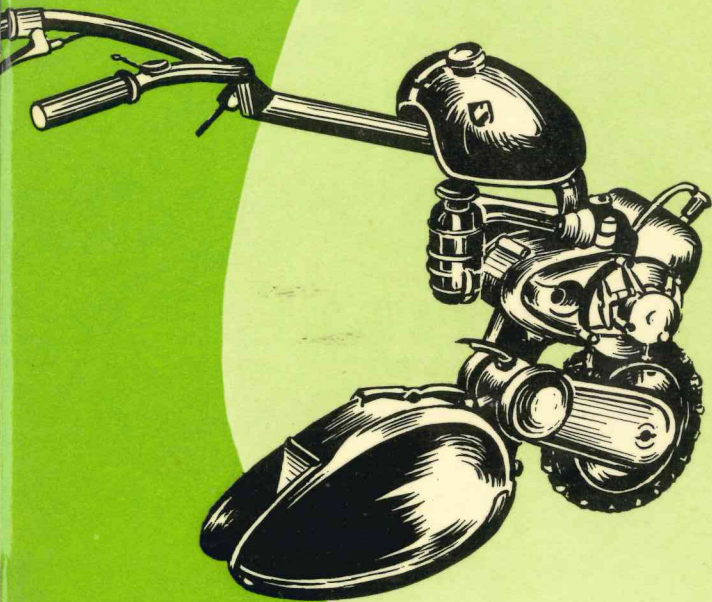


AGRIA
1100



INSTRUCTION BOOK

Dear AGRIA owner,

Ensure that your dealer explains and demonstrates the machine before you operate it yourself.

Afterwards you should carefully go through this manual, making yourself thoroughly familiar with its contents.

This pocket book size of the manual was chosen to allow it to be carried at all times.

Any damage due to non-observance of our instructions are not covered by guarantee. Thorough knowledge of the contents of this booklet will therefore repay you well.

The information contained in this manual will enable you to operate the machine easily and efficiently for all its many uses.

AGRIA-WERKE MOECKMUEHL

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GENERAL

Your AGRIA machine will always prove reliable and ready for use if properly serviced and operated.

This booklet gives all necessary instructions. When in doubt enquiries addressed to your AGRIA service agent will save you time, money and trouble.

Do not pay attention to the friendly advice of people who are not familiar with AGRIA machines.

Never use force. It cannot compensate for lack of practical knowledge.

Do not try to repair the machine yourself if the cause of the breakdown is not recognized and understood. Either take the machine to your AGRIA service agent or ask for one of his engineers to come to you. He will be able to carry out repairs quickly and cheaply because of his knowledge and experience and because he has an appropriately equipped workshop.

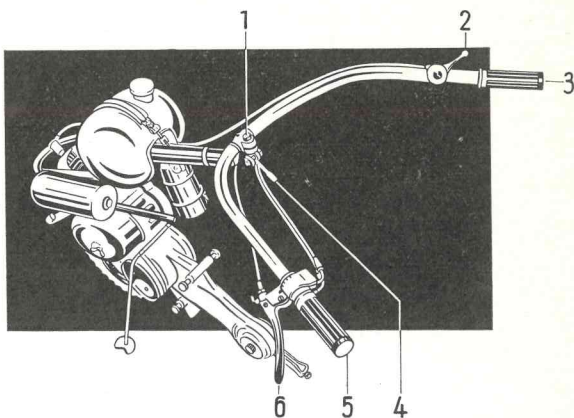
Routine Checks

1. Clean and lubricate the machine and the attachments time and again. Tighten loose screws and nuts.
2. Check **oil level** in the engine gearbox.

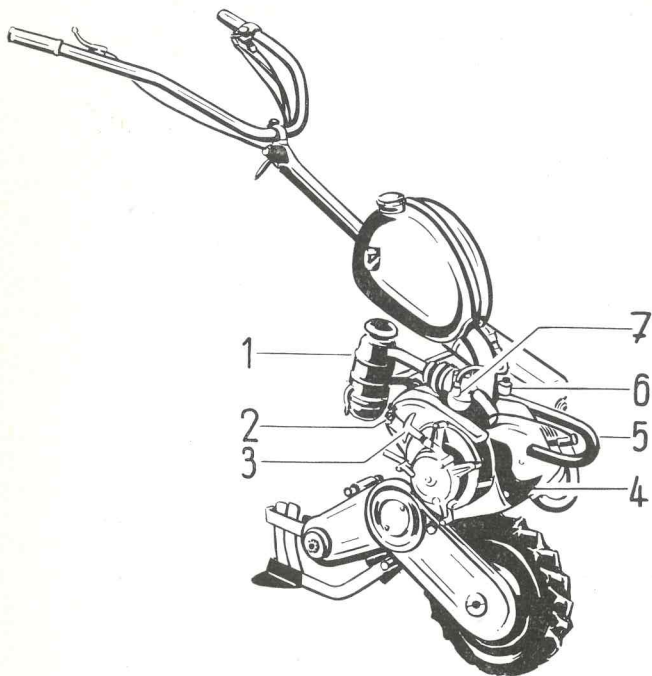
Tilt machine without hoeing attachment backwards until handlebar touches the ground. Then you should see the oil surface in the oil inlet (see illustration on page 22).

3. Regularly examine the **air cleaner** (page 8, No. 1). Clean it as described in detail on page 11.
4. Check **fuel tank contents**. Use standard brand fuel only. Keep always to correct ratio of mixture (see chapter "Engine", page 10).

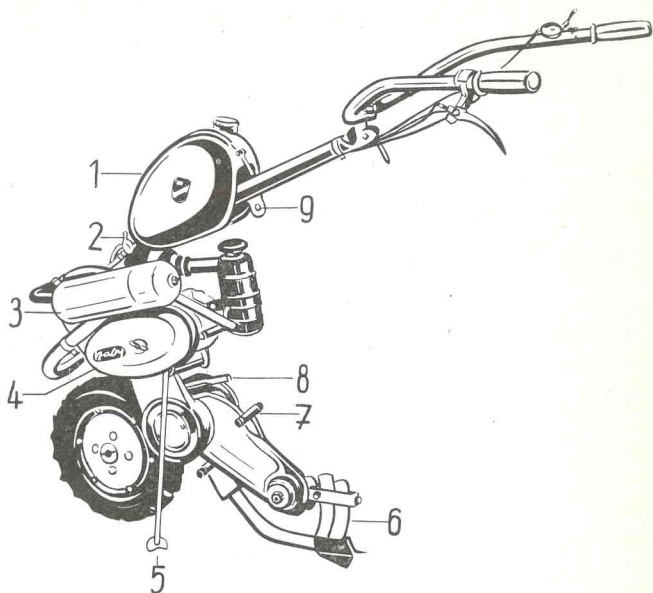
MAIN PARTS



- 1 Handlebar lifting screw
- 2 Throttle
- 3 Handlebar
- 4 Lever for lateral handlebar adjustment
- 5 Gear shift twist grip with gear indicator
- 6 Clutch lever



- 1 Oil bath air cleaner
- 2 Oil inlet for engine gearbox
- 3 Handle of recoil starter
- 4 Engine
- 5 Engine protecting bow
(can also be used as carrying handle)
- 6 Short circuit button
- 7 Annular float carburettor



- 1 Fuel tank
- 2 Fuel tap
- 3 Exhaust
- 4 Cover (contains tool kit)
- 5 Stand
- 6 Goose foot
- 7 Support for hoeing attachment cover
- 8 Hoeing gear lever
- 9 Suspension of stand (No. 5)

DESCRIPTION

Engine (page 8, No. 4)

Specification see page 14

Model 1100 has an air-cooled two-stroke engine which must be run only on a petrol-oil mixture.

Troublefree running of model 1100 in the first place depends on condition and operating of the engine. Therefore it is recommended to read frequently our instructions as to operation and servicing and to become acquainted with the remedies to troubles (see chapter "Troubles" on pages 26 and 27).

While **running-in** the engine (about 20 hours) avoid high revolution rates. The fuel mixture should be at the ratio of 20 : 1, i.e. 20 pints of petrol mixed with 1 pint of a good two-stroke oil. Use only a standard brand oil of a SAE 40 viscosity such as **ESSOLUBE 40. Do not use super petrol and self-mixing motor oil.**

It is not recommended to run the engine at full throttle in the beginning. After the running-in period never open the throttle more than just necessary to do the job.

High speeds, in the long run, will damage any engine and substantially shorten its durability, particularly if it is raced while running idle.

Cooling is effected by a fan. The grids of the casing (recoil starter) and the cooling ribs of the cylinder are therefore to be kept clean always.

The **carburettor** type and its operation are described in chapter "Specification" on page 14.

Always see to it that the engine's **idling** is correctly adjusted. The engine should run smoothly at low speed and with throttle in idling position. Correct position can easily be reached by adjusting the throttle valve set screw on the carburettor. This should be done, however, when engine still has operating temperature.

Air cleaner (page 8, No. 1)

The wet air cleaner has to separate the dust contained in the induction air. It has to be cleaned in short intervals, in very dusty conditions every day. If the engine loses power check air cleaner first!

Clean air cleaner as follows:

- a) Clean exterior and environments of air cleaner.
- b) Unscrew air cleaner cup, let old oil flow out, clean cup;
- c) check air inlet on intake pipe (under air cleaner cap) and remove dirt;
- d) fill cleaner cup with motor oil up to lower normal oil mark (not higher!) and remount;
- e) see to good fitting and tight seal of cleaner body to air intake.

Notice! After repeated oil change or excessive fouling unscrew cleaner, remove oil cup, thoroughly wash cleaner by dipping it several times into diesel fuel, screw on cleaner and fill in oil as described above. (Never wash cleaner in petrol, water, lye solutions or hot liquids.)

Ignition and Lighting System

For figures on ignition timing see page 14. We advise the necessary checks be made by experts only.

Current for lighting installation is taken from socket (page 19, No. 6).

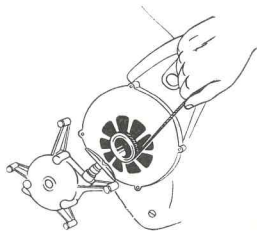
Recoil Starter (page 8, No. 3)

Serves for starting the engine. It needs no special attention and no lubrication, its inner parts being already embedded in a very consistent and cold resisting corrosion preventive oil.

Nevertheless it is recommended to lubricate the rope from time to time, using diesel fuel. Do not use oil or grease as they tend to form gum which may lead to trouble.

Never let the rope snap back but carry it gently back to its support.

If the recoil starter is damaged the engine can be started by means of the belt which is supplied with the tools in the bag (page 13, No. 2) and with the knurled disc behind the recoil starter. Unscrew recoil starter. When removing it be careful not to lose the balls in the interior of the grooved disc. The tool kit (page 13, No. 2) contains some spare balls.



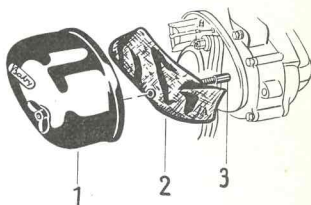
For repairs apply to the AGRIA Service or to a NSU dealer.

When mounting the recoil starter take care that the ball runways are clean! The balls shall not be oiled or greased because in that case the recoil starter will not work!

The knurled disk is meant to serve as an emergency starting device and should be used only as long as absolutely necessary.

Tools

The tools are packed in a tool bag which you will find in the cover on the left side of the engine (see illustration).



- 1 Cover of tool kit container
- 2 Tool kit
- 3 Eyelet to fasten cover

S P E C I F I C A T I O N

Engine	NSU Model 35
Design	2-stroke
Output	2½ HP
Ignition type and brand	Bosch flywheel magneto LM/UPA 1/115/17 L 8
Contact breaker gap	0.008 – 0.012 ins. (0.2 – 0.3 mms)
Ignition point	5/64 ins. (2.1 mms) before TDC
Sparkign plug	Bosch W 95 T 1 or Beru 95/14 u 2
Electrode gap of sparking plug ..	0.02 – 0.024 ins. (0.5 – 0.6 mms)
Air cleaner	Oil bath air cleaner LOZ 0,5
Carburettor	Annular float carburettor Bing 1/14/79
Main nozzle	80
Pin type nozzle	2,20
Pin position	2
Fuel tank capacity	1 Imp. gall. (4.45 litres)
Max. length of machine without hoeing tools	45¼ ins. (1150 mms)
Max. width	25 ins. (630 mms)
Max. height	38½ ins. (980 mms)
Weight	79 lbs (36 kgs)

Weights and measures approximative.

Speeds of AGRIA Model 1100

(at abt. 4.000 r. p. m. of the engine)

	miles/h	kms/h
1st	1½	2½
2nd	2¼	3½
3rd	3½	5½

Engine clutch

AGRIA Model 1100 has a multiple disc clutch running in oil bath. It is operated by means of the clutch lever (page 7, No. 6) on the left handlebar through an adjustable Bowden cable. Pulling of the lever will release the clutch, that is the engine will not drive the machine.

In order to avoid slipping of the clutch during work, the factory has provided a clearance of abt. 5/64 ins. (1 – 2 mms) on the lever (page 7, No. 6). This clearance should be checked frequently and readjusted by means of the setscrew, if necessary.

Gear change

The machine has 3 forward gears. The gear box is built in unit with the engine. Constant-mesh gears operated by fork and sliding dogs through adjustable Bowden cables.

Gear change by means of twist grip fitted with gear indicator on the left-hand handlebar.

Proceed as follows: Pull clutch, change gear, slowly release clutch while opening throttle.

If a gear cannot be changed, briskly engage and disengage clutch; this will enable you to change silently.



Handlebar adjustment for best and easiest working

1. Loosen hexagon screw (page 7, No. 1).
2. Adjust for desired height.
3. Tighten hexagon screw.

Handlebar side adjustment

1. Lift lever (page 7, No. 4).
2. Swivel handlebar.
3. Press down lever.



If tension has decreased, it can be raised again by turning of setting ring (on the right side of handlebar hinge) by 1 or 2 catches (noticeable).

It is recommended to remove the handlebar from its bearing if it has to be re-tensioned.

Intermediate gear

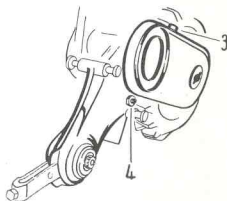
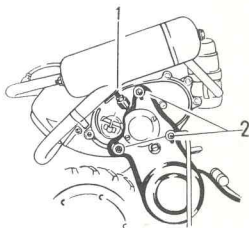
The intermediate gear transfers the engine power to the drive wheel and the hoeing attachment. All parts run in Retinax GG and require no special care. One examination per year by the AGRIA Service is sufficient.

The roller chain between engine gear and intermediate gear is adjustable. The adjusting device is accessible after removal of the cover (page 9, No. 4).

First loosen the 3 hexagon nuts (No. 2) and the counter nut (No. 1) and then adjust the stretching screw by clockwise rotation.

The roller chain tension can be checked after removal of the cover below No. 1.

- 1 Stud bolt with counter nut to stretch the roller chain in the drive casing
- 2 Mounting of drive casing on engine
- 3 Wheel chain tensioner
- 4 Hoeing chain tensioner



Driving gear

The drive wheel is driven through the intermediate gear by means of the adjustable roller chain. After loosening the counter nut the chain can be stretched by clockwise rotation of the hexagon screw (page 17, No. 3).

Drive wheel

The drive wheel is equipped with a Conti Farmflex tyre 300 x 70. This is a special tyre which distinguishes itself by its excellent grip and the self-cleaning of its profile. The tyre has no inner tube and needs no inflation.

Hoeing gear

The hoeing shaft is driven through the intermediate gear by means of the adjustable roller chain. After loosening the counter nut the chain can be stretched by clockwise rotation of the hexagon screw (page 17, No. 4).

The hoeing gear can be switched on and off separately so that the machine can be run with stopped hoeing attachment. The hoeing gear is operated by means of the hoeing gear lever (page 9, No. 8). The operator can switch this lever with his foot.

Hoeing gear lever position

right means: Hoeing gear switched **off**

left means: Hoeing gear switched **on**.

(See also illustrations on page 30.)

STARTING THE ENGINE

I. Cold engine

1. Check if gear change twist grip is in "0" position and clutch lever (page 7, No. 6) is engaged.

2. Open fuel tap
(No. 4).

Lever wing will point downwards.

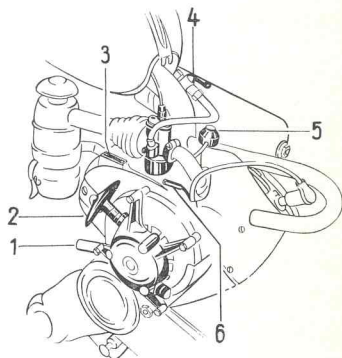
3. Open throttle about $\frac{1}{3}$.

4. Press tickler on carburettor until fuel overflows.

5. Slowly pull handle of recoil starter (No. 2) until you feel resistance, then pull briskly and carry handle gently back to its support.

Don't let rope snap back!

6. If the engine does not start press again tickler and repeat starting procedure.



- 1 Hoing gear lever
- 2 Handle of recoil starter
- 3 Engine number
- 4 Fuel tap
- 5 Short circuit button
- 6 Light connection

7. If engine stops again after a short run, again start and press tickler until the engine continues running steadily.
8. The engine may also run irregularly if air has entered the ducts on account of lacking fuel. In this case proceed as under "7".

II. Hot engine

General procedure as under "I.", but

1. Open throttle only abt. $\frac{1}{4}$.
2. Do not press tickler on carburettor.

STOPPING THE ENGINE

1. Pull clutch lever (page 7, No. 6).
2. Put gear change twist grip into "0" position.
3. Close throttle.
4. Close fuel tap (lever wing in horizontal position, pointing to the left side).
5. Press short circuit button (page 19, No. 5).
6. If the machine is not to be used for a longer period, do not stop the engine as under "5" but let it run until the fuel in the carburettor is consumed and the engine stops automatically.

SERVICING AND MAINTENANCE

Besides following the instructions referring to the engine, it is advisable to pay the necessary attention to our advice about servicing and maintenance.

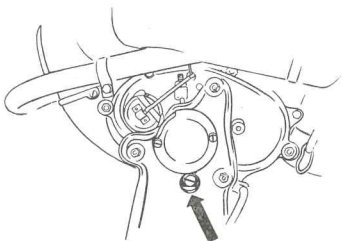
Good performance depends upon good servicing!

1. Check **oil level** before starting the engine.

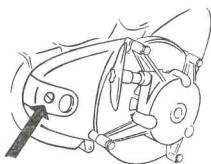
2. **Change oil in time.** Keep oil filling plug, oil drain plug on engine gearbox (see illustration) and environments scrupulously clean so that no dirt may get into the interior of the engine gear casing.

Oil must be changed after the first 20 hours, then after every 50 working hours.

1/2 pint (1/4 litre) of a gear oil SAE 80 such as **ESSO GEAR OIL 80** are required. Oil has to be changed immediately after running the machine, the engine being hot.



Oil drain plug for engine gear oil



Oil inlet of engine gearbox

3. Use only standard trade-marked fuels in the correct mixture ratio (see page 10).
4. Do not neglect **air cleaner** (see description on page 11).
5. Provide for efficient **cooling** of the engine. Always keep necessary devices in good order.
6. Check **exhaust** every 200 working hours; decarbonize and clean if necessary.
7. Always keep clean **fuel tank, fuel pipe, carburettor** and **strainer** in fuel tap.
8. Tighten loose **screws** and **nuts**.
9. From time to time **oil Bowden cable cores, both hand levers** and **throttle** (let some oil drip into Bowden wire spiral).

The following points are of special importance:

A) Do not garage machine

in moist rooms,

in rooms where fertilizer is stored,

in stables or adjacent rooms

as this would cause severe corrosion.

B) If the machine is not used for some time it is necessary to preserve especially the engine.

This is done as follows:

1. **Thoroughly** clean the machine. Remove rust from bright parts, grease them carefully, repair damages of paint if necessary. Check Bowden cables, couplings, ignition, sparking plug.

Immediately replace damaged parts. Clean air cleaner, repair fuel and air hoses if brittle. Clean air filter and cooling ribs of cylinder under the cowling. Decarbonize exhaust slots and muffler.

2. Empty fuel tank. Clean tank, carburettor, fuel pipe. If this is not done, there is danger of oil and petrol thickening in tank and carburettor owing to long rest which may cause difficulties when starting again.
3. Let gear oil flow out. It is recommended to flush with petroleum (first let engine warm up). Fill in 1/2 pint (1/4 litre) of a fresh gear oil SAE 80 such as **ESSO GEAR OIL 80**.
4. The hoeing and driving gear casing is filled with Retinax GG. It is recommended to have it serviced once a year by the AGRIA Service.

5. **Preserve the engine.**

The constant use of standard brand petrol mixed with the recommended standard motor oil (see instructions on page 10) renders unnecessary an additional preservation of the engine because all standard brand fuels and motor oils contain corrosion preventive ingredients.

In order to provide a more intense lubrication during a longer rest period of the machine it is recommended however to run the engine for a short while on a 1:15 fuel mixture ratio. This has to be done prior to carrying out points 1-4.

After the above process unscrew the sparking plug and cover the plug passage by a clean cloth or a fine mesh filter gauze. This is supposed to improve the circulation of air in the engine interior and prevent the formation of condensation water.

CAUSES OF TROUBLES

1. Engine does not start

- Fuel tank empty
- Fuel tap closed
- Fuel tap or pipe choked
- Float on float pin displaced
- Float pin sticks
- Water in carburettor
- Tickler of carburettor pressed too slightly
- Tickler pressed too much (sparking plug wetted), engine flooded
- Sparking plug fouled or sooted; electrode contact by dirt
- Electrode gap incorrect
- Sparking plug defective
- Ignition cable loose or defective
- Short circuit button jammed
- Ignition disturbed.

2. Engine is difficult to start

- Wrong mixture; not enough fuel
- Idle nozzle choked
- Electrode gap of sparking plug too wide.

3. Engine starts but stops again

Causes see paragraph 1.

4. Engine starts but backfires when throttle is opened

Engine very cold

Lean fuel mixture
Nozzle choked
Suction pipe leaks
Exhaust charred.

5. Carburettor overflows

Dirt between float pin seating and pin
Float leaks
Float pin released from float.

6. Insufficient tractive power

Exhaust slot choked by oil carbon
Exhaust muffler choked
Air cleaner or intake dirty
Oil sealing rings of crankshaft defective
Friction coupling slips
Piston leaks owing to wear of cylinder or piston
Piston ring sticking, fretted or broken
Suction pipe leaks
Wrong fuel mixture (too much oil)
Spark plug with wrong thermal value
Ignition wrongly timed
Mechanical drag in machine.

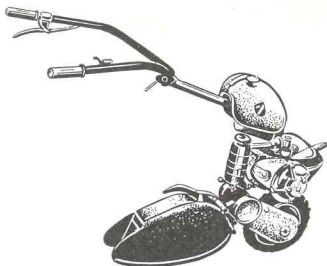
7. Machine

If clutch refuses to disengage, adjust Bowden cable.
If gear cannot be changed, adjust Bowden cable.

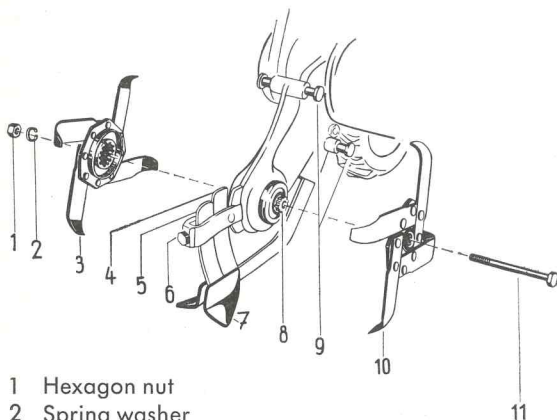
HOEING

Necessary attachments:

- 1 Hoeing Attachment
No. 1101 – 1107
depending on working
width



Mounting



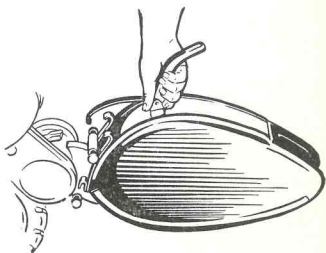
- | | |
|---|----------------------|
| 1 Hexagon nut | 7 Goose foot |
| 2 Spring washer | 8 Hoeing shaft |
| 3 Hoeing tool left | 9 Cover support |
| 4 Depth control bar | 10 Hoeing tool right |
| 5 Cutting angle bar | 11 Clamp bolt |
| 6 Hexagon screw
(to adjust goose foot) | |

1. Brace machine by letting down stand (page 9, No. 5).

2. Check if hoeing gear lever (page 9, No. 8) points to the right side (hoeing gear switched off).
3. Slip hoeing tools on left and right ends of hoeing shaft. Knife edges in driving direction. When mounting the second hoeing tool (left or right) please make sure that the hoeing blades pointing to the casing are positioned as to fit gaps and not in parallel with the same tools on the other side. Insert clamp bolt and screw on hoeing tools using washer and hexagon screw.
Rotate hoeing tools by hand and check if they run freely.
4. Adjust goose foot (page 28, No. 4 – 7).
 - a) Depth: Engage depth control bar (page 28, No. 4) in **upper** groove for **flat** hoeing
in **lower** groove for **deep** hoeing.
 - b) Cutting angle of goose foot:
On **heavy** soils pull **up** cutting angle bar (page 28, No. 5) so that hoeing tools are drawn into the soil;
on **light** soils pull **down** cutting angle bar (page 28, No. 5).

Good and exact hoeing work depends essentially on the goose foot. We recommend that special attention be paid to its correct adjustment.

5. Insert cover in cover support, hitch spring strap and pull its handle backwards (see illustration).



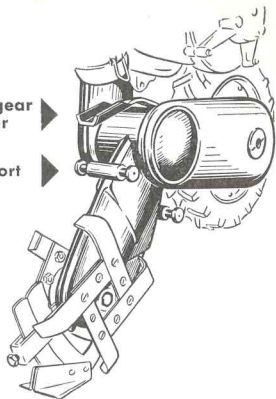
Working

1. Start engine
(for description see page 19).
2. Push hoeing gear lever with your foot to the **left** side (see illustration) which will switch on the hoeing gear.
3. Pull engine clutch lever and shift to desired gear speed.

Hoeing gear lever

Cover support

Goose foot
setscrew



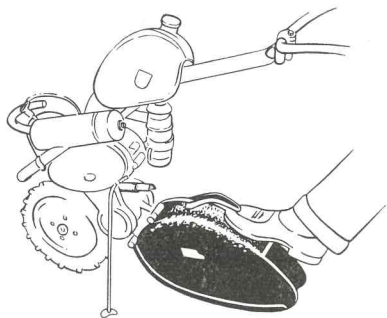
4. Slowly release clutch lever while opening throttle.

The machine will move forward with hoeing tools rotating.

After working

1. Pull clutch lever, put gear change twist grip into "0" position.
2. Push hoeing gear lever with your foot to the right side which will stop the hoeing tools.
3. If you still want to drive the machine, shift to desired gear speed. Slightly lift the machine by the handlebar so that the hoeing tools do not touch the ground.

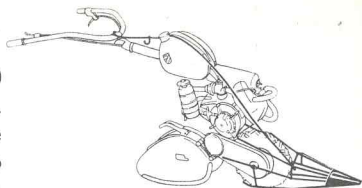
4. The engine is stopped as described on page 21.
5. Dismantle the hoeing attachment in reverse order.



**Use your foot to lift
the spring strap
handle of the cover.**

Leaf protector

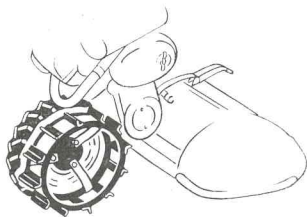
The leaf protector No. 1130 can be mounted if necessary. It is pushed over the drive wheel from front and its two pivots are inserted in the hub of the drive wheel. The Nylon holding string is attached to the handlebar.



When not working the tip of the leaf protector is pulled up and the loop of the Nylon string is hooked on the handlebar.

Cage wheel

We recommend the use of the cage wheel No. 1120 in light or loose soils for working widths larger than 11 ins. (28 cms).



It is attached to the drive wheel by means of 3 hexagon screws and washers.