BERNARD MOTEURS

INSTRUCTION BOOK
FOR THE USE AND MAINTENANCE
OF ENGINES TYPES
112 - 112BIS
112 TER

No 2030 Ang (10-71)
PREFACE

You are now the owner of one of our engines.

The judicious choice of the materials employed, the high finish of the parts obtained by the most perfected tools, and the numerous checks made during and at the end of manufacturing, ensure a perfect construction.

The design of the engine is such, that only little care is required for maintenance.

We are sure it will give you entire satisfaction.

Do not forget that the life and good working of this engine depend essentially on the way it is driven and the care you will give it.

We ask you to read this booklet carefully in which the essential of what you should know is explained.

For the overhauling and repairs of your engine, get in touch with your local Agent. He is a specialist who knows our engines very well and will give you satisfaction very rapidly.

However, those of our clients who haven't the possibility of getting their repairs done by a qualified Agent of ours, could apply to us giving the make and number of their engine. We will not fail to give them very useful advice.
# CHARACTERISTICS

<table>
<thead>
<tr>
<th>TYPES OF ENGINES</th>
<th>112</th>
<th>112ter</th>
<th>112bis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bore in mm</td>
<td>85</td>
<td>88</td>
<td></td>
</tr>
<tr>
<td>Stroke in mm</td>
<td>88</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td><strong>Displacement</strong> in cm³</td>
<td>500</td>
<td>547</td>
<td></td>
</tr>
<tr>
<td>Cycle</td>
<td></td>
<td>4 Stroke</td>
<td></td>
</tr>
<tr>
<td>Output in HP</td>
<td>8</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Speed in RPM</td>
<td>2000</td>
<td>2000</td>
<td></td>
</tr>
<tr>
<td>Capacity in liters</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Petrol Lubricating Oil</td>
<td></td>
<td>Engine on base</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Engine on cradle</td>
<td>0,95</td>
</tr>
<tr>
<td>Choke tube</td>
<td>20</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Main jet</td>
<td>105</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>Slow speed jet</td>
<td>55</td>
<td>55</td>
<td></td>
</tr>
<tr>
<td>Sparking plug champion type</td>
<td>L,90</td>
<td>L,90</td>
<td></td>
</tr>
<tr>
<td>Opening between plug points</td>
<td>0,4</td>
<td>0,4</td>
<td></td>
</tr>
<tr>
<td>Opening between joints of make and break</td>
<td>0,4</td>
<td>0,4</td>
<td></td>
</tr>
<tr>
<td>Inlet play when cold</td>
<td>0,20</td>
<td>0,20</td>
<td></td>
</tr>
<tr>
<td>Outlet play when cold</td>
<td>0,25</td>
<td>0,25</td>
<td></td>
</tr>
<tr>
<td>Opening of inlet - before upper dead center</td>
<td>65,5</td>
<td>65,5</td>
<td></td>
</tr>
<tr>
<td>Closing of inlet - after upper dead center</td>
<td>91,7</td>
<td>91,7</td>
<td></td>
</tr>
<tr>
<td>Opening of exhaust - before lower dead center</td>
<td>104</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>Closing of exhaust - after lower dead center</td>
<td>52</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Ignition advance - before lower dead center</td>
<td>45</td>
<td>45</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** The indicated figures for the distribution are in mm, and are measured on the rim of the flywheel, the diameter of which is 300 mm. As an indication 1° represents 2,61 mm. Never use the engines at a speed below 1500 RPM.

# DESCRIPTION

On the illustrations shown on pages 4 and 5 are indicated the various parts and accessories which concern the different types of engines.

## PREPARING OF THE ENGINE

Before starting the engine make sure:

1. that the oil level is normal
2. that the petrol tank contains petrol
3. that the air filter is not choked
4. that the cooling system is not full of dirt.

1. **LUBRICATING OIL**: Unscrew the oil filler plug 4 which is situated on top of the engine, between the petrol tank and the rocker boxes.

   Add oil until the level reaches the limit of the upper inset of the gauge.

   Screw the oil filler plug tight.
To avoid serious damage to the engine, never let the oil level go below the minimum, which is determined by the sign - on the lower part of the oil gauge (lower limit of notch).

When filling the oil, take care also, not to fill above the maximum level indicated on the oil gauge, which may lead to trouble (sign + on the upper part of the oil gauge).

When the engine is in continuous service, the oil level should be checked after every 8 hours running. The level should always be checked before each starting up.

Use only lubricating oil of good quality, we recommend:

<table>
<thead>
<tr>
<th>Recommended brands of lubricating oil</th>
<th>SHELL</th>
<th>MOBIOIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>X 100-30</td>
<td>Mobiloil A</td>
</tr>
<tr>
<td>Winter</td>
<td>X 100-10</td>
<td>Mobiloil Arctic Special</td>
</tr>
</tbody>
</table>

**OIL CHANGE**: Change the oil 30 hours after the first putting into service of the engine, thereafter change the oil every 70 hours.

**II - PETROL**: Take off the petrol filler plug 6. Fill up with the help of a funnel filled with a strainer.

The strainer is indispensable to avoid the stopping of the engine through a clogged jet and to avoid as well the premature wear of the piston rings, the piston or the cylinder as well as the jamming of the petrol tap.

**III - AIR FILTER**: This filter 11 should be cleaned in principle every week (it should be cleaned more often, and as much as twice each day, when the engine is running in a dusty atmosphere).

For further details, see the instructions printed on the air filter housing.

In case of working in particularly dusty surroundings, such as engines fitted on harvesting machines, we advise the replacement of the standard air filter by an oil bath air filter the cleaning instructions of which are specified on the filter itself namely:
- to change the oil of the bowl daily and even twice per day in certain cases and furthermore to clean the filtering element with petrol.

**IV - COOLING SYSTEM**: As already mentioned in the paragraph «air filter» regarding engines used for harvesting machinery, very often the whole assembly of the cooling system (flywheel blades, volute, cylinder and cylinder head ribs) can be clogged either by small straw, grass particles... etc... which can harm the proper cooling of the engine and provoke its overheating, causing eventually the seizing of the piston in the cylinder.

That is why we also recommend to keep this whole assembly in a perfect state of cleanliness.

**STARTING UP**

1°) Open the petrol tap
2°) Shut the starting throttle by putting the lever 12 in position 1
3°) The starting is done either by rope or by starting handle.

As soon as the engine has started, bring the starting throttle 12 back from position 1 to position 2.
In cold weather, if the engine misfires, the starting throttle should remain in the closed or half-closed position until the engine is running properly.

When the engine is warm, do not shut the starting throttle to start the engine. It is in fact harmful to do so.

**CHANGING SPEED**

The speed change lever (3) is situated on the left of the crank-case cylinder block. This lever according to its position allows a speed range between the minimum and the maximum permitted. (see the table of the characteristics of the engine).

To increase the speed, turn the lever in the clockwise direction; to reduce the speed, turn the lever in opposite direction.

Before displacing the lever (3) disengage the spindle which is fixed in the hole of the sector, bring the lever into the wanted position and put the spindle into the corresponding hole of the sector.

When adjusting the engine speed in ratio to the speed at which the driven machine must operate, it is necessary when carrying out this adjustment, to check that the engine is not overloaded at the given speed.

a) The way to proceed when checking if the engine is overloaded by the machine which it has to drive, consists to pull on the throttle command by hand and to check if the speed increases, if this is not so, it means that the throttle is fully open and indicates that the engine is overloaded, therefore badly used.

b) For the chosen position, the speed remains constant whatever the power taken from the engine, under the condition that this power is inferior to the maximum power developed at the considered speed.

If one oversteps the possible maximum power of the engine, the engine is overloaded and its speed decreases. It works therefore under bad conditions which can bring about a quick and abnormal wear.

c) In the particular case of pumping set application, the adjusting of the speed according to the conditions of utilization is done in the following way:

Start the engine up, the speed change lever being positionned at the maximum speed as shown on the drawing below; regulate the hydraulic installation according to the required characteristics; after that operation, verify that the engine is not overloaded, i.e. that the speed does not decrease.

Act for that purpose on the speed change lever in the direction O.F. If one finds that the speed decreases immediately, leave the lever in its original position. If not, position the speed change lever by bringing back in the direction O.F., until one can remark a fall in the speed.
d) Driving by belts: the choice of the pulley to fit on to the engine depends on the speed and on the pulley of the machine to drive.

To determine the diameter of the engine pulley, multiply the diameter of the pulley fitted on the driven machine by its speed and divide the figure thus obtained by the speed of the engine.

**EXEMPLE:** For a machine which has to run at 1200 Rpm. and having a pulley of 200mm Ø and supposing that the engine runs at 2000 Rpm., the diameter of the pulley to be fitted will be:

\[
\frac{200 \times 1200}{2000} = 120 \text{ mm}.\]
The diameters thus calculated should be increased by 5 % to take the slipping of the belt into account.

To obtain a complete satisfactory installation, it is necessary:

1°) that the power of the engine at the used speed should be always superior to the one absorbed by the driven machine.

2°) that the engine runs between the minimum and maximum authorized speed.

3°) the minimum arc of winding on the driving pulley must be a third of the circumference, 120°.

4°) use pulleys of as big a diameter as possible.

5°) use large belts.
STOPPING OF THE ENGINE

Turn off the petrol tap. Push the stop button (14) situated on the make and break housing.

IRREGULAR RUNNING

1°) STARTING WHEN THE ENGINE IS COLD - DIFFICULT OR IMPOSSIBLE

If the engine refuses to start, check:
1) the petrol feed
2) the ignition
3) the compression

1) PETROL FEED: Make sure that:
- the petrol tank contains sufficient fuel
- the petrol tap is open and that its filter is clean
- the petrol is reaching the carburettor. Turn off the petrol tap, unscrew the petrol feed connection on the carburettor. Turn on the petrol tap progressively. If there is no flow of petrol, the petrol feed pipe and the petrol tap are clogged; in this case clean them
- that the jets are not clogged. Dismantle, check and clean if necessary. To clean the jets blow into them. Do not use metal objects which may enlarge the bore of the jet. To avoid future trouble of this kind, it is necessary to carefully clean the petrol tank, the fuel lines and carburettor; the petrol should also be filtered with care in the future.

2) IGNITION:

a) disconnect the sparking plug wire; approach the bare end of the wire within approximately 2 mm, from a metal part of the engine without paint (earthing) and turn the engine by hand. If there is no spark, check the condition of the sparking plug wire, and change if necessary. In case of failure, check the terminals to make sure they are clean and not oxydized and also check the clearance between the make and break points.

Check the play and the oxydation of the make and break points (0,4 mm).

SETTING OF THE IGNITION ADVANCE

1°) Set the opening of the points to 4/10. This setting is done by turning the engine by hand in a certain manner as to bring the working part of the make and break to its maximum lift. At this maximum lift, one must pass the wedge of 4/10 between the 2 points.

If a correction either way has to be brought about, unscrew the 2 fixing screws of the make and break. Once these 2 screws loosened, act on the eccentric screw to obtain the required measurement. Once this measurement has been obtained, reblock the 2 fixing screws of the support of the make and break.

2°) Lock the flywheel in the position of ignition, this position is obtained by using a spindle of 6 mm which one can fit into a hole provided for this purpose on the plate, flywheel side. This hole is situated near the throttle command lever.

After having fixed the spindle in this hole, turn the engine by hand until one finds the marking hole in the flywheel (take care of course that this operation is undertaken in the position of compression).

3°) When the operations 1° and 2° are finished, verify that the working part of the make and break starts to open the points at the ignition point, if not, act on the setting part situated just above the working part.
To act on this setting part, loosen the countermut and then, with the help of a spanner of 10, act on the part to bring the opening of the points back to the wanted distance.

Once this operation is finished, block the countermut of the working part.

In case of failure, consult our Agent.

b) If in the course of operation a) sparks are obtained, take out the sparking plug from the cylinder, and connect it to the sparking plug wire; place the shell of the sparking plug on a metal part of the engine (earthing) and turn the engine by hand. If there are no sparks, clean the sparking plug points and check the clearance (0.4 mm). Should there be no results, change the sparking plug.

3) COMPRESSION - A lack of compression may be caused by the valves, the piston rings, or piston. Consult our Agent.

2) STARTING WHEN THE ENGINE IS WARM - DIFFICULT OR IMPOSSIBLE

The use of the starting device when the engine is warm, may render the starting up difficult through an excess of petrol. Turn off the petrol tap and crank the engine with the starting throttle on position № 2. As soon as the engine has started, turn on the petrol tap progressively.

3) FAULTY SLOW SPEED

Check:

a) that the slow speed jet is not clogged.
b) that there is no additional entry of air causing back firing in the carburettor. In this case, check that there is no excessive play in the throttle spindle, the carburettor joint is not defective or not badly tightened, that the carburettor flange is not cracked.
c) verify the gap between the points of the sparking plug (4/10).

4) THE ENGINE "PICKS UP" WITH DIFFICULTY

The engine, when running idle does not pick up properly when the load is put on. This may be caused by:

- the engine is overloaded: reduce the load,
- the throttle command assemblage is tight in some spot: check the articulations and make sure that the throttle opens fully
- the jet is partly clogged: clean it,
- the sparking plug is defective: change it,
- the make and break points are oxidized, or, the gap between the points is too wide. Clean the points and readjust the clearance between the points: 0.4 mm

5) THE ENGINE OVERHEATS

Make sure that the cooling device is not clogged, and clean if necessary,

- that the silencer is not stopped up: dismantle and clean,
- that the carburettor setting has not been altered: (see page 1 for the correct setting).

Only use good quality lubricating oil, and maintain the proper level.

6) OIL EXCESS

This is noticeable by the appearance of blue smoke at the exhaust and particularly when the engine is running at slow speed and picking up speed.

This is caused either by the wear of the piston, piston rings or cylinders, in which case have the engine overhauled by one of our Agents; or by an excessive oil level, check the level and put it right if necessary.
LUBRICATION OF THE CLUTCH ONLY, SPEED REDUCER ONLY AND CLUTCH WITH SPEED REDUCER

- CLUTCH ONLY

No special lubrication is required as the clutch is lubricated by oil projections from the crankcase, which communicates with the clutch housing.

- SPEED REDUCER ONLY (except reducer 1/4):

No special lubrication is required as the speed reducer is lubricated by oil projections from the crankcase, which communicates with the speed reducer housing.

- CLUTCH WITH SPEED REDUCER (except reducer 1/4):

A Stauffer lubricator situated on top of the speed reducer will enable the lubrication of the ball bearings by means of a grease compound. When assembled in our works, the speed reducer is normally lubricated, but it will be necessary from time to time (after approximately every 10 hours running) to fill the Stauffer lubricator with grease and screw the lubricator cup so as to force the lubricating grease to the ball bearings.

REDUCTING GEARS ONLY AND CLUTCH-REDUCING GEARS 1/4:

The housing of reducing gear 1/4 being independent, provide it with oil of identical quality to the one used for the engine. Fill the reducing gear through the plug situated on the upper part until the oil starts to overflow through the level plug situated on the side and the lower part of the housing. Change the oil at every three oil changes of the engine. Check the oil level at every oil change of the engine.

PRECAUTIONS TO BE TAKEN WHEN AN ENGINE IS PUT OUT OF SERVICE FOR SOME LENGTH OF TIME

When an engine is not going to be in use for a certain length of time, it is necessary to take a few precautions, i.e.:

1°) through the sparking plug hole, pour approximately the value of half a tablespoon of lubricating oil into the cylinder bore,

2°) then turn the engine by hand a few revolutions so that the oil introduced lubricates the cylinder liner and the piston.

3°) bring the engine round to the compression stroke so as to close the valves, and thus avoid the introduction of damp air inside the engine.

There is an other recommendation which we can make if the user has the possibility of obtaining the special oil mentioned hereafter.

As a matter of fact, the Firms SHELL and MOBIL OIL have put on the market protective oils against rust and water which used before the stopping of the engine avoid any inconvenience of rusting and particularly the pitting of the ball bearings and the crankshaft.

The manner of proceeding is as follows:

- drain the ordinary lubricating oil employed in the engine
- replace by the SHELL «ENSIS» or «MOBILKOTE 503» MOBIL OIL
- run the engine for a few minutes (approximately 5 to 10 minutes)
- stop the engine; bring it back to the compression stroke to close the valves.

When the engine is once more put into service, there is no inconvenience in running the engine for a certain time with ENSIS or MOBILKOTE (approximately half to one hour) drain this oil and replace it by the lubricating oil usually employed.
NUMBERING OF PARTS

When ordering spare parts, the order sheets should indicate the parts reference numbers only.

Hereunder we give you the information which will facilitate the reading of these numbers.

1 - PLAIN NUMBER:

Example: (drawing 7)

No. 2287 = 1 spindle

The number indicates the part.

If a number indicates on the drawing several parts (two - three or more) this means that under this reference number, we shall send the two or three parts which are indicated by this number.

Example: (drawing 6)

No. 2.253 - 1 Governor body complete

2 - NUMBER FOLLOWED BY A LETTER:

The parts indicated by numbers which are followed by a letter enter into the composition of whole assemblages as explained in paragraph 3. They can also be supplied separately.

Example: (drawing 7) - No. 2288 (B) - 1 Felt
No. 50748 (C) - 1 Screw

3 - NUMBER SURROUNDED: (indicates a number of different parts assembled)

These numbers are followed by one or more letters. This means that the part which is a part of an assemblage is supplied assembled with all the plain numbered parts of the drawing which are followed by the same letter.

Example: (drawing 1) - No. 4065 (B)

1 Base assembled with:
- 1 Joint No. 823 (B)
- 1 Dmin plug No. 20751 (B)

4 - NOTE:

The letters which follow the numbers are only meant to make the reading of the drawing easier.

The number of the part-only should be stated on the order sheet.
## DESIGNATION OF DRAWINGS

<table>
<thead>
<tr>
<th>Drawings No.</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>CRANKCASE</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>MOVING PARTS</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>13</td>
</tr>
<tr>
<td>DISTRIBUTION</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>IGNITION (flywheel)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>IGNITION (make and break)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>GOVERNOR</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>CYLINDER HEAD</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>18</td>
</tr>
<tr>
<td>PETROL FEED - COOLING (112)</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>PETROL FEED - COOLING (112 bis)</td>
<td></td>
</tr>
<tr>
<td>9 (A)</td>
<td>20</td>
</tr>
<tr>
<td>CARBURETTOR 28 RXZ</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>21</td>
</tr>
<tr>
<td>FILTERS - EXHAUST</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>CRANKING EQUIPMENT</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>CLUTCH ONLY</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>SPEED REDUCER ONLY ratio 3/5 - 3/4</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>SPEED REDUCER ONLY ratio 1/4</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>26</td>
</tr>
<tr>
<td>CLUTCHES AND SPEED REDUCERS ratio 3/5 - 3/4 - 1/4</td>
<td></td>
</tr>
</tbody>
</table>
Planche 4

Allumage (volant)

[Diagram of a motorcycle engine with labeled parts and numbers]
Planche 8

Alimentation - refroidissement

112 - 112 ter

26 VX, 28 RX et 28 RXZ = 808

40.758
Manchon pour réduction d'un filtre Φ 50 en Φ 43 montage sur carburateur 26 RHARG

31.558

2.245
Φ 50 = 12.323
2.282
50.867
Φ 50 = 1.533
12.250
30.744
874
12507
10.860
2.471
2.211
100.892
754
2.204(A)
2.243
12.224
2.393
32.243
30.859
891
874
875
12.225
10.860
40.883
10.764
12.269
2.327
112 ang.
Planché 13

Réducteurs simple 3/5 - 3/4

Completer

\[
\begin{align*}
\text{3/5} &= \text{nr 4.175} \\
\text{3/4} &= \text{nr 4.262}
\end{align*}
\]
Planche 15  - Embrayages-réducteurs 3/5-3/4-1/4 -

- 3/5-3/4 - Pièces non référencées -
se reporter à la planche :
- embrayage pour la partie embrayage
- réducteur pour la partie réducteur

Complet
3/5 = n° 4.176
3/4 = n° 4.263

1/4 - Pièces non référencées -
se reporter à la planche :
- embrayage pour la partie embrayage
- réducteur pour la partie réducteur

Complet - 1/4 = n° 14.274
# SPARE PARTS FOR OVERHAULING AND REPAIRS

## 112 - 112\(^{bis}\)

<table>
<thead>
<tr>
<th>Bore</th>
<th>Ø 85</th>
<th>Ø 88</th>
</tr>
</thead>
<tbody>
<tr>
<td>type of engine</td>
<td>112</td>
<td>112(^{bis})</td>
</tr>
</tbody>
</table>

**PISTON (bare)**

| O.S. + 5/10 | 2.307 | 970 |
| O.S. + 10/10 | 2.312 | 969 |

**PISTON RINGS (the set) (4)**

| O.S. + 5/10 | 2.246 | 10.960 |
| O.S. + 10/10 | 2.252 | 10.958 |

**PISTON RINGS compression (3)**

| O.S. + 5/10 | 12.227 | 10.944 |
| O.S. + 10/10 | 12.212 | 10.942 |

**PISTON RINGS scraper (1)**

| O.S. + 5/10 | 2.227 | 960 |
| O.S. + 10/10 | 2.232 | 958 |

**CRANK-PIN Ø 44**

### 1/2 BIG END BEARINGS (the pair)

| O.S. - 3/10 | 2.247 | 2.247 |
| O.S. - 6/10 | 12.210 | 12.210 |

**SET OF JOINTS (complete for one engine)**

| 2.319 | 976 |

**Set of joints for engine running in**

| 2.208 | 963 |

**Sparking plug box spanner 21**

| 40.725 |
GENERAL TERMS OF SALE FOR OUR SPARE PARTS

The prices of our spare parts are understood for goods delivered ex-works, packing and freight charges remain at the consignee's expense: even in the case of carriage paid the goods travel at the consignees' risks and perils. Our prices are revisable at any moment without previous notification. The prices invoiced will be those in vigour on the day of despatch.

All our spare parts are payable CASH, and their prices are net without discount.

Owing to a special organization, our spare parts can be despatched at the latest 48 hours after reception of the order. However this delivery time is given under reserve, and the fact that this delay may not be respected cannot in any case, justify a claim for damages.

Our engines are guaranteed one year against faulty material or workmanship. Our guarantee is limited to the replacement of the parts incriminated with regard to faulty material or workmanship as recognized in our works by our Technical Department without being held to pay an indemnity for whatever the reason may be.

For the goods which are not manufactured by us, the guarantee is that given by the manufacturer.

All parts sent in replacement of defective or supposed to be defective ones are invoiced for the good order of our books.

As soon as the incriminated parts have been returned to us and if our responsibility is engaged we will make out a credit note providing these parts are returned to us in the course of the month following the shipment of the new ones.

We also invoice parts sent to replace unsuitable ones, and the same delay is imposed for the return of the parts replaced, our credit note will be made out only for the parts returned complete and in perfect condition.

When parts are returned to us, it is absolutely necessary to state the date at which they were invoiced, and give the number of the invoice.
<table>
<thead>
<tr>
<th>Section</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHARACTERISTICS</td>
<td>1</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>1-4-5</td>
</tr>
<tr>
<td>PREPARING THE ENGINE FOR STARTING</td>
<td>1</td>
</tr>
<tr>
<td>I - Lubricating oil</td>
<td>1</td>
</tr>
<tr>
<td>II - Petrol</td>
<td>2</td>
</tr>
<tr>
<td>III - Air filter</td>
<td>2</td>
</tr>
<tr>
<td>IV - Cooling system</td>
<td>2</td>
</tr>
<tr>
<td>STARTING THE ENGINE</td>
<td>2</td>
</tr>
<tr>
<td>TO ADJUST THE SPEED</td>
<td>3</td>
</tr>
<tr>
<td>TO STOP THE ENGINE</td>
<td>6</td>
</tr>
<tr>
<td>IRREGULAR RUNNING</td>
<td>6</td>
</tr>
<tr>
<td>1° - When the engine is cold, starting is difficult or impossible</td>
<td>6</td>
</tr>
<tr>
<td>2° - When the engine is warm, starting is difficult or impossible</td>
<td>7</td>
</tr>
<tr>
<td>3° - Faulty slow speed</td>
<td>7</td>
</tr>
<tr>
<td>4° - The engine «picks up» with difficulty</td>
<td>7</td>
</tr>
<tr>
<td>5° - The engine overheats</td>
<td>7</td>
</tr>
<tr>
<td>6° - Excess of oil in cylinder</td>
<td>7</td>
</tr>
<tr>
<td>LUBRICATION OF CLUTCHES - SPEED REDUCERS AND CLUTCHES WITH SPEED REDUCERS</td>
<td>8</td>
</tr>
<tr>
<td>PRECAUTIONS TO BE TAKEN WHEN AN ENGINE IS PUT OUT OF SERVICE FOR SOME LENGTH OF TIME</td>
<td>8</td>
</tr>
<tr>
<td>NUMBERING OF PARTS</td>
<td>9</td>
</tr>
<tr>
<td>DESIGNATION OF DRAWINGS</td>
<td>10</td>
</tr>
<tr>
<td>SPARE PARTS</td>
<td>11 to 26</td>
</tr>
<tr>
<td>SPARE PARTS FOR OVERHAULING AND REPAIRS</td>
<td>27</td>
</tr>
<tr>
<td>GENERAL TERMS OF SALE</td>
<td>28</td>
</tr>
</tbody>
</table>