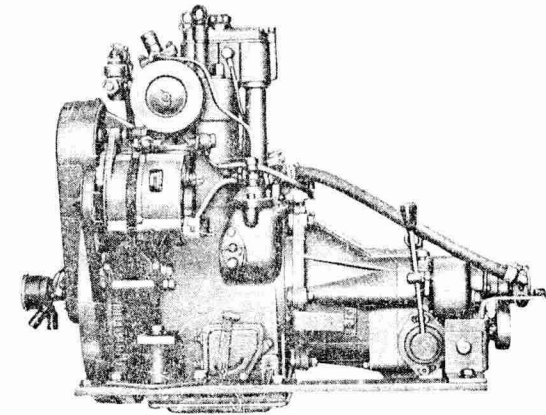




ENGINES

Models: MINI-1 • MINI-2 • MINI-3



Manufactured by:

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**Operating and maintenance  
instructions**

**Spare parts nomenclature**

## GUARANTEE

Subject to the terms stated below, we guarantee that all customary and reasonable precautions have been taken to ensure high quality of materials and workmanship. This guarantee however is valid for twelve months from the date of purchase and the damages for which we accept liability by virtue hereof are limited to REPLACEMENT of parts found to be defective.

Pursuant to the terms stated below, and again within the aforesaid period of twelve months, we undertake to make good faults which may occur in the said respect. This guarantee does not cover faults caused by abuse, mistreatment or negligence.

## TERMS OF GUARANTEE

If any part of one of our engines is found to be defective, it must be returned carriage-paid to us, accompanied by a statement by the sender to the effect that exchange without charge under the guarantee is desired. The sender must likewise state the serial number of the engine, the date of purchase and the supplier from whom it was purchased. This guarantee does not cover any engine from which our identification plate or the serial number has been removed. We do not guarantee products of other suppliers nor parts differing from our specifications. This guarantee does not cover refitting of damaged parts nor any indemnification of claims for damages which may be brought against us.

## FOREWORD

It is important to remember that like any other machine, an engine requires care and attention in order to keep it in perfect running condition.

Before starting the engine, be sure to read carefully the operating and maintenance instructions contained in this manual, and follow them closely.

It should be borne in mind that careless or inadequate servicing can cause faulty running of the engine and impairment of the terms of guarantee.

## NOTE

For correct and immediate supply of spare parts, it is of the utmost importance to include the following information in orders:

- a) Model of engine (indicated on the specification plate).
- b) Engine number (engraved on the plate or bedplate).
- c) Reference number and nomenclature of required part.

Table 12

RONIM-III REVERSE REDUCING GEARBOX

| Crankshaft revolutions in relation to starting shaft |       |            |       |            |       |            |       |            |       |
|--|-------|------------|-------|------------|-------|------------|-------|------------|-------|
| Crankshaft   | Shaft | Crankshaft | Shaft | Crankshaft | Shaft | Crankshaft | Shaft | Crankshaft | Shaft |
| 650  | 276   | 1.100      | 488   | 1.550      | 659   | 2.000      | 851   | 2.450      | 1.042 |
| 675  | 287   | 1.125      | 478   | 1.575      | 670   | 2.025      | 861   | 2.475      | 1.053 |
| 700  | 297   | 1.150      | 489   | 1.600      | 680   | 2.050      | 872   | 2.500      | 1.063 |
| 725  | 308   | 1.175      | 500   | 1.625      | 691   | 2.075      | 883   | 2.525      | 1.073 |
| 750  | 319   | 1.200      | 510   | 1.650      | 702   | 2.100      | 893   | 2.550      | 1.084 |
| 775  | 329   | 1.225      | 521   | 1.675      | 712   | 2.125      | 904   | 2.575      | 1.094 |
| 800  | 340   | 1.250      | 531   | 1.700      | 723   | 2.150      | 914   | 2.600      | 1.105 |
| 825  | 351   | 1.275      | 542   | 1.725      | 734   | 2.175      | 925   | 2.625      | 1.116 |
| 850  | 361   | 1.300      | 553   | 1.750      | 744   | 2.200      | 936   | 2.650      | 1.126 |
| 875  | 372   | 1.325      | 563   | 1.775      | 755   | 2.225      | 946   | 2.675      | 1.137 |
| 900  | 383   | 1.350      | 574   | 1.800      | 765   | 2.250      | 959   | 2.700      | 1.148 |
| 925  | 393   | 1.375      | 585   | 1.825      | 776   | 2.275      | 968   | 2.725      | 1.158 |
| 950  | 404   | 1.400      | 595   | 1.850      | 787   | 2.300      | 978   | 2.750      | 1.169 |
| 975  | 414   | 1.425      | 606   | 1.875      | 797   | 2.325      | 989   | 2.775      | 1.179 |
| 1.000  | 425   | 1.450      | 617   | 1.900      | 808   | 2.350      | 1.000 | 2.800      | 1.190 |
| 1.025  | 436   | 1.475      | 627   | 1.925      | 819   | 2.375      | 1.010 | 2.825      | 1.201 |
| 1.050  | 446   | 1.500      | 638   | 1.950      | 829   | 2.400      | 1.021 | 2.850      | 1.211 |
| 1.075  | 457   | 1.525      | 649   | 1.975      | 840   | 2.425      | 1.031 | 2.875      | 1.222 |
|  |       |            |       |            |       |            |       | 2.900      | 1.232 |

NOTE. — The descriptions and illustrations contained in this instruction manual are not binding. In consequence, and subject to the principal characteristics of the engine herein described and illustrated remaining unchanged, SOLE, S. A. reserve all rights to modify assemblies, details or fittings as they may deem advisable for any reason of technical or commercial nature.

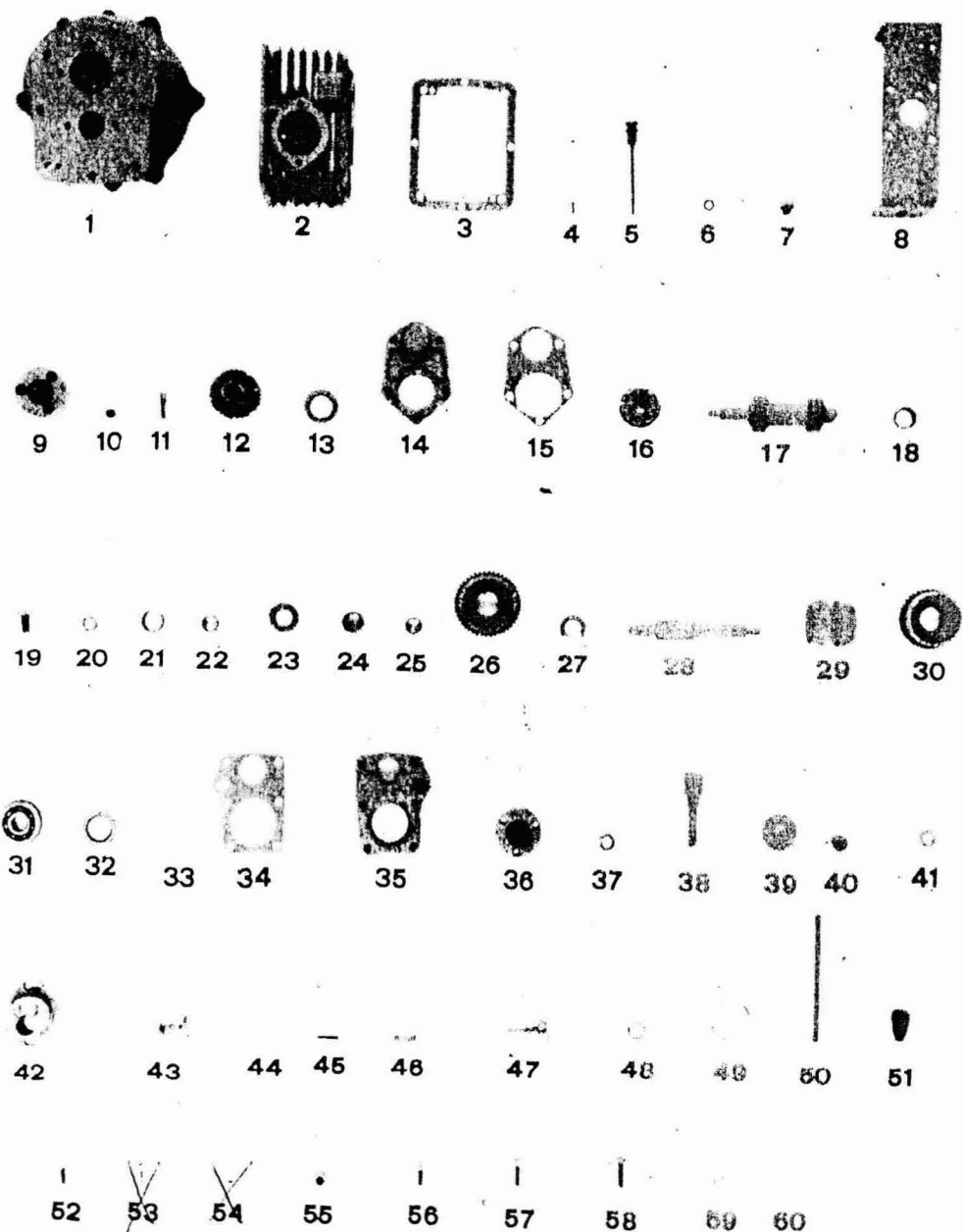
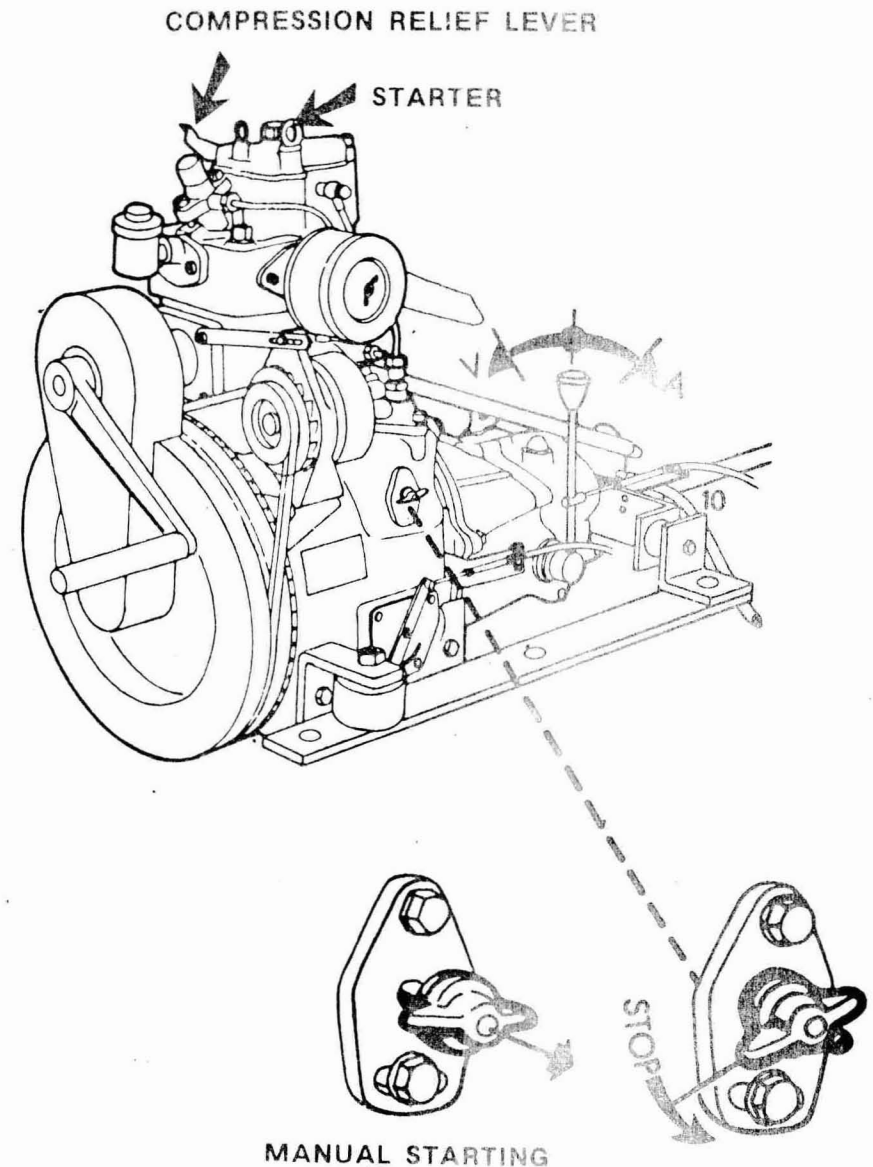


Table 12

## RONIM-III REDUCING REVERSE GEARBOX

| Figure no. | Part no. | NOMENCLATURE                            | MINI-1   | MINI-2   | MINI-3   |
|------------|----------|---|----------|----------|----------|
| 1-60       | 22313000 | <b>Gear box assy RONIM-III Red. 2:1</b> | <b>1</b> | <b>1</b> | <b>1</b> |
| 1          | 22310001 | Front casing                            | 1        | 1        | 1        |
| 2          | 22313002 | Rear casing                             | 1        | 1        | 1        |
| 3          | 22310003 | Centre gasket                           | 1        | 1        | 1        |
| 4          | 22210007 | Locating pins                           | 2        | 2        | 2        |
| 5          | 22310008 | Level plug                              | 1        | 1        | 1        |
| 6          | 25210010 | Level O-ring                            | 1        | 1        | 1        |
| 7          | 51102254 | Drain plug                              | 1        | 1        | 1        |
| 8          | 22310015 | Rear mount bracket                      | 1        | 1        | 1        |
| 9          | 22110003 | Reverse gearbox driven flange           | 1        | 1        | 1        |
| 10         | 22110106 | Cap                                     | 3        | 3        | 3        |
| 11         | 22110004 | Drag pin                                | 3        | 3        | 3        |
| 12         | 22210005 | Driving flange                          | 1        | 1        | 1        |
| 13         | 22210103 | No. 1 shaft seal                        | 1        | 1        | 1        |
| 14         | 22310102 | Front cover                             | 1        | 1        | 1        |
| 15         | 22310105 | Front cover gasket                      | 1        | 1        | 1        |
| 16         | 22210104 | No. 1 shaft front bearing               | 1        | 1        | 1        |
| 17         | 22313101 | No. 1 shaft                             | 1        | 1        | 1        |
| 18         | 22210106 | No. 2 shaft rear bearing                | 1        | 1        | 1        |
| 19         | 25210222 | Set-screw                               | 1        | 1        | 1        |
| 20         | 22210219 | Set-screw washer                        | 1        | 1        | 1        |
| 21         | 22210106 | No. 2 shaft front bearing               | 1        | 1        | 1        |
| 22         | 22210207 | Bearing ring                            | 1        | 1        | 1        |
| 23         | 22310218 | Bearing spacer                          | 2        | 2        | 2        |
| 24         | 22210204 | Gear bearing                            | 2        | 2        | 2        |
| 25         | 22210205 | Bearing ring                            | 2        | 2        | 2        |
| 26         | 22313203 | Front gear                              | 1        | 1        | 1        |
| 27         | 22310217 | Gear spacer                             | 2        | 2        | 2        |
| 28         | 22310201 | No. 2 shaft                             | 1        | 1        | 1        |
| 29         | 22310232 | Clutch cone                             | 1        | 1        | 1        |
| 30         | 22310210 | Rear gear                               | 1        | 1        | 1        |
| 31         | 22210104 | No. 2 shaft rear bearing                | 1        | 1        | 1        |
| 32         | 22210103 | No. 2 shaft seal                        | 1        | 1        | 1        |
| 33         | 22210225 | O-ring                                  | 1        | 1        | 1        |
| 34         | 22310209 | Rear cover gasket                       | 1        | 1        | 1        |
| 35         | 22310208 | Rear cover                              | 1        | 1        | 1        |
| 36         | 22210224 | Reverse gear driven flange              | 1        | 1        | 1        |
| 37         | 22210219 | Thrust washer                           | 3        | 3        | 3        |
| 38         | 22310301 | Layshaft                                | 1        | 1        | 1        |
| 39         | 22310302 | Idler gear                              | 1        | 1        | 1        |
| 40         | 22210306 | Idler bearing                           | 1        | 1        | 1        |
| 41         | 22310304 | Friction washer                         | 1        | 1        | 1        |
| 42         | 22310401 | Control lever housing                   | 1        | 1        | 1        |
| 43         | 22310402 | Control lever eccentric                 | 1        | 1        | 1        |
| 44         | 25210418 | Eccentric pin                           | 1        | 1        | 1        |
| 45         | 53052310 | Flexible pin                            | 1        | 1        | 1        |
| 46         | 25210411 | Control lever spring                    | 1        | 1        | 1        |
| 47         | 22510423 | Selector catch                          | 1        | 1        | 1        |
| 48         | 25210408 | Eccentric O-ring                        | 1        | 1        | 1        |
| 49         | 22310417 | Housing O-ring                          | 1        | 1        | 1        |
| 50         | 25210424 | Control lever                           | 1        | 1        | 1        |
| 51         | 14719115 | Control lever knob                      | 1        | 1        | 1        |
| 52         | 52102258 | Bolt, DIN 933, M8 x 25 5G               | 2        | 2        | 2        |
| 55         | 51123012 | Nut, DIN 985, M12                       | 3        | 3        | 3        |
| 56         | 52101258 | Bolt, DIN 931, M8 x 25 8G               | 11       | 11       | 11       |
| 57         | 52101259 | Bolt, DIN 931, M8 x 30 8G               | 2        | 2        | 2        |
| 58         | 52101260 | Bolt, DIN 931, M8 x 35 8G               | 5        | 5        | 5        |
| 59         | 51030008 | Plain washer, O 8                       | 20       | 20       | 20       |
| 60         | 57000357 | Copper washer                           | 1        | 1        | 1        |

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# OPERATION

## BEFORE STARTING

Check oil levels in the engine and reverse gearbox. The level should be between the two marks on the dipstick.

Make sure that the water inlet and fuel valves are open.

## STARTING

### A) Manual starting

Place the gear lever in neutral and open the fuel control halfway. Pull the wing handle (Fig. 1) outward to provide additional fuel.

Raise the compression relief lever (Fig. 1) and fit the starting handle into its socket. Swing the handle rapidly to the right. When a sufficient speed has been reached, release the compression relief lever and continue swinging until the engine starts.

### B) Electric starting

Place the gear lever in neutral and open the fuel control halfway. Turn the switch key to the left and hold it in that position until the engine is fully started.

After starting, it is advisable to leave the engine running at half speed for 2 or 3 minutes to allow the alternator to recharge the battery.

### C) Starting in very cold climates

If the engine does not start with the above methods, proceed as follows:

- Remove the rubber plug marked «Starter», located on the rocker cover (Fig. 1).
- Fill the primer pot with oil.
- Refit the plug tightly.
- Proceed as before.

Table 11

## ELECTRICAL SYSTEM

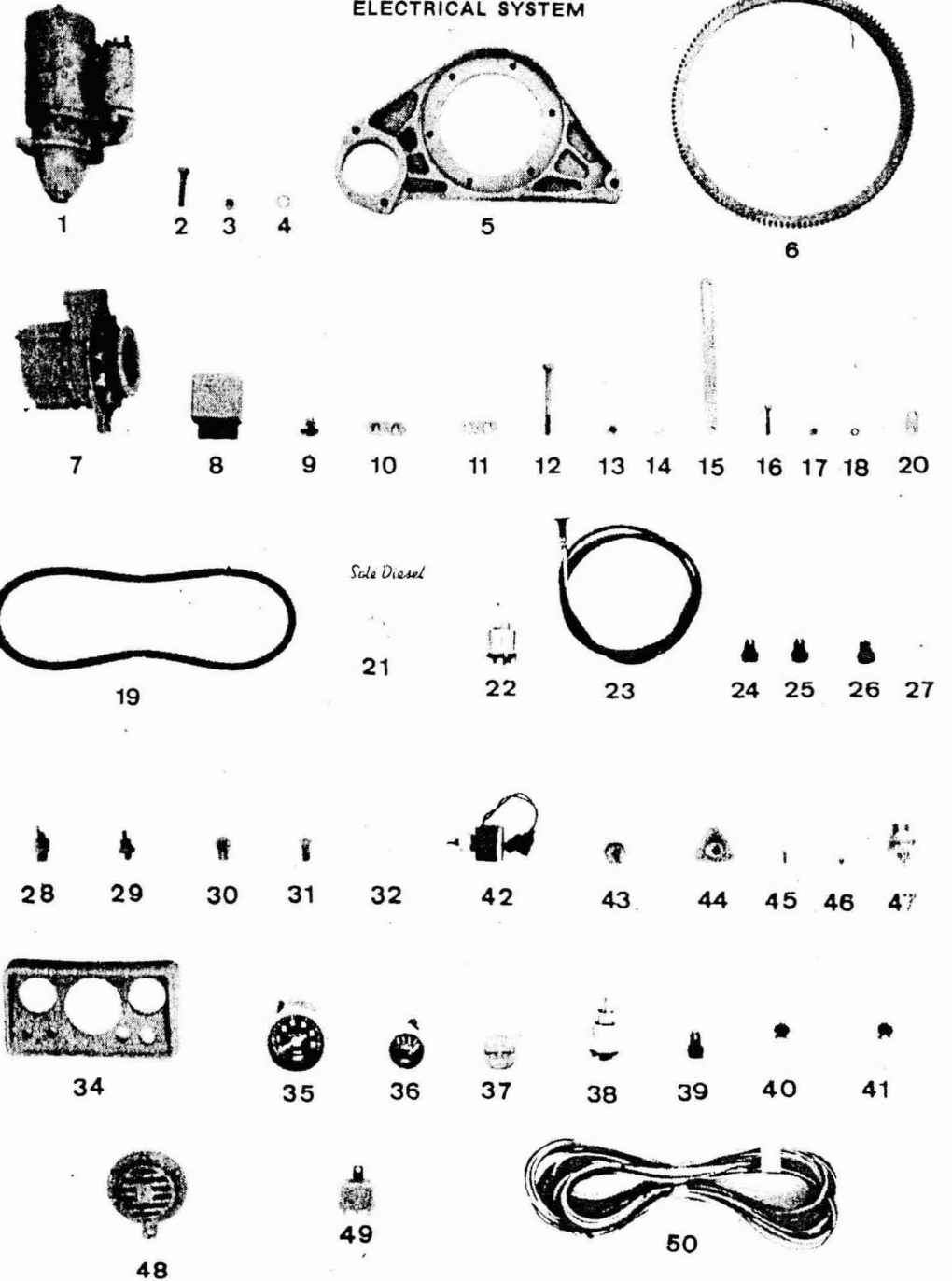


Table 11

## ELECTRICAL SYSTEM

| Figure no. | Part no. | NOMENCLATURE   | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|--|--------|--------|--------|
| 1          | 12117030 | Starting motor   | 1      | 1      | 1      |
| 2          | 52101312 | Fastening bolt   | 2      | 2      | 2      |
| 3          | 52120010 | Nut  | 2      | 2      | 2      |
| 4          | 51030010 | Plain washer   | 2      | 2      | 2      |
| 5          | 12117032 | Mount plate  | 1      | 1      | 1      |
| 6          | 12117033 | Ring gear  | 1      | 1      | 1      |
| 7          | 12117035 | Alternator   | 1      | 1      | 1      |
| 8          | 12817016 | Regulator  | 1      | 1      | 1      |
| 9          | 12817015 | Coupler  | 1      | 1      | 1      |
| 10         | 12117047 | Front alternator support                               | 1      | 1      | 1      |
| 11         | 12117047 | Rear alternator support                                | 1      | 1      | 1      |
| 12         | 52101321 | Bolt   | 2      | 2      | 2      |
| 13         | 52120010 | Nut  | 4      | 4      | 4      |
| 14         | 53033010 | Spring washer  | 2      | 2      | 2      |
| 15         | 12117040 | Tension adjustment brace                               | 1      | 1      | 1      |
| 16         | 52101260 | Bolt   | 1      | 1      | 1      |
| 17         | 52120008 | Nut  | 1      | 1      | 1      |
| 18         | 53033008 | Spring washer  | 1      | 1      | 1      |
| 19         | 12117043 | Alternator Belt  | 1      | 1      | 1      |
| 20         | 12117045 | Engine stop bracket                                    | 1      | 1      | 1      |
| -          |          | Lamp panel (Table 10, Figs. 21 to 27)                  | 1      | 1      | 1      |
| 21         | 60923001 | Panel  | 1      | 1      | 1      |
| 22         | 60900030 | Key-locking switch                                     | 1      | 1      | 1      |
| 23         | 609004   | Stop cable   | 1      | 1      | 1      |
| 24         | 60900050 |  | 1      | 1      | 1      |
| 25         | 60900051 |  | 1      | 1      | 1      |
| 26         | 60900052 |  | 1      | 1      | 1      |
| 27         | 60900045 | Bulb   | 3      | 3      | 3      |
| 28         | 60900071 | Water temperature contactor                            | 1      | 1      | 1      |
| 29         | 60900076 | Oil pressure contactor (lamp panel)                    | 1      | 1      | 1      |
| 30         | 12114064 | Pressure contactor coupling                            | 1      | 1      | 1      |
| 31         | 12114063 | Coupling screw   | 1      | 1      | 1      |
| 32         | 57000365 | Plain washer   | 2      | 2      | 2      |
| 33         | 60923000 | Instrument panel (Table 11, Figs. 22, 23 and 33 to 41) | 1      | 1      | 1      |
|            |          | Panel  | 1      | 1      | 1      |
| 34         | 60923001 | Tachometer V D O                                       | 1      | 1      | -1     |
| 35         | 60923010 |  | 1      | 1      | 1      |
| 36         |          |  | 1      | 1      | 1      |
| 37         |          |  | 1      | 1      | 1      |
| 38         | 60900030 | Key-locking switch                                     | 1      | 1      | 1      |
| 39         | 60900050 |  | 1      | 1      | 1      |
| 40         |          |  | 1      | 1      | 1      |
| 41         | 60900060 | Horn switch  | 1      | 1      | 1      |
| 23         |          |  | 1      | 1      | 1      |
| 42         | 60949512 | Tachometric alternator                                 | 1      | 1      | 1      |
| 43         | 12117158 | Drag nut   | 1      | 1      | 1      |
| 44         | 12810032 | Tachometer mount                                       | 1      | 1      | 1      |
| 45         | 52102156 | Bolt   | 3      | 3      | 3      |
| 46         | 52120006 | Nut  | 3      | 3      | 3      |
| 47         | 60900585 | Oil pressure transducer                                | 1      | 1      | 1      |
| 48         | -        | Alarm horn   | 1      | 1      | 1      |
| 49         | -        | Horn relay   | 1      | 1      | 1      |
| 50         | 60923200 | Wiring harness   | 1      | 1      | 1      |

## ENGINE RUNNING

Make sure that the coolant water is circulating.

## Important note

Always engage gears with the engine idling

## STOPPING

Set the engine at idling speed and the gear lever in neutral.

Turn the «Stop» wing handle (Fig. 1) to the left until the engine stops running.

If using a remote stop cable, pull the cable until the engine stops running.

## Important note

Never use the compression relief lever to stop the engine

If the engine will not be used for a long period of time, it is advisable to shut off water and fuel valves.

## RUNNING IN

To allow gradual adjustment of all the moving parts of a new engine, a running-in period is necessary in addition to the usual works running-in. This is done by running the engine at **70% of normal power for the first 50 hours.**

# MAINTENANCE

## CHECKING OIL LEVELS

### Engine

Check the engine oil level every day before starting. The dipstick is on the starboard side below the starting motor (Fig. 2). The oil level should be between the two marks on the dipstick.

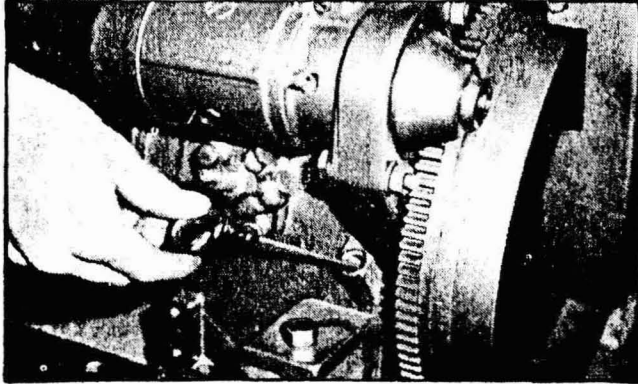


Fig. 2

If there is insufficient oil, add oil through the cap on the rocker cover (Fig. 5).

### Reverse gearbox

The reverse gearbox has its own lubrication system. This must be checked every day by means of the dipstick on the top of the gearbox (Fig. 3).

If the level is low, add oil through the dipstick aperture.

Use the same oil as for the engine.



Fig. 3

Table 10

## PROPULSION ASSEMBLY

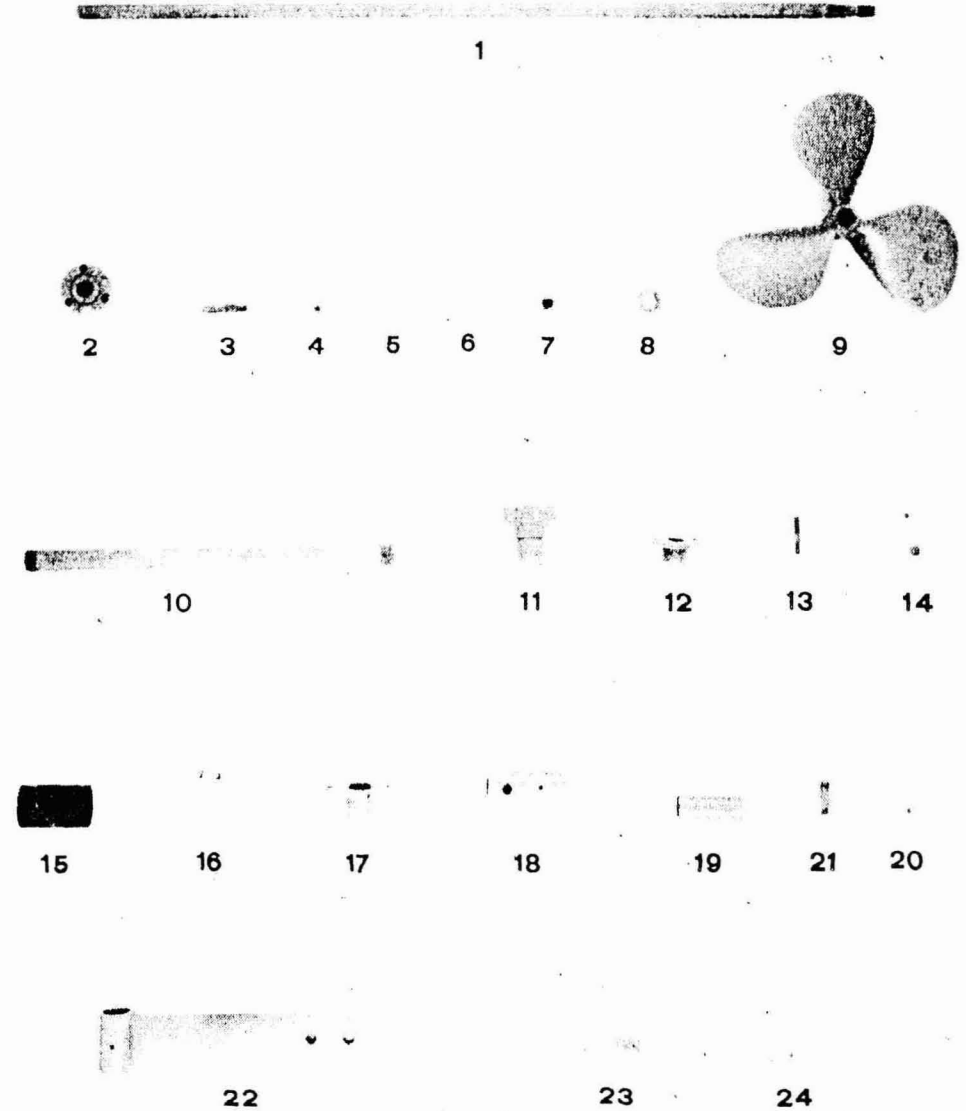


Table 10

## PROPULSION ASSEMBLY

| Figure no. | Part no. | NOMENCLATURE   | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|--|--------|--------|--------|
| -          | 47119    | Shaft complete (Table 9, Figs. 1 to 8)                   | 1      | 1      | 1      |
| 1          | 47119    | Propeller shaft  | 1      | 1      | 1      |
| 2          | 40019005 | Coupling flange  | 1      | 1      | 1      |
| 3          | 40019011 | Flange stud  | 1      | 1      | 1      |
| 4          | 52120008 | Nut  | 1      | 1      | 1      |
| 5          | 51030008 | Plain washer   | 1      | 1      | 1      |
| 6          | 40019085 | Propeller key  | 1      | 1      | 1      |
| 7          | 40019098 | Propeller nut  | 1      | 1      | 1      |
| 8          | 40019090 | Propeller keep   | 1      | 1      | 1      |
| 9          |          | Propeller  | 1      | 1      | 1      |
| -          | 48119    | Stern tube complete (Table 9, Figs. 10 to 21)            | 1      | 1      | 1      |
| 10         | 48119    | Stern tube   | 1      | 1      | 1      |
| 11         | 40019025 | Stern gland  | 1      | 1      | 1      |
| 12         | 40019015 | Stuffing box   | 1      | 1      | 1      |
| 13         | 40019030 | Stud   | 2      | 2      | 2      |
| 14         | 54120008 | Nut  | 4      | 4      | 4      |
| 15         | 40019055 | Rubber hose  | 1      | 1      | 1      |
| 16         | 54082025 | Clamp  | 2      | 2      | 2      |
| 17         | 40019061 | Tube collar  | 1      | 1      | 1      |
| 18         | 40019065 | Bearing block  | 1      | 1      | 1      |
| 19         | 40019070 | Rubber bearing   | 1      | 1      | 1      |
| 20         | 55116153 | Bearing pin  | 2      | 2      | 2      |
| 21         | 40019075 | Water inlet pipe   | 2      | 2      | 2      |
| -          | 40019580 | Bracket assembly complete (Table 9, Figs. 19, 20 and 22) | 1      | 1      | 1      |
| 22         | 40019080 | Bracket  | 1      | 1      | 1      |
| 23         | 40010070 | Rubber bearing   | 1      | 1      | 1      |
| 24         | 55116153 | Bearing pin  | 2      | 2      | 2      |

## OIL CHANGES

## Engine

Change the oil after the **first 20 hours**, and **every 100 hours** thereafter. Before changing run the engine to heat up the oil.

Drain the oil, either with the extractor pump through the dipstick aperture (Fig. 4) or by unscrewing the plug on the bottom of the oil sump.

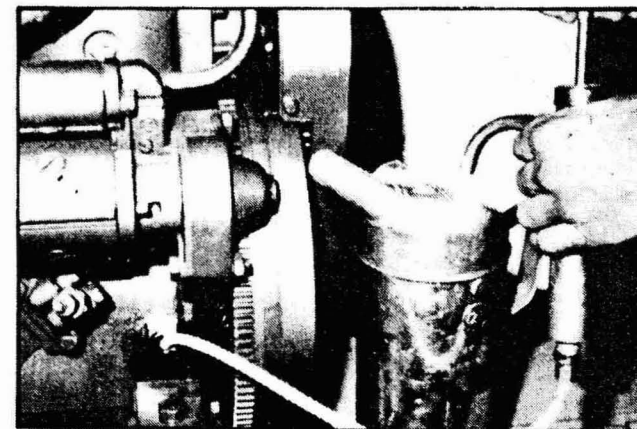


Fig. 4

Refill with oil through the capped opening in the rocker cover (Fig. 5), leaving the dipstick aperture open to allow air to escape.

Fill to the upper mark on the dipstick.

USE SAE-30 SERIES 3 OIL ONLY

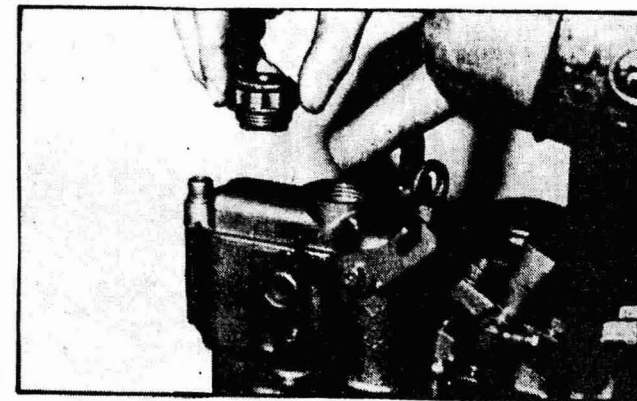


Fig. 5



### Reverse gearbox

Drain the oil, either with the extractor pump through the dipstick aperture (Fig. 3) or by unscrewing the plug on the bottom of the reverse gearbox.

Refill with oil through the dipstick aperture to the upper mark on the dipstick.

Use the same grade of oil as for the engine.

### CHANGING AIR FILTER

Unscrew the nut at the centre, take off the cover, remove the filter element and fit a new one. Replace the cover and screw it tight (Fig. 6).

Paper elements  
CAN NOT be cleaned.

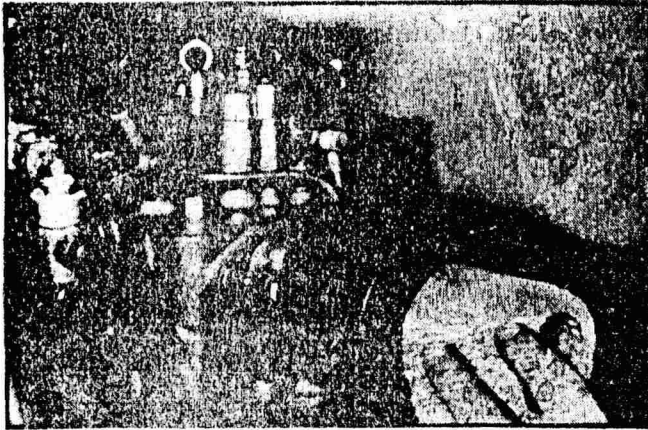


Fig. 6

### CHANGING OIL FILTER

Take off the entire air filter assembly and unscrew the nut on the top of the fuel filter. Remove the filter element and the rubber rings (top and bottom). Fit new ones. Refit both filters (Fig. 7).

Air-bleed fuel system  
(see page 10).

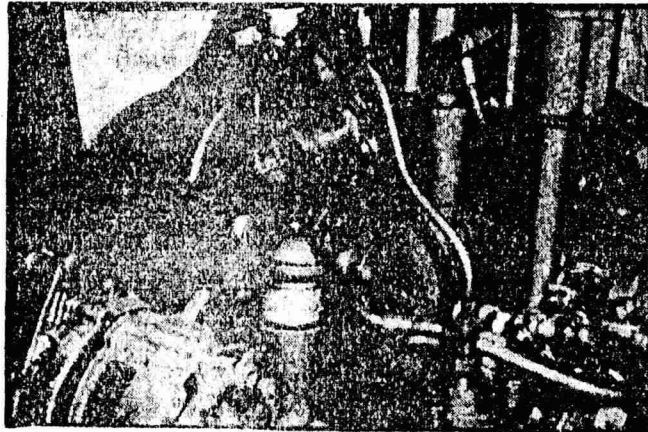


Fig. 7

Table 9

### COOLING SYSTEM

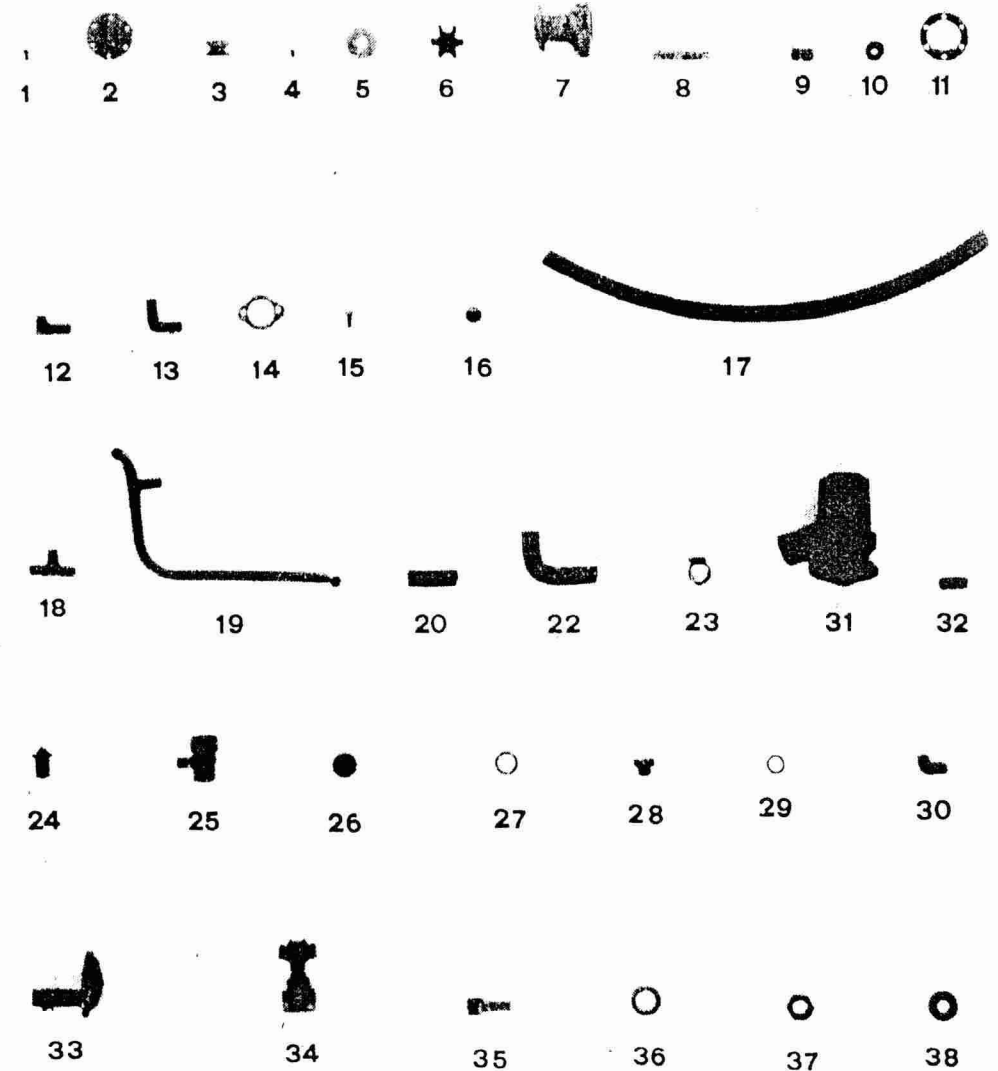


Table 9

## COOLING SYSTEM

| Figure no. | Part no. | NOMENCLATURE  | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|---|--------|--------|--------|
| -          | 32111000 | Water pump complete (Table 9, Figs. 1 to 11)          | 1      | 1      | 1      |
| 1          | 55307104 | Head bolt   | 6      | 6      | 6      |
| 2          | 32111002 | Head  | 1      | 1      | 1      |
| 3          | 32111005 | Arm   | 1      | 1      | 1      |
| 4          | 55307105 | Arm screw   | 1      | 1      | 1      |
| 5          | 32111026 | Seal disk   | 1      | 1      | 1      |
| 6          | 32111008 | Impeller  | 1      | 1      | 1      |
| 7          | 32111001 | Pump casing   | 1      | 1      | 1      |
| 8          | 32111010 | Shaft   | 1      | 1      | 1      |
| 9          | 31211016 | Bearing   | 1      | 1      | 1      |
| 10         | 32111020 | Seal  | 2      | 2      | 2      |
| 11         | 32111003 | Head gasket   | 1      | 1      | 1      |
| 12         | 12111078 | Water inlet elbow                                     | 1      | 1      | 1      |
| 13         | 12111082 | Water delivery elbow                                  | 1      | 1      | 1      |
| 14         | 32111023 | Pump seat gasket                                      | 1      | 1      | 1      |
| 15         | 52102156 | Pump fastening screw                                  | 2      | 2      | 2      |
| 16         | 12111026 | Water pump drive                                      | 1      | 1      | 1      |
| 17         | 12111061 | Pump-engine hose                                      | 1      | 1      | 1      |
| 18         | 12111074 | Tee   | 1      | 1      | 1      |
| 19         | 12111075 | Overflow pipe   | 1      | 1      | 1      |
| 20         | 13111036 | Short rubber hose                                     | 4      | 4      | 4      |
| 22         | 13111037 | Rubber hose bend (engines with fuel pump)             | 1      | 1      | 1      |
| 23         | 58086017 | Clamp   | 10     | 10     | 10     |
| -          | 12111170 | Thermostat assembly (Table 9, Figs. 24 to 30)         | 1      | 1      | 1      |
| 24         | 12111071 | Thermostat  | 1      | 1      | 1      |
| 25         | 12111072 | Thermostat housing                                    | 1      | 1      | 1      |
| 26         | 12111073 | Thermostat cap  | 1      | 1      | 1      |
| 27         | 12111079 | Gasket  | 1      | 1      | 1      |
| 28         | 12111076 | Plug  | 1      | 1      | 1      |
| 29         | 56000073 | Plain washer  | 1      | 1      | 1      |
| 30         | 12111077 | Discharge bend  | 1      | 1      | 1      |
| 31         | 12113090 | Cooled exhaust pipe                                   | 1      | 1      | 1      |
| 32         | 12811012 | Water inlet/coupling                                  | 1      | 1      | 1      |
| -          | 60121000 | Water inlet system complete (Table 9, Figs. 32 to 37) | 1      | 1      | 1      |
| 33         | 60121001 | Strainer  | 1      | 1      | 1      |
| 34         | 60121005 | Valve   | 1      | 1      | 1      |
| 35         | 60121007 | Outlet coupling                                       | 1      | 1      | 1      |
| 36         | 60121008 | Washer  | 2      | 2      | 2      |
| 37         | 60121009 | Nut   | 1      | 1      | 1      |
| 38         | 60121002 | Rubber gasket   | 1      | 1      | 1      |

## TIGHTENING ALTERNATOR BELT

Loosen the alternator positioning bolt and tighten the belt by pushing the alternator outwards.

Tighten the belt until 1 cm of play remains. Retighten the bolt (Fig. 8).

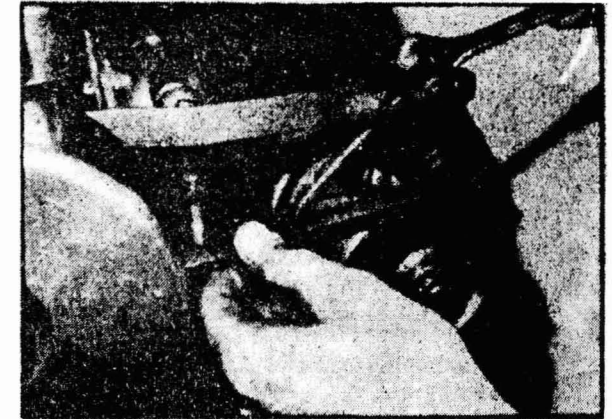


Fig. 8

## ADJUSTING ROCKER CLEARANCES

The engine must be cold whenever this is done.

Take off the rocker cover. Turn the flywheel to the right until the valve closes. Turn a further 90° to the right. Adjust by loosening or tightening the rocker adjustment screw (Fig. 9). Follow the same procedure for the other valve. Refit the rocker cover.

CLEARANCE WITH ENGINE COLD: INLET AND EXHAUST 0.20 mm

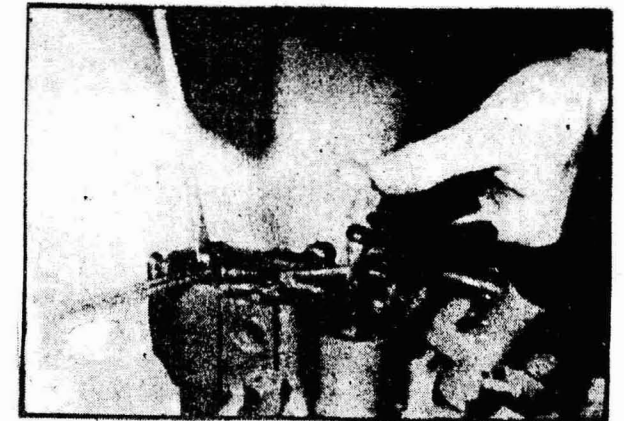


Fig. 9

## BATTERY

Check the level of acid in the cells. The level must be not less than 5 mm above the tops of the plates. Add distilled water if it is low.

The terminals must be kept free of acid at all times.

## BLEEDING AIR FROM FUEL SYSTEM

### A) Engines without fuel pump

Open the fuel tank valve. Loosen the screw on the top of the injection pump 2 turns. Turn the engine over until fuel free of air bubbles emerges (Fig. 10). Retighten the screw.

Loosen the injector pipe nut and turn the engine over until fuel emerges. Retighten the nut.

### B) Engines with fuel pump

Prime the fuel pump, then proceed as indicated in the preceding paragraph.



Fig. 10

## ADJUSTING IDLING SPEED

Loosen the lock-nut of the screw on the lower part of the fuel control box (Fig. 11) and tighten or loosen the screw, depending on whether the idling speed is to be increased or reduced.

Retighten the lock-nut.

Table 8

## INJECTOR BODY AND NOZZLE

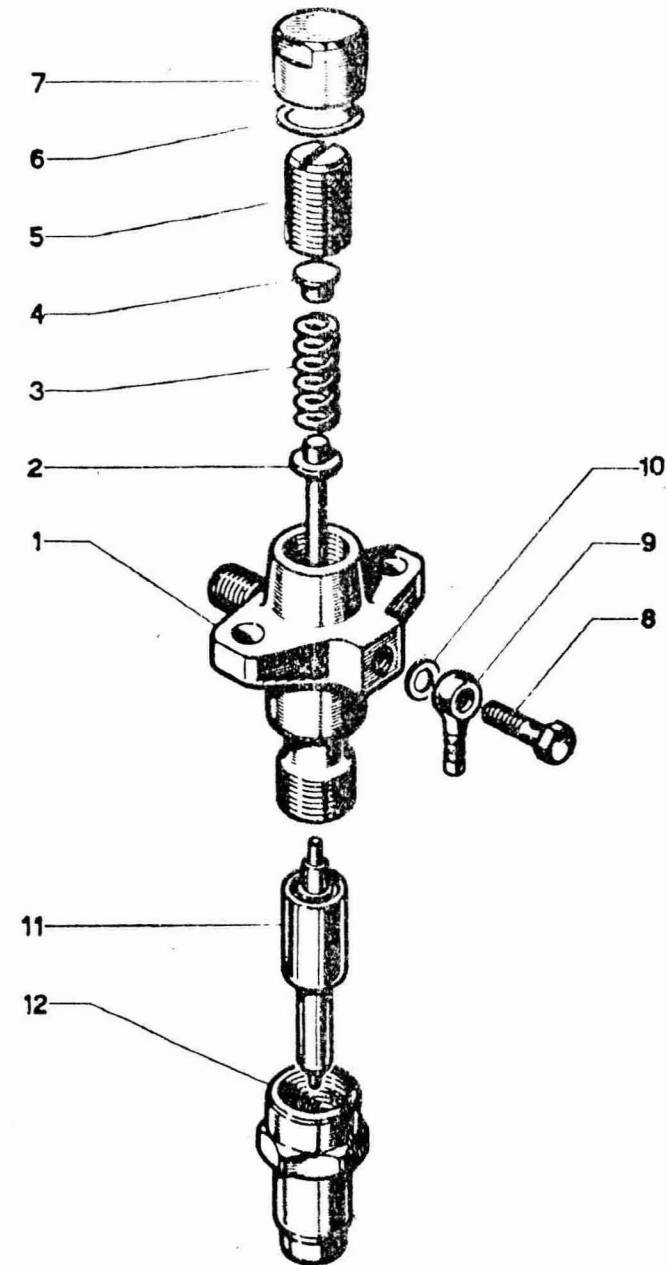


Table 8

## INJECTOR BODY AND NOZZLE

| Figure no. | Part no. | NOMENCLATURE            | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|-------------------------|--------|--------|--------|
| 1          | 12126001 | Injector body           | 1      | 1      | 1      |
| 2          | 12126002 | Pressure spindle        | 1      | 1      | 1      |
| 3          | 12126003 | Injector spring         | 1      | 1      | 1      |
| 4          | 12126004 | Spring carrier          | 1      | 1      | 1      |
| 5          | 12126005 | Spring carrier nut      | 1      | 1      | 1      |
| 6          | 12126006 | Injector cap gasket     | 1      | 1      | 1      |
| 7          | 12126007 | Injector cap            | 1      | 1      | 1      |
| 8          | 12126008 | Leak-off coupling screw | 1      | 1      | 1      |
| 9          | 12124037 | Universal coupling      | 1      | 1      | 1      |
| 10         | 12124023 | Coupling screw gasket   | 2      | 2      | 2      |
| 11         | 12326011 | Nozzle                  | 1      | 1      | 1      |
| 12         | 12126012 | Nozzle cap nut          | 1      | 1      | 1      |

## Important note:

Never touch the sealed upper screw on the box

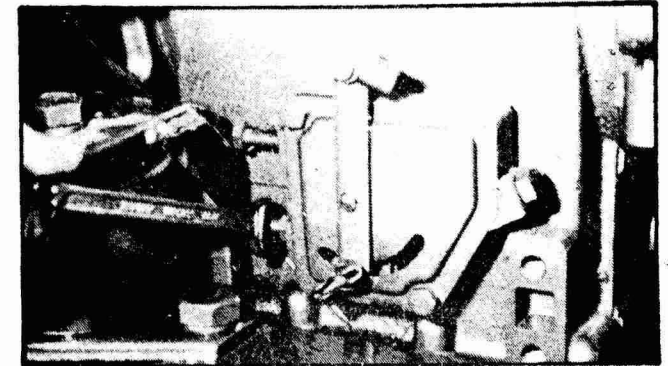


Fig. 11

## WATER PUMP

The engine cooling system pump is located on the rear portion of the reverse gearbox. The impeller is made of Neoprene and cannot run dry. If allowed to run without water it may break. It is important for this reason always to carry a spare impeller.

To change the impeller, close the water valve and take off the pump cover. Using two screwdrivers as levers, pull the impeller off its shaft. Clean the mounting area and fit a new one. Replace the cover, at the same time fitting a new gasket (Fig. 12). Open the water valve.

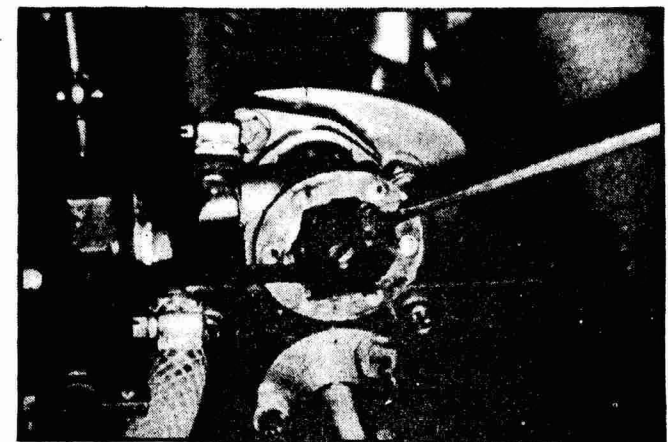


Fig. 12

### ADJUSTING REVERSE GEARBOX

Loosen the lever fastening screws and move the lever laterally right or left until the throw is the same for both ahead and astern. Retighten the screws (Fig. 13).

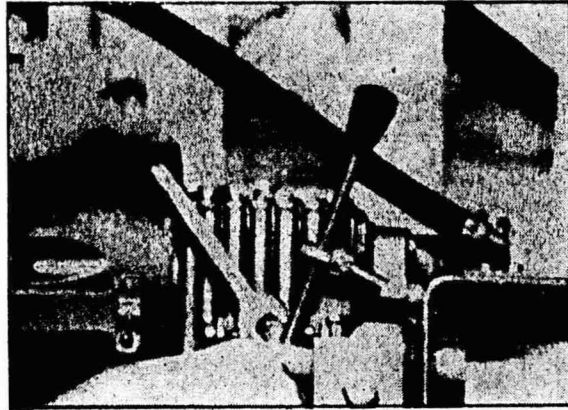


Fig. 13

### MAINTENANCE SCHEDULE

| JOB     | WORK ON             | HOURS |    |     |     |
|---------|---------------------|-------|----|-----|-----|
|         |                     | 8     | 50 | 100 | 300 |
| CLEAN   | Injector            |       |    |     | X   |
| INSPECT | Water pump impeller |       |    |     | X   |
|         | Engine              | X     |    |     |     |
|         | Oil level           |       |    |     |     |
|         | Reverse gearbox     | X     |    |     |     |
|         | Battery water level |       |    |     | X   |
| CHANGE  | Oil                 |       |    | X   |     |
|         | Reverse gearbox     |       |    | X   |     |
|         | Air filter          |       |    | X   | X   |
|         | Fuel filter         |       |    | X   | X   |
|         | Oil filter          |       |    |     | X   |

Table 7

### INJECTION PUMP

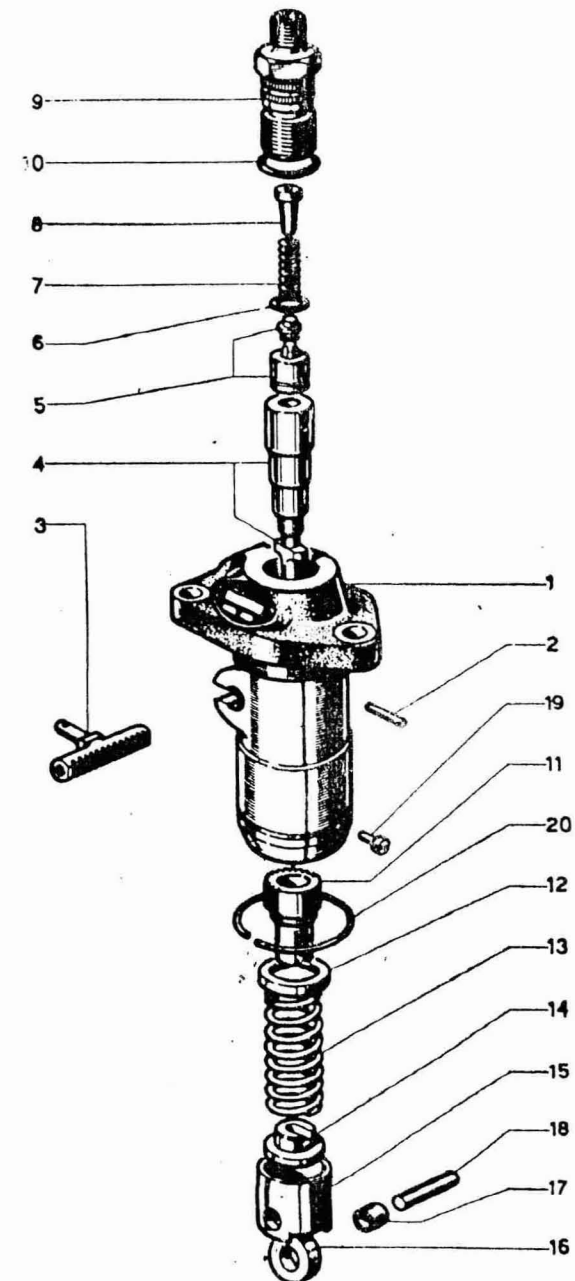


Table 7

INJECTION PUMP

| Figure no. | Part no. | NOMENCLATURE          | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|-----------------------|--------|--------|--------|
| 1          | 12125001 | Pump casing           | 1      | 1      | 1      |
| 2          | 12125002 | Cylinder locating pin | 1      | 1      | 1      |
| 3          | 12125003 | Rack assembly         | 1      | 1      | 1      |
| 4          | 12125004 | Cylinder with plunger | 1      | 1      | 1      |
| 5          | 12125005 | Delivery valve        | 1      | 1      | 1      |
| 6          | 12125006 | Washer                | 1      | 1      | 1      |
| 7          | 12125007 | Valve spring          | 1      | 1      | 1      |
| 8          | 12125008 | Discharge valve       | 1      | 1      | 1      |
| -          | 12125009 | Discharge valve shim  | 1      | 1      | 1      |
| 9          | 12125010 | Delivery coupling     | 1      | 1      | 1      |
| 10         | 12125011 | Coupling gasket       | 1      | 1      | 1      |
| 11         | 12125012 | Regulation bush       | 1      | 1      | 1      |
| 12         | 12125013 | Upper spring carrier  | 1      | 1      | 1      |
| 13         | 12125014 | Spring                | 1      | 1      | 1      |
| 14         | 12125015 | Lower spring carrier  | 1      | 1      | 1      |
| 15         | 12125017 | Tappet                | 1      | 1      | 1      |
| 16         | 12125018 | Tappet roller         | 1      | 1      | 1      |
| 17         | 12125019 | Tappet roller bearing | 1      | 1      | 1      |
| 18         | 12125020 | Tappet roller shaft   | 1      | 1      | 1      |
| 19         | 12125021 | Tappet screw          | 1      | 1      | 1      |
| 20         | 12125022 | Pump circlip          | 1      | 1      | 1      |

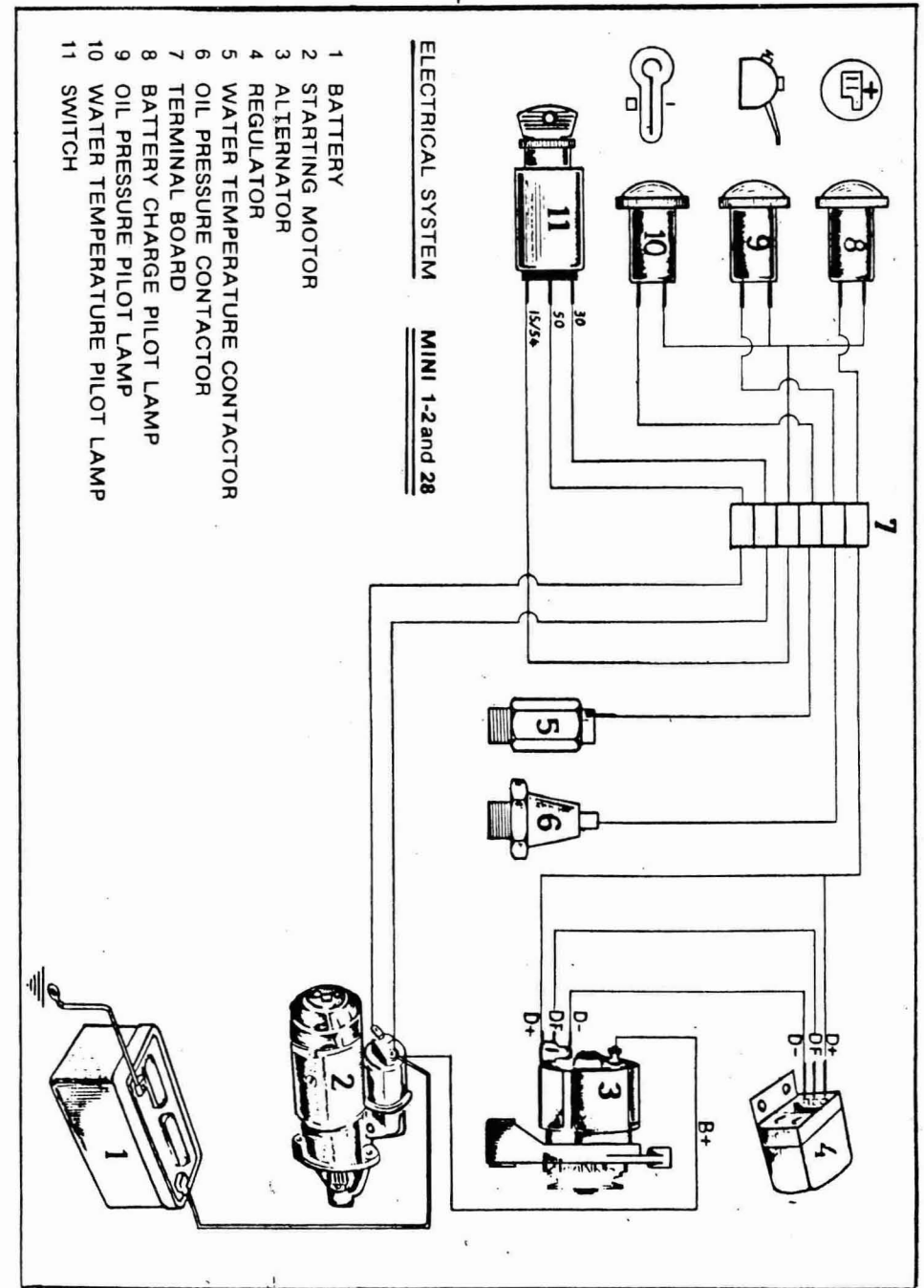
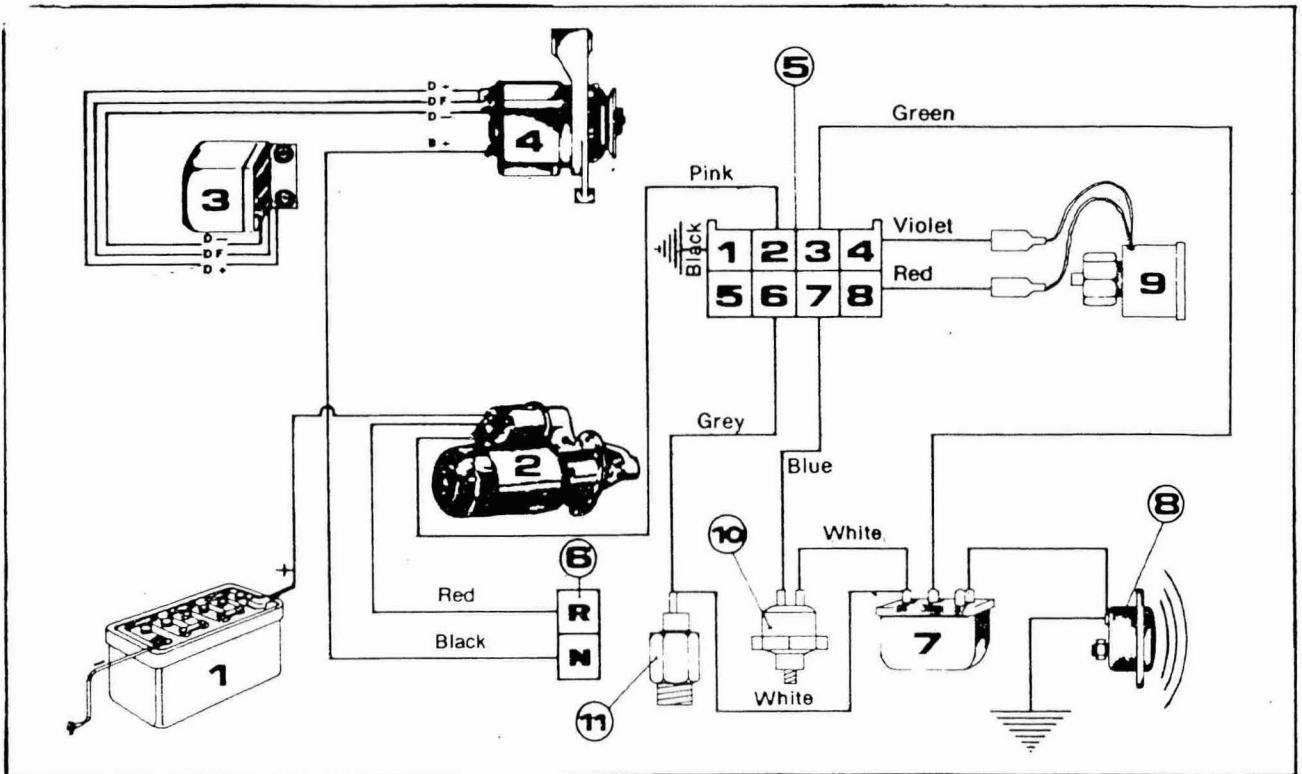
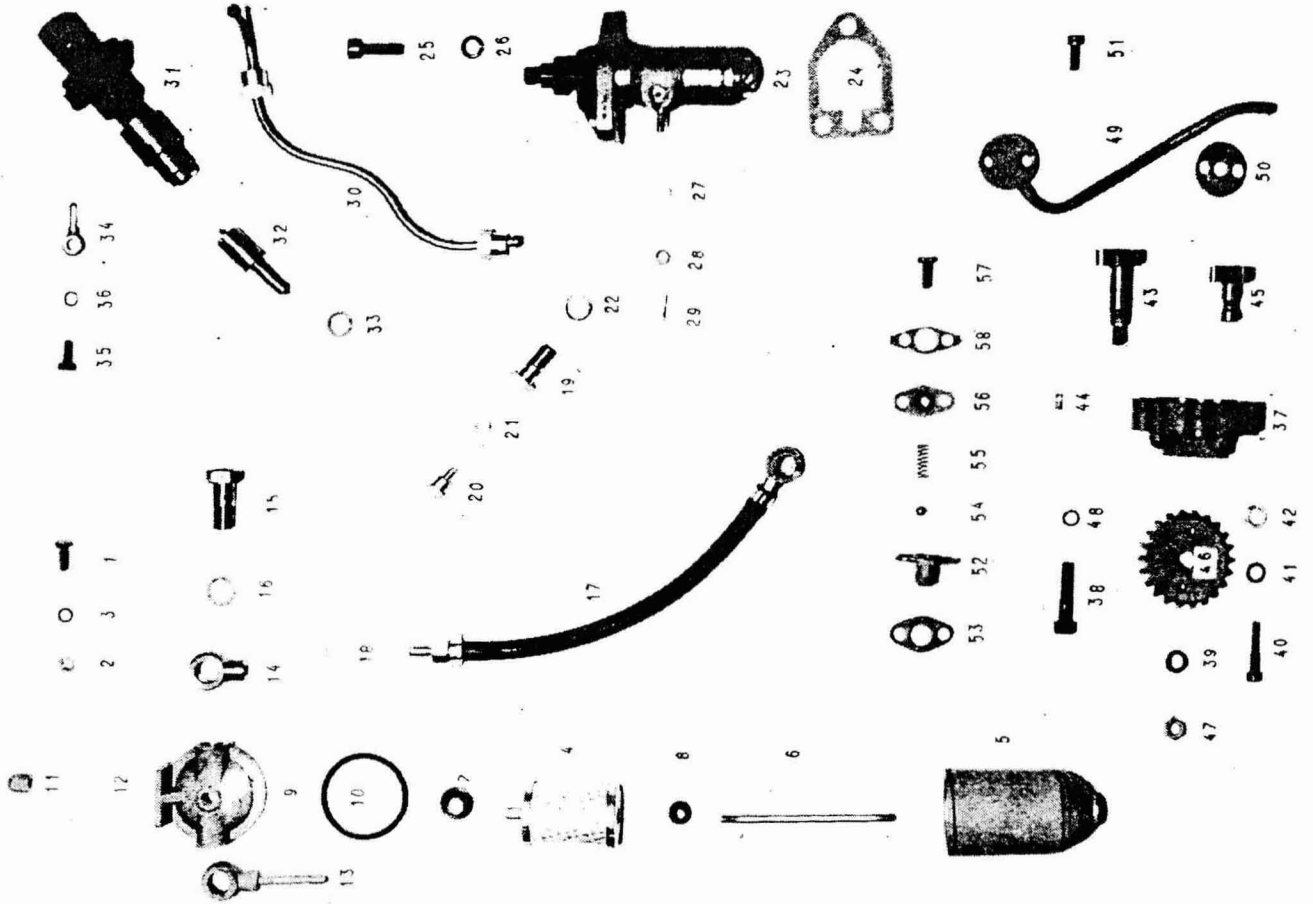


Table 6

FUEL SYSTEM - LUBRICATING SYSTEM



ELECTRICAL SYSTEM, MINI-1 -2 and 28 ENGINES, WITH INSTRUMENT PANEL

- |                   |                          |                |                           |
|-------------------|--------------------------|----------------|---------------------------|
| 1. Battery        | 4. Alternator            | 7. Relay       | 10. Oil pressure          |
| 2. Starting motor | 5. Panel terminal boards | 8. Alarm siren | 11. Temperature contactor |
| 3. Regulator      | 6                        | 9. Tachometer  |                           |

Table 6

## FUEL SYSTEM - LUBRICATION SYSTEM

| Figure no. | Part no. | NOMENCLATURE  | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|---|--------|--------|--------|
| 49         | 12124050 | Oil suction pipe  | 1      | 1      | 1      |
| 50         | 12124051 | Copper washer   | 3      | 3      | 3      |
| 51         | 12124052 | Suction screw   | 1      | 1      | 1      |
| -          | 12124153 | <b>Oil pressure regulation valve</b><br>(Table 5, Figs. 53 to 58) |        |        |        |
| 52         | 12124054 | Oil pressure valve body   | 1      | 1      | 1      |
| 53         | 12124055 | Oil pressure valve gasket   | 1      | 1      | 1      |
| 54         | 12124056 | Ball  | 1      | 1      | 1      |
| 55         | 12124057 | Spring  | 1      | 1      | 1      |
| 56         | 12124058 | Valve head  | 1      | 1      | 1      |
| 57         | 12124059 | Screw   | 2      | 2      | 2      |
| 58         | 12124060 | Locking washer  | 1      | 1      | 1      |
| -          | 12124062 | Washer, hocking   | 1      | 1      | 1      |
| -          | 12114070 | Fuel pump assy  | 1      | 1      | 1      |
| -          | 12114071 | Gasket, pump  | 1      | 1      | 1      |
| -          | 55307105 | Bolt DIN 86   | 2      | 2      | 2      |

## TECHNICAL SPECIFICATIONS

|                                       | MINI 1 | MINI 2 | MINI 3 |
|---------------------------------------|--------|--------|--------|
| No. of cylinders                      | 1      | 1      | 1      |
| Cylinder bore in mm                   | 80     | 85     | 85     |
| Stroke in mm                          | 80     | 80     | 90     |
| Cubic capacity in cc                  | 402    | 454    | 510    |
| Stroke capacity in cc                 |        |        |        |
| DIN power                             | 6      | 9      | 12     |
| RPM 6270 Hp (kW)                      | 2200   | 2600   | 2800   |
| Weight in kg with manual starting     | 83     | 83     | 83     |
| Weight in kg with electrical starting | 96     | 96     | 96     |
| Gear ratio                            | 2:1    | 2:1    | 2:1    |
| Maximum installation angle            | 20°    | 20°    | 20°    |
| Lubrication                           |        |        |        |

Gear pump forced

Oil capacities:

|                 |              |
|-----------------|--------------|
| Engine          | ± 2 litres   |
| Reverse gearbox | ± 0.4 litres |

Oil grade:

Engine and reverse gearbox

SAE 30 Series 3

## Cooling

Direct by sea water  
Thermostat at 60°C

## Injection system

|                            |                        |       |                        |
|----------------------------|------------------------|-------|------------------------|
| Injection pump             | Condiesel              |       |                        |
| Injector                   | 4 diameter 0.25 holes  |       |                        |
| Injection pressure         | 180 kg/Cm <sup>2</sup> |       | 200 kg/cm <sup>2</sup> |
| Injection point before TDC | 24.5°                  | 20.5° | 24.25°                 |
|                            | 25°                    | 21°   | 24.5°                  |

## Electrical system (see diagram on page 13)

|                |                       |
|----------------|-----------------------|
| Starting motor | BOSCH 12 V            |
| Alternator     | BOSCH 12 V 28 A 400 W |

## Nut torques

| Catalogue reference |        | Nomenclature      | Tightening torque<br>in mkg |
|---------------------|--------|-------------------|-----------------------------|
| Table               | Part   |                   |                             |
| 1                   | 8019   | Bell housing nut  | 7                           |
| 2                   | 8116   | Cylinder head nut | 4,8                         |
| 2                   | 128116 | Cylinder head nut | 4,8                         |
| 3                   | 8253   | Flywheel nut      | 17                          |
| 6                   | 8510   | Feed coupling     | 5                           |
| 7                   | 8607   | Injector cap      | 7                           |



Table 1

## BEDPLATE

| Figure no. | Part no. | NOMENCLATURE                                      | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|---|--------|--------|--------|
| -          | 12120100 | <b>Bedplate complete</b> (main bearing to size)   | 1      | 1      | 1      |
| 1          | 12120001 | Engine bedplate                                   | 1      | 1      | 1      |
| 2          | 12120002 | Oil line screw                                    | 1      | 1      | 1      |
| 3          | 56090006 | Coupling washer                                   | 1      | 1      | 1      |
| 4          | 12120004 | Oil sump  | 1      | 1      | 1      |
| 5          | 12120005 | Oil sump gasket                                   | 1      | 1      | 1      |
| 6          | 52102256 | Oil sum screw                                     | 12     | 12     | 12     |
| 7          | 53033008 | Spring washer                                     | 12     | 12     | 12     |
| 8          | 12120008 | Oil drain plug                                    | 1      | 1      | 1      |
| 9          | 56000015 | Oil drain plug washer                             | 1      | 1      | 1      |
| 10         | 12120010 | Dipstick  | 1      | 1      | 1      |
| 11         | 12120011 | Transfer  | 1      | 1      | 1      |
| 12         | 12120012 | Main bearing                                      | 1      | 1      | 1      |
| -          | 12120027 | Main bearing - 1 mm                               | 1      | 1      | 1      |
| 13         | 12120013 | Bearing key                                       | 1      | 1      | 1      |
| 14         | 12120014 | Bell housing                                      | 1      | 1      | 1      |
| 15         | 12120015 | Bell housing closure disk                         | 1      | 1      | 1      |
| 16         | 12120016 | Third thrust bearing                              | 1      | 1      | 1      |
| 17         | 12120017 | Bell housing gasket                               | 1      | 1      | 1      |
| 18         | 12120018 | Stud  | 8      | 8      | 8      |
| 19         | 52120008 | Nut   | 8      | 8      | 8      |
| 20         | 53033008 | Spring washer                                     | 8      | 8      | 8      |
| -          | 12120020 | <b>Crankshaft bearing mount</b> (complete)        | 1      | 1      | 1      |
| -          | 12120026 | <b>Crankshaft bearing mount</b> (complete) - 1 mm | 1      | 1      | 1      |
| 21         | 12120021 | Crankshaft bearing mount                          | 1      | 1      | 1      |
| 22         | 12120022 | Mount gasket, 0.3 mm                              | X      | X      | X      |
| -          | 12120023 | Mount gasket, 0.1 mm                              | X      | X      | X      |
| 23         | 12120024 | Thrust bearing                                    | 1      | 1      | 1      |
| -          | 12120025 | Thrust bearing - 1 mm                             | 1      | 1      | 1      |
| 24         | 12120013 | Bearing key                                       | 1      | 1      | 1      |
| 25         | 12120018 | Stud  | 6      | 6      | 6      |
| 26         | 52120008 | Nut   | 6      | 6      | 6      |
| 27         | 53033008 | Spring washer                                     | 6      | 6      | 6      |
| 28         | 51030008 | Bearing mount washer                              | 6      | 6      | 6      |
| 29         | 12120029 | Lower guide                                       | 1      | 1      | 1      |
| 30         | 12120030 | Guide gasket                                      | 1      | 1      | 1      |
| 31         | 52103258 | Allen screw                                       | 2      | 2      | 2      |
| 32         | 53033008 | Spring washer                                     | 2      | 2      | 2      |
| 33         | 12120032 | Dipstick pipe                                     | 1      | 1      | 1      |
| 34         | 12120033 | Pipe seat   | 2      | 2      | 2      |
| 35         | 12120034 | Engine inlet bracket (to 80/330 - 450/723)        | -      | -      | -      |
| 36         | 12120035 | Engine exhaust bracket (to 80/330 - 450/723)      | -      | -      | -      |
| 37         | 52102308 | Bracket screw                                     | 8      | 8      | 8      |
| 38         | 53033010 | Spring washer                                     | 8      | 8      | 8      |
| 39         | 51030010 | Plain washer                                      | 8      | 8      | 8      |
| -          | 12110100 | Set of gaskets                                    | 1      | -      | -      |
| -          | 12210100 | Set of gaskets                                    | -      | 1      | 1      |
| 40         | 52315303 | Threaded oil sump fastener                        | 1      | 1      | 1      |

Table 6

## FUEL SYSTEM - LUBRICATION SYSTEM

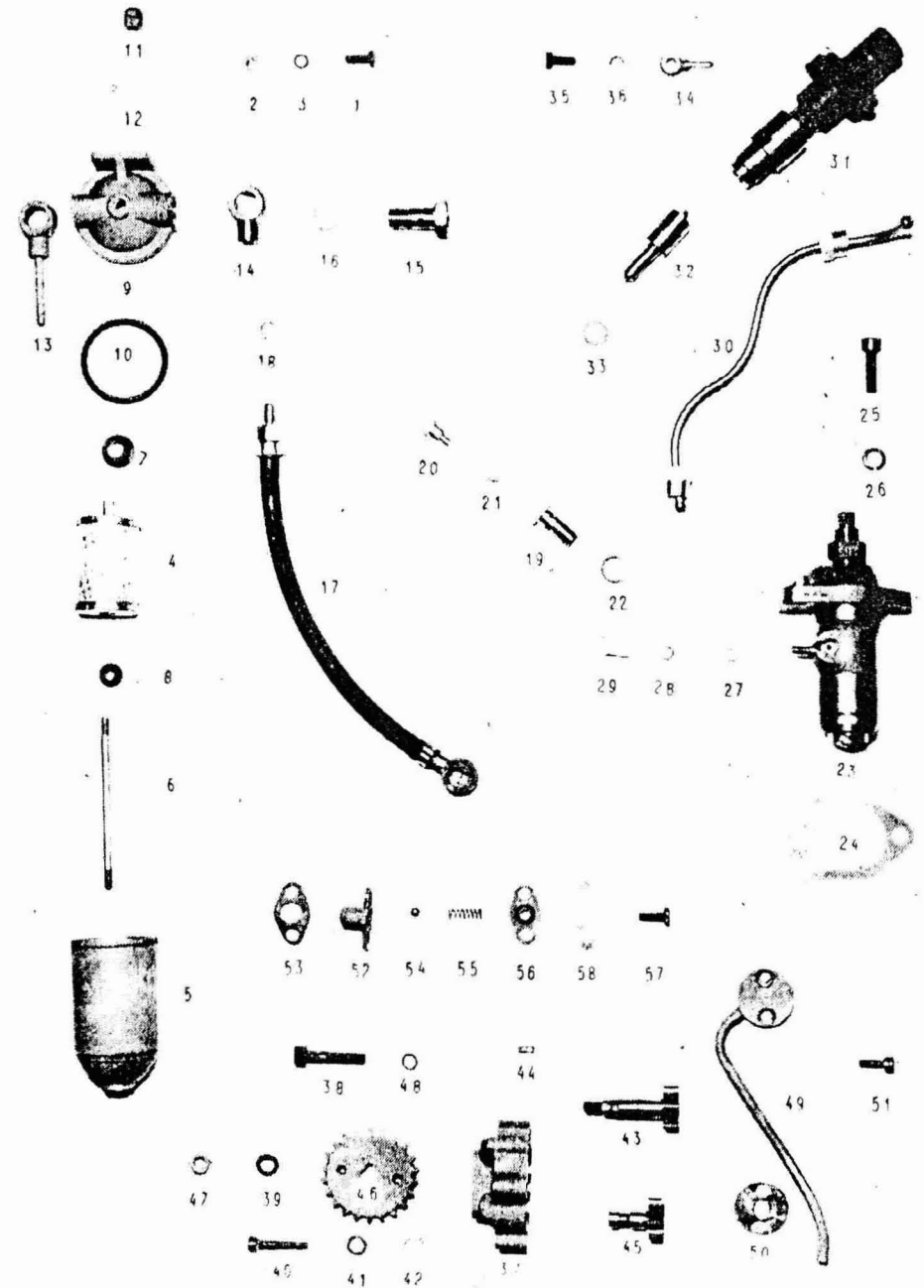


Table 6

## FUEL SYSTEM - LUBRICATING SYSTEM

| Figure no. | Part no. | NOMENCLATURE   | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|--|--------|--------|--------|
| -          | -        | <b>Filter fastening bolt assembly</b><br>(Table 4, Figs. 1 to 3) |        |        |        |
| 1          | 52102156 | Filter fastening bolt  | 2      | 2      | 2      |
| 2          | 52120006 | Nut  | 2      | 2      | 2      |
| -          | 53033006 | Spring washer  | 2      | 2      | 2      |
| 3          | 11114190 | Fuel filter complete   | 1      | 1      | 1      |
| 4          | 11114095 | Filter element   | 1      | 1      | 1      |
| 5          | 11114090 | Filter bowl  | 1      | 1      | 1      |
| 6          | 11111210 | Bowl fastening stud  | 1      | 1      | 1      |
| 7          | 11114094 | Top rubber ring gasket   | 1      | 1      | 1      |
| 8          | 11114096 | Bottom rubber ring gasket  | 1      | 1      | 1      |
| 9          | 11114091 | Filter cover   | 1      | 1      | 1      |
| 11         | 11114098 | Cover nut  | 1      | 1      | 1      |
| 12         | 57000353 | Washer   | 1      | 1      | 1      |
| 13         | 12114015 | Fuel inlet coupling  | 1      | 1      | 1      |
| 14         | 12114016 | Fuel outlet coupling   | 1      | 1      | 1      |
| 15         | 11114072 | Coupling screw   | 2      | 2      | 2      |
| 16         | 57000367 | Washer   | 4      | 4      | 4      |
| 17         | 12114019 | Fuel pump hose   | 1      | 1      | 1      |
| 18         | 12124020 | Coupling washer  | 1      | 1      | 1      |
| 19         | 12124021 | Pump coupling screw  | 1      | 1      | 1      |
| 20         | 12124022 | Bleed screw  | 1      | 1      | 1      |
| 21         | 12124023 | Washer   | 1      | 1      | 1      |
| 22         | 12124024 | Coupling washer  | 2      | 2      | 2      |
| 23         | 12124025 | <b>Injection pump complete</b>                                   | 1      | 1      | 1      |
| 24         | 12124026 | Pump gasket, 0.5 mm  | X      | X      | X      |
| -          | 12124027 | Pump gasket, 0.1 mm  | X      | X      | X      |
| 25         | 52103258 | Pump bolt  | 3      | 3      | 3      |
| 26         | 53033008 | Spring washer  | 3      | 3      | 3      |
| 27         | 12124028 | Pump cap   | 1      | 1      | 1      |
| 28         | 12124029 | Plain washer   | 1      | 1      | 1      |
| 29         | 12124030 | Pin  | 1      | 1      | 1      |
| 30         | 12124031 | Injection pipe   | 1      | 1      | 1      |
| 31         | 12324032 | <b>Injector complete</b>   | 1      | 1      | 1      |
| -          | 12126001 | Injector body  | 1      | 1      | 1      |
| 32         | 12326011 | Nozzle   | 1      | 1      | 1      |
| 33         | 12124035 | Injector washer, 0.5 mm  | X      | X      | X      |
| -          | 12124036 | Injector washer, 1 mm  | X      | X      | X      |
| 34         | 12124037 | Coupling (leak-off)  | 1      | 1      | 1      |
| 35         | 12126008 | Coupling screw   | 1      | 1      | 1      |
| 36         | 12124023 | Coupling washer  | 2      | 2      | 2      |
| -          | 12124040 | <b>Oil pump complete</b>   | 1      | 1      | 1      |
| 37         | 12124041 | Oil pump casing  | 1      | 1      | 1      |
| 38         | 12124042 | Pump bolt  | 2      | 2      | 2      |
| 39         | 53033008 | Spring washer  | 2      | 2      | 2      |
| 40         | 12124043 | Pump bolt  | 1      | 1      | 1      |
| 41         | 53033008 | Spring washer  | 1      | 1      | 1      |
| 42         | 51030008 | Washer   | 1      | 1      | 1      |
| 43         | 12124048 | Driving gear   | 1      | 1      | 1      |
| 44         | 12124047 | Key  | 1      | 1      | 1      |
| 45         | 12124046 | Driven gear  | 1      | 1      | 1      |
| 46         | 12124049 | Pump drive gear  | 1      | 1      | 1      |
| 47         | 52120008 | Nut  | 1      | 1      | 1      |
| 48         | 53033008 | Spring washer  | 1      | 1      | 1      |
| 10         | 11114092 | GASKET, COVER  | 1      | 1      | 1      |

Table 1

## BEDPLATE

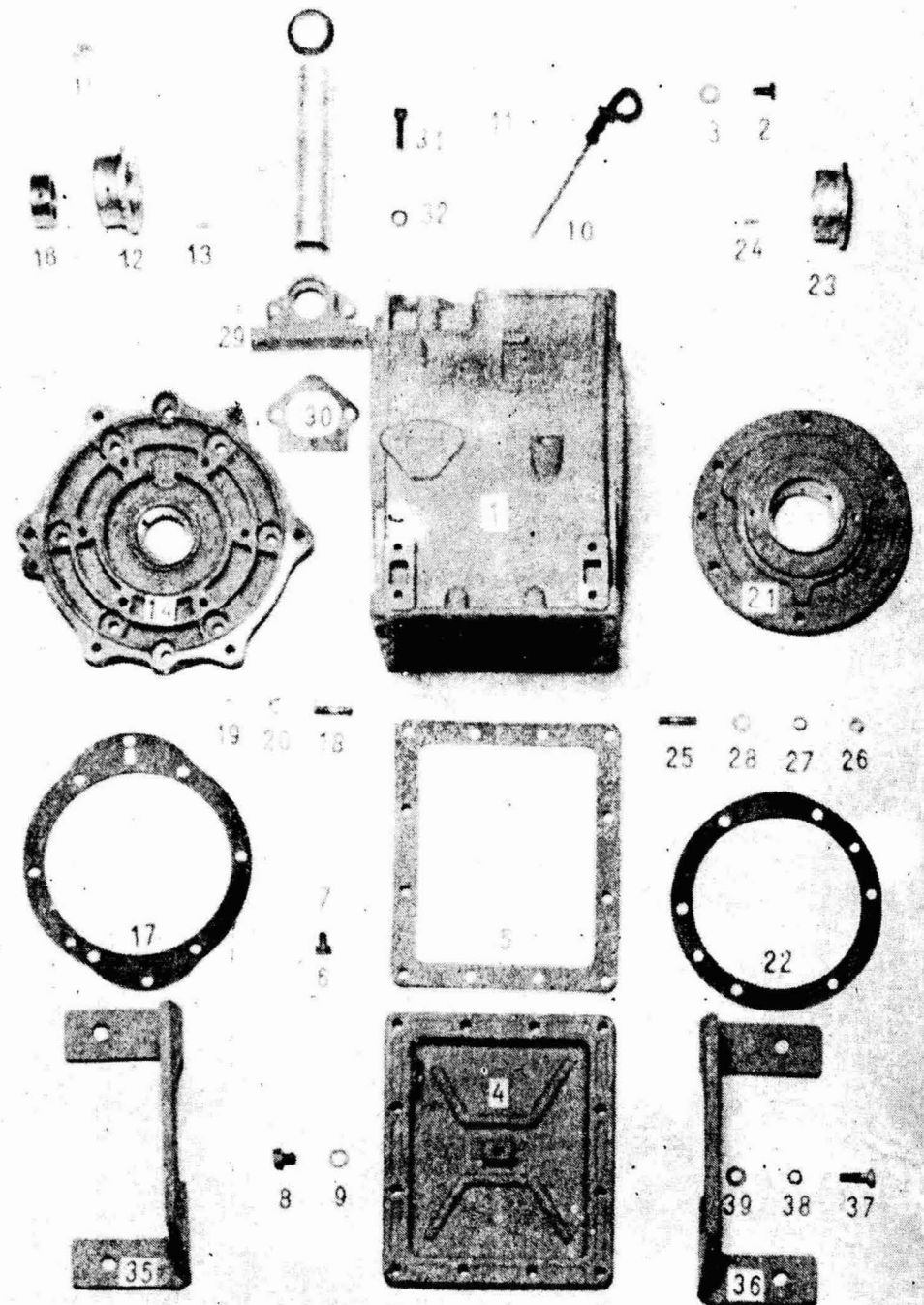


Table 2

## MOUNTS - REMOTE CONTROL

| Figure no. | Part no. | NOMENCLATURE                                     | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|--|--------|--------|--------|
| 1          | 12110034 | Engine mount bracket, intake side                | 1      | 1      | 1      |
| 2          | 12110035 | Engine mount bracket, exhaust side               | 1      | 1      | 1      |
| -          | 12110146 | Front mount assembly (Table 2, Figs. 3, 4 and 5) | 2      | 2      | 2      |
| 3          | 12110046 | Mount pad  | 2      | 2      | 2      |
| 4          | 12110047 | Plate  | 2      | 2      | 2      |
| 5          | 12110048 | Screw  | 6      | 6      | 6      |
| 6          | 52102358 | Pad fastening screw                              | 2      | 2      | 2      |
| 7          | 12110050 | Rear mount pad                                   | 2      | 2      | 2      |
| 8          | 52102306 | Screw  | 4      | 4      | 4      |
| 9          | 53033010 | Spring washer                                    | 4      | 4      | 4      |
| 10         | 12110154 | Mount bar, exhaust side                          | 1      | 1      | 1      |
| 11         | 12110155 | Mount bar, inlet side                            | 1      | 1      | 1      |
| 15         | 12119011 | Morse engine control bracket                     | 1      | 1      | 1      |
| 16         | 52102156 | Bracket screw                                    | 1      | 1      | 1      |
| 17         | 53033006 | Spring washer                                    | 1      | 1      | 1      |
| 18         | 14719013 | Cable retainer clamp                             | 1      | 1      | 1      |
| 19         | 55307104 | Clamp screw                                      | 2      | 2      | 2      |
| 20         | 14719026 | Fuel lever hinge                                 | 1      | 1      | 1      |
| 21         | 14719027 | Pintle   | 1      | 1      | 1      |
| 22         | 51051107 | Pin  | 1      | 1      | 1      |
| 23         | 51030005 | Plain washer                                     | 2      | 2      | 2      |
| 24         | 12119020 | Morse reverse gearbox control bracket            | 1      | 1      | 1      |
| 25         | 12119021 | Support clamp                                    | 1      | 1      | 1      |
| 26         | 52102157 | Screw  | 4      | 4      | 4      |
| 27         | 52120006 | Nut  | 4      | 4      | 4      |
| 28         | 51030006 | Plain washer                                     | 4      | 4      | 4      |
| 29         | 53033006 | Spring washer                                    | 4      | 4      | 4      |
| 30         | 14719025 | Hinge mount                                      | 1      | 1      | 1      |
| 31         | 14719028 | Hinge  | 1      | 1      | 1      |
| 32         | 14719027 | Pintle   | 1      | 1      | 1      |
| 33         | 51051107 | Pin  | 1      | 1      | 1      |
| 34         | 52114304 | Hinge mount screw                                | 1      | 1      | 1      |
| 35         | 51030005 | Plain washer                                     | 2      | 2      | 2      |

Table 5

## REGULATOR - FUEL CONTROL - INJECTOR ROCKER

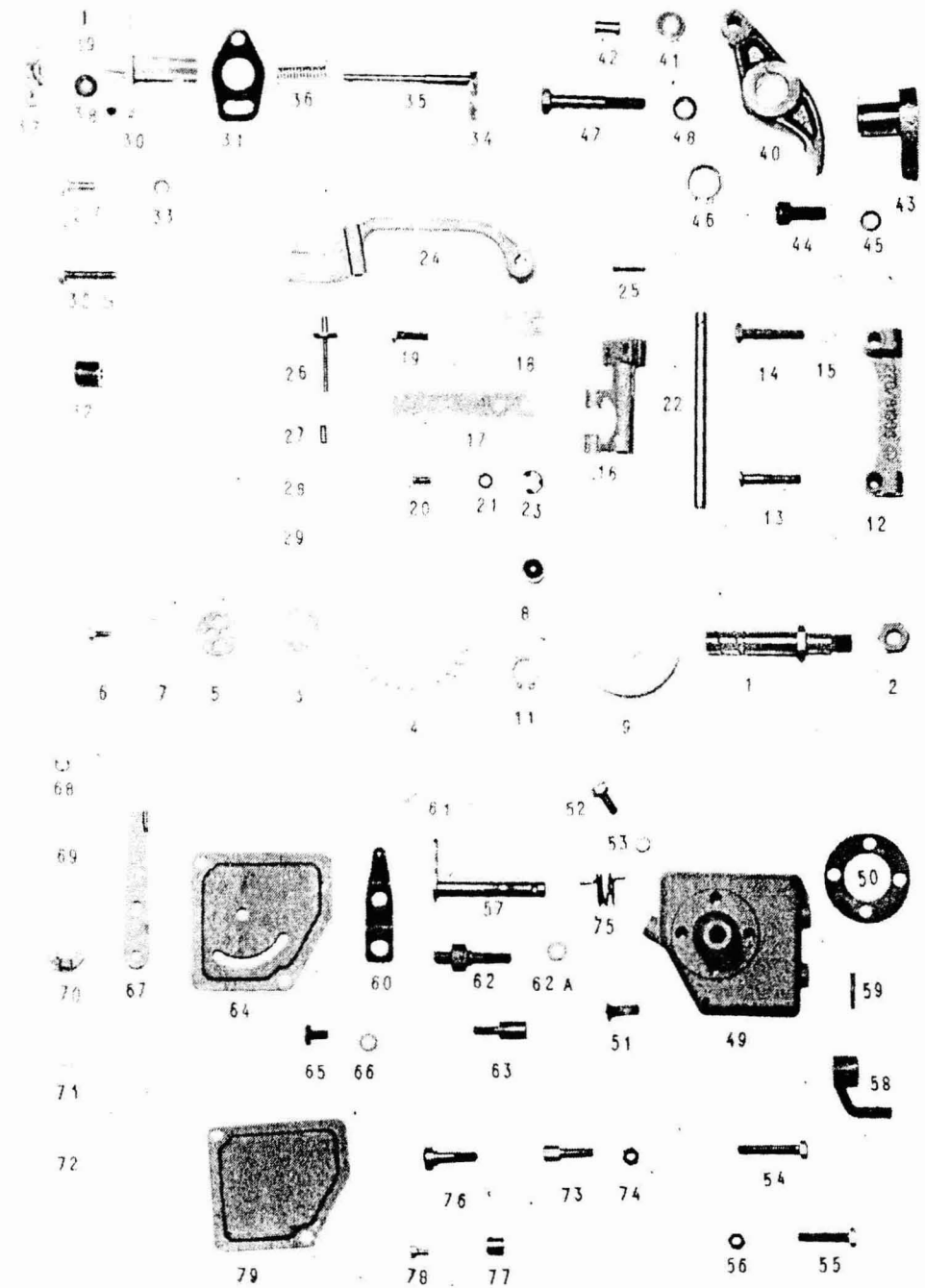


Table 5

## REGULATOR - FUEL CONTROL - INJECTOR ROCKER

| Figure no. | Part no. | NOMENCLATURE                        | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|-------------------------------------|--------|--------|--------|
| 45         | 12123048 | Spring washer                       | 1      | 1      | 1      |
| 46         | 53040018 | Support Seeger ring                 | 1      | 1      | 1      |
| 47         | 12123050 | Bolt                                | 1      | 1      | 1      |
| 48         | 12123048 | Spring washer                       | 1      | 1      | 1      |
| -          | 12123053 | <b>Manual fuel control assembly</b> | 1      | 1      | 1      |
| 49         | 12123054 | Fuel control box                    | 1      | 1      | 1      |
| 50         | 12123055 | Box gasket                          | 1      | 1      | 1      |
| 51         | 12123056 | Box mount screw                     | 3      | 3      | 3      |
| 52         | 12123057 | Hexagonal box mount bolt            | 1      | 1      | 1      |
| 53         | 12123058 | Spring washer                       | 1      | 1      | 1      |
| 54         | 12113026 | Regulator control bolt              | 1      | 1      | 1      |
| 55         | 12123059 | Regulator control bolt              | 1      | 1      | 1      |
| 56         | 12822086 | Nut                                 | 1      | 1      | 1      |
| 57         | 12123061 | Fuel control shaft                  | 2      | 2      | 2      |
| 58         | 12123062 | Internal control lever              | 1      | 1      | 1      |
| 59         | 12823040 | Cotter                              | 1      | 1      | 1      |
| 60         | 12123064 | Fuel control lever                  | 1      | 1      | 1      |
| 61         | 12123065 | Fuel control clamp                  | 1      | 1      | 1      |
| 62         | 12123066 | Fuel control box retainer bolt      | 1      | 1      | 1      |
| 62A        | 12123067 | Plain washer                        | 1      | 1      | 1      |
| 63         | 12123068 | Screw                               | 1      | 1      | 1      |
| 64         | 12123069 | Fuel control box cover              | 1      | 1      | 1      |
| 65         | 51102154 | Hexagonal bolt                      | 2      | 2      | 2      |
| 66         | 51030006 | Cover spring washer                 | 2      | 2      | 2      |
| 67         | 12123071 | External regulator lever            | 1      | 1      | 1      |
| 68         | 53042230 | Seeger ring                         | 1      | 1      | 1      |
| 69         | 12123073 | Plain washer                        | 1      | 1      | 1      |
| 70         | 51124005 | Wing nut                            | 1      | 1      | 1      |
| 71         | 12123075 | Plain washer                        | 1      | 1      | 1      |
| 72         | 12123076 | Safety wire                         | 1      | 1      | 1      |
| -          | 12123077 | <b>Remote fuel control assembly</b> | 1      | 1      | 1      |
| 73         | 12113078 | Cable sheath tip                    | 1      | 1      | 1      |
| 74         | 55120008 | Nut                                 | 1      | 1      | 1      |
| 75         | 12123080 | Spring                              | 1      | 1      | 1      |
| 76         | 12123081 | Fuel control box retainer bolt      | 1      | 1      | 1      |
| 77         | 12123082 | Stud                                | 1      | 1      | 1      |
| 78         | 12123083 | Fuel control cable fastening screw  | 1      | 1      | 1      |
| 79         | 12123084 | Fuel control box cover              | 1      | 1      | 1      |

Table 2

## MOUNTS - REMOTE CONTROL

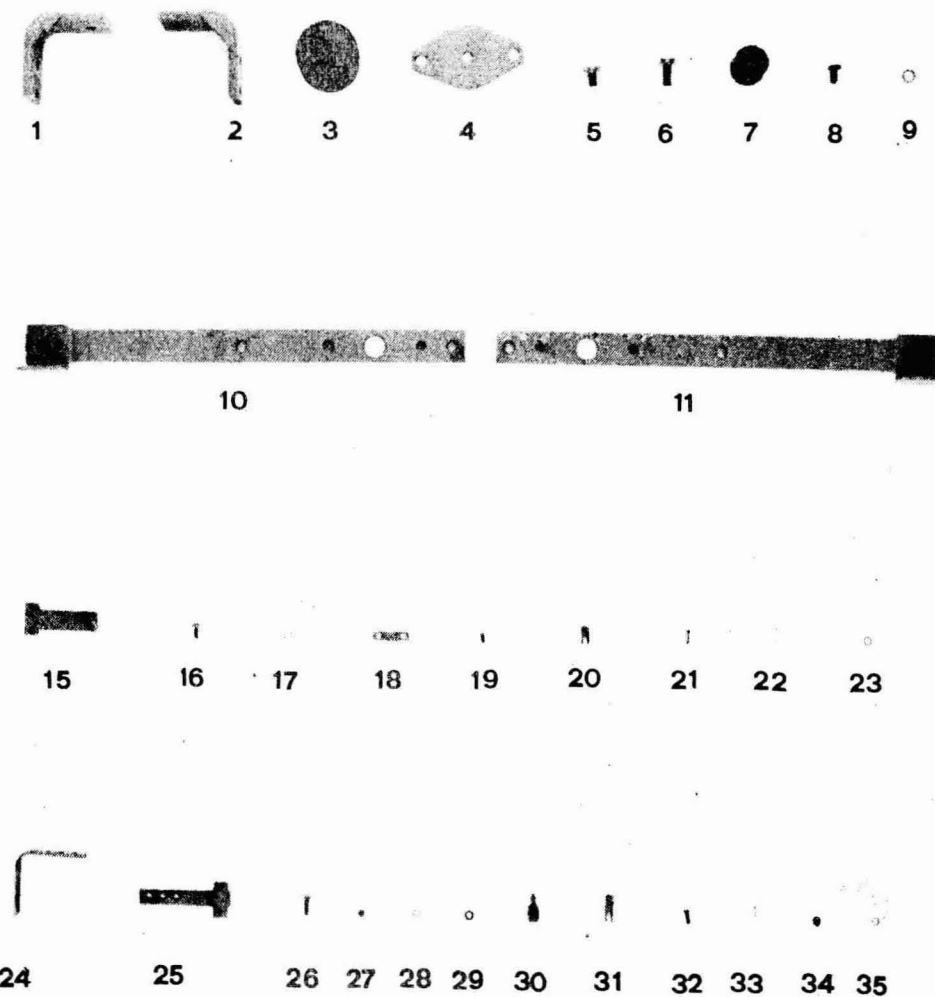


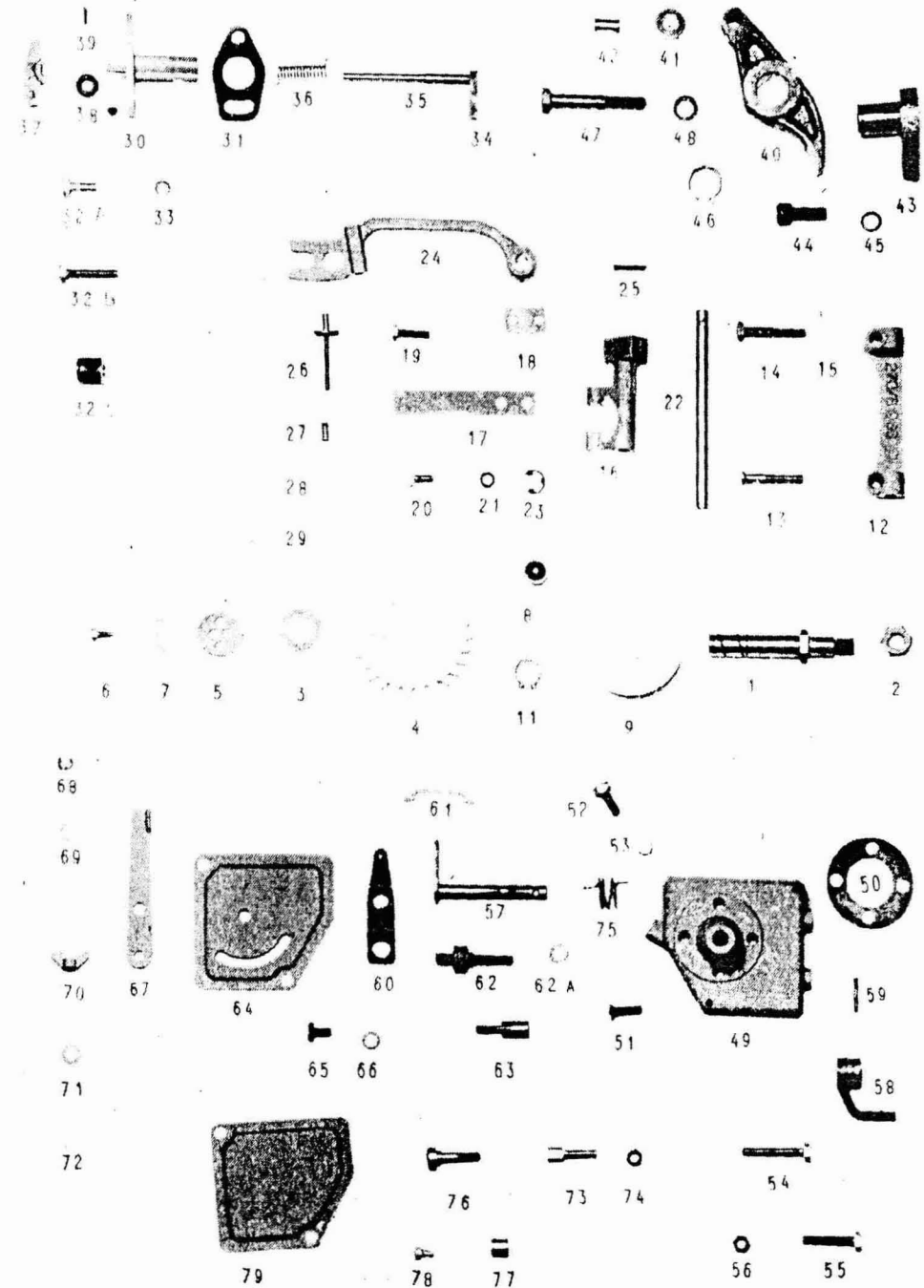
Table 3

## CYLINDER - CYLINDER HEAD - COMPRESSION RELIEF

| Figure no. | Part no. | NOMENCLATURE  | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|---|--------|--------|--------|
| -          | 12111001 | Cylinder complete (Table 3, Figs. 1 to 4)   | 1      | -      | -      |
| -          | 12211001 | Cylinder complete (Table 3, Figs. 1 to 4)   | -      | 1      | 1      |
| 1          | 12111002 | Cylinder  | 1      | 1      | 1      |
| 2          | 12111003 | Cylinder liner  | 1      | -      | -      |
| 2          | 12211003 | Cylinder liner  | -      | 1      | 1      |
| 3          | 12111004 | Water jacket plug   | 4      | 4      | 4      |
| 4          | 12111005 | Water inlet pipe nozzle   | 1      | 1      | 1      |
| 5          | 12111006 | Lower cylinder O-ring   | 4      | 4      | 4      |
| 6          | 12111007 | Upper cylinder O-ring   | 4      | 4      | 4      |
| 7          | 12111008 | Cylinder gasket, 0.1 mm   | X      | X      | X      |
| -          | 12111009 | Cylinder gasket, 0.3 mm   | X      | X      | X      |
| -          | 12111010 | Cylinder head complete (Table 3, Figs. 8, 10, 15, 16 and Table 3, Figs. 37 to 44) | 1      | -      | -      |
| -          | 12211010 | Cylinder head complete (Table 3, Figs. 8, 10, 15, 16 and Table 3, Figs. 37 to 44) | -      | 1      | 1      |
| 8          | 12111011 | Cylinder head   | 1      | -      | -      |
| 8          | 12111011 | Cylinder head   | -      | 1      | 1      |
| 9          | 12121012 | Rocker seal disk  | 1      | 1      | 1      |
| 10         | 11111004 | Water jacket plug   | 1      | 1      | 1      |
| 66         | 12111014 | Cylinder head gasket  | 1      | -      | -      |
| 66         | 12211014 | Cylinder head gasket  | -      | 1      | 1      |
| 12         | 12111015 | Cylinder head stud  | 4      | 4      | 4      |
| 13         | 12121016 | Nut   | 3      | 3      | 3      |
| 13         | 12111016 | Nut   | 1      | 1      | 1      |
| 14         | 12121017 | Washer  | 4      | 4      | 4      |
| 15         | 12111018 | Inlet valve guide   | 1      | 1      | 1      |
| 16         | 12111019 | Exhaust valve guide   | 1      | 1      | 1      |
| 17         | 52103258 | Rocker cover fastening screws   | 1      | 1      | 1      |
| 18         | 53033008 | Spring washer   | 1      | 1      | 1      |
| 19         | 12121020 | Extractor bolt  | 1      | 1      | 1      |
| 20         | 53033008 | Spring washer   | 1      | 1      | 1      |
| -          | 12121021 | <b>Breather valve assembly</b>  | 1      | 1      | 1      |
| 21         | 12121022 | Breather valve plug   | 1      | 1      | 1      |
| 22         | 12121023 | Instruction disk  | 1      | 1      | 1      |
| 23         | 12121024 | Rubber valve washer   | 1      | 1      | 1      |
| 24         | 12121025 | Valve washer  | 1      | 1      | 1      |
| 25         | 12121026 | Rivet   | 1      | 1      | 1      |
| 26         | 12121027 | Rubber valve ring   | 1      | 1      | 1      |
| 27         | 12121028 | Primer pot plug   | 1      | 1      | 1      |
| -          | 11111092 | Air filter complete (to engine no. 801-450)                                       | 1      | 1      | -      |
| 28         | 11111093 | Air filter  | 1      | 1      | -      |
| 29         | 12111031 | Filter element  | 1      | 1      | -      |
| 30         | 12111032 | Inlet gasket  | 1      | 1      | 1      |
| 31         | 12110018 | Inlet stud  | 2      | 2      | 2      |
| 32         | 52120008 | Nut   | 2      | 2      | 2      |
| 33         | 53033008 | Spring washer   | 2      | 2      | 2      |
| 28         | 12111029 | Contact air filter (from engine n.  | 1      | 1      | 1      |
| 29         | 12111031 | Filter element (from engine no.   | 1      | 1      | 1      |

Table 5

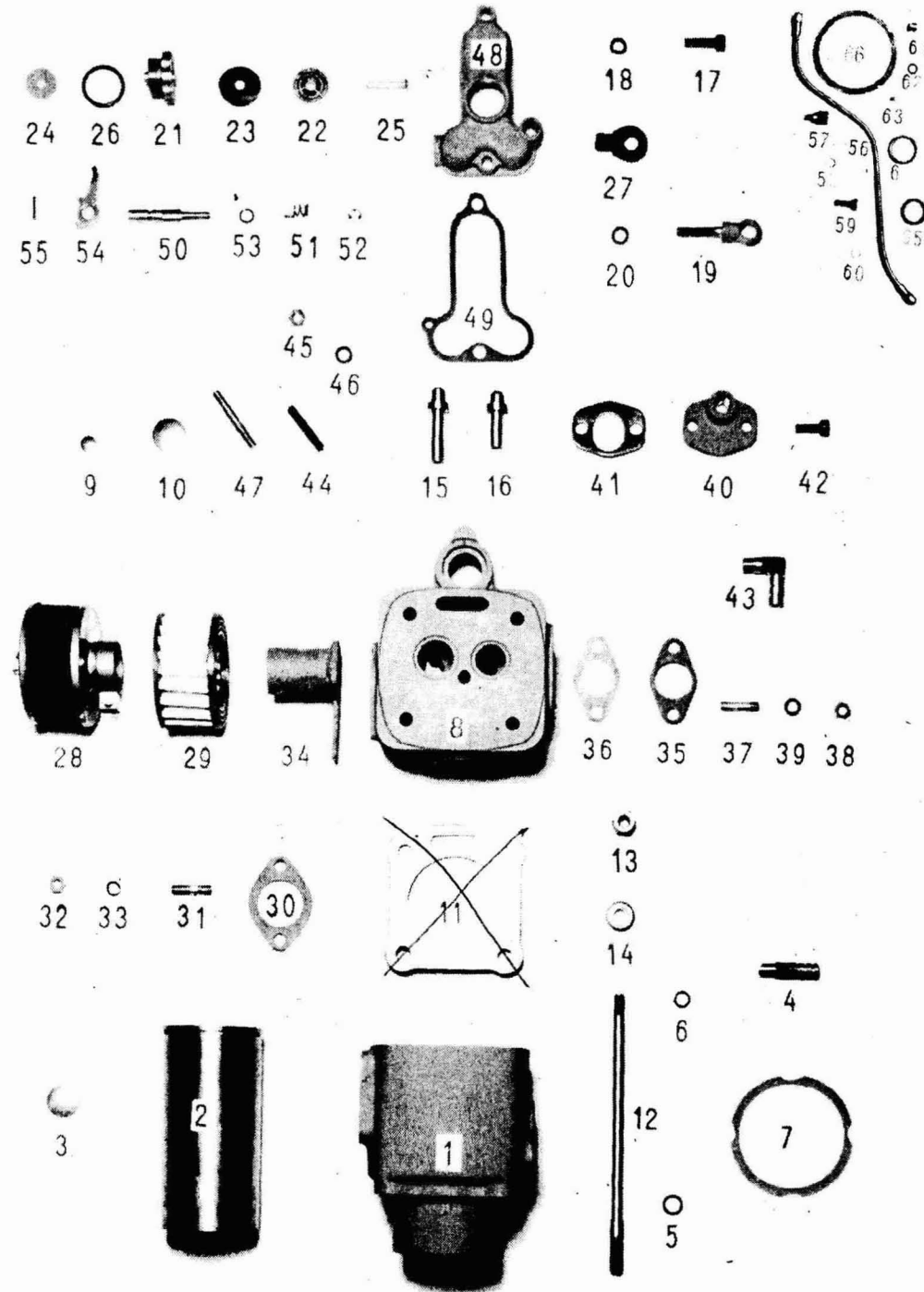
## REGULATOR - FUEL CONTROL - INJECTOR ROCKER



**Table 5 REGULATOR - FUEL CONTROL - INJECTOR ROCKER**

| Figure no. | Part no. | NOMENCLATURE                                    | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|---|--------|--------|--------|
| 1          | 12123001 | Regulator shaft                                 | 1      | 1      | 1      |
| 2          | 12123002 | Shaft nut                                       | 1      | 1      | 1      |
| 4          | 12123003 | Regulator pinion                                | 1      | 1      | 1      |
| 5          | 12123004 | Gear fastening plate                            | 1      | 1      | 1      |
| 6          | 12123005 | Gear screw                                      | 2      | 2      | 2      |
| 7          | 12123006 | Screw limit plate                               | 1      | 1      | 1      |
| 8          | 12123007 | Regulator ball                                  | 6      | 6      | 6      |
| 9          | 12123008 | Regulator bell housing                          | 1      | 1      | 1      |
| 11         | 53040014 | Shaft Seeger ring                               | 1      | 1      | 1      |
| 12         | 12123010 | Shaft support                                   | 1      | 1      | 1      |
| -          | 12123012 | <b>Regulator lever and pump control</b>         | 1      | 1      | 1      |
| 13         | 12123013 | Regulator support bolt                          | 1      | 1      | 1      |
| 14         | 12123014 | Support fastening bolt                          | 1      | 1      | 1      |
| 15         | 12123015 | Washer  | 1      | 1      | 1      |
| 16         | 12123016 | Regulator control yoke                          | 1      | 1      | 1      |
| 17         | 12123017 | Regulator spring                                | 3      | 3      | 3      |
| 18         | 12123018 | Shaft spacer                                    | 1      | 1      | 1      |
| 19         | 51102106 | Spring fastening bolt                           | 1      | 1      | 1      |
| 20         | 12123020 | Spring screw                                    | 1      | 1      | 1      |
| 21         | 12123011 | Spring washer for spring                        | 2      | 2      | 2      |
| 22         | 12123021 | Regulator lever shaft                           | 1      | 1      | 1      |
| 23         | 53042007 | Yoke shaft Benzing ring                         | 1      | 1      | 1      |
| 24         | 12123023 | Injection pump control lever                    | -      | -      | 1      |
| 25         | 12123024 | Cotter  | 1      | 1      | 1      |
| 26         | 12123025 | Fuel control shaft                              | 1      | 1      | 1      |
| 27         | 12123027 | Torque regulator spring                         | 1      | 1      | 1      |
| 28         | 12123028 | Torque regulator shaft washer                   | 1      | 1      | 1      |
| 29         | 12123029 | Regulator shaft pin                             | 1      | 1      | 1      |
| -          | 12123030 | Auxiliary fuel mechanism                        | 1      | 1      | 1      |
| 30         | 12123031 | Stop and auxiliary fuel collar                  | 1      | 1      | 1      |
| 31         | 12123032 | Collar gasket, 0.5 mm                           | X      | X      | X      |
| -          | 12123085 | Collar gasket, 1 mm                             | X      | X      | X      |
| 32 A       | 52102156 | Upper collar screw                              | 1      | 1      | 1      |
| 32 B       | 51102160 | Lower collar screw                              | 1      | 1      | 1      |
| 32 C       | 12113051 | STOP handle catch                               | 1      | 1      | 1      |
| 33         | 53033006 | Spring washer                                   | 2      | 2      | 2      |
| -          | 12123135 | <b>Auxiliary fuel and stop shaft (complete)</b> | 1      | 1      | 1      |
| 34         | 12123036 | Stop shaft lever                                | 1      | 1      | 1      |
| 35         | 12123035 | Auxiliary fuel and stop shaft                   | 1      | 1      | 1      |
| 36         | 12123038 | Shaft spring                                    | 1      | 1      | 1      |
| 37         | 12123039 | Upper control handle                            | 1      | 1      | 1      |
| 38         | 12123040 | Stop support gasket                             | 1      | 1      | 1      |
| 39         | 12123041 | Handle cotter                                   | 1      | 1      | 1      |
| -          | 12123042 | <b>Injection pump rocker</b>                    | 1      | 1      | 1      |
| 40         | 12123043 | Injection rocker                                | 1      | 1      | 1      |
| 41         | 12123044 | Rocker bush                                     | 1      | 1      | 1      |
| 42         | 12123045 | Rocker pin                                      | 1      | 1      | 1      |
| 43         | 12123046 | Rocker support                                  | 1      | 1      | 1      |
| -          | 12123136 | Rocker support (0.7 mm right eccentricity)      | 1      | 1      | 1      |
| -          | 12133187 | Rocker support (0.7 mm left eccentricity)       | 1      | 1      | 1      |
| 44         | 12123047 | Pump mount screw                                | 1      | 1      | 1      |
| 3          | 12123009 | Washer  | 1      | 1      | 1      |

**Table 3 CYLINDER - CYLINDER HEAD - COMPRESSION RELIEF**



**Table 3** CYLINDER - CYLINDER HEAD - COMPRESSION RELIEF

| Figure no. | Part no. | NOMENCLATURE                          | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|---------------------------------------|--------|--------|--------|
| 34         | 12111033 | Inlet pipe                            | 1      | 1      | 1      |
| 35         | 12111034 | Exhaust pipe flange                   | 1      | 1      | 1      |
| 36         | 12111035 | Exhaust gasket                        | 1      | 1      | 1      |
| 37         | 12111066 | Exhaust stud                          | 2      | 2      | 2      |
| 38         | 52120008 | Nut                                   | 2      | 2      | 2      |
| 39         | 53033008 | Spring washer                         | 2      | 2      | 2      |
| 40         | 12111036 | Water outlet flange                   | 1      | 1      | 1      |
| 41         | 12111037 | Flange gasket                         | 1      | 1      | 1      |
| 42         | 52103257 | Screw                                 | 2      | 2      | 2      |
| 43         | 12111082 | Water outlet elbow                    | 1      | 1      | 1      |
| 44         | 12121040 | Short injector stud                   | 1      | 1      | 1      |
| 45         | 52120008 | Nut                                   | 2      | 2      | 2      |
| 46         | 53033008 | Spring washer                         | 2      | 2      | 2      |
| 47         | 12111041 | Long injector stud                    | 1      | 1      | 1      |
| -          | 12121042 | Rocker cover for compression relief   | 1      | 1      | 1      |
| 48         | 12121043 | Rocker cover                          | 1      | 1      | 1      |
| 49         | 12121044 | Cover gasket, 0.5 mm                  | X      | X      | X      |
| -          | 12121045 | Cover gasket, 0.3 mm                  | X      | X      | X      |
| -          | 12121046 | Cover gasket, 0.2 mm                  | X      | X      | X      |
| 50         | 12121047 | Compression relief shaft              | 1      | 1      | 1      |
| 51         | 12111048 | Return spring                         | 1      | 1      | 1      |
| 52         | 53042004 | Compression relief shaft circlip      | 1      | 1      | 1      |
| 53         | 12121050 | Shaft O-ring                          | 1      | 1      | 1      |
| 54         | 12121051 | Compression relief lever              | 1      | 1      | 1      |
| 55         | 53052208 | Retainer pin                          | 2      | 2      | 2      |
| 56         | 12121053 | Rocker lubrication pipe               | 1      | 1      | 1      |
| 57         | 12111054 | Pipe coupling                         | 1      | 1      | 1      |
| 58         | 57000357 | Coupling washer                       | 1      | 1      | 1      |
| 59         | 12120002 | Pipe fastening screw                  | 1      | 1      | 1      |
| 60         | 56000006 | Screw washer                          | 4      | 4      | 4      |
| 61         | 12111058 | Cylinder head water cap               | 1      | 1      | 1      |
| 62         | 12111059 | Cap O-ring                            | 1      | 1      | 1      |
| 63         | 12111060 | Cylinder head gasket positioning boss | 1      | 1      | 1      |
| 64         | 12121061 | Inlet valve seat                      | 1      | 1      | 1      |
| 64         | 12221061 | Inlet valve seat                      | -      | 1      | 1      |
| 65         | 12121062 | Exhaust valve seat                    | 1      | 1      | 1      |
| 65         | 12221062 | Exhaust valve seat                    | -      | 1      | 1      |

**Table 4** CRANKSHAFT - CONNECTING ROD - TIMING AND STARTING SYSTEM

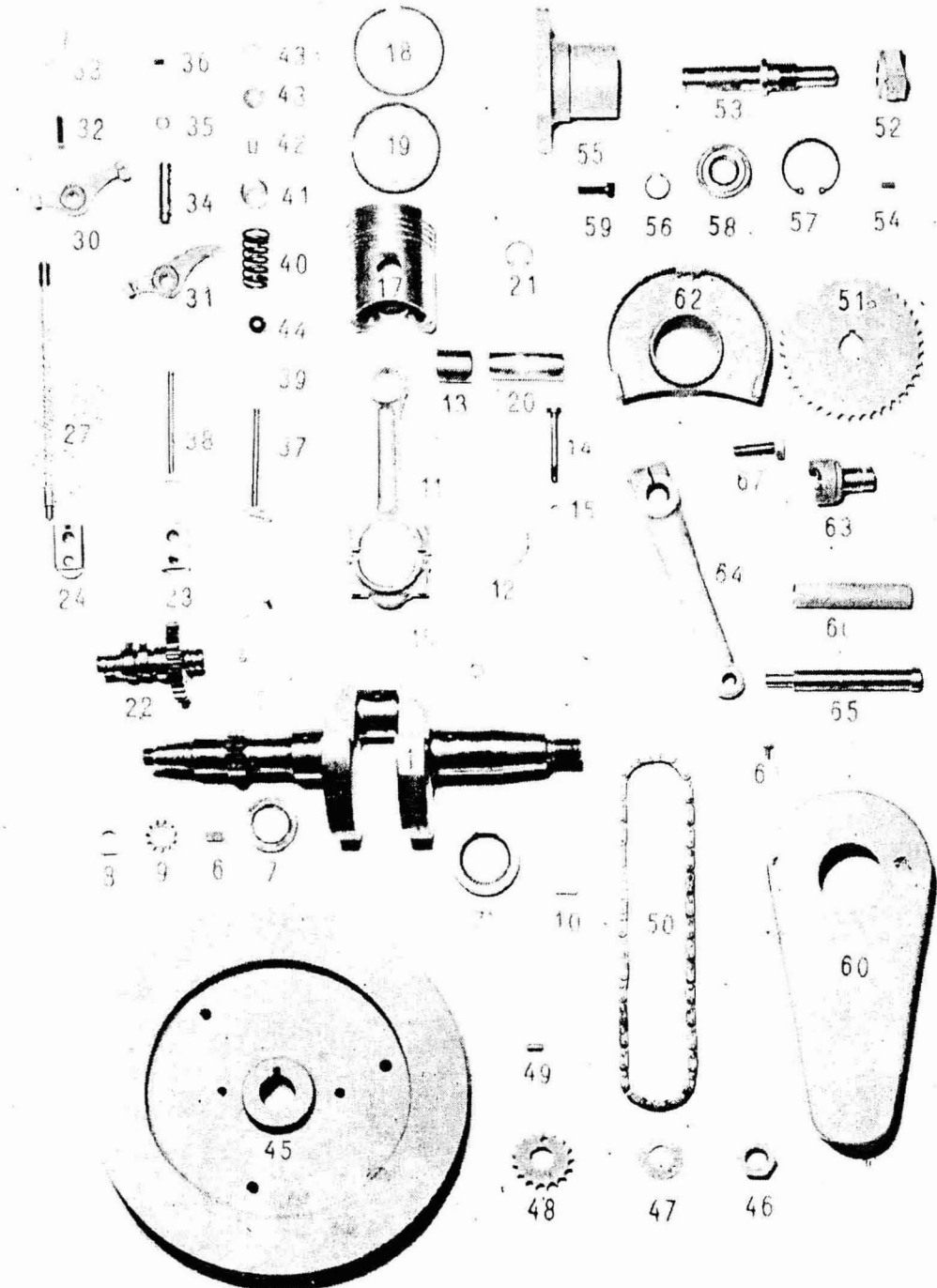


Table 4

CRANKSHAFT - CONNECTING ROD - TIMING  
AND STARTING SYSTEM

| Figure no. | Part no. | NOMENCLATURE  | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|---|--------|--------|--------|
| 25         | 12122029 | Cam follower roller   | 2      | 2      | 2      |
| 26         | 12122030 | Follower pin  | 2      | 2      | 2      |
| -          | 12122131 | Pushrod (Table 4, Figs. 27, 28 and 29)                        | 2      | 2      | 2      |
| 27         | 12122932 | Pushrod   | 2      | 2      | 2      |
| 28         | 12122033 | Lower pushrod tip   | 2      | 2      | 2      |
| 29         | 12122034 | Upper pushrod tip   | 2      | 2      | 2      |
| -          | 12122135 | <b>Rocker assembly complete</b> (Table 4, Figs. 30 to 36)     | 1      | 1      | 1      |
| -          | 12122136 | <b>Exhaust rocker complete</b> (Table 4, figs. 30, 32 and 33) | 1      | 1      | 1      |
| -          | 12122137 | <b>Inlet rocker complete</b> (Table 4 Figs. 31, 32 and 33)    | 1      | 1      | 1      |
| 30         | 12122036 | Exhaust rocker  | 1      | 1      | 1      |
| 31         | 12122037 | Inlet rocker  | 1      | 1      | 1      |
| 32         | 12122038 | Adjustment screw  | 2      | 2      | 2      |
| 33         | 12122039 | Adjustment ut   | 2      | 2      | 2      |
| 34         | 12122040 | Rocker shaft  | 1      | 1      | 1      |
| 35         | 12122041 | Rubber ring seal  | 1      | 1      | 1      |
| 36         | 52114153 | Shaft fastening bolt  | 1      | 1      | 1      |
| 37         | 12122043 | Inlet valve   | 1      | -      | -      |
| 37         | 12222043 | Inlet valve   | -      | 1      | 1      |
| 38         | 12122044 | Exhaust valve   | 1      | -      | -      |
| 38         | 12222044 | Exhaust valve   | -      | 1      | 1      |
| 39         | 12122045 | Valve seat ring   | 2      | 2      | 2      |
| 40         | 12112046 | Valve spring  | 2      | 2      | 2      |
| 41         | 12112047 | Spring carrier  | 2      | 2      | 2      |
| 42         | 12112048 | Valve collet  | 4      | 4      | 4      |
| 43         | 12112049 | Valve guide washer  | 2      | 2      | 2      |
| 43A        | 53041020 | Guide circlip   | 2      | 2      | 2      |
| 44         | 12122050 | Rubber cap  | 1      | 1      | 1      |
| -          | 12112051 | <b>Guide with collets</b> (Table 4, Figs. 41, 42, 43, 43A)    | 2      | 2      | 2      |
| 45         | 12112052 | Flywheel  | 1      | 1      | 1      |
| 46         | 12122053 | Flywheel nut  | 1      | 1      | 1      |
| 47         | 12122054 | Flywheel washer   | 1      | 1      | 1      |
| 48         | 12112055 | Small starting pinion   | 1      | 1      | 1      |
| 49         | 12112056 | Pinion pin  | 1      | 1      | 1      |
| 50         | 12112057 | Starting chain  | 1      | 1      | 1      |
| 51         | 12112058 | Large starting pinion   | 1      | 1      | 1      |
| 52         | 11113035 | Pawl nut  | 1      | 1      | 1      |
| 53         | 12112060 | Pawl shaft  | 1      | 1      | 1      |
| 54         | 12112061 | Large pinion key  | 1      | 1      | 1      |
| 55         | 12112062 | Shaft collar  | 1      | 1      | 1      |
| 56         | 53040020 | Shaft circlip   | 1      | 1      | 1      |
| 57         | 53041047 | Bearing circlip   | 2      | 2      | 2      |
| 58         | 34711014 | Shaft bearing   | 2      | 2      | 2      |
| 59         | 52103258 | Collar bolt   | 4      | 4      | 4      |
| 60         | 12112067 | Chain guard   | 1      | 1      | 1      |
| 61         | 52102156 | Guard screw   | 4      | 4      | 4      |
| 62         | 12112069 | Guard mount   | 1      | 1      | 1      |
| -          | 12112171 | <b>Starting handle</b> (Table 4, Figs. 64, 65 and 66)         | 1      | 1      | 1      |
| 64         | 12112071 | Handle arm  | 1      | 1      | 1      |
| 65         | 12112172 | Grip  | 1      | 1      | 1      |
| 66         | 12112073 | Grip tube   | 1      | 1      | 1      |

Table 3

CYLINDER - CYLINDER HEAD - COMPRESSION RELIEF

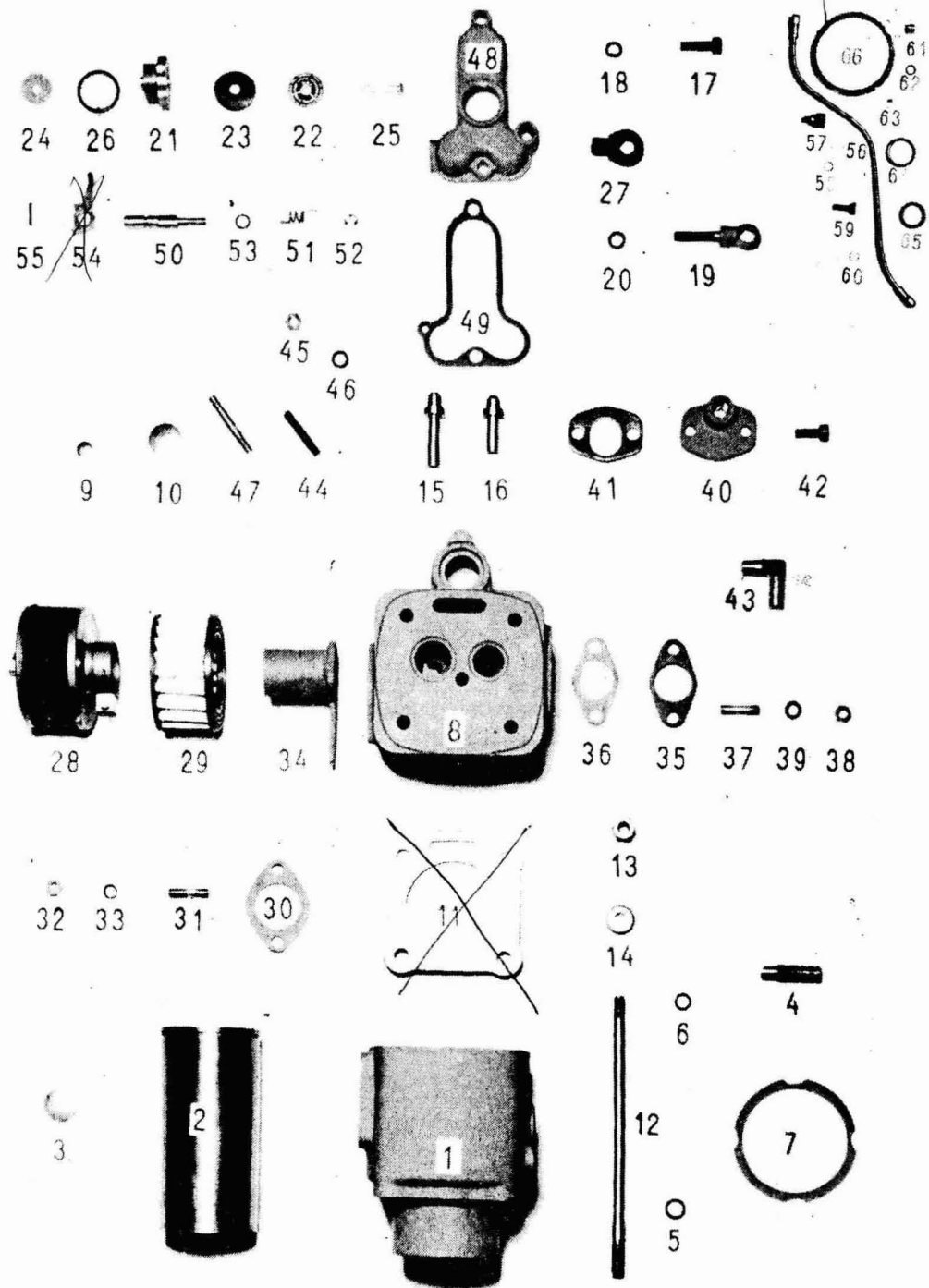


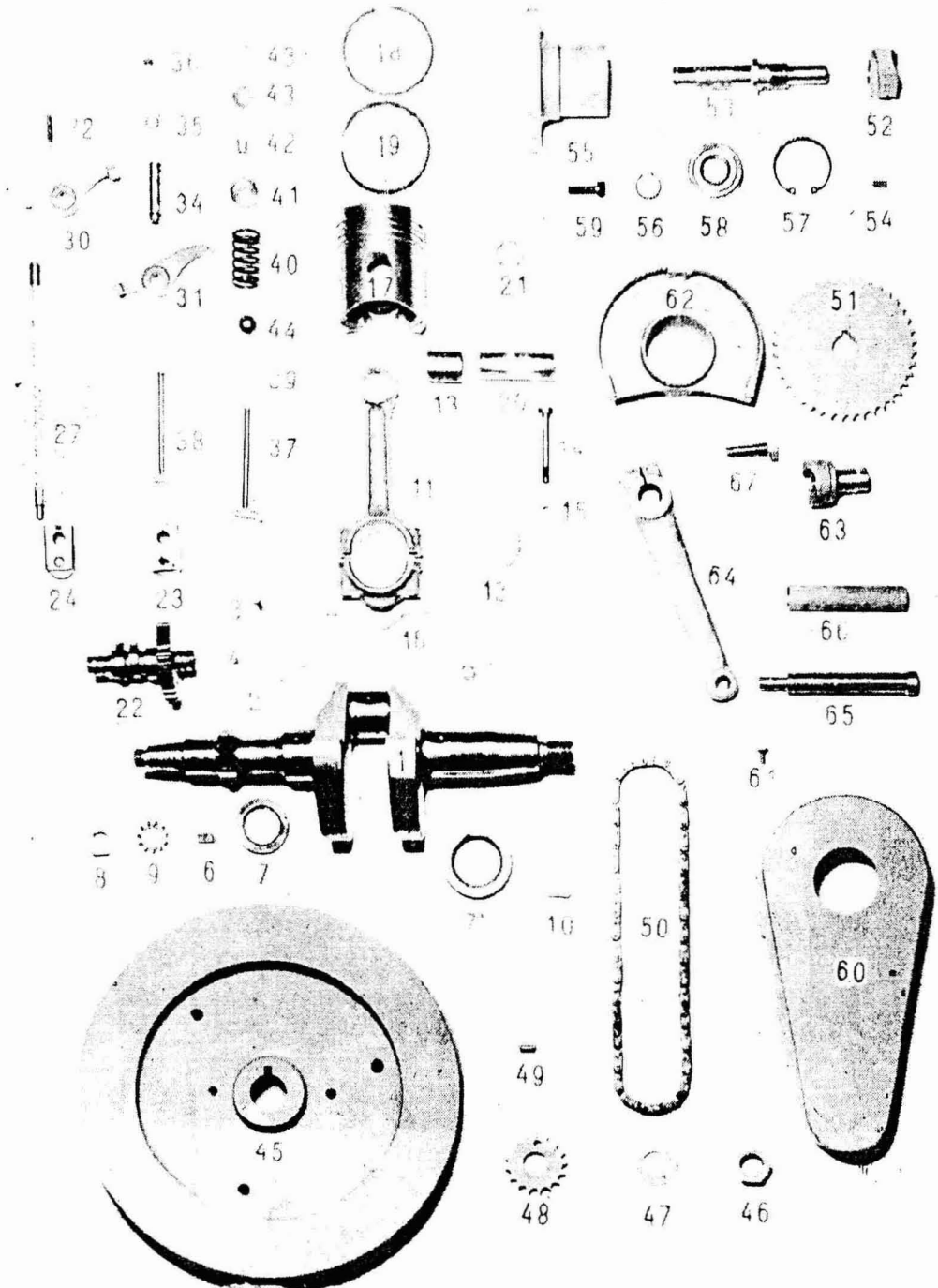


Table 4

**CRANKSHAFT - CONNECTING ROD - TIMING  
AND STARTING SYSTEM**

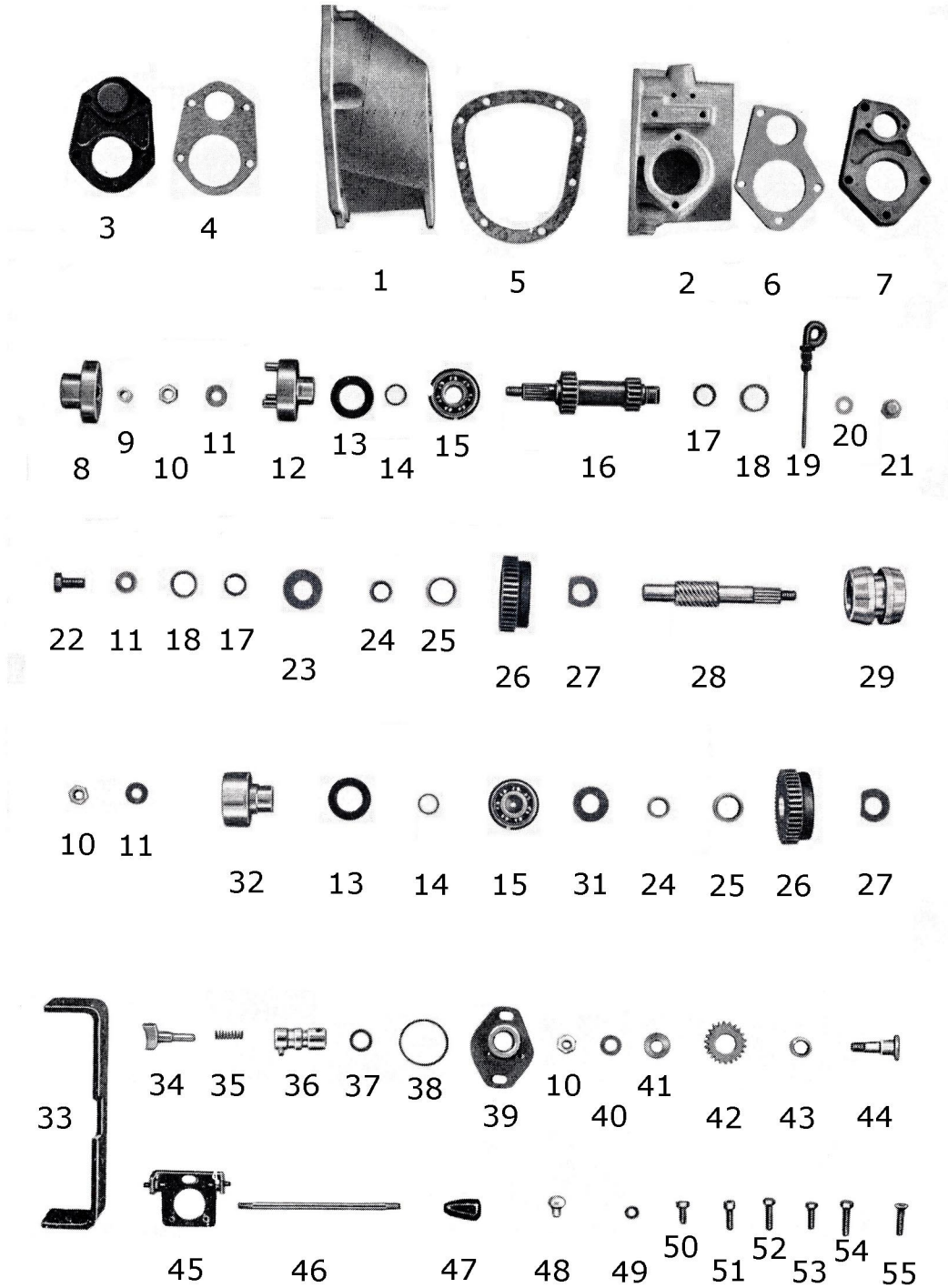
| Figure no. | Part no. | NOMENCLATURE  | MINI-1 | MINI-2 | MINI-3 |
|------------|----------|---|--------|--------|--------|
| -          | 12122000 | <b>Crankshaft complete</b> (Table 4, Figs. 1 to 6 and 10) | 1      | 1      | -      |
| 1          | 12322000 | <b>Crankshaft complete</b> (Table 4, Figs. 1 to 6 and 10) | -      | -      | 1      |
| -          | 12122001 | <b>Crankshaft</b>   | 1      | 1      | -      |
| 1          | 12322001 | <b>Crankshaft</b>   | 1      | 1      | 1      |
| 2          | 12122002 | Crankshaft lubrication channel cover                      | 1      | 2      | 2      |
| 3          | 52102106 | Cover screw   | 2      | 1      | 1      |
| 4          | 12122004 | Safety strap  | 1      | 1      | 1      |
| 5          | 12122005 | Channel seal disk   | 1      | 1      | 1      |
| 6          | 12122006 | Timing side key   | 1      | 1      | 1      |
| 7          | 12122007 | Timing side seal  | 1      | 1      | 1      |
| 7A         | 12122008 | Flywheel bearing seal                                     | 1      | 1      | 1      |
| 8          | 12122009 | Timing side nut   | 1      | 1      | 1      |
| 9          | 12122010 | Washer  | 1      | 1      | 1      |
| 10         | 12122011 | Flywheel side key   | 1      | 1      | 1      |
| -          | 12122012 | <b>Connecting rod complete</b> (Table Fig. 11 to 16)      | 1      | 1      | 1      |
| -          | 12122076 | <b>Connecting rod complete</b> (Big-end bearing - 0.25    | 1      | 1      | 1      |
| -          | 12122077 | <b>Connecting rod complete</b> (Big-end bearing - 0.50    | 1      | 1      | 1      |
| 11         | 12122078 | Connecting rod (with 11, 13, 14 and 15)                   | 1      | 2      | 2      |
| 12         | 12122013 | Big-end bearing shell                                     | 2      | 2      | 2      |
| -          | 12122079 | Big-end bearing shell - 0.25 mm                           | 2      | 2      | 2      |
| -          | 12122080 | Big-end bearing shell - 0.50 mm                           | 2      | 2      | 2      |
| 13         | 12122014 | Small-end bush  | 1      | 2      | 2      |
| 14         | 12122015 | Big-end bolt  | 2      | 2      | 2      |
| 15         | 12122016 | Big-end nut   | 2      | 2      | 2      |
| 16         | 12122017 | Safety strap  | 1      | 1      | 1      |
| -          | 12122018 | <b>Piston complete</b> (Table 4, Figs. 17-21)             | 1      | -      | -      |
| -          | 12222018 | <b>Piston complete</b> (Table 4, Figs. 17-21)             | -      | -      | 1      |
| -          | 12322018 | <b>Piston complete</b> (Table 4, Figs. 17-21)             | -      | -      | 1      |
| -          | 12122181 | <b>Piston complete</b> (0.50 mm oversize)                 | 1      | -      | -      |
| -          | 12222081 | <b>Piston complete</b> (0.50 mm oversize)                 | -      | 1      | -      |
| -          | 12322181 | <b>Piston complete</b> (0.50 mm oversize)                 | -      | -      | 1      |
| -          | 12122082 | <b>Piston complete</b> (1 mm oversize)                    | 1      | -      | -      |
| -          | 12222182 | <b>Piston complete</b> (1 mm oversize)                    | -      | 1      | -      |
| -          | 12322082 | <b>Piston complete</b> (1 mm oversize)                    | -      | -      | 1      |
| 17         | 12122090 | Piston  | 1      | -      | -      |
| 17         | 12222090 | Piston  | -      | 1      | -      |
| 17         | 12322090 | Piston  | -      | -      | 1      |
| 18         | 12122019 | Compression ring  | 3      | -      | -      |
| 18         | 12222019 | Compression ring  | -      | 2      | 2      |
| 18         | 12222087 | Chromed ring  | -      | 1      | 1      |
| 19         | 12122020 | Scraper ring  | 1      | -      | -      |
| 19         | 12222020 | Scraper ring  | -      | 1      | 1      |
| 20         | 12122021 | Gudgeon ring  | 1      | 1      | 1      |
| 21         | 53041023 | Gudgeon Seeger ring                                       | 2      | 2      | 2      |
| -          | 12122023 | <b>Set of rings</b> (Table 4, Figs. 18 and 19)            | 1      | -      | -      |
| -          | 12222023 | <b>Set of rings</b> (Table 4, Figs. 18 and 19)            | -      | 1      | 1      |
| -          | 12122083 | <b>Set of rings</b> (0.50 mm oversize)                    | 1      | -      | -      |
| -          | 12222083 | <b>Set of rings</b> (0.50 mm oversize)                    | -      | 1      | 1      |
| -          | 12122084 | <b>Set of rings</b> (1 mm oversize)                       | 1      | -      | -      |
| -          | 12222084 | <b>Set of rings</b> (1 mm oversize)                       | -      | 1      | 1      |
| 22         | 12122024 | Camshaft  | 1      | 1      | 1      |
| -          | 12122125 | <b>Inlet follower mechanism</b> (with 24, 25 and 26)      | 1      | 1      | 1      |
| -          | 12122126 | <b>Exhaust follower mechanism</b> (with 23, 25 and 26)    | 1      | 1      | 1      |
| 23         | 12122025 | Inlet cam follower  | 1      | 1      | 1      |
| 24         | 12122026 | Exhaust cam follower                                      | 1      | 1      | 1      |

Table 4

**CRANKSHAFT - CONNECTING ROD - TIMING  
AND STARTING SYSTEM**


**ASUNTO:** Despiece Inversor  
**SUBJECT:** Part List  
**AFFAIRE:**

INVERSOR – GEAR BOX - INVERSEUR: **RONIM-2**  
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| Nº de PIEZA | REFERENCIA | DESCRIPCIÓN                              | CANTIDAD |
|-------------|------------|--|----------|
| 1           | 222.10.001 | Cuerpo Delantero                         | 1        |
| 2           | 222.10.002 | Cuerpo Trasero                           | 1        |
| 3           | 222.10.102 | Tapa Delantera                           | 1        |
| 4           | 222.10.105 | Junta Tapa Delantera                     | 1        |
| 5           | 222.10.003 | Junta Cuerpos                            | 1        |
| 6           | 222.10.209 | Junta Tapa Trasera                       | 1        |
| 7           | 222.10.208 | Tapa Trasera                             | 1        |
| 8           | 222.10.016 | Brida Salida Motor                       | 1        |
| 9           | 221.10.106 | Casquillo                                | 3        |
| 10          | 511.23.012 | Tuerca                                   | 3        |
| 11          | 222.10.219 | Arandela                                 | 3        |
| 12          | 222.10.005 | Brida Entrada Inversor                   | 1        |
| 13          | 222.10.103 | Retén (Ø47/30x7)                         | 2        |
| 14          | 222.10.225 | Junta Tórica (Ø23/20xØ1.5)               | 2        |
| 15          | 222.10.104 | Cojinete de Bolas (6304 NR)              | 2        |
| 16          | 222.10.101 | Eje Primario                             | 1        |
| 17          | 222.10.207 | Casquillo Cojinete (LR 20x2.5x12.5)      | 2        |
| 18          | 222.10.106 | Cojinete de Agujas (HK 2512)             | 2        |
| 19          | 221.10.008 | Nivel de Aceite                          | 1        |
| 20          |            | Junta Tapón Aceite                       | 1        |
| 21          | 111.11.135 | Tapón Aceite                             | 1        |
| 22          | 252.10.222 | Tornillo de Tope (Depende de Rosca)      | 1        |
| 23          | 222.10.228 | Arandela                                 | 1        |
| 24          | 222.10.205 | Casquillo Cojinete (1R Ø20/25x17)        | 2        |
| 25          | 222.10.204 | Cojinete Eje Secundario (HK 2516)        | 2        |
| 26          | 222.10.210 | Rueda Dentada                            | 2        |
| 27          | 222.10.217 | Arandela                                 | 2        |
| 28          | 222.10.201 | Eje Secundario                           | 1        |
| 29          | 222.10.202 | Cono de Embrague                         | 1        |
| 31          | 222.10.218 | Arandela                                 | 1        |
| 32          | 222.10.224 | Brida Salida Inversor                    | 1        |
| 33          | 222.10.015 | Soporte Suspensor                        | 1        |
| 34          | 222.10.403 | Dedo del Mando                           | 1        |
| 35          | 222.10.411 | Muelle                                   | 1        |
| 36          | 222.10.402 | Excéntrica Mando                         | 1        |
| 37          | 221.10.408 | Junta Tórica Excéntrica (Ø25.5/18.3x3.6) | 1        |
| 38          | 221.10.417 | Junta Tórica Cuerpo (Ø54/49x2.5)         | 1        |
| 39          | 222.10.401 | Cuerpo Mando                             | 1        |
| 40          | 222.10.307 | Arandela                                 | 1        |
| 41          | 222.10.308 | Arandela                                 | 1        |
| 42          | 222.10.302 | Piñón Intermedio                         | 1        |
| 43          | 222.10.306 | Cojinete Piñón (HK 1616)                 | 1        |
| 44          | 222.10.301 | Eje Intermedio                           | 1        |
| 45          | 222.10.420 | Tope del Mando                           | 1        |
| 46          | 222.10.413 | Palanca Mando                            | 1        |
| 47          | 221.10.416 | Empuñadura                               | 1        |
| 48          | 211.10.055 | Respiradero                              | 1        |
| 49          |            | Arandela                                 | 16       |
| 50          |            | Tornillo M8x20 DIN 931                   | 1        |

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| Nº de PIEZA | REFERENCIA | DESCRIPCIÓN               | CANTIDAD |
|-------------|------------|---------------------------|----------|
| 51          |            | Tornillo Allen M8x25      | 2        |
| 52          |            | Tornillo M8x35 DIN 931    | 3        |
| 53          |            | Tornillo M8x25 DIN 931    | 6        |
| 54          |            | Tornillo M8x30 DIN 931    | 5        |
| 55          |            | Tornillo Avellanado M8x25 | 1        |
|             |            |                           |          |

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