</td>
<td>Screwdriver (hammer driven)</td>
<td>Var</td>
<td>298</td>
</tr>
<tr>
<td>1.357</td>
<td>&quot;Gazecom&quot; torch</td>
<td>Var</td>
<td>350</td>
</tr>
<tr>
<td>1.360</td>
<td>Engine pulley pin wrench</td>
<td>Var</td>
<td>389</td>
</tr>
<tr>
<td>15.141</td>
<td>Clutch and variator drum extractor, 24 mm. dia. x 100 mm. lg.</td>
<td>Var</td>
<td>362</td>
</tr>
<tr>
<td>15.142</td>
<td>Flywheel cam extractor, 26 mm. dia. x 100 mm. lg.</td>
<td>Var</td>
<td>359</td>
</tr>
<tr>
<td>15.746</td>
<td>Ignition timing feeler gauge</td>
<td>Var</td>
<td>239</td>
</tr>
<tr>
<td>16.516</td>
<td>Armature centering bush</td>
<td>MB</td>
<td>8.119</td>
</tr>
<tr>
<td>16.733</td>
<td>Square tipped wrench for flywheel square-head nut</td>
<td>Var</td>
<td>341</td>
</tr>
<tr>
<td>16.799</td>
<td>15 mm. dia. crankshaft dummy bearing</td>
<td>MB</td>
<td>68</td>
</tr>
<tr>
<td>17.170</td>
<td>16 mm. dia. crankshaft dummy bearing</td>
<td>MB</td>
<td>142/42</td>
</tr>
<tr>
<td>17.635</td>
<td>Piston pin drift</td>
<td>Var</td>
<td>68</td>
</tr>
<tr>
<td>17.637</td>
<td>Crankshaft bearing extractor</td>
<td>Var</td>
<td>142/42</td>
</tr>
<tr>
<td>17.645</td>
<td>Engine disassembly and re-assembly stand</td>
<td>Var</td>
<td>378</td>
</tr>
<tr>
<td>35 mm. dual wrench</td>
<td>Faicom</td>
<td>33</td>
<td></td>
</tr>
<tr>
<td>14 mm. socket wrench</td>
<td>Faicom</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>10 mm. socket wrench</td>
<td>Faicom</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>8 mm. box wrench</td>
<td>Faicom</td>
<td>74</td>
<td></td>
</tr>
<tr>
<td>17 mm. open socket wrench</td>
<td>Faicom</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Flat nose pliers</td>
<td>Faicom</td>
<td>188</td>
<td></td>
</tr>
<tr>
<td>Screwdriver</td>
<td>Faicom</td>
<td>224</td>
<td></td>
</tr>
<tr>
<td>Tube dia. 18 mm. O.D. 22 mm. 150 mm lg</td>
<td>A</td>
<td>120 x 30 x 7 mm. mild steel strip</td>
<td></td>
</tr>
<tr>
<td>120 x 30 x 7 mm. mild steel strip</td>
<td>C</td>
<td>Steel broach for straightening rod, etc.</td>
<td></td>
</tr>
<tr>
<td>210 mm. lg. 10 mm. dia. tapered length 70 mm., 7.5 mm. end dia.</td>
<td>D</td>
<td>Dummy piston pin, O.D. 12.9 mm. (used with piston pin adaptor 1349).</td>
<td></td>
</tr>
</tbody>
</table>

The opposite page shows the tools required for engine disassembly and re-assembly.
**LIST OF TOOLS N° 2 (Part n° 1375)**

This is a special set of tools intended to dealers who wish to own only what is strictly required to maintain and repair Mobylettes.

REQUIRED IN DISASSEMBLING, REPAIRING AND RE-ASSEMBLING THE VARIOUS MOBYLETTE ENGINES

<table>
<thead>
<tr>
<th>PART NO</th>
<th>DESCRIPTION AND FUNCTION</th>
<th>SUPPLIER</th>
<th>SUPPLIER'S PART NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>987</td>
<td>Truarc closing pliers</td>
<td>Var</td>
<td>420</td>
</tr>
<tr>
<td>988</td>
<td>Truarc opening pliers</td>
<td>Var</td>
<td>430</td>
</tr>
<tr>
<td>1117</td>
<td>Greaser wrench</td>
<td>Var</td>
<td>367</td>
</tr>
<tr>
<td>1179</td>
<td>Piston stroke limiter</td>
<td>Var</td>
<td>360</td>
</tr>
<tr>
<td>1320</td>
<td>Forks businesst extractor</td>
<td>Var</td>
<td>348</td>
</tr>
<tr>
<td>1322</td>
<td>Tool for disassembling variator</td>
<td>Var</td>
<td>344</td>
</tr>
<tr>
<td>1323</td>
<td>Magnetic extractor</td>
<td>Var</td>
<td>396</td>
</tr>
<tr>
<td>1349</td>
<td>Piston pin adaptor</td>
<td>Var</td>
<td>362</td>
</tr>
<tr>
<td>15141</td>
<td>Clutch and variator drum extractor, 24 mm. dia. × 100 mm. lg.</td>
<td>Var</td>
<td>359</td>
</tr>
<tr>
<td>15142</td>
<td>Flywheel cam extractor, 26 mm. dia. × 100 mm. lg.</td>
<td>Var</td>
<td>357</td>
</tr>
<tr>
<td>15630</td>
<td>Spark plug wrench</td>
<td>Var</td>
<td>239 bis</td>
</tr>
<tr>
<td>15746</td>
<td>Ignition timing feeler gauge</td>
<td>Var</td>
<td>341</td>
</tr>
<tr>
<td>16733</td>
<td>Square tipped wrench for flywheel square head nut</td>
<td>Var</td>
<td>361</td>
</tr>
<tr>
<td>16753</td>
<td>Tool for taking off or mounting &quot;Flexibloc&quot;</td>
<td>Var</td>
<td>342</td>
</tr>
<tr>
<td>17170</td>
<td>16 mm. dia. crankshaft dummy bearing</td>
<td>Var</td>
<td>18 bis</td>
</tr>
<tr>
<td>17630</td>
<td>Wrench for exhaust nut and variator</td>
<td>Var</td>
<td>68 MOB</td>
</tr>
<tr>
<td>17635</td>
<td>Pedal wrench</td>
<td>Var</td>
<td>51</td>
</tr>
<tr>
<td>17644</td>
<td>Piston pin drift</td>
<td>Var</td>
<td>51</td>
</tr>
<tr>
<td>17648</td>
<td>Spoke wrench gauge 13</td>
<td>Var</td>
<td>51</td>
</tr>
<tr>
<td>17649</td>
<td>Spoke wrench gauge 16</td>
<td>Var</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td>Tool for tightening the flywheel magneto drum.</td>
<td>Var</td>
<td></td>
</tr>
<tr>
<td>Part No.</td>
<td>Description and Function</td>
<td>Supplier</td>
<td>Supplier's Part No.</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------</td>
<td>----------</td>
<td>---------------------</td>
</tr>
<tr>
<td>1.012</td>
<td>Técalemit grease gun</td>
<td>Técalémit</td>
<td>PZ</td>
</tr>
<tr>
<td>1.229</td>
<td>Hex. wrench for steering nut, handlebar, yokes</td>
<td>Var</td>
<td>335</td>
</tr>
<tr>
<td>1.273</td>
<td>Bearing extractor for BG roller bearing (35 mm shell)</td>
<td>Var</td>
<td>142</td>
</tr>
<tr>
<td>1.320</td>
<td>Telescopic fork ring extractor</td>
<td>Var</td>
<td>360</td>
</tr>
<tr>
<td>1.352</td>
<td>Tool for insertion of bottom bracket bushings</td>
<td>Var</td>
<td>391</td>
</tr>
<tr>
<td>1.354</td>
<td>Telescopic fork adjusting key</td>
<td>Var</td>
<td>397</td>
</tr>
<tr>
<td>15.790</td>
<td>&quot;Multipurpose&quot; free wheel extractor</td>
<td>Var</td>
<td>01</td>
</tr>
<tr>
<td>16.117</td>
<td>Pin wrench for pulley and BG roller</td>
<td>MB</td>
<td>81</td>
</tr>
<tr>
<td>16.118</td>
<td>Measuring rod to check BG roller insertion</td>
<td>MB</td>
<td>81</td>
</tr>
<tr>
<td>16.753</td>
<td>Engine hinge flexibloc mount fitter extractor</td>
<td>Var</td>
<td>361</td>
</tr>
<tr>
<td>16.787</td>
<td>12 mm rear hub bearing extractor</td>
<td>MB</td>
<td>81</td>
</tr>
<tr>
<td>16.902</td>
<td>10 mm rear hub bearing extractor</td>
<td>MB</td>
<td>81</td>
</tr>
<tr>
<td>16.992</td>
<td>32 mm across flats hex. wrench for fork spindle nut</td>
<td>Var</td>
<td>58/32</td>
</tr>
<tr>
<td></td>
<td>Spark plug wrench</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Depth caliper gauge</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Small screwdriver (4 mm wide blade)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Description and Function</th>
<th>Supplier</th>
<th>Supplier's Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Steel discard head</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pointed chisel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>End wrench, I.D. 10 mm, O.D. 12 mm</td>
<td>Facon</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>End wrench, I.D. 19 mm, O.D. 21 mm</td>
<td>Facon</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>8 mm socket wrench</td>
<td>Facon</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>9 mm socket wrench</td>
<td>Facon</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>11 mm socket wrench</td>
<td>Facon</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>12 mm socket wrench</td>
<td>Facon</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>16 mm socket wrench</td>
<td>Facon</td>
<td>72</td>
</tr>
<tr>
<td></td>
<td>Multiple pliers</td>
<td>Facon</td>
<td>180</td>
</tr>
<tr>
<td></td>
<td>Combination pliers</td>
<td>Facon</td>
<td>187</td>
</tr>
<tr>
<td></td>
<td>Round nose pliers</td>
<td>Facon</td>
<td>189</td>
</tr>
<tr>
<td></td>
<td>Scraper</td>
<td>Facon</td>
<td>231</td>
</tr>
<tr>
<td></td>
<td>Chisel</td>
<td>Facon</td>
<td>252</td>
</tr>
<tr>
<td></td>
<td>Punch</td>
<td>Facon</td>
<td>256</td>
</tr>
<tr>
<td></td>
<td>Thickness gauge</td>
<td>Facon</td>
<td>804</td>
</tr>
</tbody>
</table>

(1) Tools not included in this book

- Test bench "L'UNIVERSEL" Marolaud
- Electronic BERMASCOPE D 53 M
- Pocket BERMASCOPE

(1) See special booklets.
Mobylette
REPAIR MANUAL

ENGINE STAND
(swiveling and swinging)

for engine disassembly and re-assembly

Engine disassembly and re-assembly stand
MB-17645
N° VAR. 378
for workbench attachment.
For vise-held stand, see paragraph 1, operation 10,
page 36
STROKE LIMITER

IMPORTANT NOTE

For all types of engine to be repaired, the use of stroke limiter MB-1179 is required in most disassembly and re-assembly operations.

This tool is designed to check crankshaft revolution at mid-stroke and offers the advantage of locking the engine whilst leaving both hands free to perform the operations required.

After having screwed the limiter over THE WHOLE THREADED LENGTH of the spark plug hole, BRING THE PISTON TO REST AGAINST IT GENTLY.
BELT DRIVE (Mobylette)

This drive system is quite reliable and very flexible. In normal condition it is fully satisfactory, and reasons to the contrary could only be the following:

- Non-genuine belt (frequently a problem)
- Insufficient tension.
- Excessive tension (on machines without a variator).
- Buckled pulley.
- Distorted, bumped or rugged pulley groove.
- Misalignment subsequent to a shock resulting in an offset engine or an out-of-true bottom bracket pin.

SPECIAL RECOMMENDATION CONCERNING BELT TENSION

- On reassembly, belt tension should be so adjusted that, when moderately depressing the driving side with the thumb, the deflection obtained is 10 mm.

- Do not forget that excess tension results not only in early belt wear, but in LOSS OF POWER for the engine and in damage to the crankshaft bearings.

- We recommend checking for correct belt and pulley alignment. Improvement of this alignment, if necessary, should be obtained by straightening the lower engine lugs.

Our belts have been the object of extensive testing and, especially for the Mobymatic, of specific development work. We therefore expressly recommend our dealers to fit GENUINE BELTS EXCLUSIVELY
REMOVING A FIXED ENGINE

1st CASE

Loosen the collar bolt if the engine is equipped with an inlet pipe.

2nd CASE

Unscrew and remove the nuts and washers securing the carburettor to the cylinder (types 32 S and AV 41).

- Remove both main chain guards.
- Remove the interference screen.
- Free the decompression control cable. To do this depress the spring with a screwdriver and extract the cable nipple secured under the retaining fork.
- Disconnect the lighting wire(s).
- Remove the carburettor (see the 2 cases shown alongside) (8-mm or 10-mm wrench).
- Loosen both engine crankcase which secure the belt guard. Remove the guard. (10-mm socket wrench).
- Disengage the exhaust angle pipe retaining nut FACOM 35-mm DUAL wrench, type No. 40).
- Remove the lower bolt securing the silencer lugs to the frame (12-mm socket wrench).
- Remove the exhaust assembly.
- Loosen and remove the nut on the upper attachment bolt (12-mm socket wrench).
- Remove the belt after pushing the engine to the rear.
- Support the engine and remove the upper bolt.
- The engine is fully detached from the frame.

NOTE - Machines 32 S - 65 - 76 - 85 are fitted with a detachable spacer at the upper attachment point. On machines 41-42-44 this spacer is brazed to the frame.

Tools Required:
- Screwdriver
- 10-mm socket wrench
- 8-mm wrench
- 12-mm wrench
- 15-mm FACOM wrench

Average time required: 20 min.
REFITTING A REPAIRED (FIXED) ENGINE (OPERATION NO. 2)

- Position the engine in the frame. Position the spacer. Insert the upper attachment bolt without locking it.
- Refit the exhaust assembly. Do not lock the exhaust angle pipe retaining nut on the cylinder.
- Insert the lower attachment bolt which also secures the clamp (or lugs) attaching the silencer. Do not omit the spacer which is located between the lower frame brackets.
- Fit the belt. See NOTE 1. Tension correctly (stretcher MB-1351, VAR-343).
- Lock the nuts on the upper and lower attachment bolts and on the exhaust.
- Reinstall the carburetor, driving fully home on the inlet pipe. Tighten the clamp bolt. See NOTE 2.
- Install the small belt guard. Lock both engine crankcase securing bolts.
- Connect the lighting wire(s).
- Install the a-compression control cable, with its nipples in the retaining fork. Depress the spring with a screwdriver. Insert the sheath end socket into the spring eyelet.
- Refit both chain guards.
- Install the interference screen on the spark plug.

NOTE 1 - BELTS: See page 10, the special recommendation concerning belt tension.

NOTE 2: Carburetors fitted to machine types 32 S and 41 are attached to the cylinder by a flange. It is recommended to check gasket condition and flatness of the flange. If the flange is distorted, it should be trued on a surface plate.
REMOVING A HINGED VARIATOR ENGINE (OPERATION N° 3)

— Remove both main chain guards and the DIMOBY case.
— Remove the interferencescreen.
— Free the decompression control cable. To do this, depress the spring with a screwdriver, extract the cable nipple secured under the retaining fork.
— Disconnect the lighting wire(s) which are attached to the magnetic flywheel stator with clips.

In the case of an external coil ignition unit, disconnect the supply lead attached with clips to the coil.

— Remove the belt.
— Remove the carburetor by widely loosening the securing collar bolt.
— Unscrew the exhaust angle pipe retaining nut (FACOM 35 mm DUAL wrench, type N° 40).
— Unscrew the nuts on the bolts securing the silencer clamps to the lower engine lugs. Note: certain types have only one single clamp.
— Disassemble the lower attachment by removing the 6 mm nut retaining the engine lugs onto the silentblock which is integral with the tension springs.
— Remove the upper attachment nut.
— Support the engine and remove the bolt which acts as a hinge attachment.

VERY CAREFULLY NOTE SPACER POSITIONING AND GROUND WIRE.

On the AV 48 machine, grounding is achieved by means of a cup located on the upper attachment pin.

TOOLS REQUIRED

- Screwdriver
- 35 mm FACOM wrench
- 8 mm and wrench
- 10 and 12 mm ball-end wrench

Average time required: 25 mn.
REFITTING A REPAIRED ENGINE
(HINGED VARIATOR ENGINE)

- Locate the engine in the frame.
- Insert the upper attachment bolt into the left-hand flexiblock and let it protrude by about 30 mm.
- Slide the small spacer and cylinder head upper boss, fitted with its body washers, over the bolt.
- Push the bolt in until it protrudes by about 3 mm from the cylinder head.
- Insert the ground wire eye ring and the long spacer.
- Fully engage the upper attachment bolt.
- Fit the nut without locking it.
- Secure the lower engine lugs to the silentblock which is built in with the loading springs.
- Reinstall the carburettor, driving fully home on the inlet pipe. Lock the clamp bolt.
- Connect the lighting wire(s) which is (are) attached to the magnetic magnet flywheel stator with clips.
- Connect the ignition supply lead to the external coil, the attachment being made with clips.
- Refit the exhaust assembly (fully screw the exhaust angle pipe retaining nut home, but do not lock it).
- Insert the silencer securing bolt(s).
- Lock the exhaust angle pipe nut and silencer bolt(s).
- Refit the belt; lock the upper attachment nut with the engine in mid-swing.
- Reinstall the decompression control cable (see Operation No. 2).
- Attach both chain guards and variorator case.
- Fit the interference screen on the spark plug.

TOOLS REQUIRED
Screwdriver
- 10 mm socket wrench
- 8 mm and 12 mm end wrenches
- 12 mm and 14 mm socket wrenches
- 35 mm box spanner wrench

Average time required: 35 min
REMOVING A FLYWHEEL MAGNETO (OPERATION N° 3)

- Remove the suppressor.
- Disconnect the lighting and external coil supply wires attached with clips.
- Remove the spark plug, fit the stroke limiter.
- Rest piston on limiter and unscrew rotor nut. Wrench MB-16733 and VAR-341 (watch thread hand).
- Remove the rotor.
- Fully engage the extractor MB-15142 VAR-359 onto the cam.
- Screw in the extractor center screw smoothly and pull the cam out.
- Remove the two 5 mm dia. x 75 mm lg nuts securing the stator using an 8-mm wrench.
- Remove the stator assembly.

CAUTION
The flywheel magneto nut has a left-hand thread, except on the roller drive machine where it has a right-hand thread.
REFITTING A FLYWHEEL MAGNETO

ADJUSTING THE CONTACT BREAKER (a)

— Position the repaired stator on the two attachment studs. Drive fully home on crankcase centering pin. Position the high tension terminal or the external coil supply lead toward the carburettor.

— Insert the four cup washers.

— Using an 8-mm wrench, screw on the two 5-mm dia. x 75 mm lg nuts gradually until they are locked.

(a) CONTACT BREAKER ADJUSTMENT

— Temporarily install the cam and revolve gently to obtain maximum gap between breaker contact points.

— Adjust the point gap, 0.35 mm min., 0.40 mm max. by means of a feeler gauge.

TO PERFORM THIS ADJUSTMENT, PROCEED AS FOLLOWS:

— Loosen the screw which retains the adjusting spring-fork.

— Pivot the contact breaker assembly to obtain the specified gap.

— Lock the adjusting screw.

TOOLS REQUIRED

<table>
<thead>
<tr>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-mm wrench</td>
</tr>
<tr>
<td>Feelor gauge</td>
</tr>
<tr>
<td>Screwdriver</td>
</tr>
<tr>
<td>Adjustment gauge MB-11746</td>
</tr>
<tr>
<td>Tube, I.D. 18 mm, O.D. 22 mm, 150 mm lg</td>
</tr>
</tbody>
</table>
IGNITION TIMING (b)

(b) IGNITION TIMING

- Install adjustment gauge MB-15746 in place of the spark plug.
- Bring the piston to T.D.C.
- Align the upper section of the gauge body with the lower section of the specified colour.
- Slowly revolve the engine (in reverse rotation) until the color is fully hidden.
- Install the cam on the crankshaft, rotate the cam in the normal running direction (without driving the engine).
- Stop rotating the cam when a resistance is felt. (The cam starts hitting the ceron tappet).
- Insert a tube, I.D. 18 mm, O.D. 22 mm, lg 150 mm (from operation 11) within the cam threading.
- Knock lightly with a hammer in order to lock the cam partly on the crankshaft.

Check setting accuracy

- Remove the setting gauge, install the stroke limiter.
- Install the rotor.
- Screw on and tighten the flywheel nut with the wrench MB-16733 or with a 5 m. kg torque wrench.

HOW TO CHECK SETTING

- Rotate the engine by 1/4 turn in reverse rotation.
- Insert a sheet of cigarette paper between the contact breaker contact points.
- Rotate the motor (in the normal direction).
- Exert a slight pull on the sheet. The latter is released as soon as a gap appears between the contact points.

This is correct ignition point, and at that precise moment the colour corresponding to the type of engine timed should become visible.

Average time required: 5 mn.
CENTERING THE ARMATURES ON THE FLYWHEEL MAGNETO MOUNTING PLATE

The flywheels on Mobylette 120 4 AC, series L and later models, including the present overlap plate flywheel, are so designed that components may be removed and refitted to the mounting plate without the cam having to be removed.

The removal of the flywheel unit and of the cam are dealt with in the preceding pages.

REMOVING THE H.T. ARMATURE (from the machine).

CONTACT BREAKER END: Fold back the lockwasher. Unscrew the hex head screw.

CONDENSER END: Unscrew the NYLSTOP nut (8-mm wrench). Then unscrew the hollow bolt (9-mm wrench).

The primary lead being disconnected from the contact breaker, the armature is easily removed by rocking and rotating it around the crankcase stud.

Proceed likewise to remove the lighting coil (after unsoldering the output wire).

REFITTING THE H.T. ARMATURE (with centering ring 16516).

After locating the H.T. armature on the mounting plate, i.e. with the H.T. outlet facing the plate and directed towards the H.T. terminal, insert the crankcase stud in the hole of the armature horn, on the condenser end.

Position the armature primary lead towards the contact breaker. Slightly push the flexible H.T. armature outlet into the outlet hole of the H.T. terminal. Rotate the armature around the crankcase stud to align the hole in the horn on contact breaker end with the housing of the hex head screw in the mounting plate. Insert the hex head screw on the contact breaker side and the hollow bolt on the condenser side and screw, but leave ample play.

Locate the precision centering ring 16516 on the mounting plate bosses that have been specially machined. Rest the armature horn on the ring, and then tighten the screws. Remove the ring by slightly rotating, an easy matter as its edge is knurled. Fold the lockwasher ears against the hex head screw.

Fit the NYLSTOP plate securing nut to the drilled bolt, where it acts as a lock nut. Replace the connection of the armature primary wire to the circuit breaker. The armature should no longer be interfered with, since its air gap is constant as a result of the assembly obtained with the precision RING. Proceed likewise to refit the lighting coil, but before performing the RING assembly the outlet lead must be soldered to the supply terminal lug.

Average time required: 15 mn.
REMOVING A VARIATOR OR A DIMOBY CLUTCH

— Remove the spark plug.
— Install the stroke limiter MB-1179 VAR-394 (see NOTE below)

— Unscrew the clutch retaining nut (14-mm socket wrench) (right-hand thread)
— Unscrew the 4 mm x 75 mm grease nipple. Nipple wrench MB-1117 VAR-367

— Screw extractor MB-15141 VAR-362 to the drum hub.
— Gradually tighten the center screw. The drum is easily pulled out.
— Extract the woodruff key.
— Extract the first truarc by means of pliers MB-987 VAR-420

— Remove the stop washers. Use magnetic extractor MB-1323 VAR-344
— Extract the second truarc by means of pliers MB-988 VAR-430
— Remove the complete assembly.

NOTE - See page 12 for instructions concerning the use of the limiter.

Average time required : 17 minutes.

TOOLS REQUIRED:
- Spark plug wrench
- Stroke limiter 1179
- 14-mm socket wrench
- Grease nipple wrench 1117
- 17-mm socket wrench
- Extractor 15141
- Truarc pliers 987
- Extractor 1323
- Truarc pliers 988
REFITTING A VARIATOR OR A DIMOBY CLUTCH (OPERATION N° 9)

IMPORTANT

- Position accurately all bearing and securing components of the complete unit.
- Install needle cage N° 14712 inside the hub.
- Rest on the cage one of stop washers N° 14562 (a), 0.5 mm thick.
- Insert the smaller truarc, N° 14561.
- Place the second stop washer (b).
- Temporarily insert the larger truarc, N° 14563 (c) (pliers MB-987 VAR-420).
- Adjust side play (See instructions below).
- Install the larger truarc definitely.
- The assembly is ready for installation.

INSTRUCTIONS FOR SIDE PLAY ADJUSTMENT

- Maximum permissible play is 0.1 mm.
- Place the special 0.1 mm thick spacers N° 14931 between stop washer (b) and larger truarc (c) N° 14563.
- When the larger truarc can no longer be accommodated behind the hub flange, remove one spacer and install the truarc definitely.
REFITTING A VARIATOR OR A DIMOBY CLUTCH (continued)
INSTALLING THE UNIT ON THE ENGINE (after adjusting side play)

Insert (from pulley end) the centering pin No. MB-1348
VAR-395 b (10 mm dia.)
or MB-1347
VAR-395 (11 mm dia.) to center truacs and washers correctly.

Centering pin on variator

- Fit the drilled end of the pin to the crankshaft threaded end (10 or 11 mm dia.)
- Drive home squarely, the variator will seat in the final position.

The unit should rotate freely and without play if the side play adjustment has been achieved as advised.
- Rotate the crankshaft to T.D.C. so that the woodruff key housing faces upwards.

Installing speed variator to crankshaft

- Install the woodruff key. Key adaptor MB-1321
VAR-347
- Install clutch drum; with the key well aligned, drive the drum fully home.
- Install the stroke limit MB-1179
VAR-394
- Screw on and tighten the clutch retaining nut (14-mm socket wrench or 22. m kg torque wrench).
- Screw the small grease nipple to crankshaft. Wrench MB-1117
VAR-367
- Remove the limiter and fit the spark plug.

TOOLS REQUIRED
Centering pin MB-1348
or MB-1347
Key adaptor MB-1321
14 mm socket wrench
Grease nipple wrench
Spark plug wrench

Average time required : 10 mn.
**MARKING OF CYLINDERS AND PISTONS**

In order to make easier the piston-cylinder matching in case the piston should have to be replaced during a repair by our Agents, the following arrangements have been made with our engine factory.

**RE CYLINDERS**

All cylinders will have a reference marked on the cylinder top: a letter corresponding to the size of the bore diameter (See table below).

**RE PISTONS**

All pistons delivered will be marked by means of a letter written with a pencil on the piston top.

### Matching will be effected with a cylinder and a piston bearing the same letter.

<table>
<thead>
<tr>
<th>REFERENCE</th>
<th>Ø PISTON</th>
<th>PART NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-A</td>
<td>38 - 838</td>
<td>18107</td>
</tr>
<tr>
<td>A</td>
<td>38 - 840</td>
<td>16853</td>
</tr>
<tr>
<td>B</td>
<td>38 - 845</td>
<td>18108</td>
</tr>
<tr>
<td>C</td>
<td>38 - 850</td>
<td>16854</td>
</tr>
<tr>
<td>D</td>
<td>38 - 855</td>
<td>18109</td>
</tr>
<tr>
<td>E</td>
<td>38 - 860</td>
<td>16855</td>
</tr>
<tr>
<td>F</td>
<td>38 - 865</td>
<td>18110</td>
</tr>
<tr>
<td>G</td>
<td>38 - 870</td>
<td>16856</td>
</tr>
<tr>
<td>H</td>
<td>38 - 875</td>
<td>18111</td>
</tr>
<tr>
<td>J</td>
<td>38 - 880</td>
<td>16857</td>
</tr>
<tr>
<td>K</td>
<td>38 - 885</td>
<td>18112</td>
</tr>
<tr>
<td>L</td>
<td>38 - 890</td>
<td>16858</td>
</tr>
<tr>
<td>M</td>
<td>38 - 900</td>
<td>18113</td>
</tr>
<tr>
<td>N</td>
<td>39 - 800</td>
<td>14819</td>
</tr>
<tr>
<td>O</td>
<td>39 - 805</td>
<td>18314</td>
</tr>
<tr>
<td>P</td>
<td>39 - 810</td>
<td>16859</td>
</tr>
</tbody>
</table>

For instance:

For a cylinder, marked L, you should order a piston No 16858.
COMPLETE DISASSEMBLY OF A MOBYLETTE ENGINE

- Insert a spacer between the engine lower securing brackets (or lugs) so that the engine may be firmly held in a vice, or use the engine stand MB-17645 VAR-378.
- Remove the magnetic flywheel, the vanator of the clutch (operations N° 5, 7, 8) SEE NOTE BELOW.
- Unscrew all 4 cylinder head nuts (10-mm socket wrench).
- Extract the washers (and on some types the upper attachment lugs).
- Remove the cylinder head and the cylinder.
- Remove the piston rings (pliers MB-1355 VAR-261).
- Remove the piston pin locks (round nose pliers) and drive out the pin (pin drift MB-17635 VAR-68).
- Mark the original assembly position, in case of re-use of the piston and cylinder.

- Loosen and remove the casing retaining screws and bolts (10-mm wrench).
- On disassembly, note the arrangement of engine and guard lower attachment lugs.
- Heat to about 100° C (Gazecom torch MB-1359 VAR-350) the crank-case end facing the flywheel around the outermost race of the crankshaft bearing.
- The half-case must drop off by its own.
- Proceed likewise for the remaining half-case.
- Extract both crankshaft bearings (extractor MB-17637 VAR-142/42).

NOTE - On clutchless machines (32 S - 41), unscrew the engine pulley lock nut (17-mm socket wrench, left-hand thread). Then unscrew the pulley (pin wrench N° 1360, right-hand thread).

TOOLS REQUIRED

- 10-mm socket wrench
- Gazecom torch MB-1359
- Round nose pliers
- Bearing extractor MB-17637
- 17-mm socket wrench
- Pin drift MB-17635
- Fly wrench MB-1560

Average time required 25 minutes
COMPLETE ENGINE RE-ASSEMBLY (OPERATION N° 11)
SIDE PLAY ADJUSTMENT AND CRANKSHAFT ASSEMBLY IN THE CRANKCASES (a and b)

(a) SIDE PLAY ADJUSTMENT (tentative assembly of crankshaft)
(Operation to be performed without gaskets).
- Fit the crankshaft tangs with dummy bearings (No. 16799, dia. 15 mm; No. 17170, dia. 16 mm). These are available as spare parts.
- Install the crankshaft (with dummy bearings) in the crankcases.
- Fit the engine crankcase paper gasket. Assemble both half-cases (1 upper bolt and 1 upper screw).
- Clamp this assembly in a vice (over the lower bosses).
- Roughly assess the existing side play (depth caliper gauge).
- Remove the cases and place adjustment washers (distribute the washers between the crankshaft and bearings so as to balance the rod between casings).

**IMPORTANT NOTE**
16 mm I.D. bearings are chamfered to one end to a large radius. This chamfer must face the crankshaft balance weight

(b) FINAL CRANKSHAFT RE-ASSEMBLY
- Fit between both crankshaft balance weights a steel strip 120 x 30 x 7 mm.
- Install this assembly (without squeezing) in the jaws of a vice (75-mm clamp).
- Install the washers assessed for that end of the crankshaft.
- Drive the bearing home tight against the washers (using a tube I.D. 18 mm, O.D. 22 mm, 150 mm long).

CAREFULLY NOTE THE WAY THE BEARINGS ARE FITTED (SEE IMPORTANT NOTE ABOVE)

**Permissible play : max. 0.1 mm**

Position of bearings and gaskets

Tools Required:
- Dummy bearing No. 16799, 17170
- Steel strip 120x30x7
- Tube I.D. 18 mm, O.D. 22 mm, 150 mm long

Average time required: 10 min.
COMPLETE ENGINE RE-ASSEMBLY (continuation 1) (OPERATION N° 11)

- Turn over the assembly clamped in the vice and proceed likewise for the other crankshaft end.
- Heat the magnetic flywheel half-casing to about 80°C (torch MB-1359 VAR-359) around the bearing housing.

IMPORTANT.
- Place the oil seal seal guide MB-1353 VAR-399 SEE NOTE 1.
- Smear the crankshaft tang, the bearing and the oil seal with graphite grease.
- Fit the assembly in the half-case very rapidly, the bearing will locate itself correctly.
- Place the case gasket (oiled paper).
- Proceed likewise with the other half-case.
- Install the half-case, clutch end, on this assembly.
- Clamp very moderately the lower casing bosses in the vise.
- Insert the upper screw and upper bolt (without tightening.)
- Aligns finely the cylinder-to-case junction line by knocking with a hammer the upper part of a cylinder-to-cylinder head assembly stud.
- Flush the case paper gasket with a scraper.
- Tighten the upper bolt and screw. SEE NOTE 2.
- Position the lower engine attachment brackets and the dual lug of the DIMOBY protective case (variator machines).
- Insert and tighten the bolts (nuts facing magnetic and, 10-mm socket wrench).

NOTE 1
Seals must be placed with their lips facing outwards so that no dust may be admitted during decompression.

NOTE 2 - On variator machines, before tightening the upper screw, locate the cylinder in order to position the upper attachment lug of the DIMOBY case. The catch on this lug must rest against the lower cylinder fin.

TOOLS REQUIRED
Gazecom Torch MB-1359
Variator MB-1353

Average time required : 10 mm.
COMPLETE ENGINE RE-ASSEMBLY (continuation 2) (OPERATION N°111)
FITTING THE PISTON IN THE CYLINDER AND STRAIGHTENING A ROD (c and d)

(c) FITTING THE PISTON IN THE CYLINDER

- Place a spacer between the lower attachment brackets (or lugs) in order to clamp the crankcase firmly in a vice.
- Set the piston on the rod (needle cage assembled).
- Insert an old piston pin (O.D. 12.9 mm).
- Heat to about 100° C the piston top (torch MB-1359, VAR-350).
- Fit the final piston pin on pin assembler MB-1349, VAR-396.
- Insert the assembler tip into the old pin.
- Drive fully in. The assembler stop will position correctly the pin in the piston.
- Position the cylinder on the hot ringless piston; the cylinder will slide down as temperature evens out. This operation prevents piston distortion on cooling.
- After the piston-cylinder assembly has cooled off, rotate the engine to make sure the rod requires no straightening.
- See "Checking rod trueness" on this page, and rod straightening next page under (d).

By applying the disassembly and re-assembly methods we describe, no rod can be distorted or bent. Such anomaly could only occur in case the piston is disassembled by hammering.
COMPLETE ENGINE RE-ASSEMBLY (continuation 3) [OPERATION N°11]

- Remove the cylinder.
- Install new circlips (round nose pliers).
- Install the piston rings (pliers MB-1355 or VAR-261).
- Set cylinder gasket (smeared with oil on both sides).
- Reset cylinder on its four studs (slide down gradually).
- Set cylinder head gasket.
- Install the cylinder head after having cleaned it perfectly. Install the upper attachment lugs, if necessary.
- Place washers and cylinder head nuts (tighten gradually and diagonally).
- Tighten without excess (10-mm socket wrench or 1.2 m kg torque wrench).
- Install the variator or the clutch (Operation No. 9).
- Install the flywheel magneto (Operation No. 6).

(d) STRAIGHTENING A ROD

- The cylinder is removed and the case clamped in a vise.
- Insert a broach in the piston pin.
- Slowly bring into position by forcing the broach.
- Check as specified on preceding page, and straighten again until the piston is correctly centered in the cylinder.

TOOLS REQUIRED

<table>
<thead>
<tr>
<th>Tool</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil seal MB-1353</td>
<td>10 mm socket wrench</td>
</tr>
<tr>
<td>16 mm socket wrench</td>
<td>Piston pin assembly MB-1349</td>
</tr>
<tr>
<td>16 mm socket wrench</td>
<td>Flywheel</td>
</tr>
<tr>
<td>Internal thread</td>
<td>Round nose pliers</td>
</tr>
<tr>
<td>150 mm lg</td>
<td>Cylinder ring MB-1359</td>
</tr>
<tr>
<td>150 mm lg</td>
<td>Brass scraper</td>
</tr>
</tbody>
</table>

Average time required : 50 min.
DESCRIPTION AND OPERATION OF THE "MOBYMATIC" VARIATOR

DESCRIPTION

— As is the case for all Mobylettes, the Mobymatic has a primary rubber belt drive which provides the well-known smoothness and flexibility, and a secondary chain drive.

— But the Mobymatic primary drive is a special one. The driving pulley locked on the engine is a special collapsible one, whose cheek spacing is variable under the influence of centrifugally-moved balls pushing on the cheek side which is opposite the belt. As the cheeks spread apart or close in, the winding diameter of the V-belt varies, and this in turn modifies the reduction ratio from 18.7:1 to 11.8:1. The engine tilts around its upper attachment axis. A spring-loaded device tends to push it forward, thus ensuring belt tension.

OPERATION

— On starting, the engine revolves slowly as soon as it engages. The springs which push the engine forward compel the belt to rest on the smallest drive-pulley diameter. The reduction ratio is at its highest, we are in low gear. As soon as engine speed increases, the balls push the movable cheek, thus decreasing the reduction ratio, which means that for a given engine rpm the machine rolls faster. If the mobylette is on a flat road, the belt goes on increasing to larger and larger drive pulley diameters until top speed is reached. If the Mobylette engages an up-grade, the speed of both machine and engine tend to decrease. The balls exert less push on the movable cheek which then tends to move away from the fixed one thereby decreasing the belt winding diameter. As this change of speed is continuous, the modification in reduction ratio, although fast, occurs gradually without any jerks.

Incidentally, the Mobymatic responds to changing road as well as to cruise conditions.

Embryage centrifuge = centrifugal clutch.
COMPLETE DISASSEMBLY OF A VARIATOR
(MODEL WITH SCREWED FIXED CHEEK)

ALL MOBYMATIC TYPES:
Belt: 18 x 8: 89 - SP 50 - SP 50 R (as from the start) Variator unit number: 16840
Belt: 14 x 7: 88 - 68 - 79 - 48 (as from June 1963) Variator unit number: 17796

- Install the speed variator in the tool
  VAR - 348
- Unscrew the lock nut 25 mm dia. 100 mm lg. left-hand thread (35-mm FACOM wrench).
- Unscrew fixed cheek (right-hand thread) with the clamp
  MB - 1350
  VAR - 398
- Remove the stop washer and collect the movable cheek, ball cage and balls (the stop washer is only on 18-mm belt variators)
- Loosen and remove the 4 screws retaining the drum to the hub. Screwdriver MB - 1356
  VAR - 298
  (figure page 34)

- Remove the drum. Extract the clutch shoes by sliding them vertically along their pivot.
- Remove the washers. The hub is completely stripped.

TOOLS REQUIRED:
- Dismantling tool MB - 1322
- 35 mm FACOM wrench
- Clamp MB - 1350
- Screwdriver MB - 1154

Average time required: 10 min.
RE-ASSEMBLING A VARIATOR
(OPERATION N° 13)
(MODEL WITH SCREWED FIXED CHEEK)

ALL MOBYMATIC TYPES:
Belt : 18 x 8 : 85 - SP 50 - SP 50 R (as from the start)
Variator unit number : 16840
Belt : 14 x 7 : 88 - 68 - 79 - 48 (as from June 1963)
Variator unit number : 17796

— Install the clutch hub on the dismantling tool MB-1322
      VAR-348
— Place on both pillars, furthest from the movable cheek stop, a 10-mm dia. \times 15 \times 2 mm
      plain washer and a spring washer to prevent side play on the flyweights.
— Install the flyweights connected by two springs on the pillars; when fully fitted
      in, they should spread out freely.
— Secure the clutch bell with all four screws (tighten gradually).
— Tighten all four screws (screwdriver MB-1356, VAR-298). Punch lock in the notch
      provided to that effect.
— Take the movable cheek, the hub turned upwards. Install the ball cage with the
      balls in the recesses.
— Extract clutch hub from the VAR tool and fit in the complete movable cheek.
— Turn over and replace the above assembly on tool MB-1322
      VAR-348. Install a stop washer.
— Screw on the fixed cheek (right-hand thread using Clamp MB-1350,
      VAR-398).
— Screw on the lock nut (left-hand thread) using the 35-mm dial wrench.
— The variator unit can now be installed in accordance with Operation No. 9.

TOOLS REQUIRED
Dismantling tool MB-1344
Screwdriver MB-1356
Punch
35 mm FACOM wrench
Clamp MB-1350

Average time required: 20 min.
COMPLETE DISASSEMBLY OF A VARIATOR

VARIATOR N° 16.704 (MODEL WITH UNTHEADED FIXED CHEEK)

"Mobymatic" models (belt: 14 x 7 - AV 88 - 68 - 79 - 48. up to May 1963)

- Install speed variator on the dismantling tool MB-1322, VAR-348 (Fig. on page 32):
- Fold the retaining nut lock N° 15186 using a chisel.
- Unscrew the nut 27 mm dia., 100 mm lg. right-hand (35 mm FACOM wrench). Fig. on page 32.
- Apply lever action to drive off the fixed cheek.
- Retrieve the movable cheek, the ball cage and the balls.

TOOLs REQUIRED:
- Dismantling tool MB-1322
- Chisel 15 mm FACOM wrench
- Screwdriver MB-1356

Average time required: 10 min.

Screwdriver 1356

- Loosen and remove the four screws securing the bell to the hub. Screwdriver MB-1356, VAR-293
- Remove the bell. Extract the flyweights by sliding them vertically along their pivot
- Extract the washers. The hub is completely stripped.
RE-ASSEMBLING A VARIATOR (OPERATION N° 15)
(MODEL WITH UNSCREWED FIXED CHEEK)

MOBYMATIC MODELS (belt : 14 x 7 - AV 88 - 68 - 79 - 48, up to May 1963)

— Proceed as for operation N° 13 except for assembling the fixed cheek which fits both flats on the clutch hub.

— Place the lock washer, then the nut (right-hand thread).

— Tighten the nut (35-mm FACOM wrench).

— Lock the nut, with the tab folded up along one of the nut flats.

— The variator can now be installed in accordance with operation N° 9.

IMPORTANT

This must be a very tight fit, i.e. WITHOUT PLAY.

TOOLS REQUIRED

Dismantling tool MB-1353
Screwdriver MB-1356
35-mm FACOM wrench

Average time required : 20 minutes.
COMPLETE DISASSEMBLY OF A "DIMOBY" CLUTCH
OPERATION N°16

- Clamp the pulley integral with the clutch in a vise fitted with copper jaws.
- Loosen and remove (screwdriver MB-1356 VAR-298) all four screws securing the block brace to the pillars.
- Remove the block brace. Remove the washers.
- Extract the flyweights by sliding them vertically along their pivot. CAUTION
- Extract the flyweight lower stop washers.

CAUTION
On disassembly, carefully mark the flyweight position. The flyweights are fitted in reverse direction in the clutches of roller-driven machines.

Average time required: 10 mn.

RE-ASSEMBLY A "DIMOBY" CLUTCH
OPERATION N°17

- Place an 8-mm I.D. flat washer on each pillar flyweight pivot.
- Fit both flyweights (connected with two springs) on the pillars.
- Place both spring washers, then both flat washers on the flyweights.
- Secure the block brace with all four screws (tighten gradually).
- Tighten the four screws (screwdriver MB-1356 VAR-298). Punch lock in the notch provided to that effect.

Average time required: 15 mn.

ADJUSTING A "DIMOBY" CLUTCH WITHOUT VARIATOR
OPERATION N°18

- The flyweights are drilled with four 2-mm holes for hooking both return springs. To allow starting at a lower speed, it is possible to hook the springs in the holes nearest to each other, in order to decrease spring tension.

NOTE - On a Dimoby fitted with a variator, this adjustment is not required on account of the very high reduction ratio. However, the principle remains applicable.

TOOLS REQUIRED
Screwdriver MB-1356
Punch

Average time required: 25 mn.
(If several positions have to be tested).

Standard clutch view of the flyweights

3G clutch view of the flyweights
CYCLE
SECTION
SKETCH OF A REPAIR BENCH

This sketch may be used to build a repair bench

This bench is fitted with two attachment systems:

1) One system, with a flanged tube, for operations on upside-down machine.

2) Another system, with a securing clamp, to hold the front or rear wheel whilst the machine rests on its own stand.
REPAIRING A RIGID FORK OR REPLACING A STEERING UNIT (OPERATION No 19)

- Drain the tank.
- Remove the saddle and seat post (12-mm socket wrench).
- Turn the machine upside down and rest it on a stand engaging the seat tube. (see sketch on page 38).
- Remove the front wheel (16-mm socket wrench).
- Disconnect the lighting wires inside the head lamp.
- Remove the mudguard and the front brake (8 and 10-mm socket wrenches).
- Remove the handlebar and control grips (12-mm socket wrench).
- Unscrew and remove the 8-flat upper lock nut (a) (32-mm wrench MB-1229).
- VAR-335).
- Pull out the notched front brake bracket.
- Unscrew the top bearing cup (b). Retain the balls (multiple pliers).
- Pull out the fork (rotate slightly to leave the balls in the lower cup).
- Collect the steering balls (c).
- Extract the bottom bearing cup (e) and upper cone (d).
- Remove the bottom cone (f) secured to the fork tube.
- Proceed in reverse order for re-assembly.

TOOLS REQUIRED

Screwdriver
Multiple pliers
16 mm socket wrench
13 mm socket wrench
8 mm socket wrench
10 mm socket wrench
33 mm wrench MB-1229

Average time required: 1 hour 30 mn.
(together with re-assembly by operating in reverse sequence)

39
REPAIRING OR REPLACING TELESCOPIC FORKS (OPERATION 11: 20)

As in the case of Operation No. 19, drain the tank, remove the saddle and seat post and rest the machine on the stand. Remove the front wheel and disconnect the lighting wires in the headlamp.

- Remove the headlamp using the 10 or 14-mm socket wrench.
- Remove the Timbrelec bell or horn, if any, after disconnecting wires using the 10-mm socket wrench.
- Unlock the steering tube lower screw (chisel).
- Loosen and remove the steering tube lower screw using the 32 mm wrench MB-16992 VAR-58/32.
- Remove both securing screws and the single locating screw of the twist grip using the screwdriver and the 8-mm wrench.
- Remove both handlebar yokes using the 10-mm socket wrench.
- Remove the twist grip; guide it between the dampers to turn it loose.
- Unscrew the upper 8-flat lock screw (32-mm wrench MB-1229 VAR-336).
- With a hard wood block, hammer the edge of the lower plate to free the assembly.
- Pull the forks forward and lift to disengage them from the upper part the threaded tube.
- Unscrew the top bearing cup; be careful to retain the balls. Use the multiple pliers.
- Remove the threaded tube; rotate slightly to let the balls remain in the bottom bearing cup.
- Proceed as in Operation No. 19 if the steering unit must be replaced.

NOTE

If equipped with a firm stand (repair bench, hoist bench, multipurpose bench), the repairer may do without turning the machine upside down, and therefore he does not need to drain the tank. In such a case, be very careful not to lose the balls when removing the threaded tube.

Average time required: 2 hours
(together with re-assembly)
COMPLETE DISASSEMBLY OF THE TELESCOPIC FORKS

Clamp the lower member plate in a vise fitted with felt-protected jaws.

Unscrew both upper knurled nuts retaining the plunger springs using multiple pliers or a pin screwdriver.

Also unscrew both bottom knurled nuts from forks using multiple pliers.

Pull out both plungers (with spring and upper fastener) through the bottom end.

Extract the graphited nylon bushes and bush spacers using extractor MB-1320 VAR-360.

Remove the forks embellishers, according to the type of the machine.

Proceed reversely for re-assembly. AVOID TIGHTENING the bottom knurled nuts before the plungers are installed. This allows position to the bushes correctly.

NOTE - SP 50 R and 89 new model

on "wide" forks equipping these machines, the bottom set of nuts no 17824 (retaining the nylon bushes) are screwed inside the dampers (adjusting wrench MB-1354 VAR-397).

When assembling, lock the nuts by smearing the thread with a plastic glue similar to "Loctite, grade C" (1). (1) CHAMPION - 87, Avenue Niel, Paris (see manual).

Adjustment key wrench no 1354, used as a dummy plunger, is also quite useful for aligning bushes on telescopic forks of all other models.

Average time required: 30 min (without re-assembly):
REPAIRING A LEVER ACTION FORK (type 89 former model) (OPERATION NO. 22)

— As in Operation No. 19, drain the tank, remove the saddle and seat post, and rest the machine upside down on a stand.

— Disconnect the speedometer and brake controls connected to the front hub.
— Remove front wheel using a 16-mm socket wrench.
— Disconnect the lighting wires located inside the headlamp, and the Timbrelec bell or horn wires.
— Pull out the front brake and speedometer controls (housed inside the fork).
— Remove the handlebar and the control grips using a 12-mm socket wrench.
— Unscrew and remove the upper 8-flat lock nut using a 32-mm wrench MB-1229 VAR-335.
— Remove both front guard securing screws using a 10-mm socket wrench.
— Remove the front guard.
— Unscrew the top bearing cup using multiple pliers; retrieve the balls.
— Pull out the forks by rotating it slightly so as to leave the balls in the bottom cup.
— Clamp the fork by the threaded tube in a vise with lead or copper jaws.
— Remove the front mudguard secured to the fork by four screws and nuts using a 10-mm socket wrench.
— Extract the bottom cone secured to the base of the threaded tube.
— Remove both back-plates securing the Neiman bushes using a 11-mm socket wrench.
— Remove the pin and unscrew the nuts, then remove the fork lever hinge pins using a 14-mm socket wrench.
— Mill and pull out the rivets securing the Neiman bushes to the fork lever.
— Proceed reversely for re-assembly.

Average time required: 3 hour 30 minutes. (Together with re-assembly by operating in reverse order.)
REPLACING A PULLEY (a) AND A BOTTOM BRACKET AXLE (b) (OPERATION N° 23)

a) REPLACING A PULLEY

This operation is applicable to all Mobylette types except roller drive machines.

- Remove the left-hand side guards except for the belt protector on machines not fitted with a variator.
- Trip the belt. On machines not fitted with a variator, unlock the lower engine attachment bolt and remove the upper one using a 12-mm socket wrench in order to disengage the pulley. **BE CAUTIOUS.**
- Remove the belt.
- Remove the left-hand crank (11-mm socket wrench).
- Unfasten the quick-release of the engine drive chain.
- Remove the pulley oil-protection cup, circlip and bottom bracket spindle cheek using Truarc pliers No. 988.
- Pull the pulley out.

Average time required: 1 hour.

b) REPLACING A BOTTOM BRACKET AXLE. **SEE NOTE BELOW**

- Carry out the above operations.
- Remove the right-hand side chain guard and the chain using the screwdriver and combination pliers.
- Remove the right-hand crank using an 11-mm socket wrench.
- Remove the two circlips and the cheeks using Truarc pliers No. 988.
- Extract the bottom bracket axle.
- Proceed reversely for re-assembly.

Average time required: 1 hour 30 minutes.

NOTE. Mobylettes 89 and SP 50 have a flanged bracket axle with only one retaining circlip which must therefore come out on the left-hand side. The SP 50 R is fitted with a spindle with crank release in the footrest position. Remove on right-hand side the circlip, the cup, the loading spring, and extract the right-hand crank. The spindle must come out on the right-hand side.

TOOLS REQUIRED

<table>
<thead>
<tr>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screwdriver</td>
</tr>
<tr>
<td>12 mm socket wrench</td>
</tr>
<tr>
<td>11 mm socket wrench</td>
</tr>
<tr>
<td>Truarc pliers N° 988</td>
</tr>
<tr>
<td>Combination pliers</td>
</tr>
</tbody>
</table>
REPLACING THE BOTTOM BRACKET AXLE BUSHES (OPERATION N° 24)

- Remove the chain guards using a screwdriver.
- Remove both engine and pedal drive chains using combination pliers.
- Remove the belt (operation No. 23).
- Remove the right-hand crank, and pull it out using an 11-mm socket wrench. SEE NOTE BELOW.
- Remove spindle circlip and cheek using Truarc pliers No. 98B.
- Remove through the left-hand side the bracket axle, pulley and left-hand crank.
- Make a notch with a pointed chisel in one of the axle bushes.
- Drive out the notched bushing by means of a steel discard head inserted in the bottom bracket.
- Drive out the remaining bushing using the 20- or 22-mm steel tube.
- Proceed reversely for re-assembly, but use the tool to fit the bottom bracket bushes MB-1352 VAR-391.

NOTE. As specified for Operation n° 23, for SP 50 R machines the spindle must be extracted on the right-hand side after removing the left-hand crank, pulley, circlip and cheek.

- After removing the securing screw, extract the right-hand side bush which acts as a stop for the release crank.
- Then drive out the left-hand side bushing with a 20 or 22 mm dia. tube.

TOOLS REQUIRED

<table>
<thead>
<tr>
<th>Tool</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Screwdriver</td>
<td>Steel discard head</td>
</tr>
<tr>
<td>Combination pliers</td>
<td>Tube, 20 or 21 mm dia.</td>
</tr>
<tr>
<td>12 mm socket wrench</td>
<td>Pointed chisel 10 x 12 mm and wrench</td>
</tr>
<tr>
<td>11 mm socket wrench</td>
<td>19 x 11 mm and wrench</td>
</tr>
<tr>
<td>Truarc pliers No. 98B</td>
<td></td>
</tr>
</tbody>
</table>

Average time required: 7 hours.
DISASSEMBLING OR RE-ASSEMBLING

A) FLEXIBLOCS ENGINE HINGE - B) YUB BEARINGS

a) Disassembling or re-assembling the flexiblocs engine hinge

- Tool No. 16753 is absolutely necessary for these operations.
- For insertion, introduce from inside the "Flexibloc" chamfered end first.
- To position or extract, proceed from inside to outside.

b) Disassembling the hub bearings.

- This is a convenient tool to extract the hub bearings:
  - For 10-mm dia. axle, No. 16902.
  - For 12-mm dia. axle, No. 16787.
- Insert the 10- or 12-mm rod into one of the bearings so that its split end comes flush with the inner side of the other bearing.
- Insert the tapered rod through the latter and expand the 10- or 12-mm dia. rod. Then drive out the bearing.
POOR PERFORMANCE

More often than not, poor performance should not be ascribed to the engine itself but to one or several frequently unsuspected secondary causes. (1)

In such a case, we suggest to check the following:

1°) Check that the decompression control is not or has not been too tight, which might possibly damage the valve and entail compression loss (this is a frequent cause).

2°) Check that the trottle opens fully. Quite often its control is maladjusted and the engine is starved even at full trottle position.

3°) Check that there is no braking action due to excessively taut chains. In this respect, on Mobylettes fitted with a swinging arm rear suspension, tension adjustment must be performed in running position, the machine loaded with a rider weighing about 165 lb.

4°) Check that there is no braking action due to an excessively taut belt (machines without a variator).

5°) Check that the brake controls are correctly adjusted.

6°) Check that the filler cap vent hole is not clogged as this may bring about poor fuel supply.

7°) Check that the spark plug is in accordance with the manufacturer's specifications.

8°) Check that poor performance is not just a case of exhaust fouling, mainly in the elbow.

9°) Very important note. - Quite often, poor engine performance may be caused by an overtightening of the cylinder head nuts, which results in cylinder distortion. In this respect, it must be mentioned that these nuts are finally tightened in the plant with precision torque wrenches and should not be tightened again later.

10°) However an unforeseen failure may occur, mostly in ignition. In such event check the magnetic flyweight components, external H. T. coil and the interference screen.

Keep in mind:

- That an engine needs running in for 300 miles and only yields its full power after about 600 miles.

- That a Mobylette that is not fitted with a variator is not as good a climber as one fitted with a variator.

(1) All our engines are bench-tested and their efficiency curve plotted with high accuracy. The machines themselves are submitted to a final test before shipment.
# POOR IGNITION OPERATION
(MAGNETIC FLYWHEEL AND IGNITION SYSTEM)

<table>
<thead>
<tr>
<th>FAILURE</th>
<th>PROBABLE CAUSES</th>
<th>REMEDIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine does not start or starts with difficulty.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Fouled or faulty spark plug.</td>
<td>1 - Replace with specified original type. Gap width 0.4 mm.</td>
</tr>
<tr>
<td>2</td>
<td>Contact points do not space out, or do not space far enough (worn or broken rubbing block).</td>
<td>2 - Adjust max. gap at 0.3 mm. Replace contact breaker if necessary. Check cam condition and replace it if necessary.</td>
</tr>
<tr>
<td>3</td>
<td>Moving contact jammed.</td>
<td>3 - Sand slightly. Refit with a drop of graphite oil.</td>
</tr>
<tr>
<td>4</td>
<td>Broken spring.</td>
<td>4 - Replace the contact breaker.</td>
</tr>
<tr>
<td>5</td>
<td>Foreign body between contact points. Burned or pitted contact points.</td>
<td>5 - Face contact points. Replace the contact breaker if necessary. Check condenser and lead condition which might well be the cause.</td>
</tr>
<tr>
<td>6</td>
<td>Condenser and/or ignition coil faulty or weak; supply armature seldom at fault.</td>
<td>6 - Check on Bermascope. Replace if necessary.</td>
</tr>
<tr>
<td>7</td>
<td>Ignition coil leaky (visible charred point).</td>
<td>7 - Replace it. Do not lose contact spring.</td>
</tr>
<tr>
<td>8</td>
<td>Faulty supressor.</td>
<td>8 - Replace it.</td>
</tr>
</tbody>
</table>

Caution: type M 23 - external coil, type M 24 - internal H.T. armature.
## POOR IGNITION OPERATION (continuation)

### (MAGNETIC FLYWHEEL AND IGNITION SYSTEM)

<table>
<thead>
<tr>
<th>FAILURE</th>
<th>PROBABLE CAUSES</th>
<th>REMEDIES</th>
</tr>
</thead>
</table>
| I | 9. Condenser lead shorted on plate or broken.  
10. Magnet holder offset in rotor, with consequent magnetic field shift.  
11. Faulty ignition timing (too much or too little advance). | 9. Replace the lead or assembly according to model.  
10. Replace the rotor. Check voltage.  
11. To be checked. |
| II | 1. Gap between contact points too wide.  
2. A rare occurrence - demagnetized rotor. | 1. Permissible max gap 0.3 mm.  
2. Test another rotor of the same voltage. |
| III | 1. Self-ignition or spark plug hot point due to fouling.  
2. The moving contact rotates with difficulty.  
3. Loose moving contact spindle.  
4. Excess play of contact on spindle or weak spring (a rare occurrence).  
5. Contact breaker connection bracket loose.  
7. Failure of ignition coil or armature. | 1. Sand blowing or replacement of spark plug.  
2. Slightly sand spindle. Refit with a drop of graphite oil.  
3.  
4. Replace contact breaker.  
5.  
6. Check on Bemascope.  
7. Replace if needed. |