

**USERS MANUAL**

Read this users manual carefully before using the machine.



# **H G F E E D E R**

**-400 gasoline**

**-500 gasoline**

**-500 diesel**

# Feeder 400 / 500

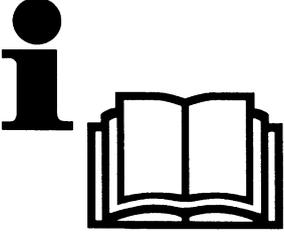
*This manual covers the models Feeder 400 gasoline, Feeder 500 gasoline and diesel.*

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# 1. Precautions

## Instruction in safe use of the feeding machine

 **IMPORTANT!**



**READ THE MANUAL**

*It is very important to read this manual in order to avoid dangerous situations.*

*Read the manual carefully. If other persons use the machine let them read the manual too.*

 **WARNING!**



**CARBON MONOXIDE**

*Dangerous carbon monoxide from the exhaust can cause serious Sickness, faint and death.*

*Don't use this machine in closed and limited rooms.*

 **WARNING!**



**HOT PARTS**

*Hot parts can cause serious burns.*

*Don't touch the engine or the exhaust during the operation or immediately after stopping the engine.*

 **WARNING!**



**FIRE RISK**

*Explosive fuel can cause fire and serious burns.*

*Stop the engine and let it cool before filling on fuel. Always switch off the engine before filling up.*

 **WARNING!**



**HIGH VOLTAGE**

*The engine generates high voltage which can cause body injuring or death.*

*Don't touch wires while the engine runs.*

 **WARNING!**



**ROTATING PARTS**

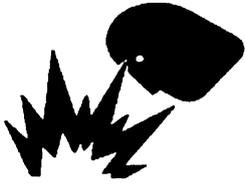
*Rotating parts can cause serious damage.*

*Keep away hands, feet, hair and cloths from all moveable parts. Never use the machine without the delivered shields.*

 **WARNING!**

 **WARNING!**

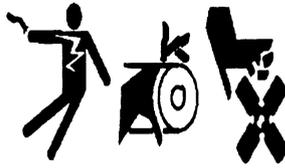
 **WARNING!**



### **EXPLOSIVE GAS!**

*Explosive gas from the battery can cause fire and serious corrode damages.*

*Only charge the battery on a ventilated place. Keep away all sources of fire setting.*



### **DANGER!**

*Sudden start can cause serious damage and death.*

*By servicing the machine or by parking, the engine has to be switch off and the ignition key removed.*



### **NOISE!**

*Long stay in noise damages the hearing.*

*Always use hearing shelter..*

## **1.1. Education**

- Read the instructions carefully. You ought to have knowledge to operation grips and correct use of the equipment.
- Don't let children or persons, who have no knowledge of the instructions use the feeding machine. The law can state an age limit for persons, who can use the feeding machine.
- Remember that the driver is responsible for accidents or situations of danger that can happen towards human beings or their property.
- The driver must be instructed carefully in using the feeding machine. These instructions should put emphasis on following:

-The need of being carefully and concentrated by operating automotive machines.

-Have a comprehensive view of what happens in front and behind the vehicle, especially during feeding, where other people can appear.

### **The most important causes to accidents are:**

1. To fast driving, especially with a filled up feed tank.
2. Swinging in high speed, especially with feed in the tank.
3. Lack of comprehensive view.
4. The driver's knowledge of the vehicle is insufficient.
5. The ground conditions are to rear.

## **1.2. Preparation**

- By driving make sure **not** to wear clothes, that are too loose, it can catch hold of nest boxes or doorways.
- **Warning:** Gasoline is extremely flammable!

-Always store the fuel in cans, which are approved to the purpose **and out of reach of children and unauthorized persons.**

-Only fill up fuel outdoors. Smoking by filling up is forbidden.

-Fill up fuel before starting the engine. Never take the cover of the fuel tank or fill up fuel, while the engine is running.

-If you waste fuel don't try to start the engine, instead move the machine from the spot, where the fuel were wasted in order to avoid ignition of the fuel.. **If you waste fuel on the exhaust or on the engine, wait until**

it is evaporated, or else a fire could arise.

-If you get gasoline, diesel or engine oil on your skin, wash your skin thoroughly with soap.

-Inhaling of gasoline, steam or oil mist are damaging to your health.

-Consuming fuel or oil is highly dangerous.

### 1.3. Operation

- Do not let the engine run in small closed rooms, where dangerous carbon monoxide can mount up.
- **WARNING:** Inhaling carbon monoxide can cause poisoning and possible death.
- Do not use the machine in places with inflammable dust or explosive gases or where the exhaust can get in touch with flammable material.
- If it is possible only use the feeding machine in daylight or a good artificial lightning.
- When you start the engine your feet must not rest on the pedal, they have to be placed on the running board.
- Do not drive on slopes that surpass 15 degrees.
- Be aware that the driving quality of the machine is changed considerable from empty to a full tank, because a filled up tank moves up the center of gravity high.
- With a full tank pay attention to the fact **that the machine can tip over**, if you drive too fast in curves, or on slopes with more than 15 degrees tilt.
- Pleasant driving you achieve by operating the driving pedal with soft movements with the food. Remember that the driving speed increases proportional with the movement of the driving pedal. This is valid both forward and backward.
- When you leave the machine, the ignition key has to be removed from the dashboard.



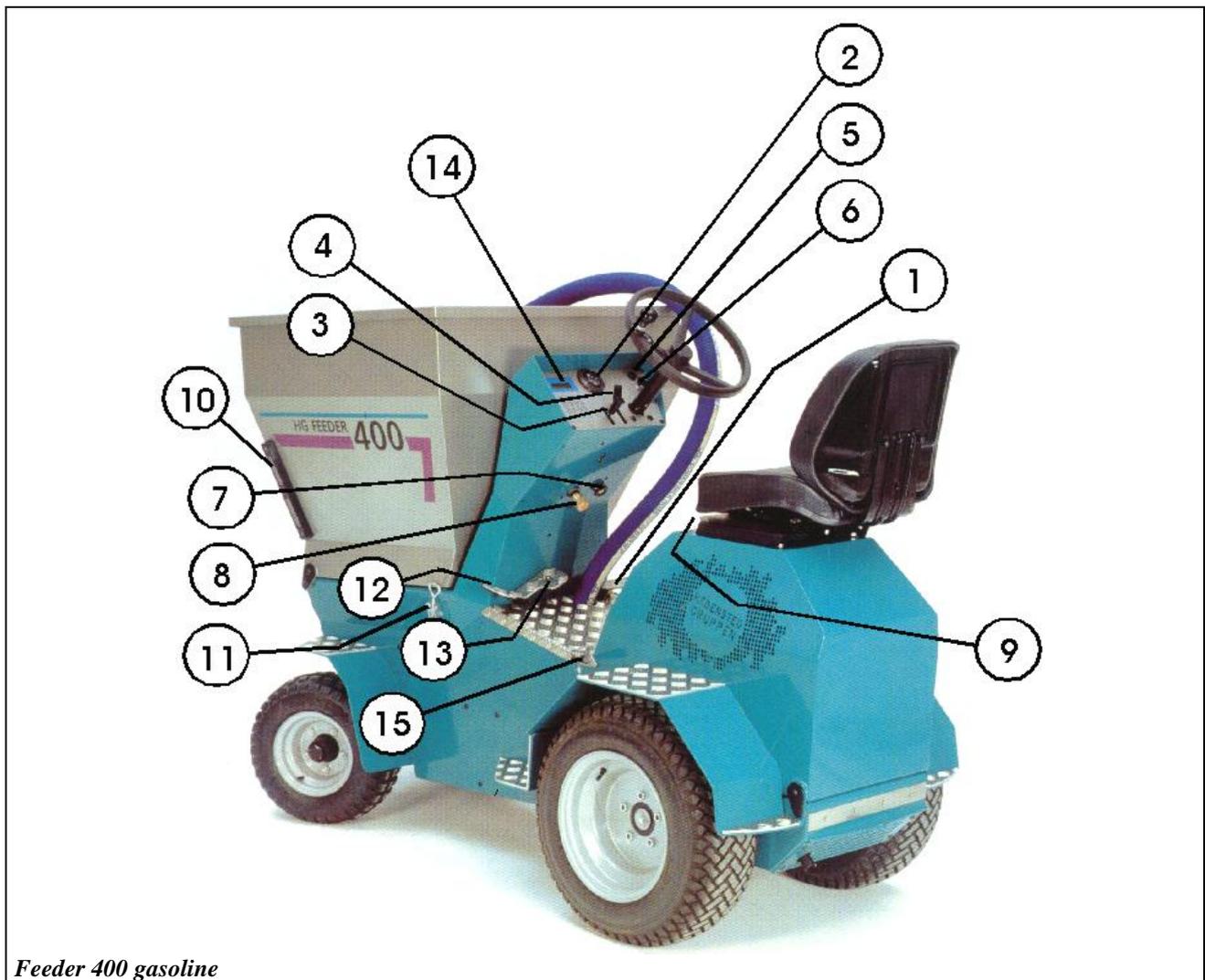
### 1.4. Maintenance

- By visual control following have to be checked after every fill up:
  - That there are no leaks in the hydraulic system at the tubes, the tank a.s.o.
  - That there are no leaks in the fuel system at the tubes, filters, the tank a.s.o.
  - That all bolts and nuts are securely tightened.
  - Check that the silencer is dense.
  - That the admission of air under the seat and the rotating flywheel are free of wool.
  - That there is no wasted engine oil around the engine oil filling in.
  - The air pressure in the tires are checked once a week
  - That the driving pedal easily goes to center position in slow speed. (that the machine is standing still, when you let go of the driving pedal).

## **2. Operation controls**

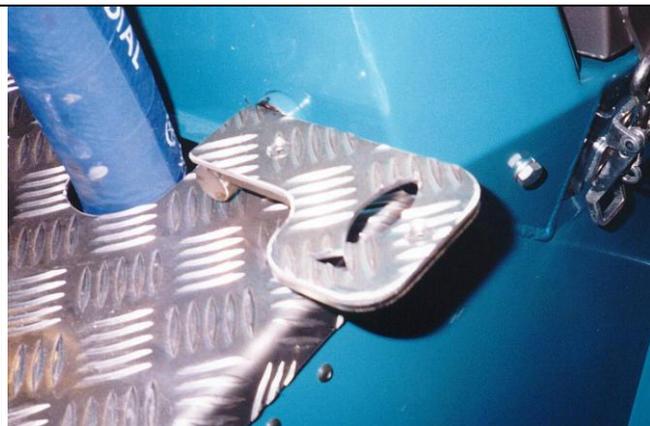
### **The position of the operation parts. Feeder 400 gasoline**

1. Feed pedal.
2. Hourmeter.
3. Speeder.
4. Choker.
5. Oil pressure lamp.
6. Ignition switch.
7. Regulation of water.
8. Regulation of speed for feed pump.
9. Handle for longitudinal settings.
10. Inspection glass for water tank.
11. Hooks for closing the feed tank.
12. Driving pedal reverse.
13. Driving pedal forward.
14. Feed computer, extra equipment.
15. Open/close handle for engine box.
16. Preheating of diesel engine (not illustrated)
17. Stop handle for diesel engine (not illustrated)
18. Reverse feed pump (not illustrated)
19. Switch for water (not illustrated)
20. Special tools on latest models (not illustrated)
21. Neutral position (not illustrated)
22. Safety fuse box (not illustrated)
23. Filter manometer (not illustrated)



*Feeder 400 gasoline*

## 2.1. Feed pedal



*Foderpedal*

The feed pedal is placed outer right on the machine.

The pedal has to be activated every time there has to be pumped out feed.

## 2.2. Hour meter



Hour meter

The hour meter indicates how many hours the machine has operated.

If this instrument stops working, repair it immediately, or else you cannot see, when to change oil.

**Notice that this instrument counts as long as the machine is turned on, so remember to switch off the ignition and remove the key, when you leave the machine.**

### 2.3. Gas handle

### 2.4. Choke (Feeder 400 og 500 gasoline)



Gas and choke handle on Feeder 400

The gas handle is placed outer left on the dashboard. When the handle is entirely down, there is full speed on the machine.

The choke handle is placed immediate at the right to the gas handle.

At start the choke has to be pulled down to between center position and bottom.

Remember that the choke has to be reset shortly after start, or the machine will use too much gasoline and soot in the engine.

### 2.5. Oil pressure lamp

### 2.6. Ignition switch



Oil pressure lamp and ignition switch

The oil pressure lamp is placed right over the ignition at the right on the dashboard.

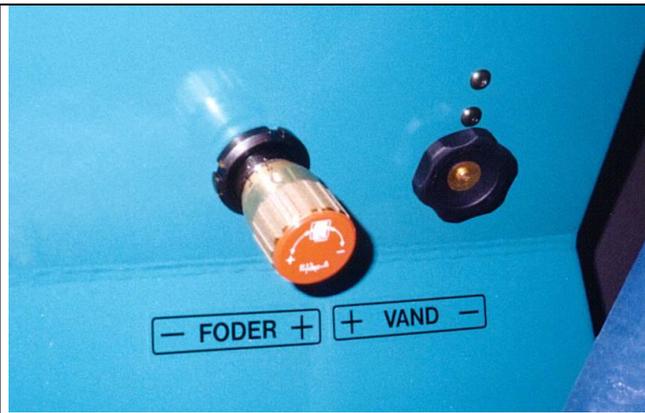
The oil pressure lamp lights, when you turn the ignition key, and maybe a second after the engine starts. If the lamp ever starts to light or blink during operating, then immediately turn off the engine and check the oil level.

The key activates the ignition switch.

The machine starts when the key is turned clockwise.

### 2.7. Regulation of water

## 2.8. Regulation of speed for the feeding pump



Regulations for feed and water

With the water regulation you can decide the amount of water, that will be mixed with the feed, when you activate the feeding pump.

Feeding pump regulator regulates orbital speed for the feeding pump, so there can get more or less feed inside a certain period.

Indication for adjustment is under the regulators.

## 2.9. Handle for longitudinal setting of seat



Adjustment of seat

The handle is placed outer left at the seat, and has to be pushed to the right before you can adjust the seat forwards or backwards.

## 2.10. Inspection glass for water tank



Inspection glass on Feeder 400



Water level indicator on Feeder 500

## 2.11. Hooks for closing feed tank



*Hooks for feed tank*

There are hooks at each side of the feed tank.

You can adjust how tight they have to lock by turning it in the thread. It is recommended that they shall not be too loose.

## 2.12. Driving pedal reverse

## 2.13. Driving pedal forward



*Driving pedal*

The driving pedal is placed outer left on the machine.

The driving direction is marked with arrows on the pedals.

Notice that the pedal has to be activated gently, since the speed of the machine is proportional with the effect on the pedal. Furthermore the driving will be more comfortable, when the pedal is used with gentle movements.

## 2.14. Feeding computer, (extra equipment)

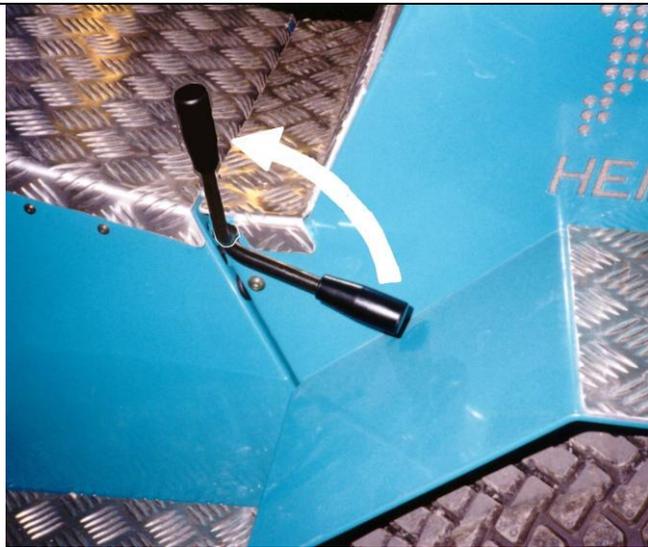


*Feeding computer*

The feeding computer is extra equipment.

Notice that it is possible to rebuild an existing machine with a feeding computer.

## 2.15. Open/Close handle for engine box



Handle for engine box

When the handle is down the engine box is solid locked. By turning the handle up the box is released, so that it can be opened.

The best way of open up the engine box is to get hold of both handle and seat back at the same time.

**Notice: The engine box is heavy.**

## 2.16. Preheating of a diesel engine (Feeder 500 diesel)



Preheating contact (Feeder 500 diesel)

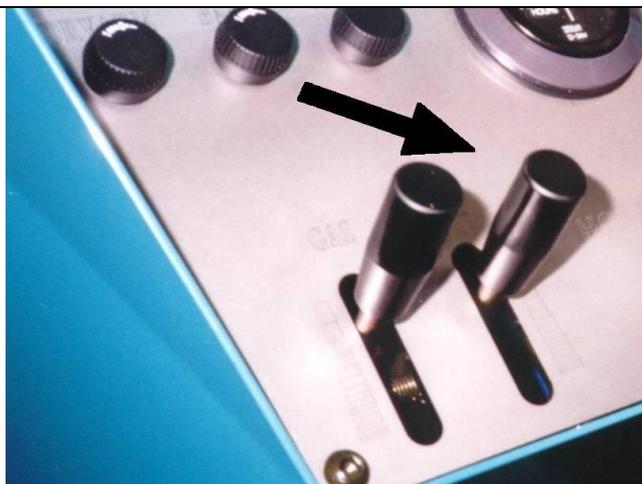
When it is frosty weather, it can be necessary to preheat the diesel engine before start.

The preheating takes place by turning the contact clockwise and keeps it there for 5-8 sec., then you can start the engine.

### **IMPORTANT!**

**The preheating must only take place max. 10 sec., an exceeding of this, can cause destruction of the components for the preheating.**

## 2.17. Stop handle for diesel engine (Feeder 500 diesel)

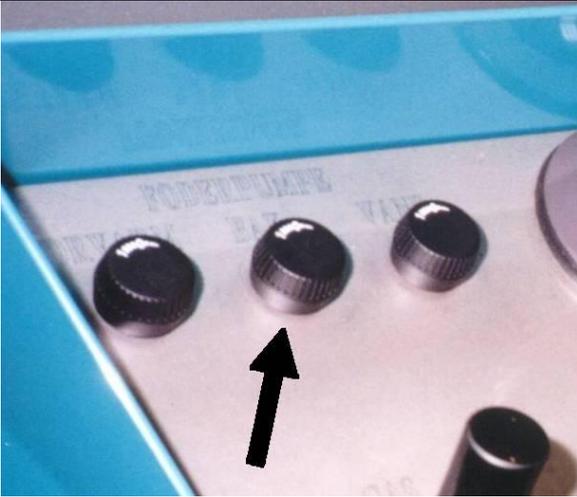


Stop handle (Feeder 500 diesel)

In order to stop the engine this handle has to be pulled completely to the bottom.

Remember to switch off the ignition, remove the key and push the stop handle back before leaving the machine.

## 2.18. Reverse feeding pump



Contact for reverse of the feeding pump

Contact for reverse of the feeding pump, shown on a Feeder 500 with preheating.

When you activate the contact, it is possible to change the orbit direction of the feeding pump.

## 2.19. Contact for water



Contact for water

Contact for water, shown on a Feeder 500 diesel with preheating.

The contact makes it possible to switch off pumping water, when you activate the feeding pump pedal.

## 2.20. Special tools



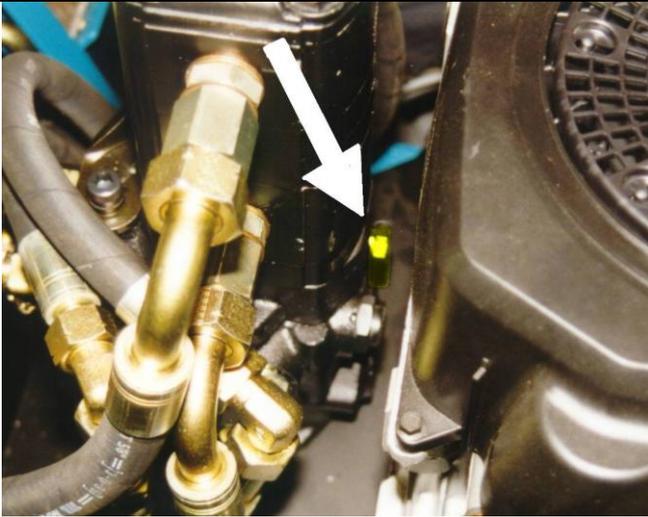
Special tool

The special tool is placed inside the left side of the machine right over the hydraulic tank.

The special tool is fixed with 2 clips, so it is easy to pull it out.

**Notice that the tool only is enclosed on models manufactured from 1997 and forward.**

## 2.21. Neutral position



Neutral position, New Feeder 400 and Feeder 500

You can push the machine when the engine is switched off, but it is very difficult, because you have to push the hydraulic too. Therefore there is a neutral position valve on the feeding pump, which declutch the hydraulic.

You have to use the special tool from point 2.20 for adjusting the neutral position valve.

**The bolt head that is placed on the pump against the engine is on most of the machines marked with a yellow color.**



Neutral position valve, "older" Feeder 400

On the older Feeder 400 there is a separate valve for neutral position. There is on the valve an indication for the rotation direction.

Anti-clockwise = Neutral position

Clockwise (in bottom) = Operation

**It is important that the neutral position valve is closed completely after use or the inappropriate leak in the hydraulic circuit will decrease the achievement of the machine.**

## 2.22. Safety fuse box



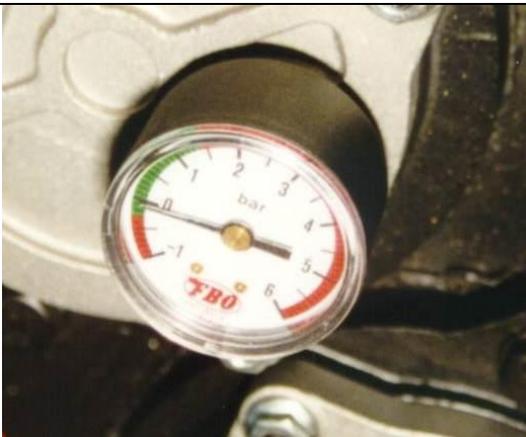
The safety fuse box is placed in the right side of the machine immediate under the food plate.

**IMPORTANT!**

**If you change a fuse, be sure that the new fuse has the same character.**

*Special tool*

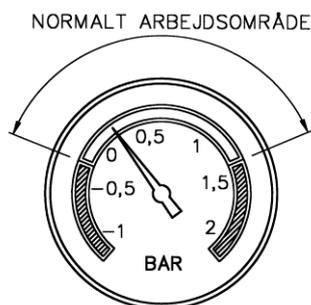
### 2.23. Filter manometer



The filter manometer is placed on the right lid of the hydraulic filter on the hydraulic tank.

**IMPORTANT!**

**At 1,4 bars over pressure both hydraulic filters have to be changed.**



*Filter manometer*

## 3. Precautions before starting

### 3.1. Oil level engine

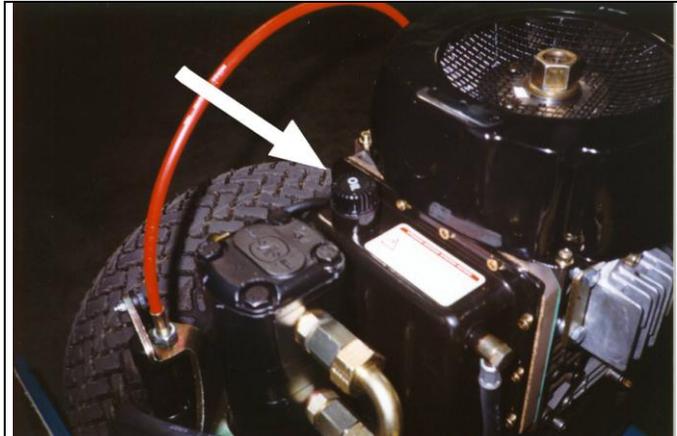
The oil level in the engine ought to be checked before start, every time you use the machine. The machine has to be placed horizontal, when you check the oil. Unscrew the measuring stick, put it back, and screw it firm on. Unscrew it again and read the oil level. If the oil level is under level or close to minimum, then refill to max.

Notice that there is a special procedure for control of oil level on Ruggnerini diesel engine, section 5.3.



*Kohler gasoline engine*

**Refilling**  
*Q8 advanced 5W-40*

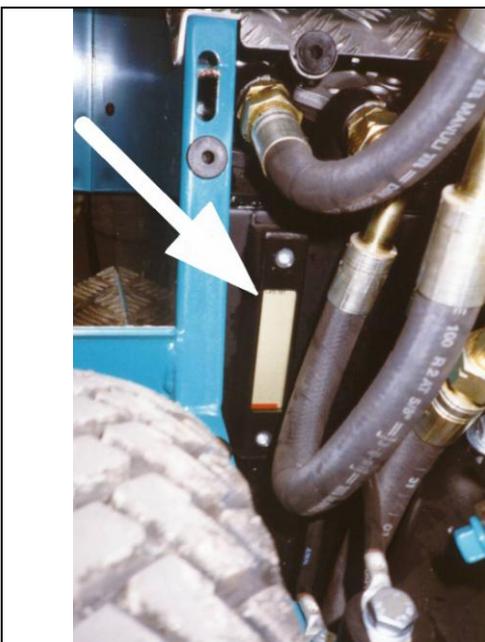


*Ruggnerini diesel*

**Refilling**  
*Q8 T500 15W-40*

### 3.2. Oil level hydraulic

You can read the level of the hydraulic oil by opening the engine box and look at the vertical left part of the hydraulic tank.



*Hydraulic tank*

The shown oil level glass has to be nearly filled up. If there is too much hydraulic oil (over the high of the glass), it will run out above at the filler neck in the tank, when the temperature increases. Notice that the machine has to stand horizontal when you read the oil level.

### 3.3. Fuel, refill

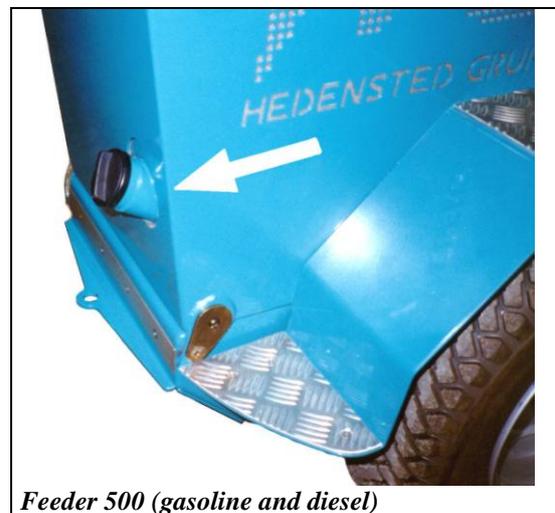
Feeder 500 diesel Ruggerini engine uses normal diesel oil.

Normally this diesel oil is frost-proofed to about – 21 degrees C, but during strong frost paraffin is made in the diesel oil. To avoid this you can add petroleum after following table:

At temperatures under	-10°C	ad	10% petroleum
At temperatures under	-20°C	ad	25% petroleum
At temperatures under	-30°C	ad	40% petroleum
At temperatures under	-40°C	ad	55% petroleum

To be sure of how frost-proofed your diesel oil is, ask your diesel supplier about the specifications of your diesel oil.

Feeder 400 and 500 Kohler gasoline engines use unleaded 95-octane gasoline (recommended).  
Leaded 95-octane can be used, but this causes deposits in the engine, which has to be cleaned more often.  
**Never use oil mixed gasoline.**



## WARNING

**Gasoline is very flammable, display great caution, and always refill in the open.**

**Never smoke during refill.**

**Never refill with a hot engine! Wait 10 minutes.**

**The tank must not be crammed, because gasoline can expand and run over.**

**Make sure that the tank lid is screwed firmly after refilling.**

**Keep the gasoline on a cool place in a container, which is made for the purpose.**

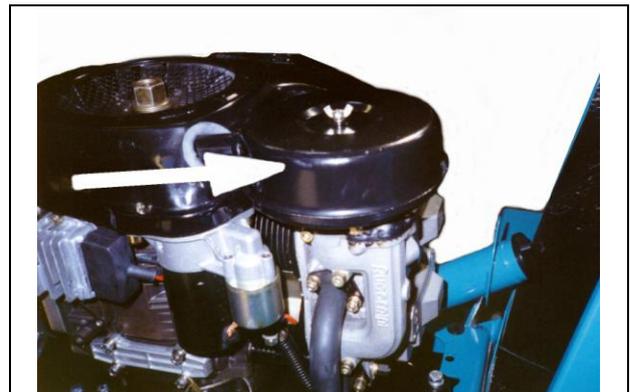
**The gasoline tank and tubes has to be checked often for leaks.**

## 3.4. Air filter

Make sure that the air filter is clean. A dirty and clogged air filter lowers the effect of the engine and increases the fuel consumption and the wear on the engine.



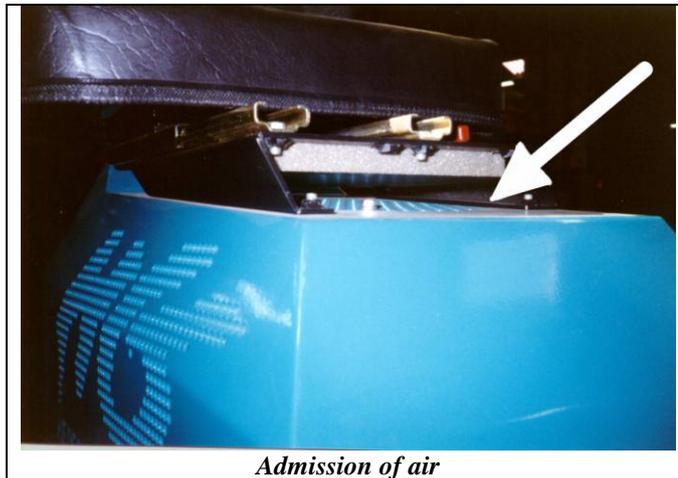
*Feeder 400 og 500 (gasoline)*



*Feeder 500 (diesel)*

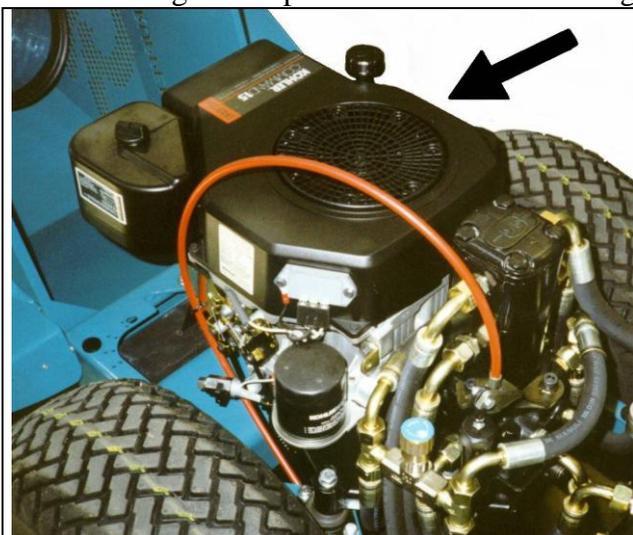
### 3.5. Admission of air / cooling air

The machine has an admission of air under the seat, which has to be kept clean.

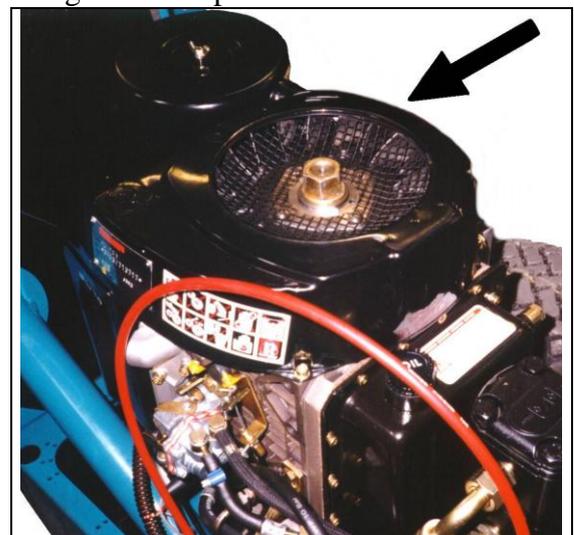


*Admission of air*

Check that the cooling bars do not clog. If needed clean it. A completely or partly clogged bar results in increased engine temperature and with that a bigger risk of engine interruption.



*Feeder 400 og 500 (gasoline)*



*Feeder 500 (diesel)*

### 3.6. Tyre pressure

- Check that the tyre pressure is correct, an incorrect tyre pressure can make the machine unstable and the maneuver quality will be unpredictable.
- Since some of the machines are delivered with different types of tires, we ask you to find your type of tyre on the illustration below here, the tyre pressure will be indicated beside the picture.

 <p><i>Trucktyre nr.: 474760</i></p>	<p>max. 340 kPa  (max. 3,467 kp/cm<sup>2</sup>)  max. 3,4 bar</p>
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 <p><i>Trølleborg lawn tyre (std.) no.:474756</i></p>	<p>max. 460 kPa  (max. 4,690 kp/cm<sup>2</sup>)  max. 4,6 bar</p>
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 <p><i>Front tyre no.: 474738</i></p>	<p>325 kPa  (max. 3,314 kp/cm<sup>2</sup>)  max. 3,25 bar</p>
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### 3.7. Accumulator.

- Check that the acid level is about 10 mm over the plates. If the acid level is too low then refill with distilled water.

Too high acid level can cause the acid runs over and causes etching damages on the machine.

**WARNING**



**SMOKING FORBIDDEN!**

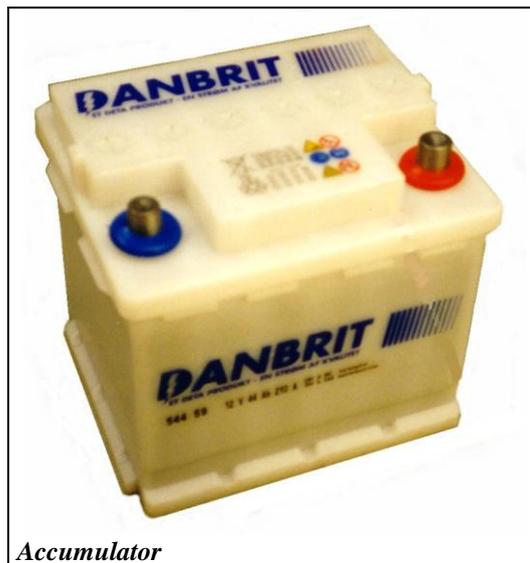
The accumulator sends out explosive gas. Sparks, flames or cigarette glows must under no circumstances get near the accumulator. By ignition an explosion, a fire and a spread of dangerous acid over a large area.

Notice that the concentration of explosive gas is extra large by charge.

At starting help with another accumulator, connect the negative pole at last. Connect the negative pole from the jump lead to the frame on the engine, never on the accumulator! When you remove the jump lead again, remove the negative pole from the engine first.

Never charge on a frozen accumulator!

- Notice: if you use ordinary water for refilling of acid level, then you shorten the lifetime of the accumulator.



*Accumulator*



**WARNING**

**IN CASE OF CONTACT WITH ACID!**

-If the acid gets on your skin (external) you have to rinse thoroughly with water.

-If the acid is consumed (internal) you have to drink a huge amount of water or milk, then more milk with mixed egg or vegetable oil and call for a doctor immediately.

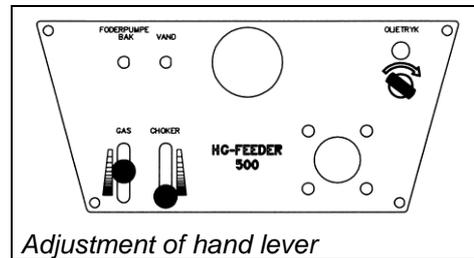
-If the acid gets into your eyes, then rinse thoroughly with water, min. 15 minutes, and visit a doctor as soon as possible.

## 4. Driving / Feeding

## 4.1. Start of engine (Feeder 400 and 500 gasoline)

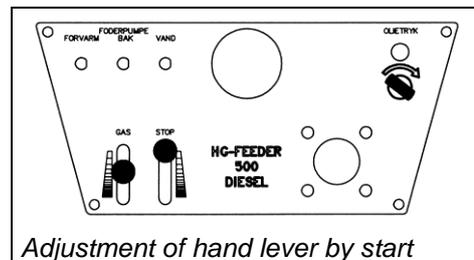
Place the throttle hand lever in center position and give the choke handle full effect.

Turn the ignition key for about 3 seconds, if the engine does not start, then wait min. 10 seconds and try again.

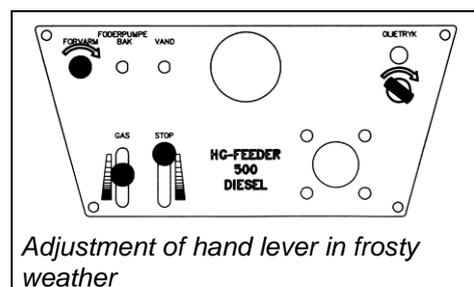


## 4.2. Start of engine (Feeder 500 diesel)

**Normally** - Place “the stop”-hand lever in top position and the “throttle”-hand lever in center position, then turn the ignition key in about 3 seconds, if the engine does not start then wait min. 10 seconds and try again.



**Frosty weather** - Activate “preheating” in 5-8 seconds, place the “stop”-hand lever in top position and “throttle”-hand lever in center position, then turn the ignition key in about 3 seconds, if the engine does not start, then wait min. 10 seconds and try again (without preheating!).



**WARNING**

**Preheating must maximum last 10 seconds, if exceeded this can cause damage on the preheating components.  
Do not repeat the preheating, if the engine does not start the first time!**

## 4.3. Driving

Turn off the choke (gasoline model) and speed up to the wanted amount of turns are found, place both hands on the wheel, place the feet in a wide as possible foot position, then step slowly on the driving pedal (the one with arrows). The gentler you treat the driving pedal the more comfortable the driving gets. If you press the pedal hard in bottom, it corresponds with putting a strong car directly into 4.gear with full speed.



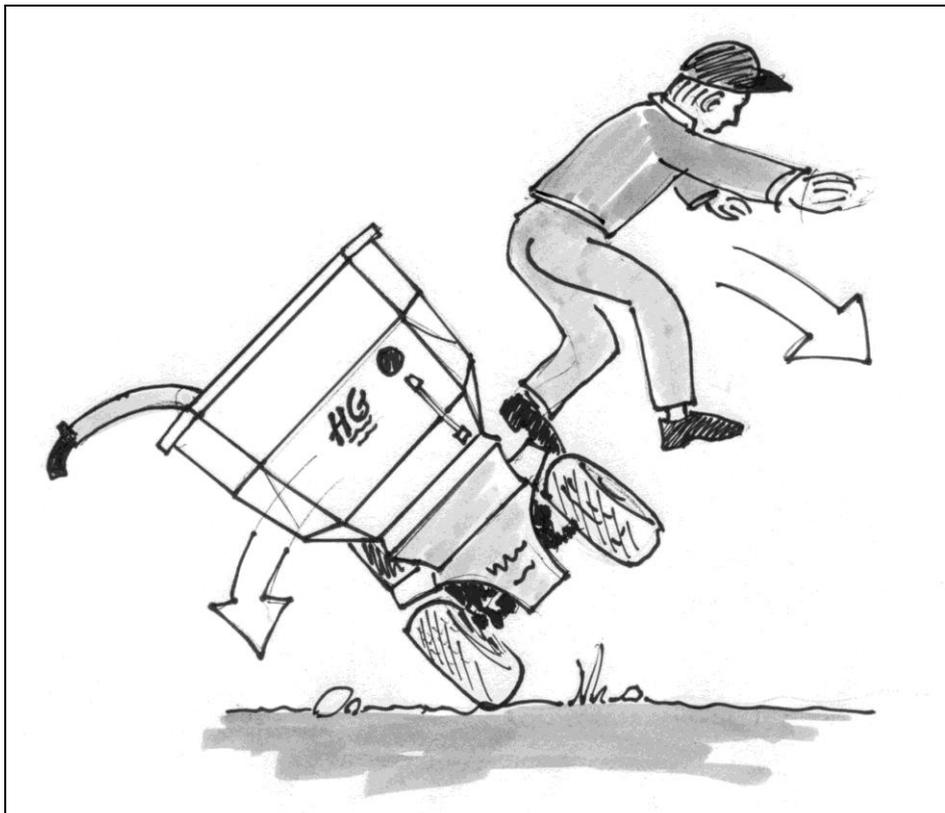
**WARNING**

**Watch your feet and legs, do not let them stick to far outside the machine, then you can bump into cages and get caught between cages or doors etc.**

**Pedals must never be affected standing or with the hands. Only when you are seated on the machine.**

We warn against driving too fast in a curve, especially with a full loaded tank. The machine can easily fall over, because the center of gravity for the machine is very high with a full loaded tank.

We also warn you against driving in ground with a slope close to 15 grades, because the machine easily can turn over.



**IMPORTANT!**

**If the machine should turn over by driving in bad ground or fast curves with full loaded tank, then jump off the machine in the opposite side of the side the machine is turning over to. It minimizes the risk of being squeezed under the machine.**

#### **4.4. Feeding**

Before feeding the feeding pump speed and water amount have to be adjusted. Normally this has to be done once, or when the water consistency varies.

See the illustrations in section 2.7. and 2.8.

The feeding pedal is placed out at the right on the machine (see ill. section 2.1.). The feeding pedal has to be activated by every plot of feed, there has to be feeded out.

When you feed you have to be concentrated and have a comprehensive view. When you drive through the shed to feed, do not get too close to the cages, if you loose concentration you can easily diverge from your original course during the feeding, and ruin cages and boxes.

You can mount a feeding computer to ease the feeding. Here you can adjust the amount of feeding and be sure that it is right. Furthermore you spare your food joint, because you only have to keep the feeding pedal down when you are feeding, instead of tipping the pedal for every plot.

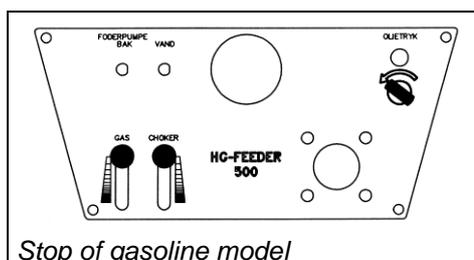


Notice that the feeding computer is extra equipment.

## 4.5. Stop of engine, Feeder 400 and 500 gasoline

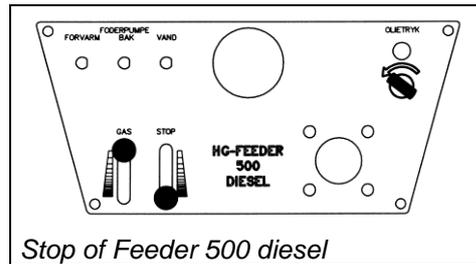
Speed down to idling and let the machine run for a couple of minutes, so that the strained engine can reach normal operation temperature before switching off, it will increase the lifetime of the engine.

Turn the ignition key against the watch and remove the key by parking or servicing.



### 4.5.1 Stop of engine, Feeder 500 diesel

Speed down to idling and let the machine run for a couple of minutes, so that the strained engine can reach normal operation temperature before switching off, it will increase the lifetime of your engine. Pull the “stop”-hand lever in bottom position, turn the ignition key against the watch and remove the key by parking or servicing.



## 4.6. Parking

By parking you have to notice that even a easy sloped ground can make the machine run, in danger of the machine running by itself out on a road or causes other damages.

Park on a horizontal ground and remove the key.



*Do not park on a sloped ground, the machine runs!*

# 5. Maintenance

## 5.1. Maintenance schedule: Feeder 400 an Feeder 500 gasoline

OPERATION ↓		OPERATIONHOURS → for every x.driven hour	5	100	200	500	2500	5000
<b>Check</b>	Hydraulic oil level and leaks		■					
	Gasoline tank and tubes, leaks							
	Engine oil level							
	Water pump			■				
	Oil lamp			■				
	Acid level on accumulator							
	Belt tightening							
	Engine rack							
	Ignition plug, spark gab							
	Exhaust		■					
	Filter (sponge) in air filter box							
	Air filter							
	Admission of air and radiator grille							
	<b>Adjustment</b>	Neutral position			■			
Speed cable				■				
Choke cable				■				
<b>Greasing</b>	Cables			■				
	Steering wheel			■				
<b>Tighten up</b>	Various bolts			■				
	Nave			■				
	Engine plate			■				
<b>Cleaning</b>	Air filter			■				
	Filter (sponge)			■				
	Radiator grilles and admission of air			■				
	Gasoline tank					■		
<b>Renewing</b>	Ignition plugs			■				
	Engine oil (*)			■	■			
	Hydraulic oil (*)			■		■		
	Air filter				■			
	Hydraulic oil filter			■		■		
	Fuel filter				■			
	Engine oil filter			■				
	Belts					■		
<b>Renovation of the engine</b>	Partly						■	
	Totally							■

■ = First oil change

(\*) Hydraulic- and engine oil has to be changed as quoted in the schedule, however it must be changed at least once a year.

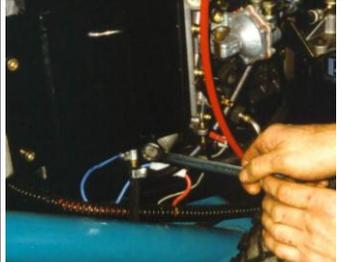
## 5.2. Maintenance schedule: Feeder 500 diesel

OPERATION ↓		OPERATION HOURS → for every x.driven hour time	5	100	200	500	2500	5000
<b>Check</b>	Engine rack			■				
	Air filter		■					
	Oil lamp							
	Engine oil level							
	Hydraulic oil level and leaks							
	Diesel tank and tubes, leaks		■					
	Exhaust			■				
	Water pump							
	Acid level on accumulator							
	Belt tightening							
	Admission of air and radiator grille		■					
<b>Adjustment</b>	Neutral position			■				
	Speed cable			■				
	Valve and tip arms adjustments				■			
	Calibration of injector					■		
	Stop cable			■				
<b>Greasing</b>	Cables							
	Steering wheel							
<b>Tighten up</b>	Various bolts							
	Nave							
	Engine plate							
<b>Cleaning</b>	Air filter			■				
	Inner oil filter				■			
	Radiator grilles, admission of air			■				
	Fuel tank					■		
	Injectors						■	
<b>Renewing</b>	Belts						■	
	Engine oil (*)			■	■			
	Hydraulic oil (*)			■		■		
	Air filter				■			
	Hydraulic oil filter			■		■		
	Fuel filter				■			
	Engine oil filter			■	■			
<b>Renovation of the engine</b>	Partly						■	
	Totally							■

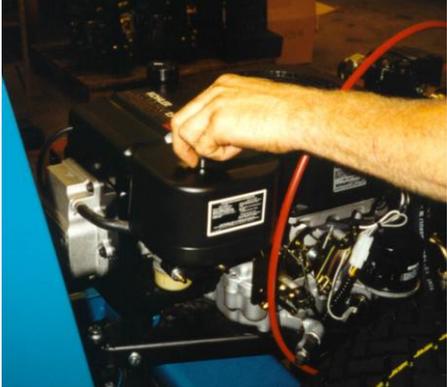
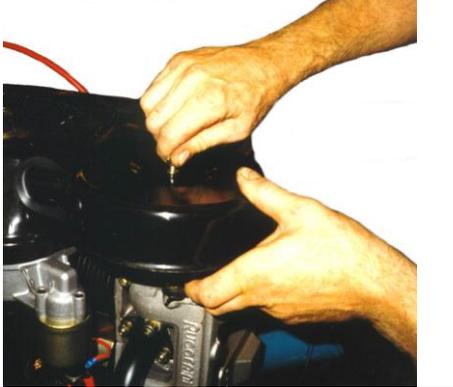
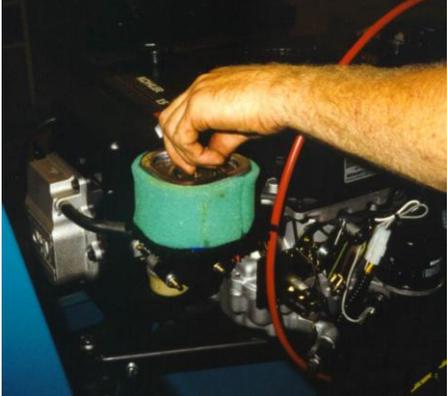
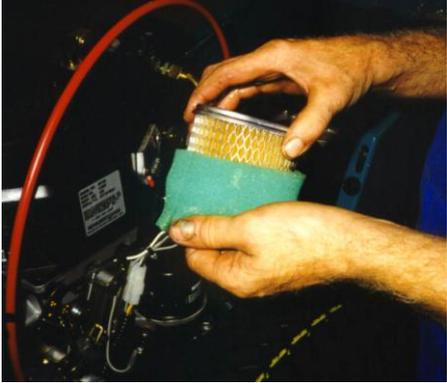
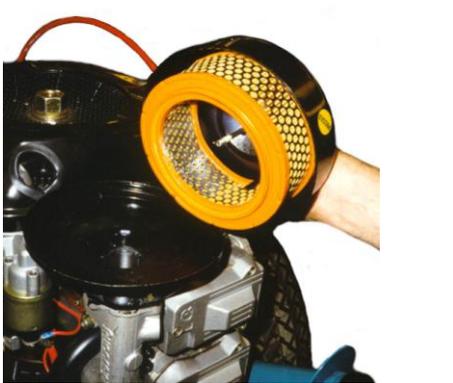
■ = First oil change

(\*) Hydraulic- and engine oil has to be changed as quoted in the schedule, however it must be changed at least once a year.

### 5.3. Engine oil- and oil filter change, Feeder 400, 500 gasoline / diesel.

	Feeder 400 og 500 Gasoline	Feeder 500 diesel
<p>1. The engine ought to be warm before you start an oil change.</p> <p>Dismantle the plug on the oil draw off. On gasoline models the draw off takes place in the right side of the machine and on the diesel models on the left side.</p> <p><b>WARNING!</b> Be sure that the ball valve is closed.</p>		
<p>2. <b>Mount that with the machine attached oil draw off kit. Put a suitable container under the tube and open up the ball valve.</b></p> <p><b>WARNING!</b> The engine must not run during or after the oil draw off, make sure that the engine is switched off and the ignition key is removed.</p>		
<p>3. Put a suitable container under the oil filter, and unscrew this. Notice that there also comes a good deal of oil here.</p> <p><b>WARNING!</b> The oil is very hot!</p>		
<p>4. Grease the new oil filter around the brim, so that it tightens immediately. Fasten the new filter with the hand, no uses of tongs are allowed.</p>		
<p>5. Dismantle the oil draw off kit, close the ball valve and screw in the plug and fill up with that in chapter 8 prescribed type and amount of engine oil, to the engine in question.</p> <p><b>IMPORTANT!</b> After the first check of oil level the diesel model has to run in idling in at least 2 minutes, then switch off the engine, immediately after the oil level has to be checked again.</p>		
<p>7. Check the oil dipstick. The oil level has to be immediate under the max.mark.</p> <p><b>Warning!</b> The oil level must never surpass the max. mark.</p>		

## 5.4. Cleaning / change of air filter

	<i>Feeder 400 &amp; 500 gasoline</i>	<i>Feeder 500 diesel</i>
1. Dismantle the air filter cover		
2. The filter is fixed with another thumbscrew, which has to be unscrewed before dismantling the filter.		
<p>3. Remove the air filter; take away possible hair wisps with your hands. Then tap the filter easily in order to remove possible loose particles.</p> <p>On Feeder 400 and 500 gasoline you have to clean the front filter with water and soap. When the front filter is dry, you mount the filters and screw on the cover again.</p> <p>If the filter is very dirty / or it is time for changing filters, then mount new filters.</p>		

## 5.6. Hydraulic oil and hydraulic filter change.

1. Put a suitable container under the hydraulic tank, and remove the bottom plug. **Notice** that there is a great amount of oil.

**WARNING!**

**The hydraulic oil can be very hot.**

Mount the bottom plug, when there is no more oil.



2. Dismantle the tank cover.

If the hydraulic tank is dirty at the filter cover, it has to be cleaned before you continue to the next point.



3. Unscrew the hydraulic filters and remove them. Then mount the new hydraulic filters in the tank.



4. Put on the recommended hydraulic oil (chapter 8), until the upper edge of the indicator glass is reached.

Mount the tank cover.



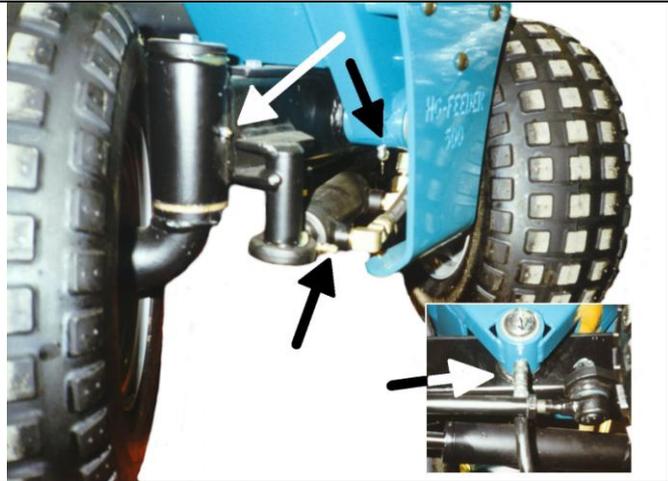
## 5.7. Greasing

For every 100-operation hour you have to grease the steering gear.

There are grease cups on:

- Front and back part of the steering bracket.
- Front and back cylinder eye.
- In every center of rotation for the wheel axle in the front axle.

You can use ordinary high-pressure grease.



## 5.8. Adjustment of the neutral position.

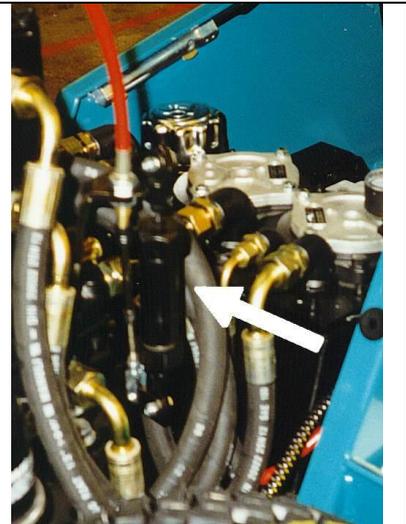
The function of the neutral position is to keep the driving pump in "neutral gear" after running.

### **WARNING!**

If you are not skilled in carrying out this operation, dangerous situations can turn up. The machine can run off and run into things or persons.

It is very important that the machine is placed, where it cannot bump into anything/someone, neither by reverse nor forward. The machine has to be idling at this adjustment.

1. The neutral position is placed in front at right at the engine.



2. Hold to the body on the neutral position with an adjustable spanner, while you loose the lock nut closest to the body.

**WARNING!**

**Be careful not to turn inappropriate much on the body of the neutral position, it can make the machine jump forward or back. Pay attention to your feet, that the machine does not run over them.**

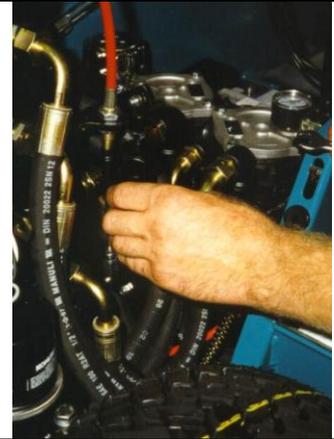


3. Adjust the neutral position by turning the body until the machine stands still.

**WARNING!**

**Adjust carefully because the machine will run faster for every millimeter adjusted wrong.**

When correct adjustment is achieved, hold on to the body on the neutral position, while the lock nut is tightened to.

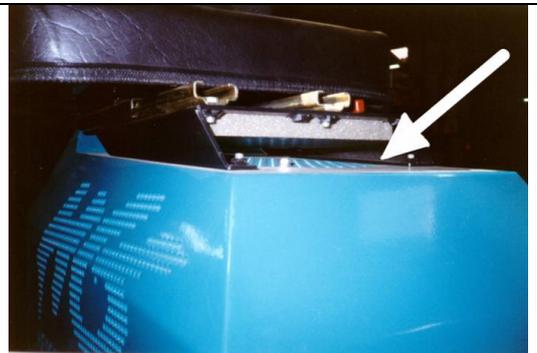


## 5.9. Cleaning maintenance

1. Check the air admission under the seat console, it has to be completely free of wool, dirt and so on.

**IMPORTANT!**

**Do not use water or compressed air to clean this. The water will damage the engine, and the compressed air will blow the dirt further into the engine.**



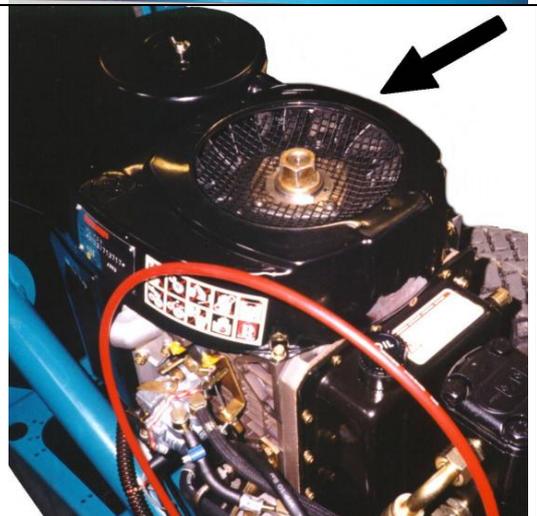
2. Lift up the engine box; check that the radiator grille on the engine is not clogged up with wool, dirt and so on.

**IMPORTANT!**

**Do not use water or compressed air to clean this. The water will damage the engine, and the compressed air will blow the dirt further into the engine.**

**WARNING!**

**The engine has to be switched off and the key removed before you start cleaning.**



(On the picture you see a Ruggerini diesel engine from a Feeder 500)

**IMPORTANT!**

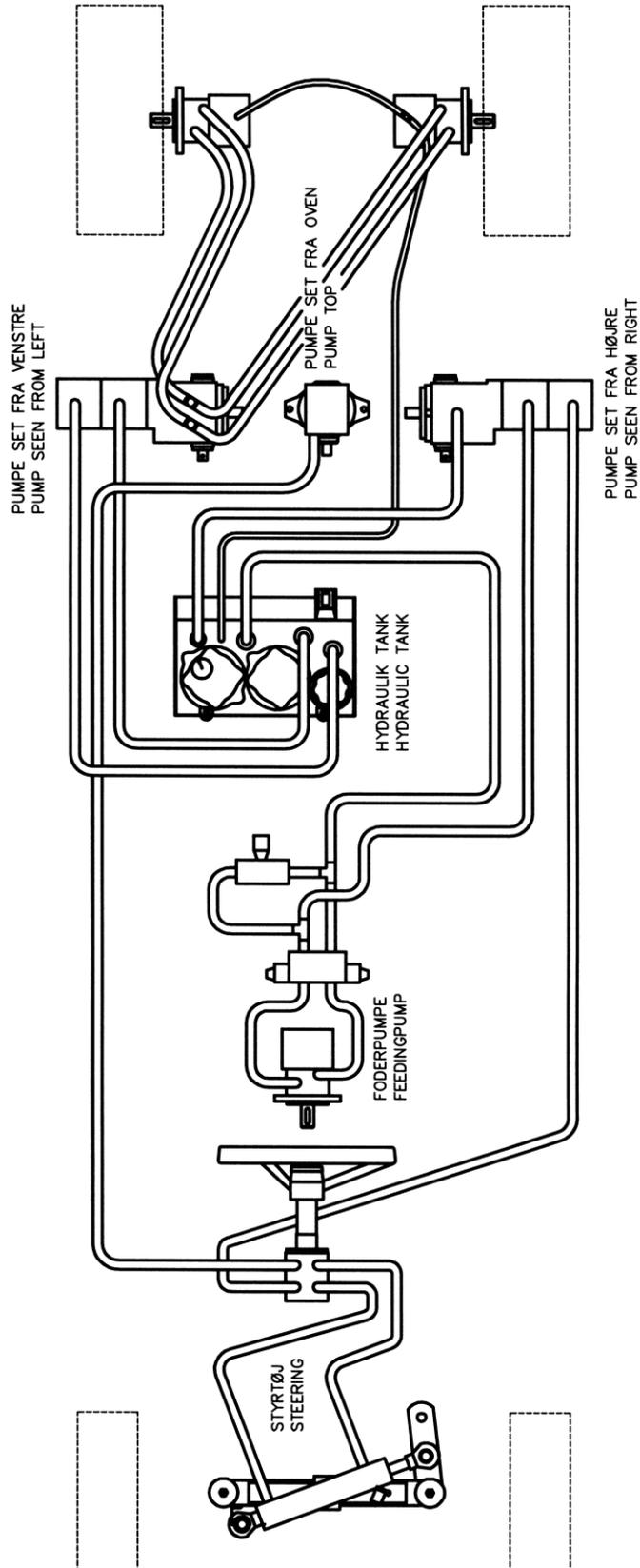
**Never flush with water directly against the engine.**

# 6. Trouble shooting schedule

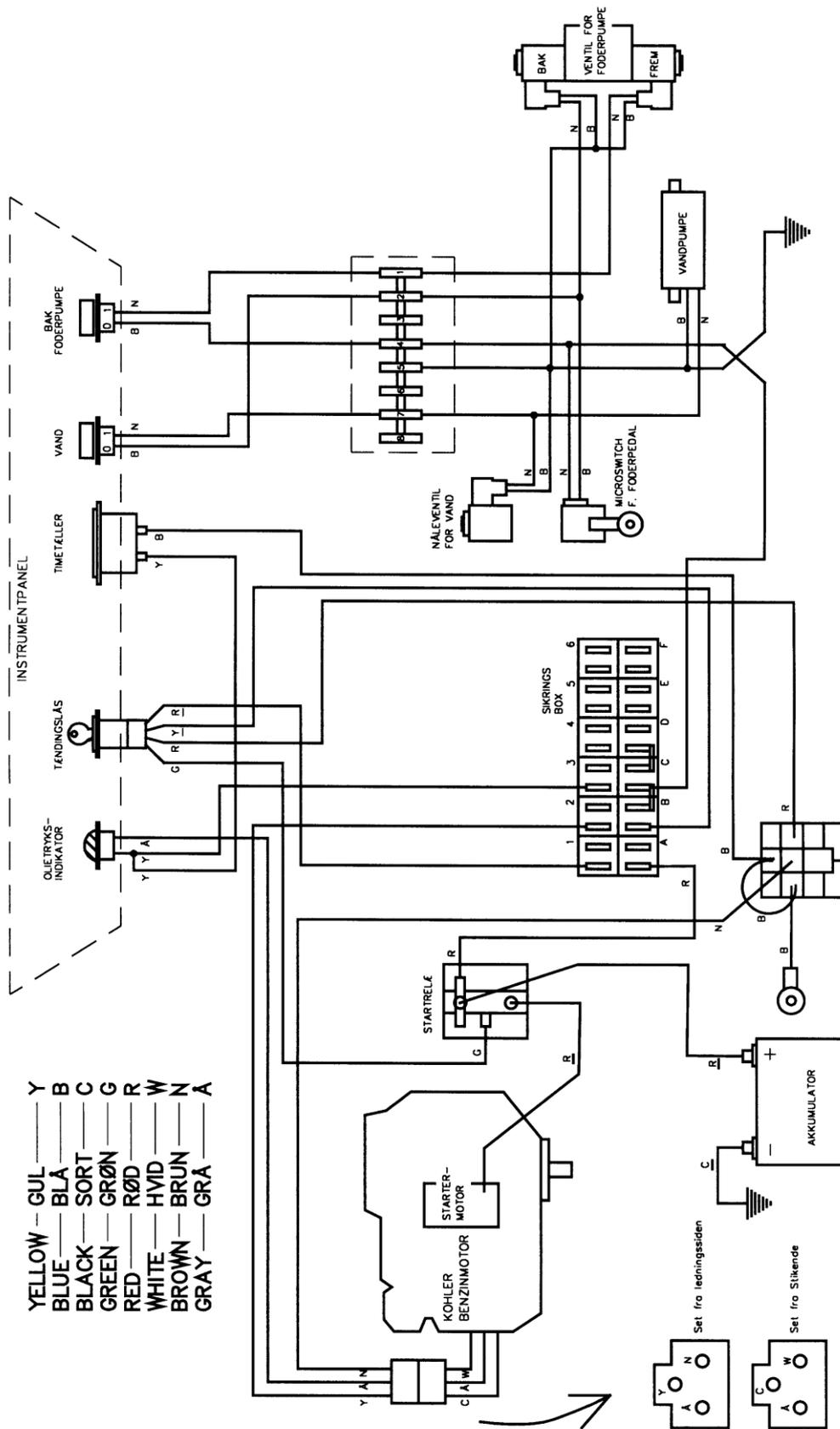
<u>Troubles</u>	<u>Possible reason</u>
<b>The engine cannot start</b>	<ul style="list-style-type: none"> <li>• Wrong fuel.</li> <li>• Air in the fuel pump.</li> <li>• Empty fuel tank.</li> <li>• Too big piston clearance.</li> <li>• Coking or defect ignition plug (gasoline). Check if the choke is turned completely off during the operation, the cable can droop. If there often is problems with coking contact the service department in Hedensted Gruppen for information about anti-coking gasoline additive.</li> </ul>
<b>The engine starts, but stops again</b>	<ul style="list-style-type: none"> <li>• Clogged air filter.</li> <li>• Air in the fuel pump.</li> <li>• Clogged fuel filter.</li> <li>• Error or clogging in the fuel supply.</li> <li>• Blocked valve in the fuel tank.</li> <li>• Burnt out exhaust valve.</li> </ul>
<b>The engine has no power</b>	<ul style="list-style-type: none"> <li>• Clogged air filter.</li> <li>• Clogged fuel filter.</li> <li>• Worn cylinder.</li> <li>• Worn piston rings.</li> <li>• Error or clogging in the fuel supply.</li> <li>• Burnt out exhaust valve.</li> </ul>
<b>The engine has a low oil pressure</b>	<ul style="list-style-type: none"> <li>• Clogged lubricate circulation.</li> <li>• Worn oil pump.</li> <li>• Error on the oil pressure valve.</li> <li>• Defect main bearings.</li> </ul>
<b>The engine is blocked</b>	<ul style="list-style-type: none"> <li>• The main bearings are burned or defect.</li> <li>• The pistons are burned.</li> <li>• The hydraulic pump is blocked.</li> </ul>
<b>The engine smokes blue (diesel)</b>	<ul style="list-style-type: none"> <li>• Worn valve guide.</li> <li>• Worn cylinder.</li> <li>• Too much oil in the crankcase.</li> <li>• Worn piston rings.</li> </ul>
<b>The engine smokes white (diesel)</b>	<ul style="list-style-type: none"> <li>• Too much piston clearance.</li> <li>• Wrong injection timing.</li> </ul>
<b>The engine smokes black (diesel)</b>	<ul style="list-style-type: none"> <li>• Overloading.</li> <li>• Error at the injection.</li> </ul>
<b>The engine knocks in the crankcase</b>	<ul style="list-style-type: none"> <li>• Small or big end bearings are burned or defect.</li> </ul>
<b>The engine knocks in the tilting device</b>	<ul style="list-style-type: none"> <li>• Wrong fuel.</li> <li>• Too little piston clearance.</li> <li>• Wrong injection timing (diesel).</li> <li>• Worn piston rings.</li> </ul>
<b>The engine uses oil</b>	<ul style="list-style-type: none"> <li>• Worn valve guide.</li> <li>• Worn cylinder.</li> <li>• Oil packings are leaky.</li> <li>• Too much oil in the crankcase.</li> <li>• Worn piston rings.</li> </ul>
<b>The engine oil level increases</b>	<ul style="list-style-type: none"> <li>• Too much piston clearance.</li> <li>• Defect injection system.</li> </ul>
<b>The engine loses oil</b>	<ul style="list-style-type: none"> <li>• Blocked breath tube.</li> <li>• Defect injection system.</li> </ul>
<b>The engine is superheated</b>	<ul style="list-style-type: none"> <li>• Too little piston clearance.</li> <li>• Cooling ribs are clogged.</li> <li>• The injection timing is wrong.</li> <li>• The Injector is defect.</li> <li>• The engine is overloaded.</li> </ul>
<b>The engine misfires</b>	<ul style="list-style-type: none"> <li>• Wrong fuel.</li> <li>• Cold engine.</li> <li>• Admission of air clogged.</li> <li>• Gets false air in via the injection pump.</li> <li>• Defect injection pump system.</li> </ul>
<b>Bad acceleration</b>	<ul style="list-style-type: none"> <li>• Wrong fuel.</li> <li>• Gets false air in via the injection pump.</li> </ul>

# 7. Hydraulic- and Electric-diagrams

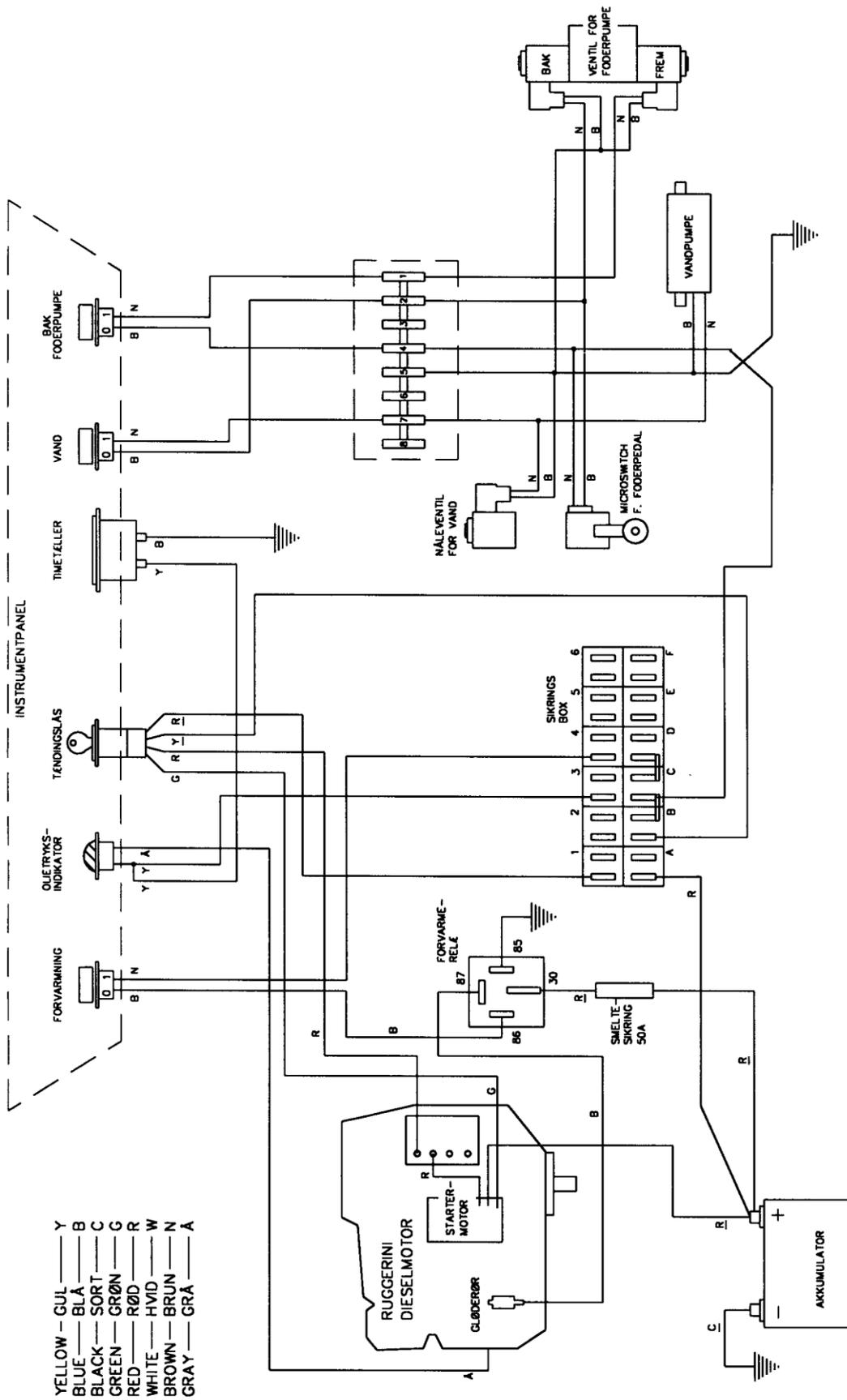
## 7.1. Hydraulic diagram



## 7.2. Electric-diagram (Feeder 400 / 500 gasoline)



## 7.2. Electric-diagram (Feeder 500 diesel)



# 8. Technical data

## 8.1. HG Feeder 400 gasoline

### Dimensions and weight

Width	890 mm.
Length	2050 mm.
Height	1415 mm.
Unloaded weight	550 kg.

### Engine

Kohler C15, vertical axed gasoline engine	15 hk. (11 kW)
Volume	426 ccm
Bore x stroke	90 x 67 mm

### Various liquids

Engine oil	Q8 avanceret 5W-40
Hydraulic oil	Q8 Handel 32
Fuel (never oil mixed gasoline!)	95 octane unleaded gasoline

### Tank and containers

Tank size	400 ltr.
Water tank	28 ltr.
Gasoline tank	9,5 ltr.
Hydraulic tank	28 ltr.

### Wheel dimensions and tyre pressure

Back wheel dimension	23x8,50-12
Tyre pressure back	See chapter 3.6.
Front wheel dimension	LP-190-8
Tyre pressure front	See chapter 3.6.

### Steering gear

Steering	Servo
Turning diameter (rewrited cirle)	3,8 mtr

## 8.2. HG Feeder 500 gasoline

### Dimensions and weight

Width	890 mm.
Length	2220 mm.
Height	1465 mm.
Unloaded weight	570 kg.

### engine

Kohler, vertical axed gasoline engine	15 hk. (11 kW)
Volume	426 ccm
Bore x stroke	90 x 67 mm

### Various liquids

Engine oil	Q8 advanced 5W-40
Hydraulic oil	Q8 Handel 32
Fuel (never oil mixed gasoline!)	95 octane unleaded gasoline

### Tanks and containers

Tank size	470 ltr.
Water tank	32 ltr.
Fuel tank	9,5 ltr.
Hydraulic tank	28 ltr.

### Wheel dimensions and tyre pressure

Back wheel	23x8,50-12
Wheel pressure back	See chapter 3.6.
Front wheel	LP-190-8
Tyre pressure front	See chapter 3.6.

### Steering gear

Steering	Servo
Turning diameter (rewrited circle)	3,8 mtr

### 8.3. HG Feeder 500 diesel

#### Dimensions and weight

Width	890 mm.
Length	2220 mm.
Height	1465 mm.
Unloaded weight	580 kg.

#### Engine

Kubota , vertical, water cooled, 4-strokes diesel engine	23,5 hk/3600 rpm (17,5 kW)
Volume	898 ccm
Bore x stroke	72 x 73,6 mm
Speed	15 km/ per hour/3600 rmp

#### Various liquids

Engine oil	Q8 T500 15W-40
Hydraulic oil	Q8 Handel 32
Fuel	Diesel

#### Tanks and containers

Tank size	470 ltr.
Water tank	32 ltr.
Fuel tank	9,5 ltr.
Hydraulic tank	28 ltr.

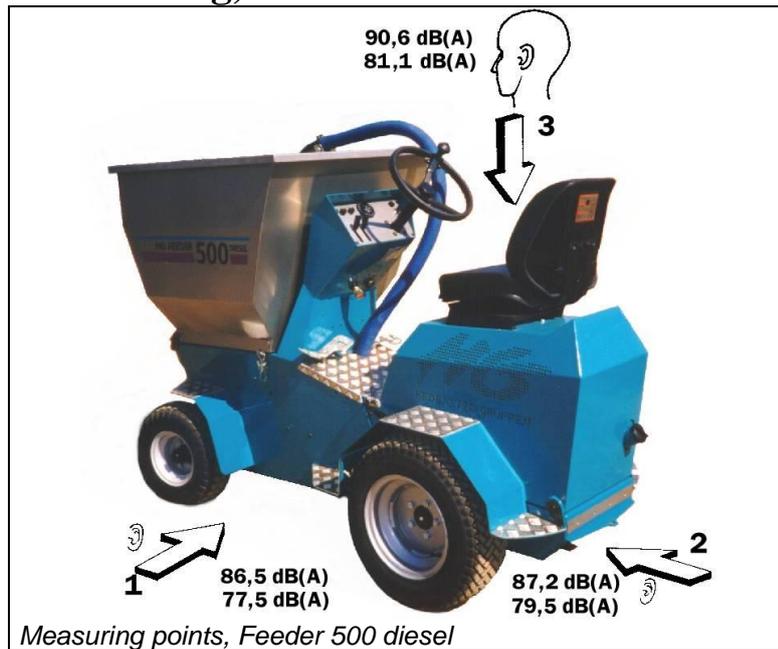
#### Wheel dimensions and tyre pressure

Back wheel	23x8,50-12
Tyre pressure back	See chapter 3.6.
Front wheel	LP-190-8
Tyre pressure front	See chapter 3.6.

#### Steering gear

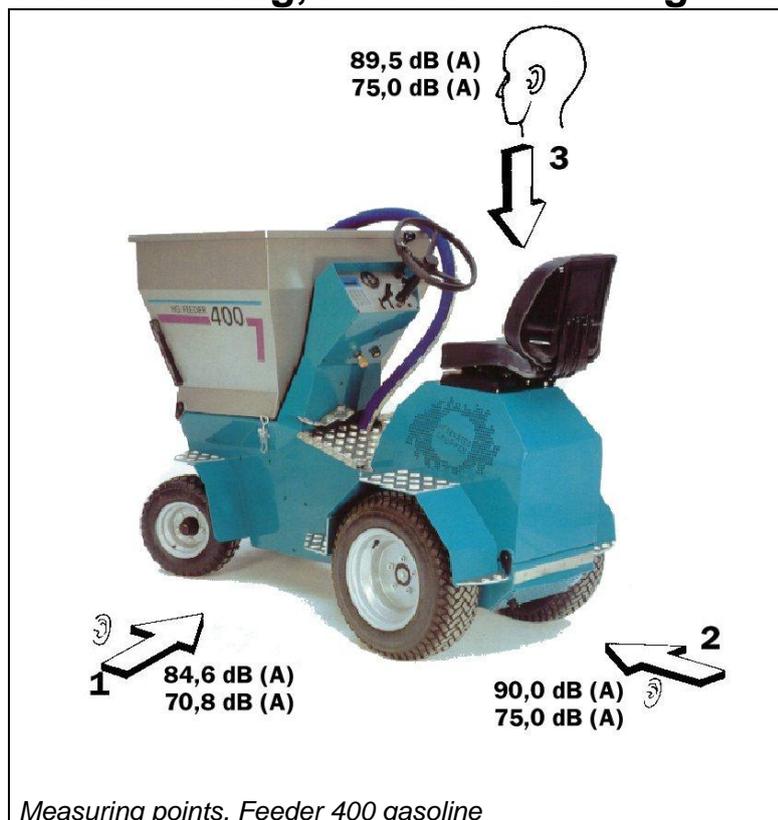
Steering	Servo
Turning diameter (rewrited circle)	3,8 mtr

## 8.4. Sound level measuring, Feeder 500 diesel



The high measured values at the arrows are at full speed and the low at idling.

## 8.5. Sound level measuring, Feeder 400 / 500 gasoline



The high measured values at the arrows are at full speed and the low at idling.



**WARNING!**

**USE OF EAR DEFENDERS IS RECOMMENDED!**

# 10. Guarantee regulations

## **Guarantee period**

The manufacturer of this machine gives guarantee in 12 months (max. 1000 operating hours). Guarantee period starts at the delivery date.

## **The guarantee covers:**

-Components which have to be exchanged or repaired because of material- or manufacture defects.

## **The guarantee do not cover wear and consumption parts such as:**

-Feeding pump, Tires, Bulbs, Filters, Oil and so on.

## **The producers` guarantee expires if:**

- Incorrect use of the machine.
- The machine is used without following the instruction book and the security instructions.
- The service time schedule is exceeded, or replacement parts, which are not of equivalent quality are used, for instance filters.
- The machine is used after a defect is established, if this results in a more expensive repair than the original defect.

## **The owners own insurance ought to cover:**

- Fire, burglary, stealing and vandalism.
- Water and frost damages.
- Corroding damages caused by battery acid.
- Damages caused by wind and weather.

The producers` guarantee does not cover these cases.

## **Approval of claim on compensation:**

Implies that the defect part is shown to the producer or his representative within 2 weeks after arises of the damage. The owner rights to the damaged parts are transferred to the supplier of the new parts.

## **The guarantee only covers components, not:**

- Freight costs
- Cost for wait, the working hours of the machine owner and travel costs.
- Working losses and other subsequent costs.

## **Other things**

Before the guarantee repair you have to contact the producer in order to arrange the procedure. If the repair is started or done, it is too late to claim guarantee.

These guarantee regulations can only be changed with a separate agreement.

## 16. EU-accordance declaration.

Hedensted Gruppen A/S  
Vejlevej 15,  
8722 Hedensted  
Tlf. (+45) 75 89 12 44  
Fax (+45) 75 89 11 80  
www.hedensted-gruppen.dk

- declares hereby:

HG Feeder 600  
Typenumber 250039

- is in accordance to:

Maskindirektivet 2006/42/EF

- under use of harmonic standards .

DS/EN 12100-1:2005  
DS/EN 60439-3  
DS/EN 13857:2008

15. februar 2007



Jens Jørgen Madsen  
Direktør