## Maintenance work

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<td>C) Front-mounted rotary mower</td>
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<td>D) Front-mounted flail mower</td>
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**Operating Instructions 830/1**

**Model 8300**

Agria dual-purpose riding mower with front-mounted rotary and flail mower

![Image of a tractor]

After changing over to a different type of oil, change oil 1st time after 35 hrs. then every 100 hrs.

Do not retighten the cylinder head.

Agria-Werke GmbH 7108 Moeckmuehl/Wuertt.

Phone 06298/561 - Telex 485791

Printed in Germany, Holz, Alsbach
Important!
You may already have seen a demonstration of the Agria dual-purpose riding mower and have had it explained to you by your local Agria service station. Even so, we advise you to read these operating instructions carefully and in your own time to make yourself fully acquainted with every detail of your machine.

Road traffic regulations do not permit a trailer to be coupled to this mower.

Any damage arising from your not following these instructions will cause you unnecessary annoyance and expense.

Your Agria will prove a faithful companion if you maintain it well and treat it with the care it deserves.
Accident prevention

The Agria dual-purpose riding mower must not be used for any other purpose than for which it was designed, otherwise no liability will be accepted for any resulting damages. Correct use also includes compliance with the manufacturer’s operating and maintenance instructions and the exclusive use of original spare parts.

The mower must only be used, serviced and repaired by qualified persons who have been instructed on the risks involved. All pertinent accident prevention regulations and any other generally recognized rules and regulations pertaining to safety, health and the Highway Code must be complied with.

Before commencing any maintenance and cleaning work on the mower or removing the safety guards ensure that the engine is switched off.

Extreme caution must be exercised when working on the cutting tools. Persons and animals must be kept away from the running blades. CAUTION ACCIDENT HAZARD!

Persons under the age of 16 must not be permitted to use the machine.

The operator is responsible for the safety of persons and animals in the working vicinity of the mower, and must ensure that no-one is endangered or injured by the machine.

Do not fill up with fuel while the engine is still running or still hot!

Wipe away spilt fuel before starting the engine. CAUTION, FIRE HAZARD!

Always switch off the engine before working on the mower or leaving it unattended; remove the ignition key.

The mower must not be used to transport any persons other than the driver!

Before driving on public roads the front mounted rotary/flail mower must be raised and mechanically secured.

The operating levers for the control valves must be shifted to neutral and secured by the locking devices provided.

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A) Mower (without attachments)*

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<th>Dimensions</th>
<th>Type A</th>
<th>Type A 2</th>
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<tr>
<td>Overall length</td>
<td>2500 mm</td>
<td>2620 mm</td>
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<tr>
<td>Overall height</td>
<td>1180 mm</td>
<td>1200 mm</td>
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<tr>
<td>Width</td>
<td>740 mm</td>
<td>806 mm</td>
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<td>Wheelbase</td>
<td>850 mm</td>
<td>170 mm</td>
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<tr>
<td>Inner turning circle</td>
<td>202 mm</td>
<td>963 mm</td>
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<tr>
<td>Track width, front</td>
<td>880 mm</td>
<td>150 mm</td>
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<td>Track width, rear</td>
<td>0 mm</td>
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<tr>
<td>Ground clearance</td>
<td>150 mm</td>
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Front mounted rotary mower:
- Working width 150 cm, 180 cm, 3 blades, cutting height adjustable from 38 - 86 mm

Front mounted flail mower:
- Working width 125 cm, cutting height adjustable from 40 - 100 mm in 3 steps

P.t.o.:
- Single-plate dry clutch for engaging and disengaging p.t.o.

Tyres:
- Drive wheels 23 x 10.50 - 12
- Optional: 18 x 7.00 - 8 lawn tread

Tyre pressure:
- Steering wheels: 0.8 bar
- Drive wheels: 0.7 - 1.0 bar

Weights:
- Weight empty: 745 kg
- Perm. gross weight: 1100 kg
- Perm. axle load, front: 750 kg
- Perm. axle load, rear: 420 kg

Fuel tank capacity: 32 ltr.

Electrical system:
- Voltage: 12 volt
- Three-phase generator: 12 V, 40 AH
- Sliding gear starter motor: 12 V, 44 AH

Air filter:
- Micro dry filter (petrol engine)
- Oil bath filter (diesel engine)

Steering axle:
- Swing axle

Steering:
- Gear rack

Brake system:
- Parking brake, mechanically adjustable shoe brake acting on drive wheels
- Service brake, hydrostatically controlled by accelerator pedal

Transmission:
- Hydrostatic/infinity variable
- 2 driving speeds, differential with lock

Oil required:
- Differential gear: 4.0 ltr. hypoid
- p.t.o. gear: 1.2 ltr. gear oil 90
- Hydraulic system: 20 ltr. hydraulic oil A TP Desertin

Driving speed:
- For mowing: 0 - 10 km/h
- For road travel: 0 - 20 km/h

Hydraulic operating pressure: Max. 180 bar

B) Engine

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<th>Make and type of engine:</th>
<th>Renault 688-7/45</th>
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<td>Stroke:</td>
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<td>Cubic capacity:</td>
<td>1100 cc</td>
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<td>Compression:</td>
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<td>Rating:</td>
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<td>at engine speed:</td>
<td>2850 rev/min.</td>
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<td>Engine idling speed:</td>
<td>approx. 850 ± 25 rev/min.</td>
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<td>Ignition:</td>
<td>Bosch W 7 B (W 175 T 35) Champion L 87 Y (EY OUEM 705 S = initial equipment) Plug gap 0.7 mm</td>
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<td>Ignition timing:</td>
<td>8° ± 1</td>
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<td>Contact angle:</td>
<td>57° ± 3</td>
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<td>Breaker contact gap:</td>
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<tr>
<td>Ignition sequence:</td>
<td>1-3-4-2 (cylinder 1 = drive end)</td>
</tr>
<tr>
<td>Cooling:</td>
<td>Water cooling, closed loop cooling water circulation system (constant 7.0 °C) with frost protection down to -20°C</td>
</tr>
<tr>
<td>Carburetor:</td>
<td>Solex 32 - RBE - down draught</td>
</tr>
<tr>
<td>Lubrication:</td>
<td>Forced oil lubrication</td>
</tr>
<tr>
<td>Oil required:</td>
<td>3.0 ltr. HD multigrade oil SAE 20 W 40</td>
</tr>
<tr>
<td>Tapped clearance:</td>
<td>0.15 mm</td>
</tr>
<tr>
<td>Fuel:</td>
<td>Regular-grade fuel</td>
</tr>
</tbody>
</table>

Starting torque:
- Four-cylinder petrol engine (Renault 688-7/45)
  - Cylinder head: 65 Nm (6.5 kp)
  - Flywheel: 50 Nm (5.0 kp)
  - Connecting rod bearing: 45 Nm (4.5 kp)
  - Main crankshaft bearing: 55 - 65 Nm (5.5 - 6.5 kp)

- Four-cylinder four-stroke diesel engine (Kubota V 1200-B)
  - Cylinder head must not be relightened.
Machine with new type instrument panel

Fig. VI
1 Oil filter neck with air vent for transmission
2 Control lever for hydraulics (raising and lowering)
3 Blind cover
4 Push button for hazard warning switch
5 Thermometer for cooling water temperature
6 Lever for parking brake and right single-wheel brake
7 Direction indicator switch
8 Nameplate
9 Accelerator pedal
10 Hour meter

Fig. VII
1 Foot pedal for differential lock
2 Fuel tank
3 Fuel tank cap
4 Plug socket
5 F/R shift lever
6 Fuse box
7 Control lamps
8 Steering wheel
9 Push button for horn
10 Light/ignition switch
11 Direction indicator switch
12 Knob for locking gate
13 Throttle lever
14 Control lever for hydraulics (wheel type)
15 Heater plug starting switch (for diesel engine only)
16 Blind cover (for diesel engine only)
16a Starter button (for petrol engine only)

Fig. I
1 Driver’s seat
2 Adjusting screw for adjusting the driver’s seat to the weight of the driver
3 Universal shaft
4 Front wheel (driving axle)
5 Foot board
6 Rear wheel (steering axle)

Depending on requirements additional weights (1) can be fitted as shown in the adjacent sketch.
Mower equipped with Renault petrol engine 688 - 7/45

Fig. VII
1 Water pump
2 Carburettor idling adjusting screw
3 Carburettor idling jet
4 Carburettor air adjusting screw
5 Filler neck for engine oil
6 Fan for oil cooler
7 Air filter and filler neck for hydraulic oil
8 Compensating tank for hydraulic oil
9 Oil dipstick
10 Battery
11 Petrol pump
12 Ignition coil
13 Engine oil filter
14 Distributor
15 Engine rating plate

Fig. IX
1 Oil cooler
2 Air filter
3 V-belt for water cooler fan
4 Filler cap
5 Radiator
6 Removable cooling air strainer
7 Three-phase generator
8 Starter
9 Drain screw for engine oil
10 Exhaust muffler
11 Pull button for choke

The hydraulic lines shown here are not fitted.

Fig. II
1 Horn
2 Headlamps
3 Flashing indicator lamps
4 Fuel cock
5 Grease nipple bar

Fig. III
1 Air filter preseparator
2 Exhaust muffler
3 Hood latch
4 Cooling air strainer
5 Combined flasher and tail lamp
6 Rear weight (basic equipment)
7 Toolbox
8 Grease nipple (4x)
Machine with older type instrument panel

Fig. IV
1 Direction indicator switch
2 Steering wheel
3 Blind cover
4 Thermometer for cooling water temperature
5 Lever for parking brake and right single-wheel brake
6 Pin for securing top link
7 Accelerator pedal
8 Nameplate
9 Hydraulic ram
10 Chassis number (visible beneath foot board)
11 PTO operating lever
12 Light/ignition switch

Fig. V
1 Fuel tank
2 Fuel tank cap
3 Lever for left single-wheel brake
4 Plug socket
5 Push button for hazard warning switch
6 F/R operating lever
7 Push button for horn
8 Push button for starter (for petrol engine only)
9 Control lever for front hydraulics
10 Knob for locking gate
11 Oil filler neck with vent for transmission
12 On/Off lever for p.t.o.
13 Throttle lever
14 Spring clip
15 Locking lever for transport
16 Hour meter
17 Fuse box
18 Hydraulic cylinder
19 Foot pedal for differential lock
20 Control lamps

Mower equipped with Kubota diesel engine V 1200-B

Fig. X
1 V-belt for fan, hydraulic oil pump
2 V-belt for generator, water pump
3 EL resistor for fan
4 Oil dipstick
5 Air filter and oil inlet for hydraulic oil

Fig. XI
1 Steel bellows, exhaust
2 Three-phase generator
3 Impeller
4 Fan
5 Inlet for engine oil
6 Thermostat
7 Oil bath air filter

Fig. XII
1 Pull button for engine cut-off
2 Exhaust muffler
Fig. XIII
1. Operating lever for p.t.o.
2. Expansion tank for closed cooling water system
3. Oil dipstick for p.t.o. gearing
4. Oil inlet and air vent for p.t.o. gearing
5. Removable cooling air screen
6. Grease nipple
7. Grease nipple (qty. 4)
   for universal shaft
8. Stop screws for pedal position
   (these are set at the factory and must not be re-adjusted)
9. Oil drain screw for gearing/hydraulic oil filter
10. Shift rod for F-S gearshift

Fig. XIV
1. Tension spring to reduce ground pressure of implements
2. Spring tension spindle
3. Footboard
4. Hydraulic oil tank
5. Oil drain screw (p.t.o. gearing)

Fig. XV
1. Universal shaft (included in delivery for basic machine)
2. Lifting arm
3. Hood

Fig. XVI
1. Belt cover
2. Connection for universal shaft
3. Universal joint support
4. Universal joint arm
5. Retaining chain for universal shaft cover
6. Latch
7. Retaining pin
8. Ball pivot
9. Hole for height adjustment of wheels
10. Mounting screws for belt cover
Fig. XVII
1 Grease nipple bar
2 Grease nipple bar
3 Universal joint support
4 Adjusting ring for height adjustment of rotary mower
5 Front wheels

Fig. XIX
1 Oil drain screw (bevel gearing)
2 Deflector plate (working position)

Fig. XVIII
1 Pressure stud for universal shaft lock
2 Hood
3 Oil inlet and inspection hole
4 Grease nipple
5 Bevel gearing

Fig. XX
1 Hinged rod
2 Deflector plate (in transport position) *
3 Rotary blade

* In the newest type of front-mounted rotary mower a separate hood is provided which is to be mounted in place of the deflector plate for transport purposes.
Fig. XXII
Delivery scope:
1 Front-mounted rotary mower
2 Top link
3 Support

Fig. XXIII
1 Retaining pin with removable bolt
2 Top link
3 Universal shaft (incl. in delivery for basic machine)
4 Grease nipple
5 Support roller
6 Protection flap bracket
7 Latch

Fig. XXIV
1 Hinged flaps
2 Belt enclosure

in working position

Fig. XXV
1 Fastening nut for V-belt tensioner
2 Hood

in transport position

Fig. XXVI
1 Nameplate
2 V-belt idler pulley
3 Grease nipple for idler pulley
4 Grease nipple for supporting roller
5 Mounting screw for supporting roller
6 V-belt *) (Agria Order No. 553 40)
7 Lock nut for tensioning screw
8 Tensioning screw
9 Grease nipple for flail mower bearing assembly

*) Do not use standard V-belts. Use only original Agria V-belts!
General Description

Hydrostatic transmission
The Agriq dual-purpose riding mower is equipped with a hydrostatic transmission with pedal-operated stepless speed control. The operating lever for slow or fast speed stage (for mowing and road speeds) is located on the right under the driver’s seat.

When this lever is pushed forwards, the speed stage for road travel is engaged; when it is pulled back, the speed stage for mowing is engaged.

Shift the lever to the centre for the idling position. For towing or pushing the lever must be shifted to the idling position to prevent damage being caused to the hydrostatic transmission.

Caution: No braking effect is possible with the hydrostatic transmission. Use the hand brake for slowing down.

Forwards/reverse travel
For forwards travel push the F/R lever (V/II, page 8 and VII, page 9) forwards; in doing so, press the lever over to the left slightly until the locking bolt is released from the notched plate. For reverse travel pull the F/R lever to the rear down the shift gate.

In centre position the F/R lever is in the idling or starting position.

Differential gear
If circumstances warrant it, the built-in differential gear can be locked. To do so depress the pedal for the differential lock (V/19, page 8 and VII/7, page 9) as long as necessary. To prevent damage to the gearing, the differential lock must never be operated when negotiating curves.

Brake system
When the driving pedal (IV/7, page 8) is released, the hydrostatic transmission acts (when driving) as a service brake. The auxiliary and parking brake is operated by the hand brake lever (IV/5, page 8). This lever locks in place automatically when pulled and can only be released again by pressing the knob at the top of the hand brake lever.

Steering brakes:
The manoeuvrability of the mower is increased even further by applying the steering brakes using the two levers (V/3, page 6 and IV/5, page 8). To turn to the right pull the lever (V/3, page 6). This brakes the left wheel and the mower turns to the left when the forwards gear is engaged.

To turn to the right pull the lever (IV/5, page 6). This brakes the right wheel and the mower turns to the right with the forwards gear engaged.

Note: The steering brakes can only be used when the shift rod for the F/R speed stage (XIII/10, page 13) is switched to mowing (4x2A).

The parking brake (IV/5, page 8) functions only when the shift rod (XIII/10, page 12) is switched to road travel.

P.T.O. clutch:
The p.t.o. is engaged and disengaged by means of a “single-plate dry clutch”. To do so, shift the lever (V/12, page 8) (see section “Mowing”, page 21, Flat mowing - page 22).

P.T.O.
The mower is equipped with a connectable p.t.o. that is independent of road speed. This drives the attachments. The operating lever for engaging and disengaging the p.t.o. (IX/11, page 8) is located next to the driver’s seat.

Mowing attachments – ground pressure
The pressure of the mowing attachments on the ground can be adjusted with the aid of the balance springs. If the pressure is to be increased, the springs must be relieved. If it is to be reduced, the springs must be tensioned.

The spring tension is adjusted as follows:
1. Start the engine and bring the mowing attachment into transport position (see description on pages 21/22).
2. Remove the hex. screw and hex. nut on the spring tensioning spindle (IV/2, page 12).
3. Turning the spring tensioning spindle forwards increases the spring tension and reduces the ground pressure.
4. Reconnect the spring tensioning spindle and frame using the mounting screw and the hex. nut provided.

In neutral, i.e. with the pedal at the limit stop, the mower will stop. If for any reason the mower must be stopped quickly, let the accelerator pedal slip back into neutral and use the hand brake to stop the machine.
Always apply the hand brake when parking the mower.

Mounting the front rotary mower:
Mount the mower on level and firm ground.
1. Drive the machine up to the rotary mower attachment as shown in Fig. XIV, page 13.
2. Remove the retaining pin (IV/7, page 13), pull back the latch (IV/6, page 13) and secure with retaining pin.
3. Completely lower the lifting arms (X/2, page 13) (Knob for lowering gate V/10, page 8 to centre position, press control lever V/9, page 8 briefly upwards and then guide it back to “0” position (goes back to “0” position automatically).
4. Raise universal joint support (IV/3).
5. Drive machine up to the rotary mower until the ball pivots (XV/8, page 13) are aligned with their slots in the lifting arms (XIV/2, page 8).
6. Raise lifting arms slightly (depress control lever V/9, page 8) until the ball pivots lie flush in their slots.
7. Push latch (XIV/6, page 13) forwards and secure with the retaining pins.
8. Swivel both universal joint supports (IV/3, page 13). See Fig. XIV/3, page 14.
9. Swivel hood (XIV/3, page 14) upwards. Detach chain (XIV/5, page 13), push universal shaft (XIV/1, page 13) onto drive shaft of bevel gearing, pressing in the locking pin at the same time. Let go of the locking pin as soon as the shaft is inserted. Ensure that the universal shaft is correctly fitted. Lightly grease tooth profile before assembly. Position the safety chain of the universal shaft guard around the frame beam and secure with the snap hook.
10. Dismantle in reverse order.

Transport position: (see note on page 15)
Before driving the mower on public roads ensure that the mowing drive is switched off and that the front-mounted rotary mower is raised. The lever for locking the mower in place during transport (V/15, page 8) must be positioned to the rear and secured with the spring clip (IV/4, page 8). The deflector plate (XX/2, page 15) must be fitted as shown in Fig. XX, page 15.
Push knobs for locking gate (V/10, page 8 and V/12, page 9) fully to left.

Cutting height adjustment:
The cutting height is adjusted by shifting the adjusting rings (XIV/4, page 14) on the front wheels and by repositioning the rear wheels in the relevant holes (XV/9, page 13).
For care and maintenance refer to page 24.

Mowing:
1. Position spring clip (IV/14, page 8), pull transport locking lever (V/10, page 8) towards (releasing the transport lock). Reinsert spring clip. Adjust deflector plate to working position.
2. Ensure that F/R operating lever is in neutral position.
Start engine as described on page 20.
3. Shift F/R rod to mowing position.
Lower front-mounted rotary mower (completely depress control lever V/9, page 8 and V/12, page 9).
4. Push locking gate knob completely to right. This measure is essential when working with the rotary mower to ensure that the control lever is not accidentally shifted upwards into the “press” position.
5. Switch on mowing mechanism as follows:
   a) Pull clutch lever for p.t.o. (V/12, page 8) upwards and hold.
   b) Shift p.t.o. operating lever (V/11, page 8) position 1 (shift to rear).
   c) Lift p.t.o. clutch lever (V/12, page 8) move slowly to rear (to engage it).
6. Select travelling direction with F/R lever.
8. Before starting off ensure by all-round inspection that no person can be endangered. See also safety precautions for operating rotary mowers.
Slowly depress accelerator (VI/7, page 8) (not firmly). The position of the pedal determines the travelling speed of the mower.
9. The mowing quality is determined by the grass growth and the terrain.
10. In neutral position, i.e. with the pedal at the stop, the mower stops.
If for any reason the mower must be stopped quickly, let the pedal return to the neutral position and stop the mower by using the hand brake.
When parking the mower, always apply the hand brake.
11. Before carrying out any work on the rotary mower, switch off the mowing mechanism and the engine. If the mower gets choked with cuttings raise the mower (switch off the engine) and, with a suitable object (such as a wooden handle), clean the rotary mowing blade and the guide plates of any cuttings that have not been ejected.
Mounting the front flail mower:

Mount the mower on level and firm ground.
1. Drive the machine up to the flail mower as shown in Fig. XXI.
2. Remove the retaining pin, pull back the latch and secure with the retaining pin.
3. Completely lower the lifting arms (knob for locking gate to central position, press control lever V/9, page 8 briefly upwards and then guide it back to "0" position) (goes back to "0" position automatically).
4. Drive the machine up to the flail mower unit until the ball pivots are aligned with their slots in the lifting arms.
5. Slightly raise lifting arms (depress control lever V/9, page 8 and V/10, page 9) until the ball pivots lie flush in their slots. Push latch forwards and secure with the retaining pin.
6. Push universal joint onto drive shaft of riding mower, pressing in the locking pin at the same time. Let go of the locking pin as soon as the shaft is inserted.
7. Ensure that the universal shaft is correctly fitted.
8. Swivel hood (XXV/2, page 17) upwards, detach safety chain, push universal shaft onto drive shaft of the bevel gearing, pressing in the locking pin at the same time. Let go of the locking pin as soon as the shaft is inserted. Ensure that the universal shaft is correctly fitted. Lightly grease tooth profile before assembly. Position the safety chain of the universal shaft guard around the frame beam and secure with snap hook (see also mounting procedure for front rotary mower, page 21).
9. Swivel pin for securing top link (V/16, page 8) upwards and pull out slightly to left. Insert link (XXII/3, page 15) into the mounting plate on the machine. Push pin through hole provided in top link and then swivel downwards until it is positioned in the recess in the footboard.
10. Insert the other end of the top link into the centre hole (as shown in Fig. XXIII), push pin through it and secure with spring clip.

Transport position:
Before driving on public roads ensure that the mowing drive is switched off and that the front mounted flail mower is raised. The lever for locking the flail mower in place during transport (V/15, page 8) must be positioned to the rear and secured with the spring clip (V/14, page 8).

Push knob for locking plate (V/10, page 8) fully to left. In the transport position the support (XXI/3, page 16) must be swivelled upwards, see Fig. XXV (pull out support slightly and let it slide upwards).

Cutting height adjustment:
The cutting height can be adjusted in three steps (38 mm, 63 mm, 86 mm). The flail mower is adjusted at the factory to the centre height. To adjust the cutting height it is necessary to alter 3 mounting points:
- (ball pivot XXV/1, page 16)
- (support roller XXV/5, page 17)
- (top link fixture XXII/1, page 16)
and this must always be carried out symmetrically, i.e. either all in the bottom, the centre or the top mounting hole.

Flail mowing:
1. Remove spring clip (V/14, page 8), pull transport locking lever (V/15, page 8) to the front (releasing the transport lock), reinset spring clip. Ensure that the support is swivelled upwards.
2. Check whether F/R shift lever is in neutral. Start engine as described on page 20.
3. Position shift rod for S/F speed stage (XXI/10, page 12) to mowing. Lower flail mower (completely depress control lever V/9, page 9).
4. Push locking gate knob completely to right. This measure is essential when working with the flail mower to ensure that the control lever is not accidentally shifted upwards to the "press" position.
5. Switch on mowing mechanism as follows:
   a) Pull clutch lever for p.t.o. (V/12, page 8) upwards and hold.
   b) Shift p.t.o. operating lever (V/11, page 8) to position 1 (shift to rear).
   c) Let p.t.o. clutch lever (V/12, page 8) move slowly to rear (to engage it).
6. Select travelling direction with F/R lever.
8. Before starting off ensure by all-round inspection that no person is endangered. See also safety precautions for operating flail mowers.

Front-mounted rotary mower:
Before starting off ensure by all-round inspection that no person is endangered. See also safety precautions for operating flail mowers.

Electrical system
In position "D" the ignition key can be inserted in the lighting/ignition switch.
Position 1 = parking light. Both parking lights and both combined stop and numberplate lights are on.
In position 2 both low beams are switched on; at the same time both parking lights and the two combined stop and numberplate lights are on. If the ignition key is depressed in position "D" this switches on the ignition. The oil pressure warning lamp (red) and the charging control lamp (yellow) must light up.
The flashing indicator lights are operated by swivelling the indicator lever to left or right. The green pilot lamp blinks in unison. The hazard warning system is switched on by pressing the knob of the hazard warning switch, whereby all flashing indicators, including the glow-lamp in the knob, flash in unison.
When a cab is fitted, the windscreen wipers can be connected to the electric socket. Six 8 ampere fuses in the fuse box protect the electrical system.

Before working on the electrical system do not forget to disconnect the negative lead from the battery to prevent short-circuits.

The built-in three-phase generator must always be galvanically connected to the battery during operation. While the engine is running, neither the generator cable nor its pole terminal on the battery should be disconnected, removed or interchanged.

The battery must not be charged unless it is disconnected from the electrical system, i.e. the positive and negative leads must be disconnected.

Front-mounted rotary mower:
The front-mounted rotary mower is supplied with a rear or side ejection as required. Working width = 150 cm/180 cm, 3 rotary blades, cutting height 30 to 70 mm (in adjustable steps of 10 mm).

Driving wheel tyres of the riding mower: 23 x 10.50 - 12 Softrac (turf track)

Flail mower:
Working width = 125 cm, cutting height adjustable from 38 to 86 mm in 3 stages.

Driving wheel tyres of the riding mower: 23 x 10.50 - 12 Terra Grip (driving wheel tread).
Preparing the mower for operation

Please note that the service life and reliability of the engine of the new mower depend to a great extent on the running-in period. Let the cold engine warm up for a few minutes before loading it to the maximum. Ensure that the filters are maintained correctly. Before putting the mower into operation, i.e. before starting the engine, ensure that:

- there is sufficient fuel in the tank,
- there is sufficient engine oil in the engine according to the mark on the dipstick,
- there is sufficient hydraulic oil in the equalising tank (V/8, page 10) up to the bottom edge of the dipstick,
- there is sufficient coolant in the cooling system. The coolant level in the expansion tank should be at "maximum" (top up the water only in the expansion tank),
- there is sufficient acid in the battery (approx. 1 cm above the top edge of the plates). Ensure that all lubricating points are greased according to the lubrication chart (page 27) and that the parking brake is applied and secured by its catch.

Starting the four cylinder four-stroke petrol engine

Always ensure that the attachments are switched off before starting the engine, in order to prevent the running drives from overloading the battery.

With the engine cold

1. Shift the F/R lever to the centre - starting position.
2. Shift the throttle lever (V/13, page 8 and V/13, page 9) to neutral (depressed).
3. Pull out knob for choke (I/01, page 9) to its limit.
4. Insert ignition key into light/ignition switch and press home. The oil pressure control lamp (red) and the charging control lamp (yellow) must light up.
5. Press starter button (pushbutton V/8, page 8).

As soon as the engine starts, slowly push in the pull button for the choke and open the throttle slightly. The oil pressure control lamp must go out when the engine starts. If this lamp lights up while the mower is being driven, a fault is indicated in the oil supply to the engine. Stop the engine immediately and check the oil level. If the cause of the disturbance lies elsewhere, consult your dealer. The charging indicator lamp must also go out when the engine starts. If it lights up while the mower is being driven, the battery will no longer be charged and a fault is indicated in the electrical system.

With the engine warm

Proceed as for cold engine but do not operate the choke! Open the throttle slightly when starting.

Take care when starting the engine in a closed room! Ensure that there is good ventilation and that the exhaust fumes are quickly drawn off.

Stopping the engine

Shift the throttle lever to the idling position and let the engine continue to idle for about 30 sec.
Withdraw the ignition key from the "0" position and apply the hand brake.

Do not leave the ignition key in the switch while the mower is unattended.

Starting the four cylinder four-stroke diesel engine

Shift the F/R lever to the centre - starting position. Open the throttle lever wider. Insert the ignition key in light/ignition switch and press it home.

The oil pressure control and charging lamps must light up.
Pull out the knob of the heater-plug starting switch (V/15, page 9) to the first stop. The glow lamp (symbol ) (V/7, page 9) must light up. Hold the knob until the glow lamp goes out, then pull it out to its limit to start the engine.

As soon as the engine starts push the knob into its initial position and regulate the throttle. When the engine starts the oil pressure control lamp must go out. If this lamp lights up while driving the mower, a fault is indicated in the oil supply to the engine. Switch off the engine immediately and check the oil level. If the fault is due to other fault consult your dealer.
The battery charging lamp must also go out when the engine starts. If this lamp comes on while driving the mower the battery will no longer be charged and a fault is indicated in the electrical system.

Let the engine run warm with the throttle half open. If the engine does not start up within the first 10 seconds, interrupt the starting procedure and wait about 30 sec, then repeat the starting procedure. Take care when starting the engine in a closed room. Ensure that there is good ventilation and that the exhaust fumes are quickly drawn off.

Stopping the four cylinder four-stroke diesel engine

Shift the throttle lever to the idling position and let the engine continue to idle for about 30 sec.
Pull out the knob for stopping the engine (V/1, page 11) and hold until the engine stops.
Withdraw the ignition key from the "0" position in the ignition switch, press down the cover and apply the hand brake.

Do not leave the ignition key in the switch with the mower unattended.

Driving

Select the desired driving speed, raise the driver’s seat and position the operating lever (X/10, page 12, as described under "Hydrostatic transmission" on page 18).
Select direction of travel with F/R lever (V/8, page 9 and V/5, page 9), as described under "Forwards/reverse travel" on page 18.
Open throttle about 2/3.

To travel at maximum speed, or when certain service or operating conditions demand full engine power, open the throttle wide. Slowly depress the accelerator pedal (V/7, page 8 and V/10, page 9) (not jerkily). The position of the pedal determines the travelling speed of the mower.

Care and maintenance

A) Agrie dual-purpose riding mower

Apart from the operating instructions for the mower it is of equal importance to observe the following instructions on its care and maintenance:
1. Check that all lubricating points have been sufficiently lubricated in accordance with the lubrication chart on page 27. Grease must visibly enter the bushings.
2. The oil in the p.t.o. drive must be changed after the first 25 and then every 600 operating hours. The oil drain screw is on the left bottom side (XIV/5, page 12).

By removing the screw plug (XIII/3, page 12) it is possible to check the level of the oil. For location of inlet point see XIII/4, page 12. Amount required (change the oil only when the engine is warm) = 1.2 ltr. hypoid gear oil 90.
3. Change the differential gear oil after the first 25 and then every 600 operating hours. The oil drain screw is located on the engine side of the differential housing. For location of inlet see V/11, page 8 and V/11, page 9.

When changing the oil the mower should be raised slightly to enable the old oil to be completely drained off. (Change the oil only when the machine is warm). Amount required = 4.0 ltr. hypoid gear oil 90.
4. Lift off the air cleaner preseparator (III/1, page 7) from the engine hood and wash out with petrol.
5. Frequently check the air pressure in the tyres.
6. Check the V-belts for correct tension. (See separate operating instructions of the engine manufacturer.)
7. Occasionally oil all moving parts.

If the mower is not to be used for some time:
- a) Clean the machine thoroughly, check all parts and replace if necessary.
- b) Check up the mower until the wheels are free of the ground. Pneumatic tyres become unseizable in a very short time if they are left standing under load.
8. As a result of the normal ageing process, leaks or other faults may occur in the high pressure hoses of the hydraulic system, leading to failures. For this reason we advise replacing all high pressure hoses connected to the pressure lines of the hydraulic system after 3 years, and all other high pressure hoses after 6 years.
9. Check all screws and nuts for tightness (after 25 operating hours).
10. Retighten wheel nuts after 10 operating hours.

B) Engine

See separate operating manual of engine manufacturer.

C) Battery maintenance

Regularly check the acid level in the battery and in warm weather more frequently. Fill up with destilled water as necessary. The acid level must be approx. 1 cm above the edge of the plates.

If the mower is not required for any length of time the battery must be kept fully charged with a fresh-holding current of approx. 0.06 aamps, or its charging state checked at intervals of about 1 month. If necessary it should be fully recharged.

Never leave the battery in discharged condition.

D) Hydraulic system

After each replacement of the hydraulic oil (oil change) the hydraulic system must be vented. Cleansliness is of major importance when carrying out any work on the hydraulic system. Even the slightest contamination in the oil can have an adverse effect on the function and service life of the hydrostatic transmission. It is essential that any work on the hydraulic system, details of which cannot be given here, should be carried out only by trained service personnel.

Use only hydraulic oil ATF Dextron. Amount required: 20 litres.

Changing the oil and the oil filters

Raise the machine at the front about 10 cm.

Remove the rubber cap from the bottom of the oil tank (XIV/5, page 12) and let the oil drain off completely. After drainage ensure that the oil hose couplings are correctly connected. Replace screw-type filter cartridge (installed in hydrosat).

Lightly oil new rubber seal before screwing in new filter cartridge.

Caution! Do not start the engine without oil in the hydraulic system.

To fill in the oil unscrew the air filter from the equalizer tank and remove the sealing plug from the oil cooler, then screw out the screw plug (see adjacent sketch).

Alternately fill in the hydraulic oil into the equalizer tank and the oil cooler. When the oil level is visible in the oil cooler, replace the sealing plug. Continue to fill the equalizer tank with oil until the oil level no longer falls below the dipsticc. Replace screw plug.

Raise and lower the lifting arms by means of the hydrosat until the hydraulic system is vented to such a degree that the oil level in the equalizer tank no longer sinks. If necessary fill in oil up to the bottom edge of the oil dipsticc.
Intervals between oil and filler changes:
Change the filter after the first 25 hours, then every 200 hours.
Change the oil after the first 25 hours, then every 600 hours.
If only the oil filters are changed, do not forget to top up with oil.
Normally the oil level should remain unchanged during the operating period. If it drops, there must be a leakage in the system which must be remedied immediately.
If the mower is subjected to heavy duty work the oil level may rise due to the heat expansion of the oil. This is no cause for concern as the oil level will return to normal as soon as the oil cools down again.
The couplings of the hydraulic system must never be disconnected or tightened while under pressure.
Damaged tubes or hoses must be replaced immediately. For safety reasons use only original spare parts.
Before disconnecting couplings, ensure that their outside surroundings are well cleaned. Seal all openings immediately with a rubber plug to prevent loss of oil and dirt from entering the system.

E) Front-mounted rotary mower
1. Mounting screws for bevel gearing
2. Hex. screw for belt tension
3. Hex. nut
4. Idler pulley arm
5. V-belt
6. Rotary mower blade
7. Allen screws for mounting rotary blades
8. Not standard type V-belts, use only original Agria belt!

1. After every mowing operation spray the underside clean with a water hose to remove plant juice and dust and to prevent them drying hard.
2. Grease the mower (with multi-purpose grease) before every operation:
   a) 2 grease nipples for idler pulleys,
   b) 3 grease nipples for blade flange plates,
   c) 1 grease nipple per wheel (4x)
   d) 1 grease nipple on each support beam.

   Before greasing wipe the nipples with a rag to prevent dirt from being pressed in with the grease. Press in grease until new grease begins to emerge at the edge of the grease points, forming a soclled grease collar. Do not wipe away the grease collar; it protects the bearing points from the outside against ingress of water and dirt.

   Occasionally oil all moving parts!

   The bevel gearing contains 0.4 litres hypoid gear oil 90 (XVIII/5, page 14).
   If no traces of oil are visible on the outside, a special check of the oil level is not necessary.
   Oil inlet and oil inspection hole (XVIII/3, page 14).
   Oil drain screw (XVII/1, page 15).

   Check the oil level as follows:
   Unscrew the plug, insert the screw pin into the inspection hole until it comes into contact with the gear wheel (do not use a screwdriver or similar tool).

   The screw pin must not dip more than 2 mm into the oil.

   The oil should be changed once a year after termination of the mowing season.

3. Check the cutting edges of the 2 rotary blades (6) for wear.
   The blades can be resharpened with a file.

   The rotary blades are removed by unscrewing the allen screws (7).

   If the blades are badly notched they must be ground and balanced, otherwise the blade flange bearing points may be damaged by vibration in the blades.

   In the event of damage to the blades they should be repaired by a competent workshop.

4. Tensioning the drive belt:
   Remove the short cover plate (on the right seen in the direction of travel).
   The belt tension should be such that the belt can be depressed 2 cm at the place marked with an x (see page 24).
   To increase the belt tension unscrew the hex. nut (3) and adjust the idler pulley as required with the aid of the hex. screw (2).

   Following adjustment, replace the counter nut on the hex. screw.

5. Replacing the drive belt:
   Remove all 3 cover plates. Retieve the tension in the idler pulley arm (slacken off hex. screw and nut).

   Remove the hex. screws (Fig. 1).

   Lift off the bevel gearing and the drive belt.

   Fit a new V-belt, reinstall the bevel gearing (using 3 new screw retainers).

   Tension the belt as described under item 4.

6. If the mower is to be stored over winter or not used for any length of time, spray or brush the cleaned and dried underside of the mower with diesel or old oil. Grease all bearing points!

   Change the oil in the bevel gearing.

F) Front-mounted flail mower

1. After each flail mowing operation spray the underside of the flail mower with a water hose and dry with compressed air to remove plant juice and dust and to prevent them drying hard.

2. Grease the mower before each operation (with multi-purpose grease).
   a) 1 grease nipple each for flail mower bearing and support roller (XIX/4, page 16) (left mower side).
   b) 1 grease nipple for support roller (XIX/4, page 17) right.
   c) 1 grease nipple for flail mower bearing (XIX/6, page 17) right.
   d) 1 grease nipple for idler pulley (XIX/6, page 17).

   Before greasing wipe the nipples with a rag to prevent dirt from being pressed in with the grease. Press in grease until new grease begins to emerge at the edge of the grease points, forming a so-called grease collar. Do not wipe away the grease collar; it protects the bearing points from the outside against ingress of water and dirt.

   Occasionally oil all moving parts!

   The bevel gearing (2) contains 0.75 hrs. hypoid gear oil 90. If no traces of oil are visible on the outside, a special check of the oil level is not necessary. The oil should be changed once a year after termination of the mowing season.

   Tensioning the drive belt:

   Remove the belt cover (XIX/2, page 17).

   The belt tension should be such that the belt can be depressed 1.5 cm at the place marked with an "X" (Fig. XIXVI).

   To increase the belt tension unscrew the hex. nuts (XIX/5, page 17 and XVIII/7, page 17) and adjust the V-belt tensioner with the aid of the tensioning screw (XVIII/8, page 17).

   Following adjustment reposition the hex. nuts or counter them.

   If the mower is to be stored over winter or not used for any length of time, spray or brush the cleaned and dried underside of the mower with diesel or old oil. Grease all bearing points!

   Change the oil in the bevel gearing.

   Oil level inspection screw

   2 Bevel gearing

   3 Air filter and vent hole

   4 Oil drain screw

   1 Guard plate

   2 Support roller

   3 Plastic bush

   4 Flail knives (42)

   5 Plastic plate

   6 Spring clips (42)

   7 Flail cylinder

View of underside of flail mower:

Location of grease nipples:

1 Grease nipple for lifting arm, left
2 Grease nipple for lifting arm, right
3 Grease bar (5 nipples)
4 Grease nipple for universal shaft hydraulostat (2)
5 Grease nipples for universal shaft p.t.o. (2)
6 Grease nipple for axle bolts
7 Grease nipple -- intermediate link
8 Grease nipple for axle stub, left
9 Grease nipple for axle stub, right
10 Grease nipple for p.t.o. clutch lever

Ensure correct greasing of bearing points (with multi-purpose grease!)