### TECHNICAL DATA

<table>
<thead>
<tr>
<th>Engine type:</th>
<th>SACHS Wankel engine</th>
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<tbody>
<tr>
<td>Cooling:</td>
<td>Blower cooled</td>
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<tr>
<td>Direction of rotation of the engine:</td>
<td>Anti-clockwise, seen on power take-off side of the eccentric shaft</td>
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<tr>
<td>Chamber displacement:</td>
<td>294 c.c. (17.939 cu. in.)</td>
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<tr>
<td>Compression ratio:</td>
<td>8.5 : 1</td>
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<tr>
<td>Output:</td>
<td>23 HP (DIN) at 6000 r/min</td>
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<tr>
<td>Eccentric shaft bearing:</td>
<td>2 anti-friction bearings</td>
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<tr>
<td>Engine lubrication:</td>
<td>Mixture lubrication 1 : 50 (appropriate oils see page 6 and 15)</td>
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<tr>
<td>Ignition:</td>
<td>BOSCH magneto-generator</td>
</tr>
<tr>
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<td>12 Volt 100/23 Watt (with voltage governor)</td>
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<tr>
<td>Spark advance:</td>
<td>16° before TDC</td>
</tr>
<tr>
<td>Contact breaker gap:</td>
<td>0.4 ± 0.05 mm (0.016 ± 0.002 in.)</td>
</tr>
<tr>
<td>Pole shoe gap:</td>
<td>8 . . . 12 mm (0.315 . . . 0.472 in.)</td>
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<tr>
<td>Spark plug:</td>
<td>BOSCH W 260 T 1</td>
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</tbody>
</table>
| Carburettor:       | Fitted and tuned by the original equipment manufacturer.  
|                    | Observe the instructions issued by the manufacturer of the equipment.  |
| Starting method:   | Recoil starter                    |
PARING THE ENGINE FOR OPERATION

Before putting the engine in service, always carry out the following checks, observing the rating and servicing chart.

Check:
- Fill tank with engine running!
- Take care of utmost cleanliness!
- Use the instruction label on the fuel tank.
- Use any branded petrol.
- Use lubricating oil: Any branded oil listed on page 15, preferably special SACHS oil for rotary piston engines, F & S part number 2769 006 000 or all Super outboard engine oils (with synthetic components).
- Mix: Roughly mix 200 cm³ (7.0 fl oz) of the listed branded oils with 10 litres (2.46 US gal) of the listed branded fuels in a clean receptacle (mixing can) or use a can of special, self-mixing S oil for rotary piston engines (contents 250 cm³, pre-mixed).

STARTING DEVICE

Recoil starter
Grip the starter handle and pull out the starter cable until the starter engages and the compression point is felt.
Let the cable gently recoil, then start the engine by pulling again with force.

Note:
Pull the cable out only in the direction of the cable outlet and up to the red colour mark.
Do not release the cable and let snap back, but let it gently recoil in the housing.

RUNNING-IN PERIOD

Even the most finely machined surfaces of the rotor sealing elements, of the end shields and of the rotor housing are rougher than parts which have been sliding on each other for a longer period of time. That is why the sealing elements of the rotor have to run in during the initial period of operation.

But this does not require any special precaution. The engine should not give its maximum output during the first 3 running hours, but should run in at half throttle under medium revs. Do not overspeed the engine, as this may cause bearing troubles, power loss and starting troubles.
There is no need of a special mixture or additional oils during the running-in period.
The ignition setting is carried out as follows:
1. When the cam is at its highest position, adjust contact breaker gap (b) to 0.4 \pm 0.05 \text{ mm} (0.016 \pm 0.002 \text{ in.}).
2. Turn the magneto flywheel against its direction of rotation until the marks for the firing point coincide (Fig. 2).
3. Turn the magneto flywheel slightly in direction of rotation; the contact breaker should now begin to open. If not, the firing point can be corrected by turning the armature plate. This can be done by means of the longitudinal slots.
4. Turning the armature plate against its direction of rotation advances the ignition, turning in direction of rotation retards the ignition.
5. The screws of the armature plate must be tightened after all such corrections.

The pole gap is measured at the point where the magneto in the flywheel leaves the edges of the armature shoe of the ignition armature in the direction of rotation of the magneto flywheel.

Should this gap not be correct, it can be put right by adjusting lightly the contact breaker points within the range of 0.4 \pm 0.05 \text{ mm} (0.016 \pm 0.002 \text{ in.}).

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**Ignition adjustment**

- **Firing point:** 16° before TDC
- **Contact breaker gap:** 0.4 \pm 0.05 \text{ mm} (0.016 \pm 0.002 \text{ in.})
- **Pole gap:** 0 \ldots 12 \text{ mm} (0.315 \ldots 0.472 \text{ in.})

On the starter drum and at the fan housing are cast-in marks:
The mark (1) on the starter drum coincides with the mark "OT" when the rotor is at top dead center.
The mark (1) on the starter drum coincides with the mark "M" at the firing position.
LUBRICATING AND MAINTENANCE CHART

Maintenance or lubrication point

<table>
<thead>
<tr>
<th>Lubricant, quantity of lubricant, and maintenance operations</th>
<th>Service (100, 200, run hrs.) as required</th>
</tr>
</thead>
</table>
| Spark plug
A quick cleaning of the spark plug from carbon deposit can be made at the insulator and between the electrodes. A correct cleaning can only be achieved with a sand blower.
Checking
Remove the spark plug. Connect it to the ignition cable, hold the plug thread in contact with earth and work the starter. If the plug is in perfect condition, a strong spark must appear at the electrodes. Gap at the electrodes 0.5 mm (0.02 in.). See arrow. |
| Recall starter
As soon as rewinding troubles develop at the recall starter, introduce 0.5 c.c. (0.02 cu. in.) of the oil Anticorit S (of Messrs. FUCHS, D-4800 Mannheim) at the grease nipple (1). |
| Fuel pump
Unscrew cover (1) (taking care of the gasket). Remove fuel strainer and clean it in petrol. |

LUBRICATING AND MAINTENANCE CHART

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</tr>
</thead>
</table>
| Fuel strainer
If there is one, clean the fuel strainer or replace the filter element. |

We recommend to have the following operations carried out by an expert

| Ignition system
Check the contact breaker and adjust if necessary. |
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<tr>
<td>Apply BOSCH St 1 v 4 special grease to the lubricating felt pad for the contact breaker cam.</td>
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</table>
| Decarbonizing (see page 12)
Check exhaust port and spark plug for carbon deposit and clean if necessary. |
| Carburettor
Clean and adjust. |
CARBONIZING THE EXHAUST PORT AND THE SPARK PLUG HOLE

In the engine output drops or, at the latest, after 200 running hours the exhaust port or the spark plug hole must be checked for carbon deposit and, if necessary, cleaned as follows:

1. Remove the engine from the machine.
2. Screw the muffler and the spark plug.
3. Beat the piston so that a long side of the rotor faces the aperture which is to be cleaned; use a torch.
4. Make sure that no sealing strip of the rotor is in front of the aperture.
5. Take the engine so that the exhaust port or the spark plug hole points for cleaning downwards.
6. With means of a scraper or screwdriver remove carefully the carbon. Make sure that no metal is being scraped off and no carbon gets into the inside of the engine. This might lead to engine troubles.

Therefore, we recommend to have these operations done by an expert.

LAYING-UP THE ENGINE

If the engine is laid up for some considerable length of time, there arises danger of rust. For such cases the following instructions are given for protecting the engine:

1. Squirt approx. 20 c.c. (1.22 cu. in.) of SAE 30 oil (e.g. ENSIS oil 30 of SHELL) into the carburettor inlet, while the choke and the butterfly valve are open. Then, crank the engine 5...6 times.
2. The sliding course of the housing center section, the bearings and the piston are thus sufficiently protected against corrosion.
3. To protect the outside of the engine, we recommend anti-corrosion oils of well-known oil companies, such as:
   - Anticorit 5 of Messrs. FUCHS D-6900 Mannheim, Germany,
   - Lubrication-Oil MIL-L-644 B of MOBIL-OIL
   - Shell ENSIS FLUID 280 of SHELL
   - RUST BAN 395 of ESSO

Attention!

If the engine is laid-up for some considerable length of time with fuel in the tank, segregation of the oil/petrol mixture may occur. In such cases we strongly recommend, before starting the engine again, to mix the oil/petrol mixture anew by stirring or shaking, or to replace it.

Resinified (gummed) fuel feed and carburettor systems as well as damages by oxidation (rust) inside and/or outside of the engine are not covered by our warranty.
ENGINE TROUBLES

Following is a list of possible engine troubles which may occur.

ENGINE WILL NOT START

1. No ignition spark because
2. Spark plug is glazed, wet,
3. Ignition cable loose or fractured,
4. Ignition breaker points oilied-up, burnt, 
5. Ignition circuit switch jammed, 
6. Ignition armature or condenser defective.

ENGINE DOES NOT GET SUITABLE EXPLOSIVE MIXTURE BECAUSE

1. Water in carburettor,
2. False air infiltrating through loose carburettor.

B. DROP IN ENGINE POWER

because of dirt

1. Fuel tank gets no air (filler cap).

Engine has been subjected to overspeed

speeding must be avoided even for short periods.

APPROPRIATE LUBRICATING OILS FOR SACHS-WANKEL ENGINES

All branded oils listed in the chart, preferably special SACHS oil for rotary piston Wankel engines F & S part number 2769 008 000, or all Super-Outboard-Motor-Oils (with synthetic components).

<table>
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<tr>
<th>Oil Type</th>
<th>Australia</th>
<th>Belgium</th>
<th>Denmark</th>
<th>Germany</th>
<th>England</th>
<th>Finland</th>
<th>France</th>
<th>Italy</th>
<th>Netherlands</th>
<th>Austria</th>
<th>Sweden</th>
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<td>BP Super Outboard Motor-Oil</td>
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<td>SHELL-Oil (1763) 0236 PAE 4884</td>
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<td>SHELL-Premium Outboard Motor-Oil</td>
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