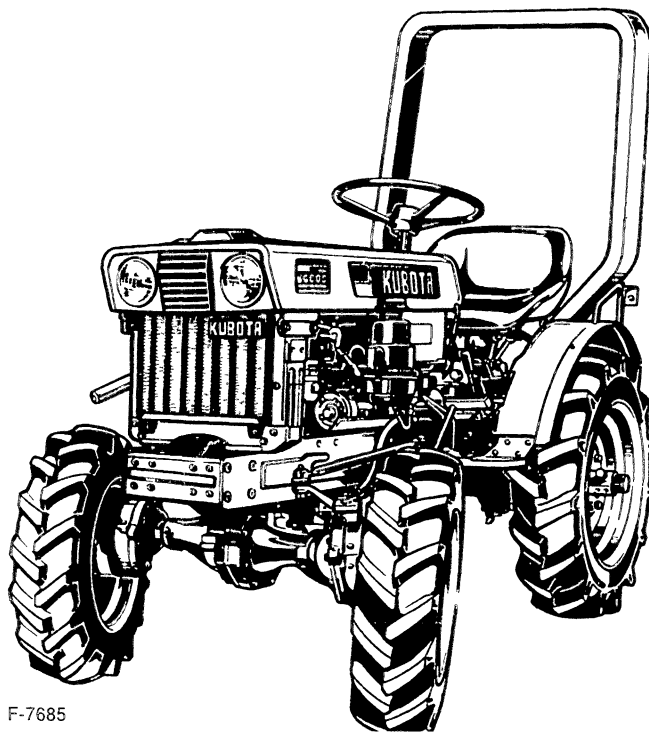


# OPERATOR'S MANUAL

# KUBOTA TRACTOR

MODEL B6000



F-7685

**READ AND SAVE THIS BOOK**

**Kubota**



# FOREWORD

Kubota, Ltd, wishes to express its deep appreciation to you for your purchase of the Kubota Tractor B6000 which has been designed and manufactured through many years of research and development. We also wish to express our deep appreciation for your patronage of Kubota products.

We are confident that the machine will give you the results you desire, but in order to get Higher Efficiency

Greater Economy

Longer Service

it is recommended that this "Operator's Manual" be read very thoroughly and the tractor handled and maintained in the most proper manner.

If the tractor is handled and maintained in the proper way, you will find in the long run, that you have made a good investment.



## CAUTION

1. Keep all shields in place.
2. Before leaving operator's position:
  - a. Shift transmission to neutral
  - b. Set parking brake
  - c. Disengage attachment clutch or shift PTO speed change lever to neutral.
  - d. Shut off engine
  - e. Remove main switch key
3. Wait for all movement to stop before servicing machine.
4. Keep people and pets a safe distance away from machine.

## IMPORTANT

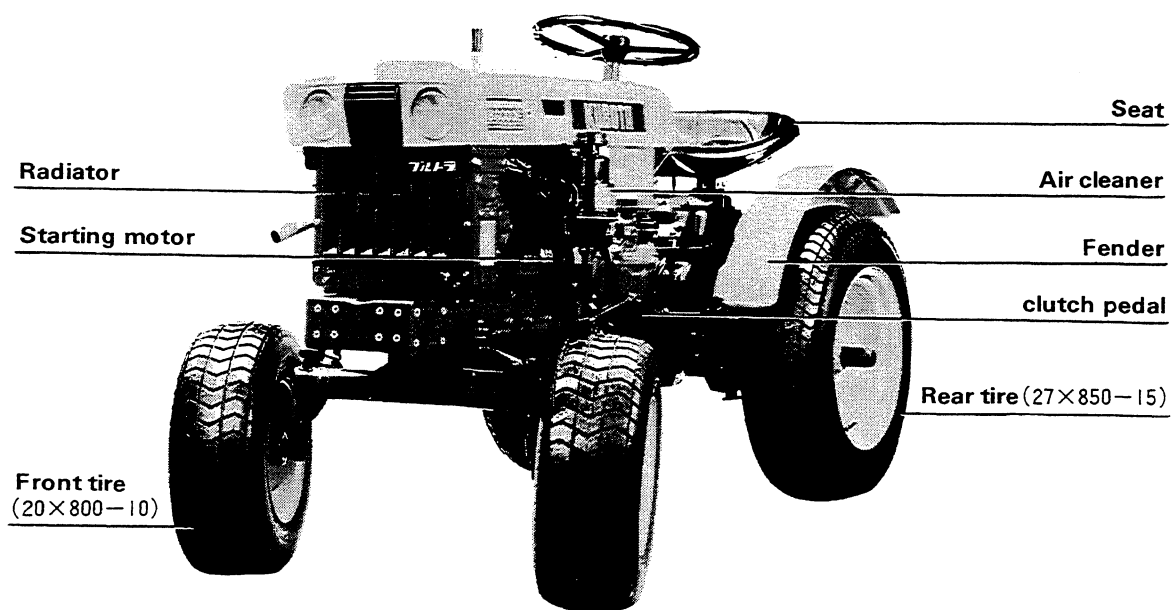
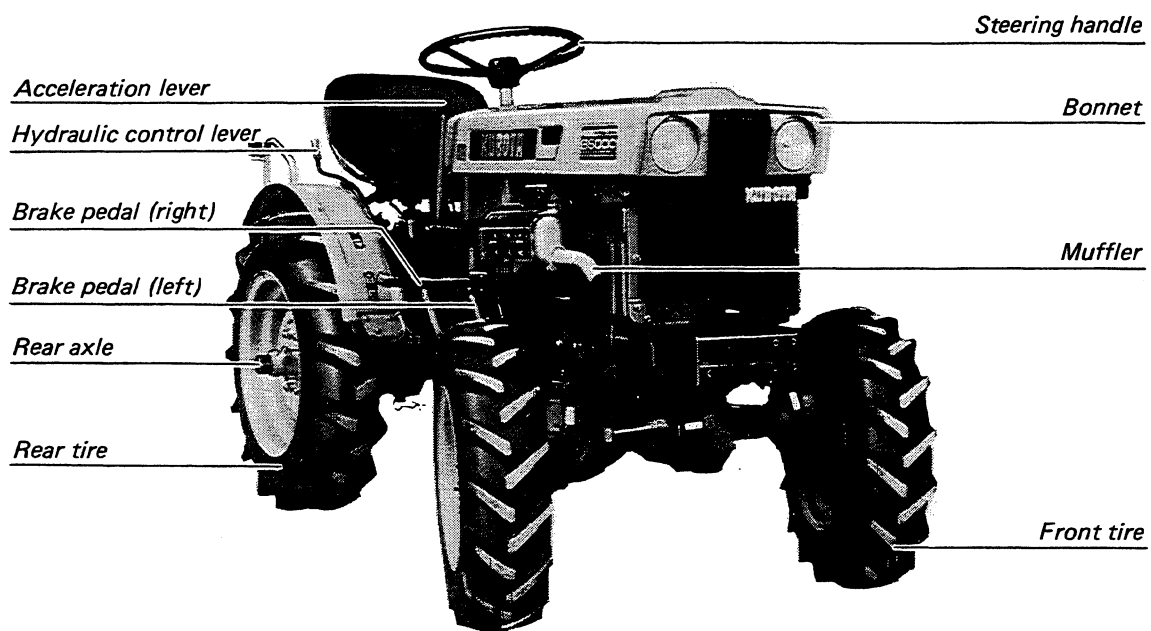
### Safe Operation Practices

1. Know the controls and how to stop quickly READ THE OPERATOR'S MANUAL.
2. Do not allow children to operate the vehicle. Do not allow adults to operate it without proper instruction.
3. Do not carry passenger. Keep children and pets a safe distance away.
4. Clear the work area of objects which might be picked up and thrown.
5. Disengage all attachment clutches and shift into neutral before attempting to start the engine (motor).
6. Disengage power to attachment(s) and stop the engine (motor) before leaving the operator's position.
7. Disengage power to attachment(s) and stop the engine (motor) before making any repairs or adjustments.
8. Disengage power to attachment(s) when transporting or not in use.
9. Take all possible precautions when leaving the vehicle unattended, such as disengaging the power-take-off, lowering the attachment(s), shifting into neutral, setting the parking brake, stopping the engine, and removing the key.
10. Do not stop or start suddenly when going uphill or downhill. Mow up and down the face of steep slopes; never across the face.
11. Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.
12. Stay alert for holes in the terrain and other hidden hazards.
13. Use care when pulling loads or using heavy equipment.
  - a. Use only approved drawbar hitch points.
  - b. Limit loads to those you can safely control.
  - c. Do not turn sharply. Use care when backing.
  - d. Use counterweight(s) or wheel weights when suggested in the owner's manual.
14. Watch out for traffic when crossing or near roadways.
15. When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the vehicle while in operation.
16. Handle No.2 DIESEL FUEL with care — it is flammable.
  - a. Use approved No.2 DIESEL FUEL container.
  - b. Never use the gasoline.
  - c. Never remove the cap of the fuel or add No.2 DIESEL FUEL to a running or hot engine, or fill the fuel tank indoors. Wipe up spilled No.2 DIESEL FUEL.
  - d. Open doors if the engine is run in the garage — exhaust fumes are dangerous. Do not run the engine (motor) indoors.
17. Keep the vehicle and attachments in good operating condition, and keep safety devices in place.
18. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
19. Never store the equipment with No.2 DIESEL FUEL in the tank inside a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
20. To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.
21. The vehicle and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment.
22. Do not change the engine governor settings or overspeed the engine.
23. When using the vehicle with mower, proceed as follows:
  - (1) Mow only in daylight or in good artificial light.
  - (2) Never make a cutting height adjustment while the engine (motor) is running if the operator must dismount to do so.
  - (3) Shut the engine (motor) off when removing the grass catcher or unclogging chute.
  - (4) Check the blade mounting bolts for proper tightness at frequent intervals.
24. Check the grass catcher bags frequently for wear or deterioration. Replace with new bags for safety protection.

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# 1. Outside Views



## 2. Features

### ■ Compact and powerful 2-cylinder diesel engine !

Kubota ZL600 diesel is a water-cooled, heavy-duty and powerful engine, which will certainly display its excellent performance by powering the excellent mechanism of the B6000 tractor in various work in dry fields, wet fields, pastures, orchards and gardens.

### ■ Unique spherical combustion chamber !

Kubota's unique spherical combustion chamber is employed in the engine. This makes starting very easy, fuel consumption very low and output very high. This engine is certainly very economical from all points.

### ■ Starts up at once by battery-starter !

Since battery-starter, glow plug, decompression device and unique spherical combustion chamber are equipped, it is easy to start up.

### ■ Endurance even at low engine speed !

ZL600 engine has been specially designed for Kubota B6000 tractor. The torque performance is very good, always ensuring peak performance under extra overload when the speed is lowered. As driven by such a powerful engine, the tractor can be used under adverse condition and will not stall on the job.

### ■ 4-wheel drive ! (B6000)

Since B6000 tractor is driven with four wheels, it has big traction force and is available for any field work and trailing work with the standard rubber tires.

### ■ Light weight but powerful design !

Special consideration has been given to compact but powerful design and easier operation. Since newly developed tilling blades are employed, it ensures wider tilling and stable operation.

### ■ Easy to take out auxiliary hydraulic power !

Extra hydraulic power can be easily taken out from the cap of the hydraulic cylinder when other hydraulic implement than the rotary tiller is used. Hydraulic control valve already equipped can be utilized in such cases, too.

### ■ Differential lock !

Like bigger tractor, the differential lock is employed in this compact Kubota B6000 tractor. Even when one of the rear wheels slips, engaging the differential lock prevents such slips, ensures straight travelling and increases the trailing power.

### ■ Hydraulic operation when disengaging clutch !

Hydraulic pump is directly connected with diesel engine. Hydraulic operation is available even when main clutch is disengaged. This mechanism would be so convenient when the implement is mounted or dismounted.

### ■ Comfortable riding !

Since ZL600 engine is 2-cylinder with minimum vibration and noise, and tractor has a special cushion under the seat, they minimize the fatigue to the operator and make tractor work a very comfortable one.

### ■ Water-, mud-, dust-proofed !

The important parts such as shafts, brakes, etc. are water-proofed, mud-proofed and dust-proofed.



# Specifications

Model:	KUBOTA B6000	KUBOTA B6000E	KUBOTA B6000E-T
Driving method:	4 wheel drive	2 wheel drive	
Engine:	KUBOTA ZL600		
Type	Vertical, water-cooled, 4-cycle diesel engine		
Cylinders	2		
Total displacement	35.21 cu. in. (577cc)		
Bare engine horse power	12.5 HP		
Revolution speed	2,700 rpm		
Max. revolution	2,900 rpm		
Fuel	Diesel light oil or No.2 diesel oil		
Starting	Electric starter with battery, glow plug & decompression device		
Starter	12V 0.8KW		
Lubrication	Forced lubrication by trochoidal pump		
Cooling	Water with pressurized radiator		
Battery	65AH		
Fuel tank cap.	2.38GA (9 lit.)		
Radiator cap.	0.79GA (3 lit.)		
Dimensions:			
Overall length	71-5/8 inch (1820mm)	70-7/8 inch (1800mm)	70-4/8 inch (1790mm)
Overall width	36-2/8 inch ( 920mm)	36-2/8 inch ( 920mm)	37-6/8 inch ( 960mm)
Overall height	43-6/8 inch (1110mm)	42-7/8 inch (1090mm)	42-4/8 inch (1080mm)
Wheel base	45-5/8 inch (1160mm)	47-2/8 inch (1200mm)	47-2/8 inch (1200mm)
Min. ground clearance	10-5/8 inch ( 270mm)	10-5/8 inch ( 270mm)	9-4/8 inch ( 240mm)
Treads	Front	29-7/8 ~ 31-4/8 inch (760 ~ 800mm)	27-1/8 ~ 29-7/8 inch (690 ~ 760mm)
	Rear	28 ~ 36-2/8 inch (710 ~ 920mm)	28 ~ 36-2/8 inch (710 ~ 920mm)
Tires	Front	6-12	400-9
	Rear	7-16	7-16
Weight:	860 lbs. (390kg)	770 lbs. (350kg)	770 lbs. (350kg)
P.T.O :			
Location	Transmission case rear and tractor body front	Transmission case rear	
Ground height			
Revolution direction			
RPM	3 stages (560,840 and 1,350 rpm at 2,700 engine rpm)		
Clutch:	Dry single plate, pedal type		
Steering:	Worm screw type		
Transmission:			
Type	Gear shift		
Speed changes	Forward 6-stages, Reverse 2-stages		
Min. turning radius:	63 in (1.6m)		
Brake:	Internal-expanding type, right & left independent with interlocking device		
Differential:	Bevel gear type (both front and rear)	Bevel gear type (Rear only)	

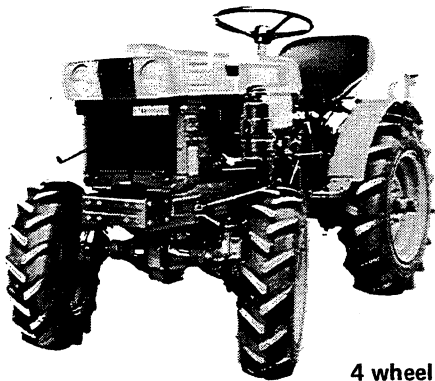
■ P T O Speeds

PTO Speed	RPM
1st	524
2nd	836
3rd	1,308

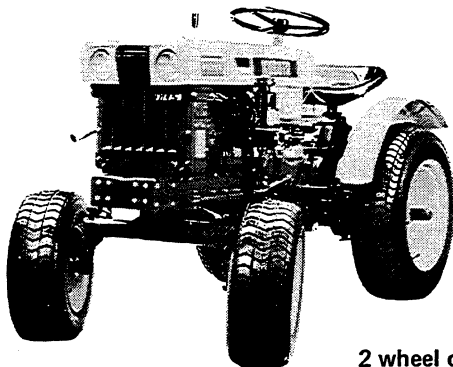
■ Travelling Speeds

Speed Gearshift	mph (km/h)			Job type
	B6000	B6000E	B6000E-T	
Forward 1st	0.69	(1.12)	0.63 (1.02)	Rotary tilling, flat tilling, ridging Rotary tilling, flat tilling Rotary soil crushing, Mowing Mowering plowing Plowing Trailer work, road travelling
2nd	1.10	(1.78)	1.01 (1.63)	
3rd	1.73	(2.79)	1.58 (2.55)	
4th	2.99	(4.82)	2.74 (4.41)	
5th	4.77	(7.69)	4.36 (7.03)	
6th	7.47	(12.03)	6.84 (11.01)	
Reverse 1st	0.98	(1.58)	0.89 (1.44)	
2nd	4.18	(6.74)	3.82 (6.16)	

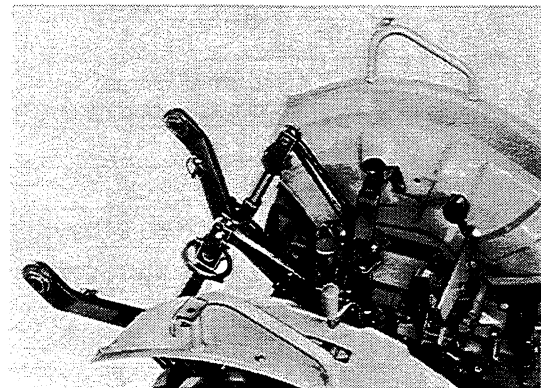
■ Kubota Tractor B6000 has the following various shipping specifications:



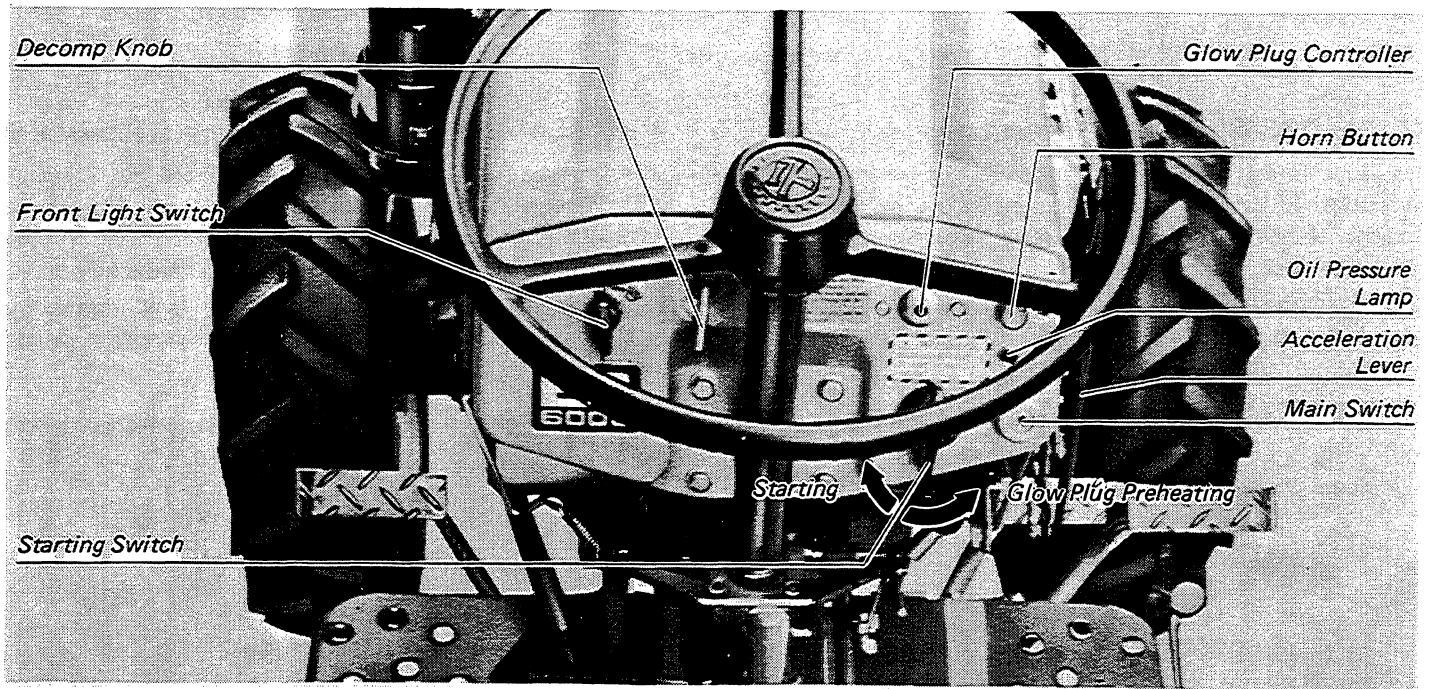
4 wheel drive



2 wheel drive

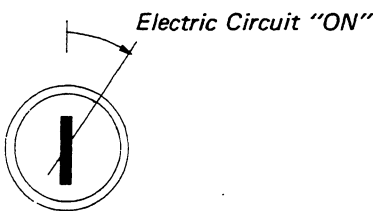


## 4. Instrument Panel and Controls



### 4-1 MAIN SWITCH

The main switch is separate from the starting switch. By turning the main switch one stage to the right, the electric circuit and fuel pump start functioning. When the tractor is not to be used, do not leave the key inserted, but always remove the key and carry it with you.



### 4-2 STARTING SWITCH

When the starting switch is turned to the right, the engine will catch. When released, the switch will return to its former position. When the starting switch is turned to the left, the glow plug (preheating coil) will activate, and the combustion chamber will be preheated. When released, the switch will return to its original position.

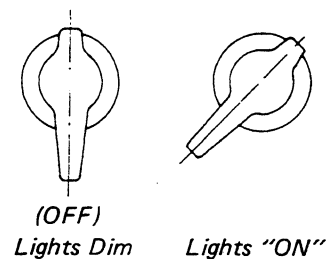
### 4-3 GLOW PLUG CONTROLLER (Pre-heating Indicator)

When the starting switch is turned to the left, the glow plug

controller becomes red in 12–15 seconds. This shows the condition of pre-heating in the combustion chamber.

### 4-4 FRONT LAMP SWITCH

When the front lamp switch is turned to the right, the front lamps light on.



### 4-5 HORN BUTTON (Red Button)

After turning the main switch clockwise one stage, push the red horn button. Then, an alarm sounds.

### 4-6 DECOMPRESSION KNOB

When it is difficult to start in cold weather, pull the decompression knob to release the compression of the engine. Then it would be easier to start the engine.

#### 4-7 OIL PRESSURE LAMP (Red Lamp)

This lamp is for the purpose of indicating whether the pressure of the lubricating oil being sent to the various parts is normal or not. When the main switch is turned, the lamp lights up. When the starting switch is turned, the engine starts and when the oil starts to circulate under normal pressure, the light will go off.

#### 4-8 FUSE CASE

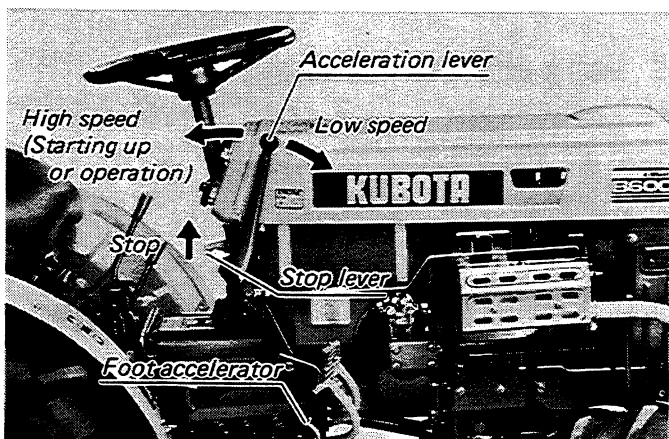
There are a 5 ampere and a 3 ampere fuses in the fuse case to safeguard the electric circuit. There are also spare fuses.



#### 4-9 ACCELERATOR LEVER AND FOOT ACCELERATOR

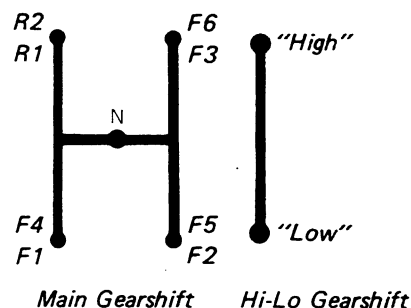
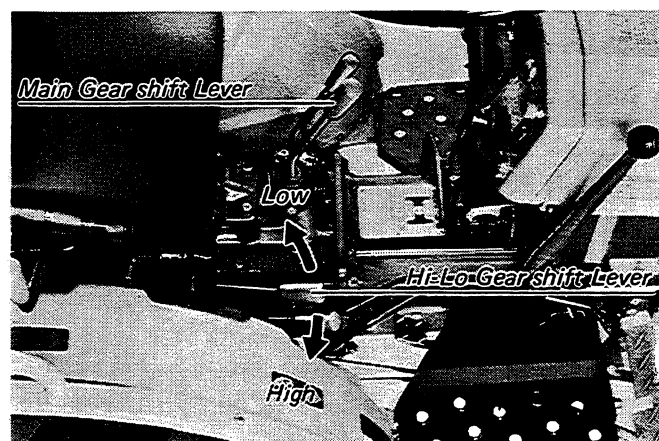
When the accelerator lever is pushed forward the engine speed is reduced. When the accelerator lever is pulled back the engine speed increases.

With the accelerator lever in the forward position, stepping down on the foot accelerator increases engine speed. To stop the engine, pull the stop lever back.



#### 4-10 GEAR SHIFT (Main Gear Shift, Hi-Lo Gear Shift)

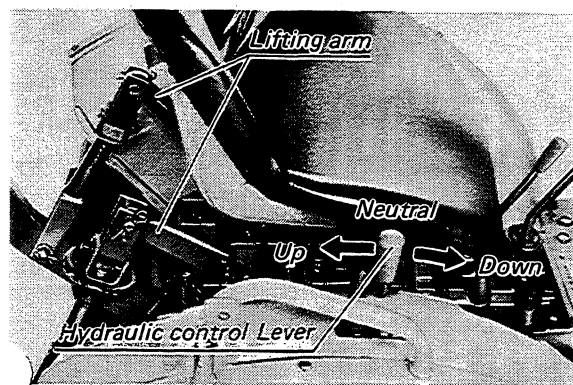
The main gearshift lever is in the form of an "H". The hi-lo gearshift lever moves two stages, "High" and "Low". By combination and use of the main gearshift lever and the hi-lo gearshift lever, it is possible to obtain three speeds forward at "High" range and three speeds forward at "Low" range, or a total of six speeds forward; and two speeds reverse, high and low.



#### 4-11 HYDRAULIC CONTROL LEVER

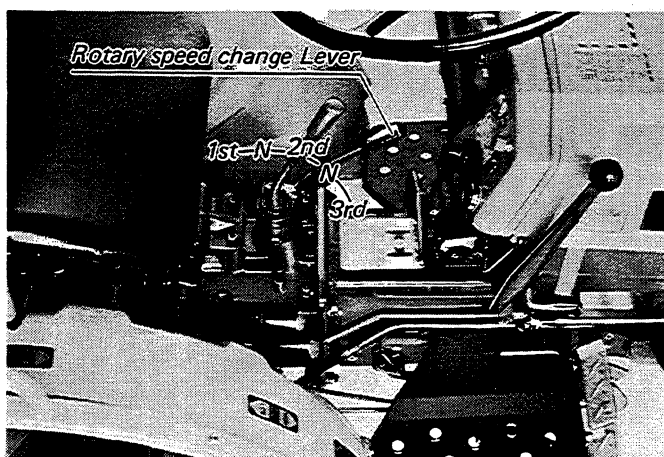
Implement such as rotary tiller are raised and lowered hydraulically with the hydraulic control lever. To lower the implement, push the lever forward. When the implement reaches to the upper or lower limit, the lever returns to the neutral position automatically.

When the implement is in the desired position, return the lever to neutral position.



#### 4-12 PTO SPEED CHANGE LEVER

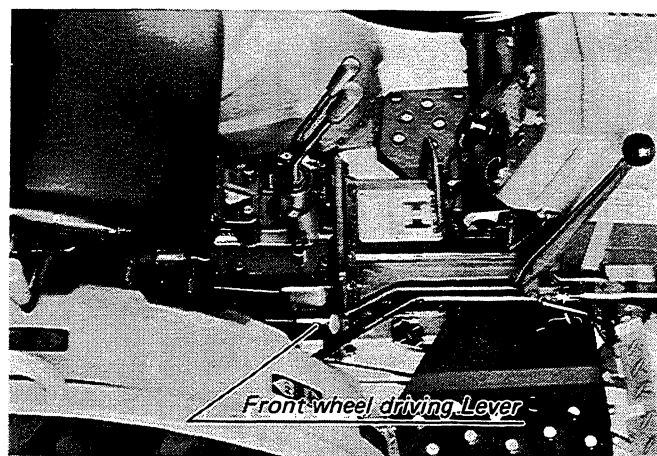
By shifting the lever three stages, PTO shaft speed can be changed among 560, 840 and 1,350 rpm.



#### 4-13 FRONT WHEEL DRIVING LEVER (For B6000, only)

By pushing the lever downward, the front wheels are driven. Operate the lever when big traction is necessary on slopes or wet field works.

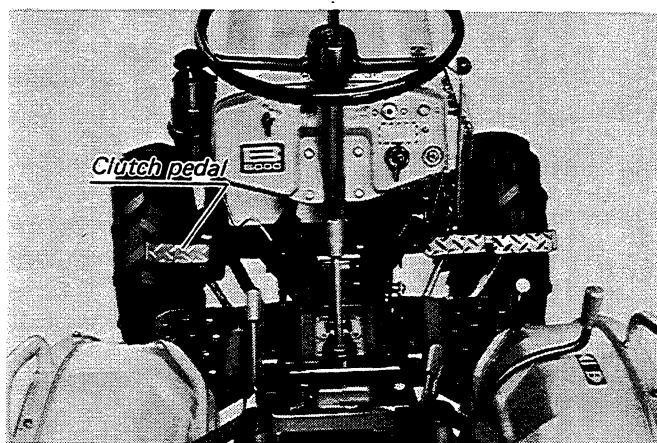
Pull up the lever and disengage the front wheel driving in case of general field works or flat road travelling.



#### 4-14 CLUTCH PEDAL

When the clutch pedal is depressed fully, the clutch is disengaged. Shift the main gear shift lever to the desired speed and gradually release the clutch pedal, then the clutch would become engaged.

The clutch should be disengaged by stepping on the pedal quickly, and engaged by slowly releasing the foot from the pedal so as not to damage the clutch plate.

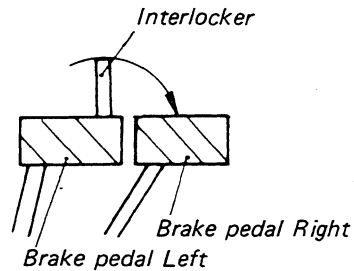
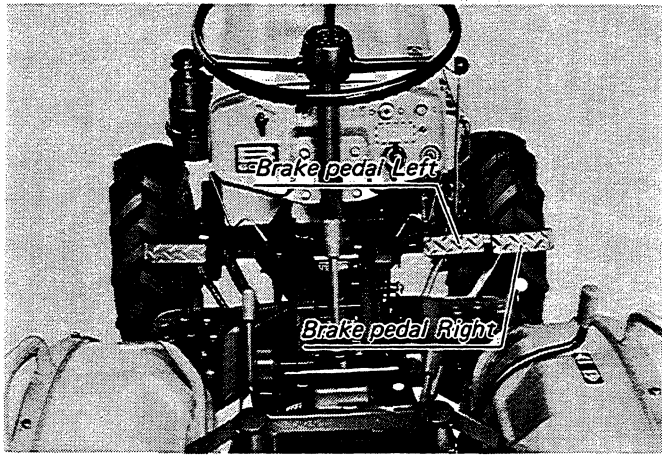


#### 4-15 BRAKE PEDAL

The right and left brakes are independent of each other so there are two brake pedals. By depressing the right pedal, the tractor turns to the right. Depressing the left pedal, turns to the left.

\*When operating the tractor on roads, always be sure to interlock the left and the right brake pedals.

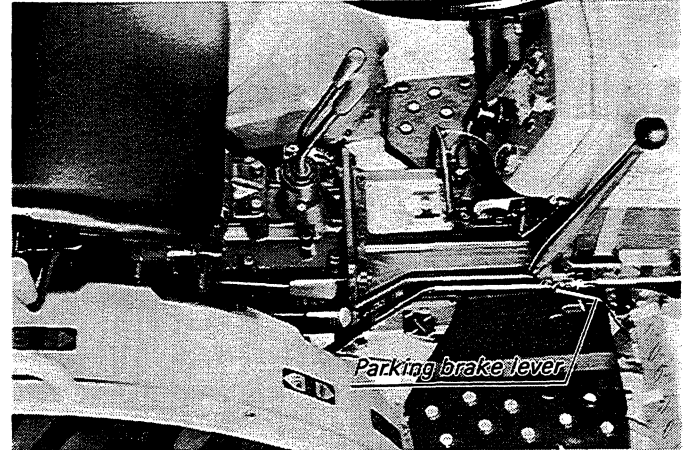
Do not forget to observe this precaution, otherwise, stepping on only one brake while operating on roads would cause unforeseen accidents.



#### 4-16 PARKING BRAKE LEVER

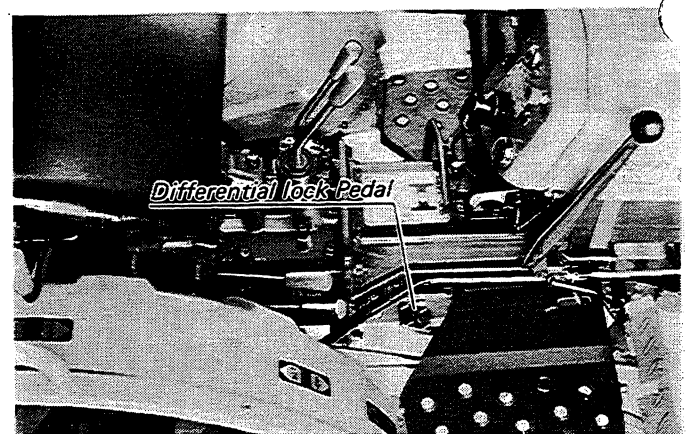
Interlock the left and the right brake pedals, step on the brake pedals, and pull the parking brake lever (brake lock lever), which will hook the parking brake latch into the groove. This will keep the wheel braked, so remove the foot from the brake pedal.

When disengaging the parking brake, depress the brake pedal strongly.



#### 4-17 DIFFERENTIAL LOCK PEDAL

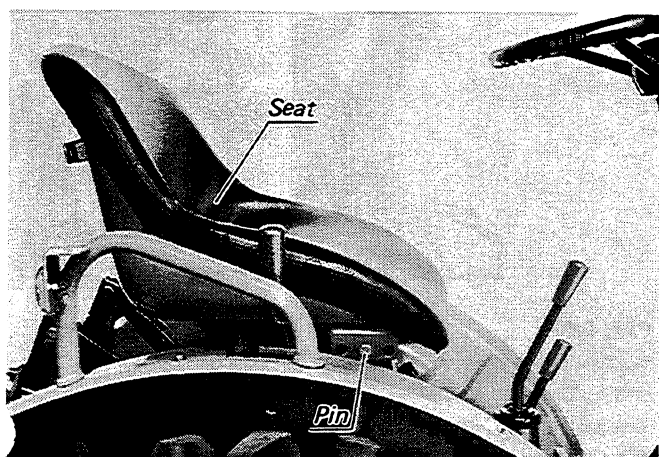
The differential lock pedal is used when one of the rear wheels slips. When the pedal is depressed, the differential is locked. When released, the differential is released.



#### 4-18 SEAT

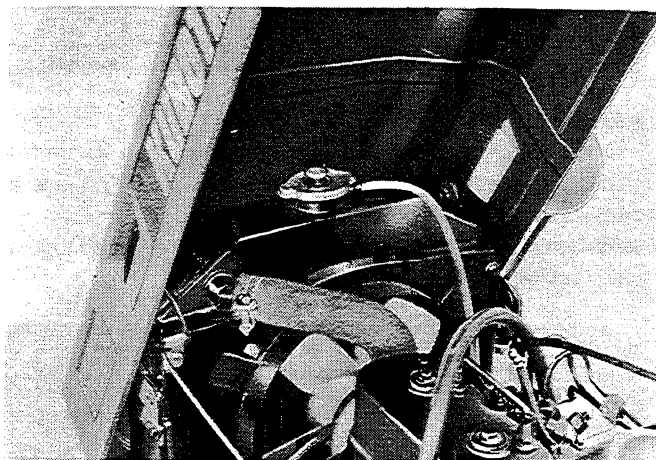
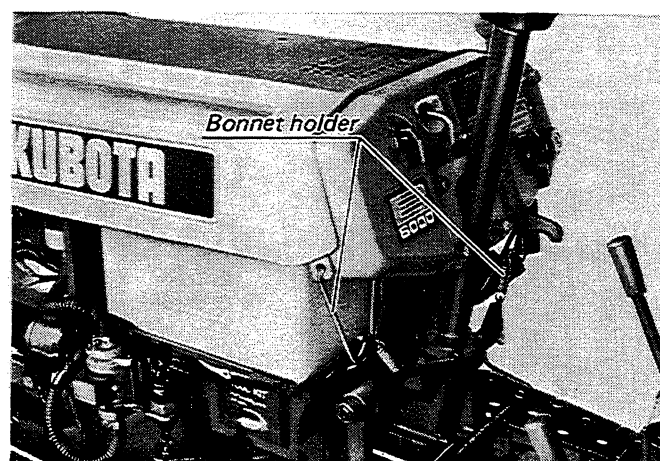
The seat has been especially designed so that it can be adjusted three stages, forward or backward, to fit the physique of the operator.

Furthermore, the seat can be tipped forward so that there would be no fear of the seat getting wet in the rain.



#### 4-19 HOW TO OPEN BONNET

Put off the bonnet holder on the right and left sides, open the bonnet and check the fuel and cooling water.



#### CAUTION:

\*Never open the bonnet while the engine is running. It is very dangerous because the belt, generator and cooling fan are revolving in high speed.

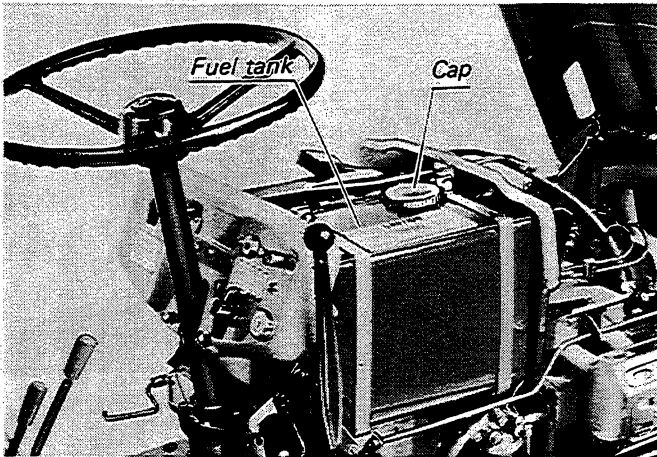
There are dangers that your hand may become cut or your clothing may become caught in the moving parts.

# 5. Starting, Operation and Storage

## 5-1 PRESTARTING INSPECTION

### ■ Fuel (Fuel Tank)

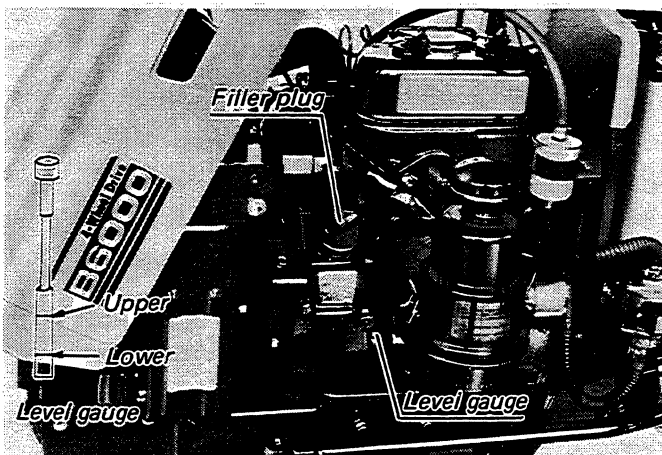
Check fuel level in the tank with the fuel level gauge.  
If insufficient, replenish Diesel light oil or No.2 Diesel fuel.  
Tank capacity is 2.38 Gallons (9 lit) Wipe up spilled fuel.



### ■ Engine Lubricating Oil (Crank Case)

For checking, use the oil level gauge. Pull it out of the crankcase, wipe off the oil with a clean cloth, replace and pull it out again to find out the oil level.

Replenish the lubricating oil as needed to maintain the indicated level.

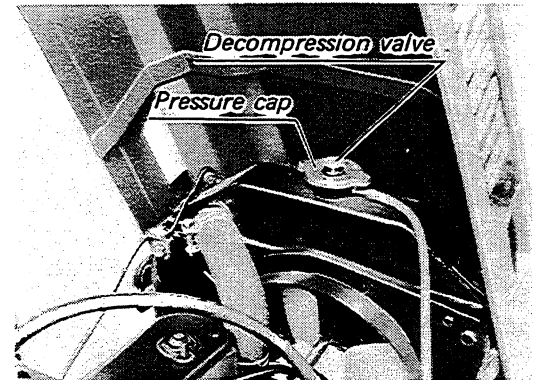


### CAUTION:

Be careful when the oil is above the upper gauge level because fuel or water may have been mixed in the lubricating oil if the oil itself is simply not excessive.  
Check carefully for the cause.

### ■ Cooling Water (Radiator)

Be sure water in the radiator is always full. If necessary, add clean water. Always use clean water, such as drinking water.



### CAUTION:

\*Do not use sea water, salty water or water which contains chaffs, dust or mud.

\*Be sure to tighten the pressure cap.

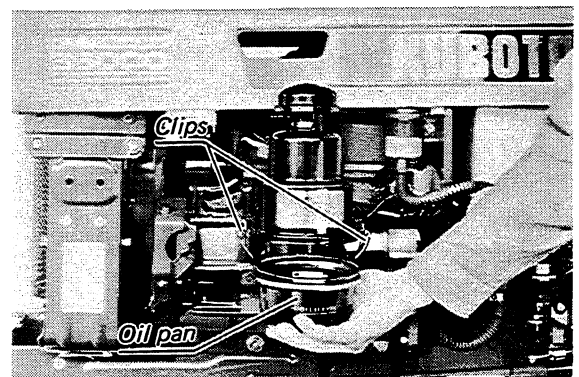
\*Do not open the cap during operation or immediately after operation because hot water would gush out, causing serious burns. Open the cap by depressing the decompression valve button on it after the engine has cooled.

### ■ Air Cleaner Oil

Take off the oil pan by removing the clips. Check the oil level if it is at the level marked.

If insufficient, add oil.

If excessively dirty, exchange oil wholly.

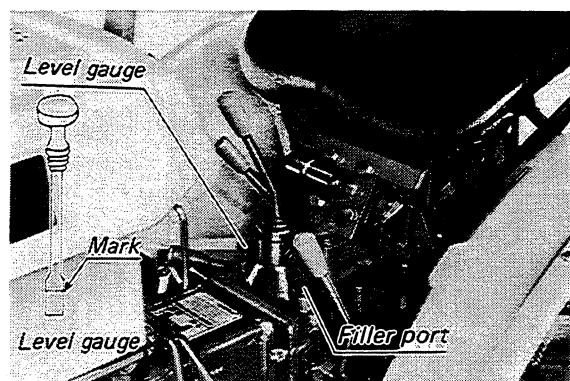




### ■ Transmission Gear Oil

Check the oil level with the oil level gauge to see whether it is filled up to the mark or not.

If insufficient, refill SAE No.80 gear oil. Capacity is 2.38 Gallons (9 lit)



### ■ Chassis Grease

Are all the grease nipples filled with sufficient chassis grease? Front axle, tie rod, brake, clutch pedals etc. are provided with grease nipples.

For filling, wipe the nipple clean so that no dirt and dust may enter the grease.

### ■ Tire Pressure

Are the tires inflated properly?

Inflate or deflate each tire to the standard air pressure:

B6000	Front	6 – 12	16.8 psi (1.2kg/cm <sup>2</sup> )
	Rear	7 – 16	25.6psi (1.8kg/cm <sup>2</sup> )
B6000E	Front	400 – 9	22.4 psi (1.6kg/cm <sup>2</sup> )
	Rear	7 – 16	25.6psi (1.8kg/cm <sup>2</sup> )
B6000ET	Front	20 x 800 – 10	24 psi (1.7kg/cm <sup>2</sup> )
	Rear	27 x 850 – 15	11.2psi (0.8kg/cm <sup>2</sup> )

Also check and make certain that none of the tires are too worn or damaged.

### ■ Brakes

If the brake should function only on one side when both the right and the left brake pedals are depressed, adjust the length of the turnbuckle (brake rod). (See 8-5, brake adjustment.)

### ■ Battery

Check to see if the electrolyte level is at the proper level.

If necessary, add distilled water.

When electric starting motor turns weakly, charge battery. (See 7-2, battery maintenance.)

### ■ Do The Lamps Light On?

### ■ Does The Horn Sound?

## 5-2 HANDLING NEW TRACTOR

How a new tractor is handled and maintained determines the life of the tractor.

A new tractor just off the factory production line has been, of course, well fitted and tested, but the various parts cannot be said to be accustomed to specially severe type of work, so care should be taken to operate the new tractor for the first 100 hours at slower speed and avoid excessive work or operation until the various parts become well "broken in".

The manner in which the tractor is handled while new greatly affects the life of your tractor. Therefore, to obtain the maximum performance and the longest life of the tractor, it is very important in the handling of the new tractor.

### ■ In handling a new tractor, the following precautions should be well observed:

- \*\* Do not operate the tractor at full speed for the first 100 hours.
- \*\* Do not start quickly nor apply the brakes suddenly.
- \*\* In winter, run the tractor after fully warming up the engine.
- \*\* Do not run at speeds faster than necessary.
- \*\* On bad roads, slow down to suitable speeds. Do not operate the tractor at fast speed

The above precautions are not limited only to new tractor, but to all tractors. But it should be carefully and especially observed in case of new tractor.

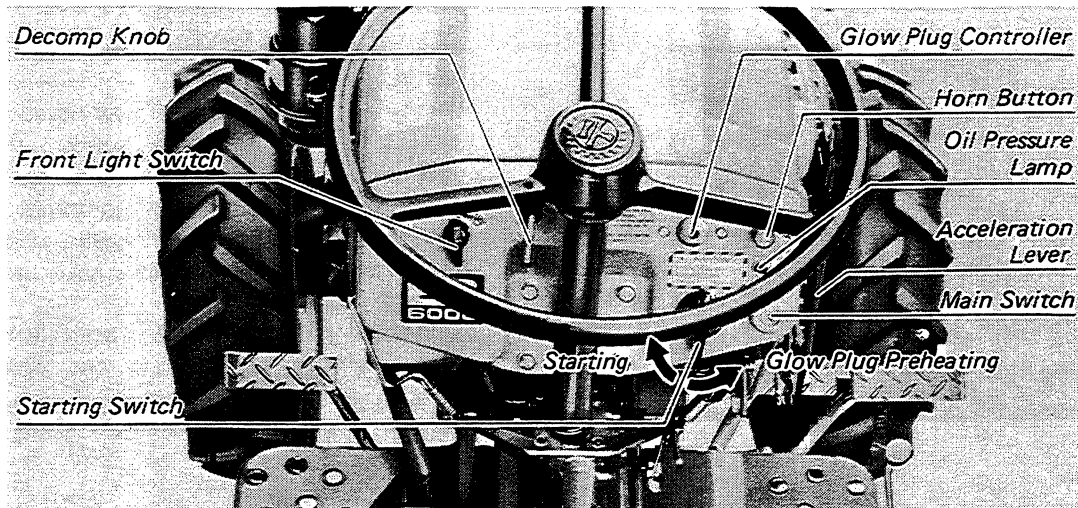
- \*\* Supply and exchange of lubricating oil;  
The lubrication oil is specially important in case of a new tractor because as the various parts are not "broken in" and are not accustomed to each other, small metal grit may be developed during the operation; and this may wear out or damage the parts. Therefore, care should be taken to exchange the lubricating oil a little earlier than it would ordinarily be required.

- \*\* Cleaning after operation;  
Clean the tractor within the day of operation. Wash away the mud and dust, then wipe off the washing water.  
Be sure to apply grease or lubricating oil on the frictional and sliding parts.

- \*\* Make thorough pre-checks before operation.

### 5-3 STARTING THE ENGINE

When all checks are completed, check once more to see nothing has been forgotten. Then start the engine.



- (1) Place the main gearshift lever, hi-lo gearshift lever, P.T.O speed change lever and hydraulic control lever in neutral positions.
- (2) Pull the acceleration lever backward fully.
- (3) Insert the key into the main switch, turn to the right. Then the oil pressure lamp will light on.
- (4) Step on and depress the clutch pedal.
- (5) Turn the starting switch to the left and keep it for more than 20 seconds. Glow plug controller will become red in 12 seconds, but pre-heating coil in the combustion chamber will be heated in about 22 seconds.

\*Pre-heating time in various atmospheric temperature is as follows:

Temperature	Pre-heating Time
Over 41°F (5°C)	20 – 40 seconds
41°F – 32°F (5°C – 0°C)	40 – 60
32°F – 23°F (0°C – 5°C)	90

- (6) Turn the starting switch to the right, then the starting motor begins rotation. Hold it until the engine starts up. If the engine does not start up even within 15 seconds of starting motor rotation, return the starting switch to the original position once. After more than 30 seconds interval, pre-heat the glow plug and turn the starting switch again.

\* Running the starting motor more than 15 seconds at one time may damage or short life the battery and the starting motor.

- (7) Do not turn the starting switch to the right while engine is running.
- (8) When starting the engine after rather long storage or in severe cold under 5°C, pull the acceleration lever backward fully, pull the decompression knob backward and rotate the starting motor for 5–10 seconds. Then follow the starting method mentioned above.

\* In areas where it becomes colder than 23°F (–5°C), it is recommended to store the tractor indoors and remove the battery from the tractor. Then keep the battery in a warm place. Make certain the electrolyte is at the proper level and recharge fully before mounting on the tractor again.

\* Pouring hot water into the radiator greatly helps the engine starting in the cold weather.

#### ■ When the engine is warm

- (1) Depress the clutch pedal fully.  
[Note]  
This is a safety feature. The engine will not start unless the pedal is depressed.
- (2) Turn the starter switch clockwise to start engine.

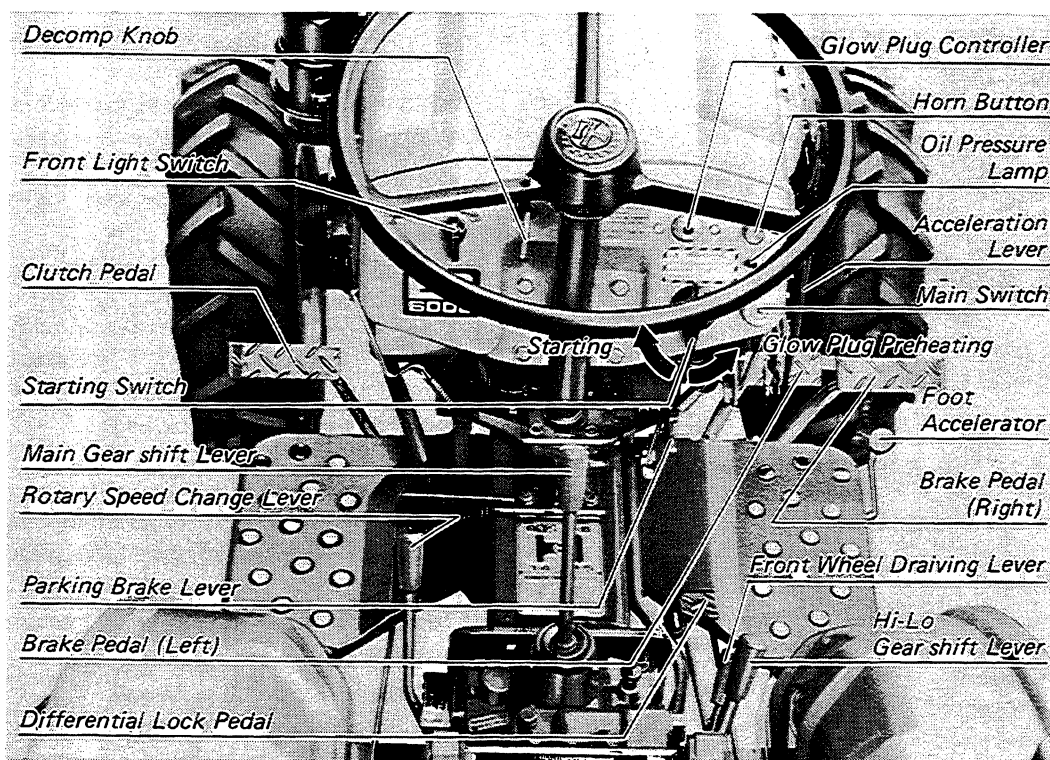
**CAUTION:**

\*Do not use the decompression knob except when battery is weak or in severe cold weather.

\*Glow plug is one of the consumption parts, but pre-heat it thoroughly at starting time. Pre-heating time does not affect the life of the glow plug.

\*Glow plug and glow plug controller consist of one pair. Change them at one time by confirming their spare parts numbers.

\*If glow plug controller becomes red too early or too lately, ask Kubota Dealer for checks.

**5-4 OPERATING THE TRACTOR****■ Starting The Tractor**

When the engine starts up:

- (1) Depress the clutch pedal to disengage the clutch.
- (2) Put the main and hi-lo gearshift levers in the desired speed.
- (3) Release the lock of the parking brake.
- (4) Pull the acceleration lever backward gradually and raise the engine speed.

- (5) Release the clutch pedal gradually to engage the clutch, then the tractor will start travelling.

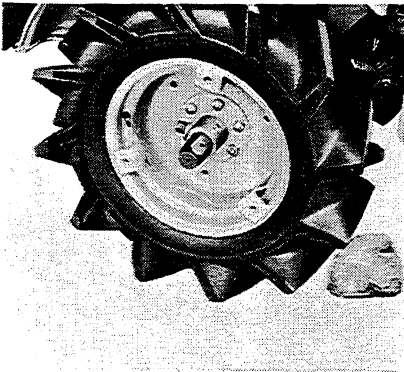
- (6) Remove the foot from clutch pedal.

**CAUTION:**

\*Be sure to have the left and right brake pedals interlocked when operating on the roads. Depressing only one brake at high speed is very dangerous.

### ■ Stopping The Tractor

- (1) Reduce engine speed by pushing the acceleration lever forward.
- (2) Disengage the clutch by depressing the clutch pedal.
- (3) Stop the tractor by depressing the brake pedals.
- (4) Put the main gearshift levers in neutral positions.
- (5) Interlock the left and right brake pedals and set the parking brake lock by depressing the pedals until they are locked.



### CAUTION:

\*Be sure to use the parking brake when parking on a hill. When parking on steep slope, it is recommended to put some ratch or stone under the wheels for safety.

### ■ Gearshifting (Travelling Speed Change)

It is impossible to disengage the clutch and change gearshifting while the tractor is travelling. Be sure to;

- (1) Stop the tractor once.
- (2) Depress the clutch pedal fully.
- (3) Then shift the main and hi-lo gearshift levers, or P.T.O speed change lever.

### ■ Braking

- (1) Reduce the engine speed by pushing the acceleration lever forward.
- (2) Depress the clutch pedal fully.
- (3) Depress the brake pedal, then the brake works.

### ■ Turning

When turning on curves, be sure to reduce the travelling speed. Then turn the steering handle.

In case of turning in farm fields, release the interlock of the left and right brake pedals, depress the brake pedal fully on the side you are going to turn, and turn the steering handle.

### CAUTION:

\*When travelling at 5th or 6th speed, reduce the engine speed and travelling speed. Then turn the steering handle.

\*Turn the tractor after reducing the travelling speed by shifting the levers to low speed according to the condition of the roads or curves.

## 5-5 OPERATION ON SLOPES

### ■ Starting On Uphill Slope

When starting the tractor on steep uphill slopes;

- (1) Depress the clutch pedal fully.
- (2) Put the gearshift levers into the desired speed.
- (3) Depress the brake pedals all the way to unlock the ratchet in the parking brake.
- (4) Push the hand acceleration lever forward to increase the engine speed.
- (5) Release the clutch pedal a little.  
In this semi-clutch condition.
- (6) Release the brake pedals half-way. and,
- (7) Release the foot from the brake pedals and remove the other foot from the clutch pedal at the same time.

The tractor will then start moving.

### ■ Engine Brake

When the tractor is on a downhill slope, control the acceleration lever to drop the engine speed which will brake the tractor.

If necessary to further reduce the tractor speed, depress the brake pedal lightly.

### CAUTION:

\*It is dangerous to travel down a slope by just depressing the brake pedal with the clutch disengaged.

## 5-6 CAUTIONS DURING OPERATION

- \* Do not clean the tractor and the parts, nor refill the fuel oil and lubricating oil while the engine is running.
- \* Oil pressure lamp (red lamp on the instrument panel); Oil lamp is extinguished while the engine is running. If the lamp lights on during operation, it indicates the lack of lubricating oil or troubles in the lubrication system. Stop the engine then and check the system.
- \* Color of exhaust gas; If the tractor is used at outputs over the rated horsepower, exhaust gas may become a little colored. And operated with continuous dark exhaust gas, it may become the cause of troubles, so check the working condition and operate the tractor so that it would not be overloaded.

- \* Fuel pump;  
Fuel delivery pump is driven by the electricity from the battery. Therefore, do not return the key of the main switch to the inserting position nor take off the battery cords.  
If high voltage from the dynamo (generator) is charged on the fuel delivery pump, it may cause troubles.. troubles.
- \* Fuel tank;  
Always consider the amount of work to be done so that fuel tank would not become empty. If the fuel tank becomes empty, air would enter the fuel system. Therefore, it takes valuable time to vent the air from the fuel system.
- \* Battery cords;  
Do not connect the + (plus) and – (minus) terminals of the cords wrong. If wrongly connected, the transistor-diode would be damaged and may cause troubles.
- \* Do not work the fuel delivery pump without fuel. It will shorten the life of the fuel delivery pump.

## 5-7 HANDLING TRACTOR ON THE FARM

### ■ On The Farm

Conditions of farm are different from one field to another. The way of handling tractor should also vary according to local conditions. Work out the means to exploit potential of this tractor to its full extent by taking into account respective local conditions.

Hereunder are given the characteristics of this tractor when it is operated on the farm fields.

- \*\* When implement is mounted on the tractor, the weight loaded upon the front wheels will change:  
When implement is attached at the rear part, the front-rear balance is changed and front wheels tend to lift up. Therefore, take care in operating the clutch. Remove your foot slowly from the clutch pedal when the clutch is engaged.
- \*\* To enter into or climb up from the farm field:
  - (1) Tractor can easily climb up the high ridge of about 30cm because of its 4-wheel drive mechanism. When the ridge is higher than 30cm, use wooden planks or construct a slope to connect the ridge and the field. Otherwise it is dangerous to climb up on such ridges.
  - (2) At the start of climbing, reduce the hydraulic pressure to keep the implement at lower position. Then the front wheels will not be lifted up.

- (3) As soon as the tractor mounts on the ridge, lift the rotary by pulling the hydraulic control lever backward. It is safe to operate the tractor always paying attention to the balance between the front and rear wheels. Do not climb up or down the ridge in diagonal direction, but go in right angle.
- (4) When the tractor tires are wet, it is most difficult to climb up the slope as it slips even on an easy slope. Especially after paddy field levelling work, special caution is required. In such case, use wooden planks between the ridge and the field.
- (5) To finish one lot of farm field, it is always necessary to go up or down at least once. If you think it easy to drive the tractor in and out the farm field, you may suffer unexpected waste of time and labor.

### ■ Field operation

- (1) To do field work on the farm, disconnect the interlocker of the brake pedals so that the right and left brakes can be engaged separately.
  - (2) Down speed of implement which suffers sudden load should be adjusted by the down speed control device located under the seat. For example, the rotary tiller should be lowered slowly. While, in case of such plowing work as travelling speed is high, the plow should be lowered quickly.
  - (3) It is important that the implement should be proceeded straight. When the tractor approaches the end of the field or ridges and must be turned, lift the implement first by pulling the hydraulic control lever backward and then depress the brake pedal on the side to which the tractor is to be turned and turn the steering handle. Then the tractor turns around on one point.  
However on wet fields, use the brake intermittently avoiding such pivot turn. In such case the turning radius becomes larger but it is safer and does not damage the field base soil.
- CAUTION:**  
Reduce the tractor speed when it turns near the ridge. If one side brake is used while the tractor is running at high speed, the tractor may be toppled. Special caution should be paid to it as it is very dangerous.
- (4) Driving speed of tractor should vary according to the work to be done. Determine the appropriate speed according to the nature of the job and conditions of the farm fields.
  - (5) If the clutch housing is drenched in water during tilling or puddling on wet fields, be sure to drain water collected in the housing by removing the drain plug provided at the bottom.

### ■ Safe use of Differential Lock

If the differential lock is used in the proper manner, it is very advantageous, but once it is used in a wrong way, it may be very dangerous, causing accidents.

\*\* The differential lock pedal should not be depressed at random. It should be used only in the cases below:

Note that when both rear wheels are turning at the same speed, the differential lock will not work even if the pedal is depressed.

\*\*\* At the time of entering or leaving the farm field and the ground condition is so bad that the rear wheels slip and the tractor cannot proceed.

\*\*\* A part of the field is so soft which catches one of the rear wheels, and the tractor cannot travel.

\*\*\* In case of plowing, the rear wheel closer to the ridge is caught in soft soil and slips.

\*\* Cautions for use of Differential Lock

\*\*\* Differential lock can not be engaged when travelling speed is too high or the difference of rotation speed between the left and right wheels is too large. In such case reduce the engine speed somewhat and step down on the pedal.

\*\*\* Once the differential is locked, it is sometimes impossible in case the wheels are under load, to unlock the differential by releasing only the lock pedal. Therefore, depress at the same time either right or left brake when travelling straight, or depress the brake pedal opposite to the side the tractor is going to when turning. When the brake pedal is depressed, the load on the wheel of that side will become lighter and then the differential lock can be released by the force of the spring in the lock system.

If the differential lock should not disengage, the tractor will be unable to turn, which is very dangerous. Be specially careful of this.

\*\*\* Never turn the tractor with the differential locked. Otherwise, abnormal force will be applied to the differential, very likely causing troubles.

### 5-8 STOPPING THE ENGINE

- (1) Reduce the engine speed by pushing the hand acceleration lever forward.
- (2) Depress the clutch pedal fully to disengage the clutch.
- (3) Place the main and hi-lo gearshift levers in neutral.
- (4) Push the acceleration lever fully. Then the engine will stop.
- (5) Remove the foot from the clutch pedal.

- (6) Return the main switch key counterclockwise to "Off" position and remove the key.

### CAUTION:

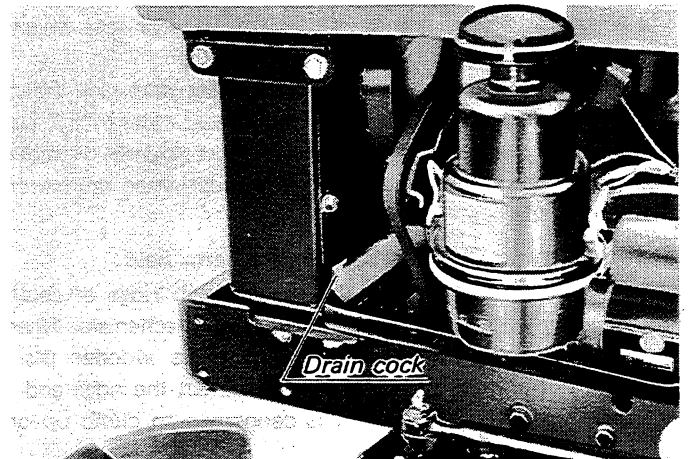
\*Do not pull the decompression knob to stop the engine. Only in emergency case when the engine does not stop even by pushing the acceleration lever fully, use the decompression knob to stop.

\*If the engine was stopped by pulling the decompression knob to release compression, and remained as it was, it might become difficult to start the engine next time, or may become the cause of other troubles.

### 5-9 STORAGE

When the tractor is not to be used for more than 2 or 3 months, clean the outside of the tractor well and take the following procedures for storage;

- (1) Drain out the dirty engine oil. If necessary, exchange the oil filter with a new one. Then wipe the inside of the crankcase clean. Fill new oil and run the engine for about 5 minutes so that the new oil would penetrate to the various parts.
- (2) Drain out the cooling water from the radiator: Open the drain cock on the bottom of the radiator and remove the radiator cap to drain out all the water. Leave the drain cock open. Hang a sign saying "No Water" on the radiator cap. During severe cold weather when air temperature falls below 0°C, freezing point, there are fears of the engine being damaged by freezing, so be sure to drain out all the water.



- (3) Be sure to close the fuel cock.
- (4) If the air cleaner should be extremely dirty, clean it. Refill new oil.

# For Safe Operation

- (5) Select a dry place which would not become wet with rain for storage. Keep the tractor covered with canvas sheets.
- (6) Grease or engine oil should be applied to the parts which are apt to become corroded.
- (7) Check the bolts and the nuts of the various parts for loosening and tighten if loose.
- (8) Remove the weights if amounted.
- (9) To decrease the weight on the tires, and to protect the tires from moisture of the ground, set blocks underneath the axle, or put wooden boards underneath the tires. The inflation pressure in the tires should be a little more than the standard pressure.
- (10) The wooden pieces in the Tool Box should be set to the clutch pedal so that the clutch would be completely disengaged.
- (11) Lower the implement to the ground. Do not leave it hanging.
- (12) Remove the battery from the tractor, re-charge and adjust the amount of the electrolyte to the proper amount. Keep the battery in dry and shady places.

Please read these safety tips.

Improper use of the tractor and its equipment can result in injury. To reduce this possibility, pay complete attention to the job at hand, observing the following cautions.

If you can prevent an accident, your time will have been spent well.

1. For travelling on roads, be sure to have both the brakes interlocked. Applying only one brake will result in sudden turning, which is very dangerous.
2. Reduce speed when turning or applying individual brakes.  
Do not attempt to turn too sharply nor at too fast a speed when using individual brake pedals.  
Tipover could occur.
3. Keep all shields and guards in place.
4. This vehicle is not for street or highway use.
5. Keep people and pets a safe distance away from the tractor.
6. Do not stand near the machine while in motion.
7. Keep hands, feet and clothing away from power driven parts.
8. Always wear relatively tight and belted clothing when operating the tractor.  
Loose jackets, shirts, sleeves or other loose clothing should not be permitted because of the danger of catching them in moving parts or controls.
9. Never allow passengers to ride or board the tractor any time.
10. Do not allow children to operate machine, or adults without proper instruction.
11. Always drive slowly over rough ground.  
Drive at speeds slow enough to insure your safety.
12. Confirm what is behind you before backing the tractor.
13. Keep alert for holes, ditches or other irregularities.
14. Operate the tractor at a safe speed.

# 6. Exchange of oil and Cleaning

15. Take care when operating the tractor on hillsides and curves to prevent tipping.
16. Do not start or stop suddenly when going up or down hills.
17. Before operating an implement with this tractor, read carefully the operation and safety suggestions in the operator's manual.
18. Clear work area of objects which might be picked up and thrown.
19. Repair any damage before restarting and operating the equipment.
20. When using a mower or other equipment, stop and inspect for damage after striking a foreign object.
21. Refuel your tractor only with the engine turned off.
22. Never smoke while filling the fuel.
23. Fill the tank out of doors and wipe up spilled fuel. Replace the cap securely.
24. Do not run the engine where ventilation is poor and noxious exhaust gas is easy to collect. While running the engine, protect workers and animals from exhaust gas.
25. Always turn off the switch key when working on the electrical system or when making adjustments to the engine or mounted equipments.
26. Before dismounting from the tractor:
  - \* Shift the transmission to neutral.
  - \* Set the parking brake.
  - \* Disengage the PTO clutch.
  - \* Stop the engine.
  - \* Remove the switch key.
27. After operating the tractor or engine, do not touch the exhaust muffler until it has had sufficient time to cool.
28. Adjust the tire width depending on the terrain.
29. Use the implement lock chain (if available) when you want to travel on the road.

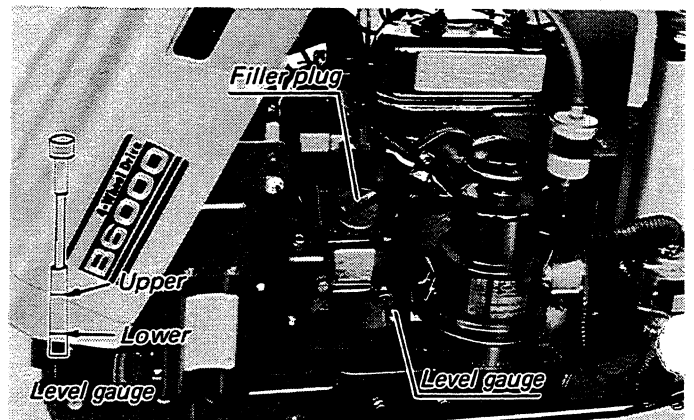
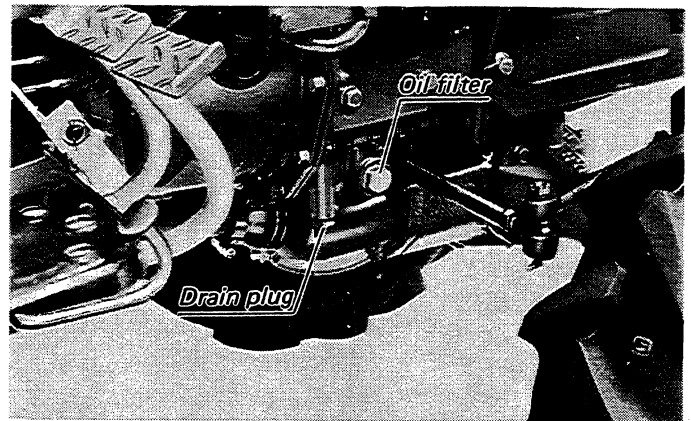
## 6-1 EXCHANGE OF ENGINE LUBRICATING OIL (Crankcase Lubrication)

After the first 35 hours of operation of a new tractor and 75 hours thereafter, exchange oil.

Do not mix the oil to that of a different brand or of a different viscosity. Wash and clean the inside of crankcase with light oil or kerosene in case the inside becomes dirty.

### ■ Replacement of Oil:

- (1) Remove the drain plug underneath the crankcase and drain the oil. It is easier to drain oil while the engine is warm.
- (2) Take out the oil filter and rinse off the dirt and other foreign matters on the screen in light oil or kerosene. Wipe off the iron grit clinging to the magnet on the tip of the oil filter.
- (3) Wash and clean the inside of the crankcase if necessary. Fix the oil filter and oil drain plug into the crankcase.
- (4) Pour in new engine lubricating oil until it rises to the upper mark of the oil level gauge. Capacity is about 2 liters.





### ■ Lubricating Oil:

Oil used in the engine should have an American Petroleum Institute (API)/SAE classification of Service DS.

Depending on prevailing air temperature, use oil of viscosity shown in the following chart;

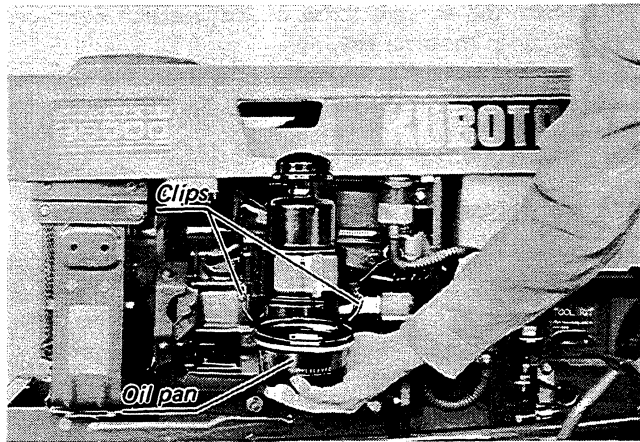
Air Temperature	Oil
Above 77°F (25°C)	SAE 30
Between 32°F – 13°F (0°C – 25°C)	SAE 20
Below 32°F (0°C)	SAE 10W, 10W – 30

## 6-2 AIR CLEANER OIL

Air cleaner is of oil-bath type. Suctioned air flows as shown by the arrows. When the tractor is used in dirty and dusty places, check the air cleaner everyday of operation. In such cases, throw away the dirty oil, wash the inside with light oil or kerosene, and then fill with new oil up to the oil level mark.

Disassemble the air cleaner and clean the filter before long time storage in the manner explained below;

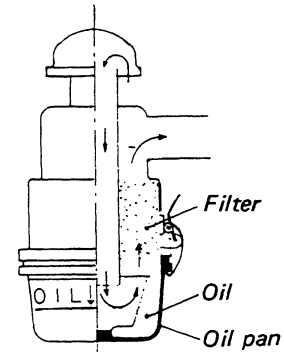
- (1) Rinse the air cleaner filter in light oil or kerosene. Shake the cleaning oil off dry.
- (2) Wash the oil pan.
- (3) Pour new oil into the oil pan and assemble.



### CAUTION:

\*Never use gasoline for cleaning or rinsing. Gasoline might cause fire hazards.

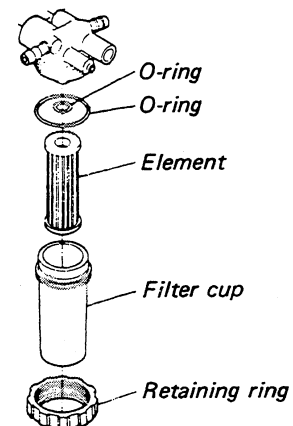
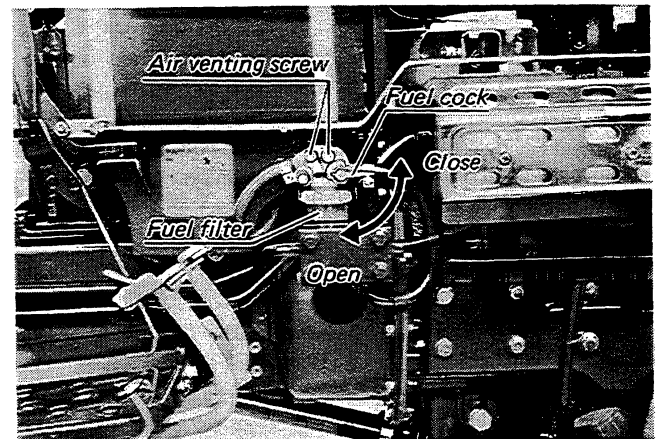
†Do not pour new oil more than the indicated oil level mark. If excessive, oil would be sucked into the engine, and cause the engine speed to become uncontrollable.



## 6-3 FUEL FILTER CLEANING

Every 100 hours operation, clean the fuel filter:

- (1) Close the fuel cock.
- (2) Loosen the retaining ring, remove the filter cup and wash the inside of the cup with light oil or kerosene.
- (3) Remove the filter element by pulling gently downwards and rinse in clean light oil or kerosene.



- (4) Assemble the parts being careful that parts are not dirty or dusty.
- (5) Turn the main switch to the right one stage and operate the fuel delivery pump.
- (6) Open the fuel cock, loosen two air venting screws by 2 or 3 turns. When fuel is discharged without air bubbles, tighten the air venting screws.
- (7) At the same time, vent the air from the fuel injection pump in the manner explained later.

#### CAUTION:

\*If dirt or dust is mixed in the fuel oil, it would shorten the life of the fuel injection pump and the fuel injection nozzle. Be careful to clean the fuel filter.

\*In case of replenishing fuel into the fuel filter, use fuel which is passed through the fuel tank's filter.

#### 6-4 FUEL PIPE

Fuel pipe is made from synthetic rubber. Exchange it with new pipe every 2 years because the pipe ages and becomes weaker. At that time replace the pipe bands, too. Check the fuel pipe every 50 hours of operation or every 2 months. If any damages or cracks are found, replace with a new pipe.

Fuel leakage will cause big accidents, therefore, check the looseness of the pipe bands, cracks or any damages on the pipe and always keep the engine clean for easy checks.

#### 6-5 CARTRIDGE FILTER REPLACEMENT

Cartridge filter is provided between the fuel delivery pump and the fuel injection pump. Replace it every 3 years.

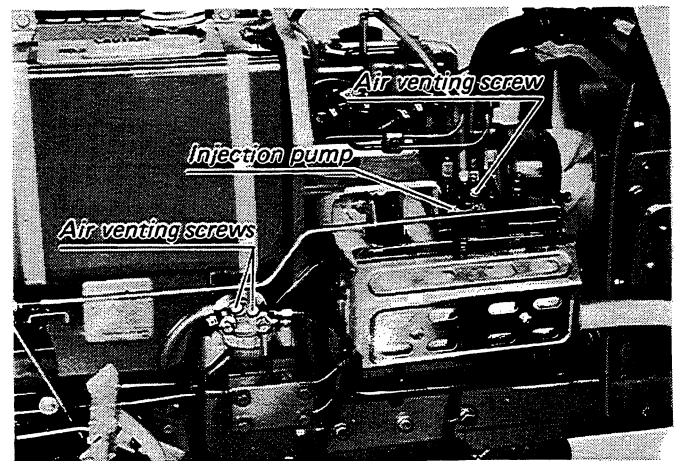
When replacing it, cover the tip of the fuel pipe with vinyl to avoid any dust from sticking on or entering into the fuel.



#### 6-6 AIR VENTING IN THE FUEL SYSTEM

When the empty fuel tank is filled with new fuel, or when fuel in the tank has been used until the tank becomes empty, it is necessary to vent air from the fuel system.

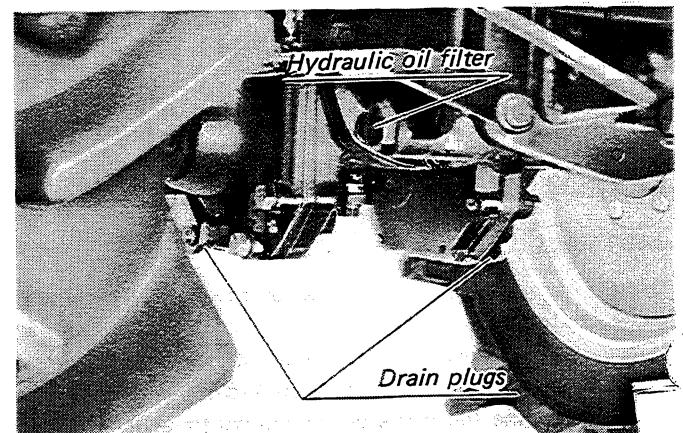
\*Air venting in the fuel system is as follows:



- (1) Fill the fuel tank with fuel. (Use only Diesel light oil or No.2 diesel fuel.)
- (2) Loosen the air vent screws of the fuel filter 2 or 3 turns using a wrench.
- (3) When there is no more air bubbles in the fuel which flows out, tighten as before.
- (4) Loosen the air vent screw of the injection pump and vent air in the same way.

When the air venting is finished, fuel which do not contain air bubbles will be filtered by the fuel filter and sent to the fuel injection pump.

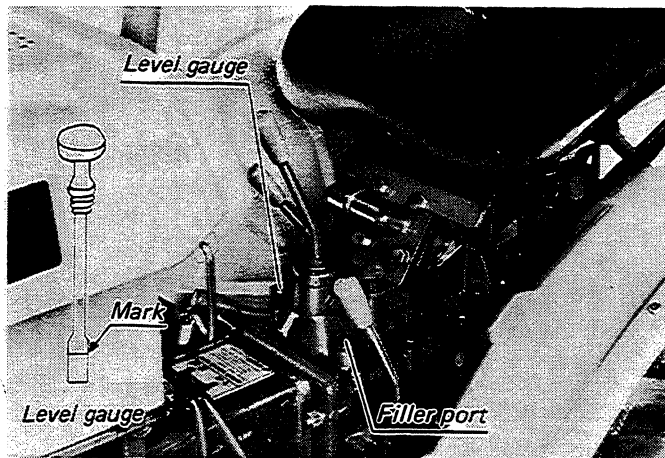
#### 6-7 TRANSMISSION CASE OIL EXCHANGE



Transmission case oil is used for hydraulic pressure developing too.

Drain the used oil by removing the drain plugs underneath the transmission case. After drainage, disassemble and wash the hydraulic oil filter. Fix them again and pour new oil (SAE No.80) 2.38 Gallons (9 lit)

The upper mark on the oil level gauge means that amount is about 2.38 Gallons (9 lit)

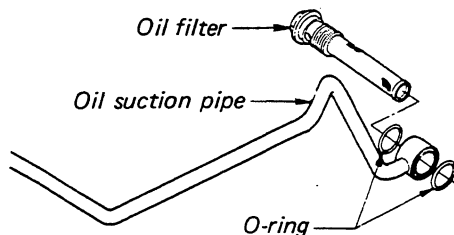


### 6-8 HYDRAULIC OIL FILTER CLEANING

(Clean this at the same time of replenishing the transmission case oil.)

Hydraulic parts are finished precisely so as to endure severe high pressure. Therefore, hydraulic oil filter is provided on the tip of the suction pipe to avoid small dust which may cause damages on the hydraulic parts.

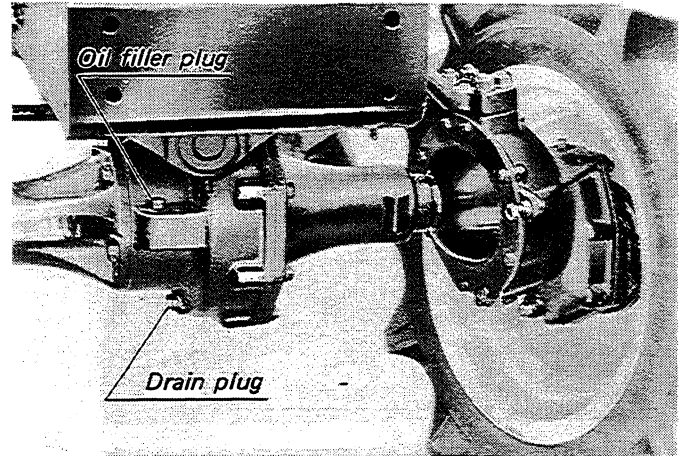
Disassemble and rinse the filter in kerosene at the time of replenishing the transmission oil.



### 6-9 FRONT AXLE CASE OIL (B6000 only)

Remove the drain plug and the oil filler plug. Drain the used oil.

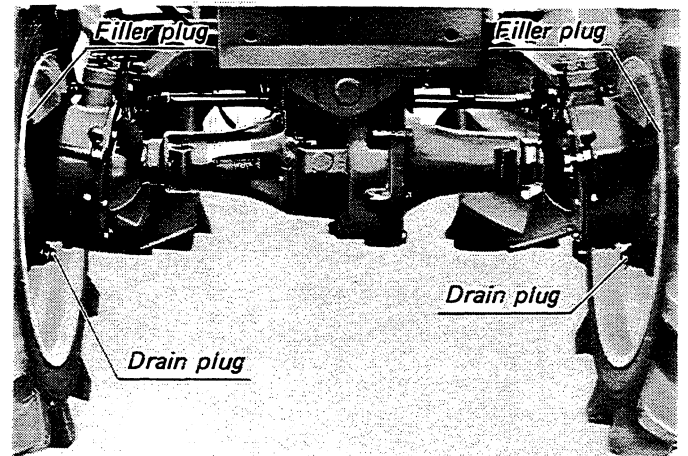
Fix the drain plug and pour new SAE No.80 gear oil 0.13 Gallons (0.5 lit)



### 6-10 FRONT WHEEL GEAR CASE OIL (Left and Right Sides) (B6000 only)

Remove the drain plugs and the oil filler plugs. Drain the used oil.

Fix the drain plugs and pour new SAE No.80 gear oil 0.05 Gallons (0.2 lit) in each gear cases.

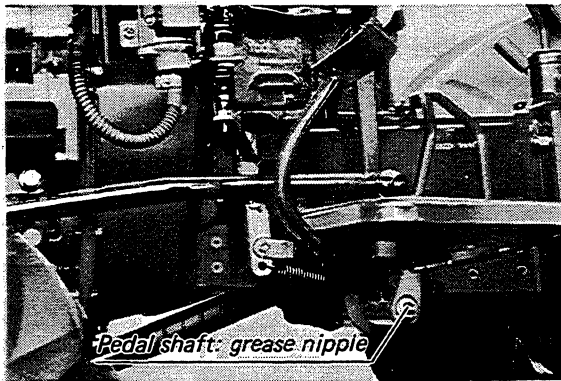
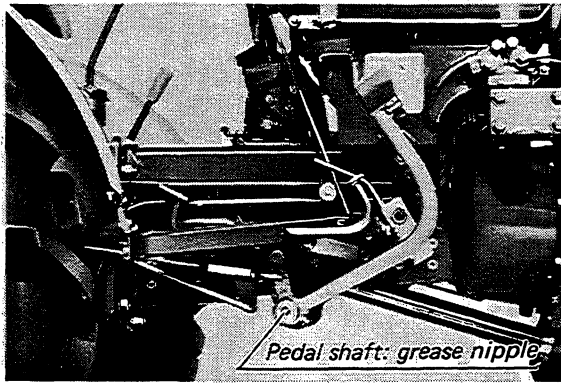


## 6-11 LUBRICATION OF OTHER PARTS

Before daily operation, be sure to apply the grease or gear oil to the following parts.

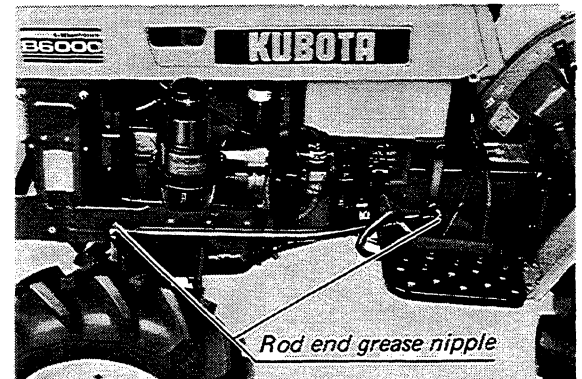
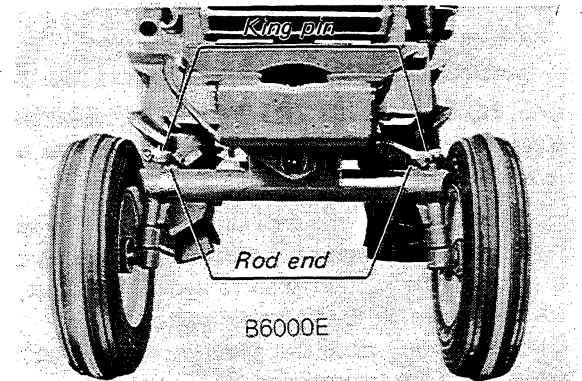
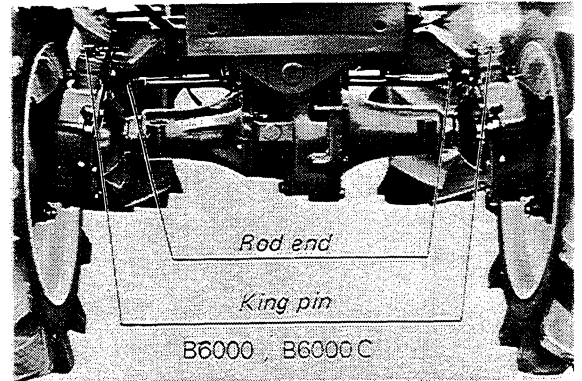
### ■ Pedals

Apply grease using a grease pump which is in the accessory Tool Kit.



### ■ King Pin and Tie Rod

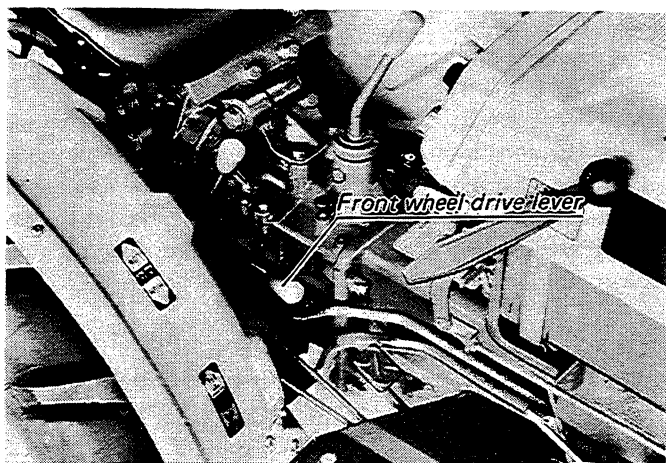
Apply grease using a grease pump which is in the accessory Tool Kit.



## 7. Maintenance of Radiator and Battery

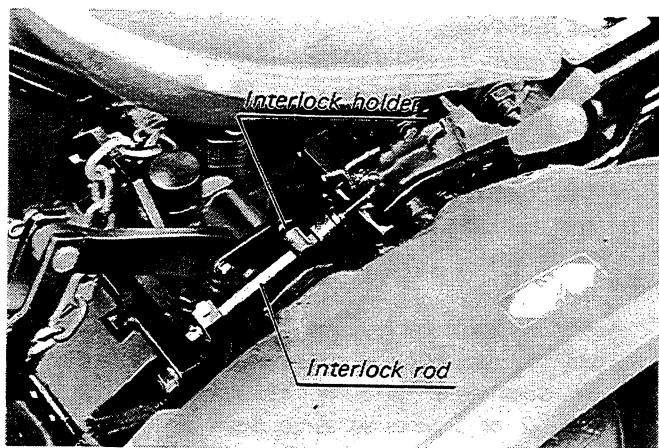
### ■ Front Wheel Drive Lever (B6000 only)

Apply gear oil into the ball groove at the foot of the front wheel drive lever.



### ▼ Interlock Rod

Apply grease or gear oil to the interlock holder and the interlock rod.



### 7-1 RADIATOR

The radiator has been constructed rigidly but if handling is mistaken, the radiator may be damaged and the engine may be damaged because of it. If the radiator is filled with clean water before start of work, it would be ample for one day's work. (Make it a habit to check the water level every day before start of work.)

#### ■ In Case of Excessive Over-Flow

Cooling water may over-flow because the water is heated and therefore expanded during operation.

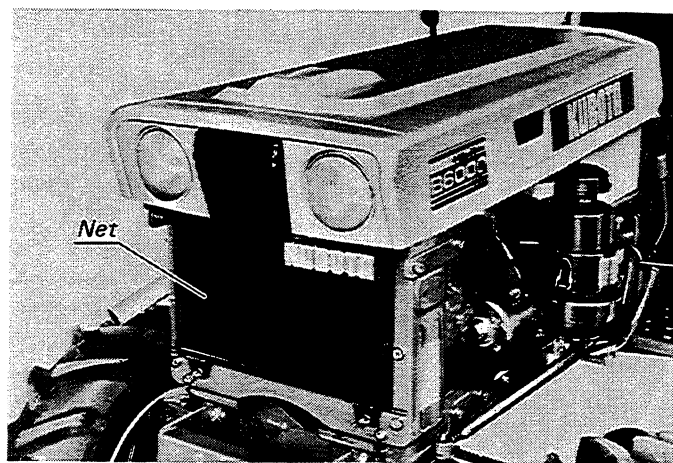
If over-flow continues during the engine operation and causes a shortage of cooling water, check and clean the radiator;

(1) Clean the radiator net.

When the tractor is used in wet farm field, grass seeds may get caught, or mud splash onto the radiator net.

Also when used at night, insects may become caught on the net.

In such cases remove the net and clean it.



(2) Check to see if dirt, dust, etc. is caught in the radiator net or radiator tubes and fins.

Check to see if the fan belt has not become loosened and is taut.

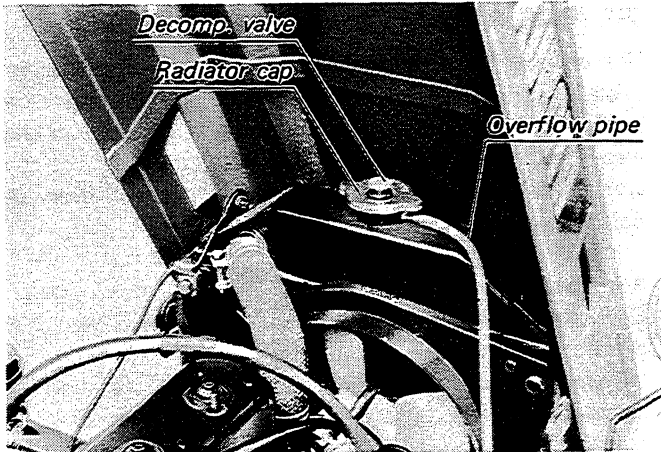
Check to see if furs have formed in the tubes or pipes of the radiator.

#### ■ Pressurized Radiator Cap

Be sure to close the radiator cap securely.

The radiator cap seals in the water.

If the cap is loose or not properly sealed, the water and the vapor would spill out and soon cause a shortage of water.

**CAUTION:**

Do not open the radiator cap while the engine is running under load or immediately after the engine has been stopped. If the cap should be opened in such cases, hot water would gush out and cause scalding.

Wait about 10 minutes before opening the cap. Make it a habit.

**■ Radiator Hose (Water Pipe)**

Check the condition of the radiator hose regularly, every 150 hours operation or every 6 months, whichever occurs first.

\*\* Tighten the tightening band of the hose if loose.

\*\* Exchange the hose and the band with new ones if damaged or every 2 years.

Make it a rule to change the hose and the bands whenever they become damaged or whenever the bands are not working properly. Damaged hose or bands should be immediately replaced with new ones. If the hose should become cracked or otherwise faulty, hot water would gush out and might cause scalding.

Parts to be changed:

Parts Name	Parts No.
Water pipe 1	- 15231-7285-1
Water pipe 2	15231-7294-1
Band	15231-7278-1

**■ Use of Anti-Freeze**

When the water freezes, there are fears that the cylinder and the radiator would be damaged.

In winter drain out the cooling water after the tractor has been used, or use anti-freeze.

There are two types of anti-freeze; permanent type (PT type) and semi-permanent type (SPT type).

In the Kubota engine, always be sure to use the permanent type (PT type).

**(1) Washing of the cooling system;**

When the anti-freeze is to be used for the first time, pour clean water into the radiator and then drain. Repeat 2 or 3 times so as to clean the inside of the radiator.

- (2) The mixture of the anti-freeze varies with the temperature, so please be careful of the ratio to be used. Also, the mixture varies a little depending upon the manufacture.

Therefore, ask the store for the instructions as to the amount and the method of use.

The effective capacity of the radiator is about 0.79 Gallons (3 lit)

- (3) Mix anti-freeze well with the water;  
If the anti-freeze is to be used by pouring in without mixing, run the engine after pouring in the anti-freeze so as to mix it well with the water.
- (4) Addition of anti-freeze;  
If the cooling water decreased because of evaporation, just add water. If water has decreased because of leakage, make a mixture of water and anti-freeze in the same portion as initially made and then add to the radiator.
- (5) Anti-freeze will absorb moisture, so be sure to keep the container well-covered after use.
- (6) Since anti-freeze contains anti-corrosive chemicals, it is not necessary to use Kubota Radiator Fur Inhibitor No.11 when anti-freeze is used.

#### ■ Cleaning the Radiator:

Clean the water cooling system of the engine after every year's operation. Also, clean the inside of the radiator when mixing anti-freeze or when changing from water mixed with anti-freeze to only water.

In such cleaning, use Kubota Radiator Cleaning Agent No.20.



## 7-2 BATTERY

Periodical maintenance is necessary for the battery because the life would greatly depend on your care.

- (1) When the battery becomes discharged, it would become difficult to start the engine and the lights would become dim.

It would be too late if the battery should be discharged

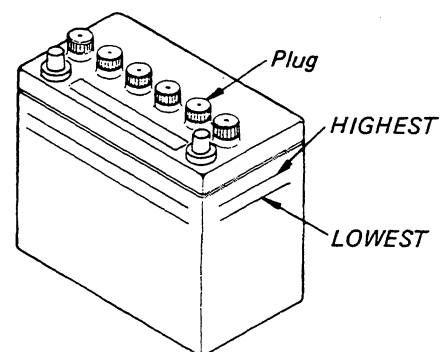
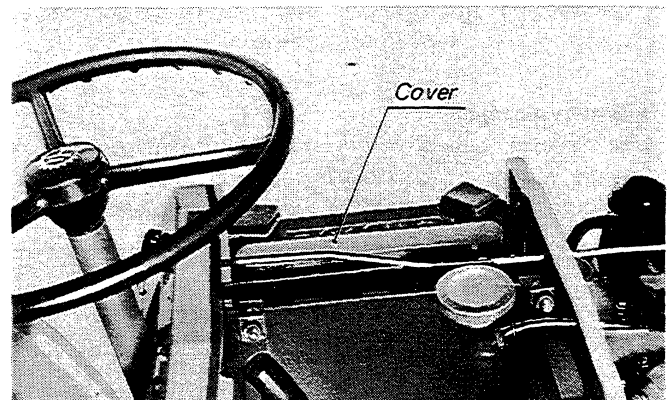
to such a condition. The battery should be charged before it becomes completely discharged.

- (2) In the battery, the water in the electrolyte would become evaporated or the electrolyte would decrease during the charging procedure.

When there is a shortage of the electrolyte, the battery would be damaged, if the electrolyte should be excessive, it would spill and damage the tractor.

- (3) Maintain the electrolyte at proper level, between HIGHEST and LOWEST lines. Be sure to add distilled water to always keep the level higher than the LOWEST line.

- (4) When charging the battery, connect the + of the battery to the + of the charger; and the - of the battery to the - of the charger and charge in the ordinary way (long time charging).



- (5) Rapid charging method is the way of charging the battery in a very short time with a large current when the battery is in the discharged condition. This method should be used only in cases of emergencies. It should be added here that if the engine should be started in this way, after the tractor work is finished and as soon as possible, the battery should be correctly and fully charged by the long time method.

# Instructions for new battery

\*When mounting the battery on the tractor, be sure to connect + and - terminals correctly. If not, it may damage the fuel delivery pump.

- (6) When repairing the electric circuit, be sure to disconnect the minus cord from the battery. (Remove the - cord.)
- (7) Life of the battery is said to be 2 years. Using more than 2 years will cause difficulty in engine starting. Replace with new one.

## ■ For Long time Storage

- (1) When the tractor is to be stored for a long period of time, remove the battery from the tractor, fill the electrolyte to the correct level and keep stored in a dry and shady place.
- (2) The battery will discharge, even during the storage at the rate of 0.5 to 1% of the amount of full charge a day, so charge the battery once a month during the summer and once in two months during the winter.

## ■ Battery Charging

The relation between the atmospheric temperature and specific gravity of the electrolyte, which shows the charged condition, is approximately as the following table;

Specific gravity \ Temperature	68°F	59°F	50°F	41°F	32°F	23°F
	(20°C)	(15°C)	(10°C)	(5°C)	(0°C)	(-5°C)
Usable	1.260 1.230	1.264 1.234	1.267 1.237	1.271 1.241	1.274 1.244	1.278 1.248
Immediate charge is necessary	1.220	1.224	1.227	1.231	1.234	1.238

When being charged at a automobile repair shop or a gasoline station instruct the shop-man to charge fully.

Check to see the specific gravity is more than 1.26 (at 20°C) after the charging work has been completed.

Electrolyte are dilute sulphuric acid solution. Be careful not to spill electrolyte on clothings or hands. The solution would cause holes in the clothings and burns on the hands.

1. Screw off vent plugs and discard temporary sealing cardboards and tapes. The sealing cardboards and tapes should not be refitted after the batteries are filled with electrolyte.
2. Fill each cell with electrolyte having a specific gravity given in Table 1.

Table 1

	AIR TEMPERATURES	
	TEMPERATE Ordinarily below 90°F (32°C)	TROPICAL Frequently above 90°F (32°C)
sp.gr. of Electrolyte for Filling	1.260	1.240
sp.gr. of Electrolyte when fully charged	1.260 to 1.275	1.240 to 1.255

3. After standing 1 or 2 hours correct the electrolyte to former level.
4. Connect positive terminal (+) of battery, with positive terminal of D.C. charging unit, and negative terminal (-) with negative terminal.
5. Batteries are preferably charged by current showed in Table 2. Keep vent plugs removed during charging.

Table 2

TYPE	Volts (V)	Number of Plate per cell	Capacity at 20 H.R (A.H)	Volume of Electrolyte (l)	Normal Charging Rate (A)
NS70	12	13	65	4.6	6.5

6. Check temperature of electrolyte. The temperature should be under 105°F (40°C). When the temperature is too high, reduce charging rate and charge for a proportionately longer period.



# 8. Adjustment

7. This battery are then ready for use, it is preferable, however to give a freshing charge for several times showed in Table 3.

Table 3

Period of storage from manufactured (months)	freshing charge (times)
0 - 6	about 8-10 hour
6 - 12	12-16
over 12	60

A battery is fully charged when the cell are all gassing freely and the specific gravity ceases to rise for three consecutive readings taken at an hour intervals. Specific gravity shall then be adjusted to showed in Table 1.

8. Check electrolyte level two hours after charging is finished and correct it if necessary by adding distilled water.

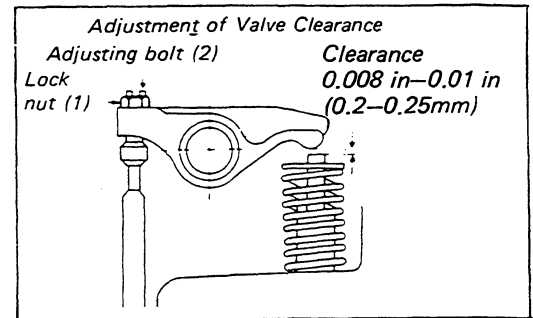
## OPERATING INSTRUCTION

- Battery must be fixed tightly in case or holder.
- The battery should be secured and the connecting cables properly fitted and sufficiently long to prevent pulling the terminals on battery.
- Keep vent plugs tight on the vent holes.
- Keep battery and surrounding parts, particularly, the tops of the cells clean and dry.
- Keep the terminals and the cables free from corroison being coated with pure vaseline or grease.
- The level of electrolyte should always be kept between the level lines.  
Add approved water (preferably distilled water) regularly to each cell until this level will be reached. Never add acid.
- Recharge battery periodically after 4 weeks when operation in irregular or battery is taken out of service, but only until all cells gas evenly and freely.  
**Make sure to prevent overcharging.**
- Battery should be charged once each month when is service.

## 8-1 VALVE CLEARANCE OF ENGINE

It is essential that the valve clearance is precisely adjusted to maintain the best condition of the engine.

- Remove the cylinder head cover, and make the adjustment at the top compression (at the time when the tip of the rocker arm does not push down the valve and in a loose condition).
- With the engine cold, loosen the lock nut (1). Then by the adjusting bolt (2), make the clearance zero (being careful not to push down the valve too hard).
- Then turn back  $158^{\circ}\text{F}$  to  $194^{\circ}\text{F}$  ( $70^{\circ}$  to  $90^{\circ}$ ) and the valve clearance will be 0.008in - 0.01in (0.20 - 0.25 mm). The pitch of the adjusting screw is 1mm. After making the adjustment, be sure that the lock nut (1) is securely tightened, and check the clearance if it is at the standard 0.008in - 0.01in (0.20 - 0.25mm).

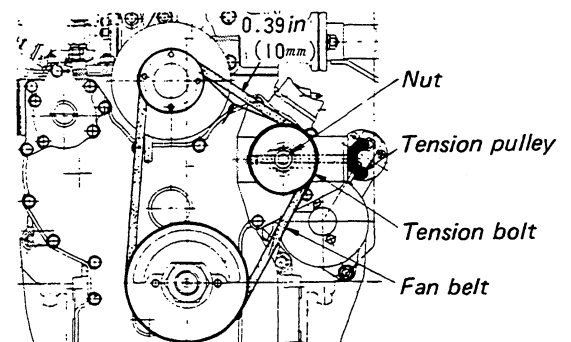


## 8-2 TENSION OF FAN BELT

If the tension of the fan belt becomes loose, the engine may be over-heated. The tension should be taut enough so that if the belt is pressed down with finger 22 lbs. (10 kg), it would be about 0.39 in (10mm).

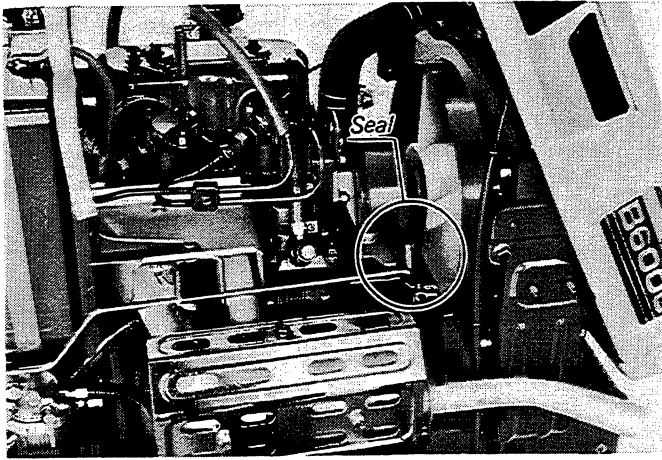
To tighten the fan belt, first loosen the adjusting nut, screw in the tension bolt and extend the belt tension.

After making the adjustment, be sure to tighten the adjusting nut securely.



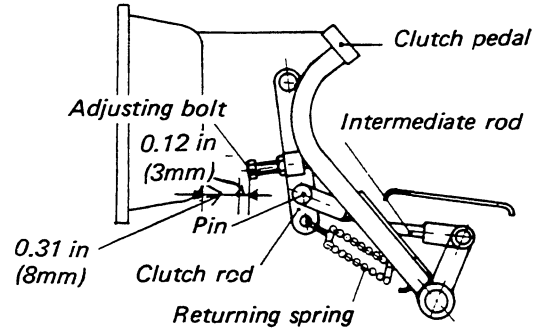
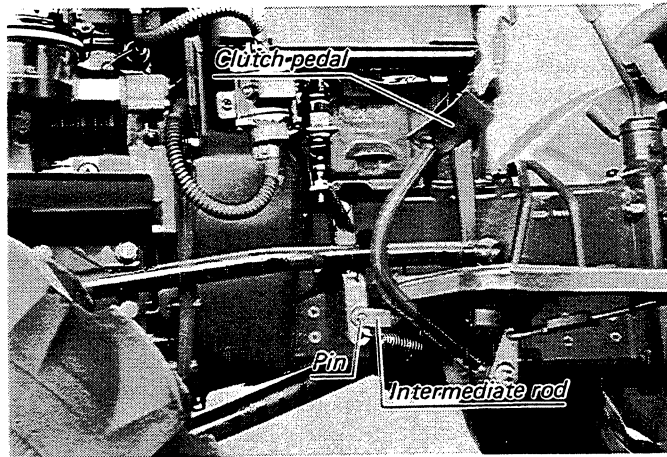
### 8-3 ENGINE RPM AND OUTPUT RESTRICTION

The speed of the engine has been adjusted and set to rated speed of 2900 rpm in the factory. Furthermore, the output of the engine has been set and restricted at the factory. Therefore, do not touch the sealed screws.



### 8-4 CLUTCH PEDAL

If the clutch becomes hard to disengage, adjust the free travel to 0.59 – 1.18in (15 – 30mm) by first removing the pin and loosening the intermediate rod to lengthen. If the free travel is decreased, screw in the rod to shorten and make the free travel the proper 0.08in (2mm). Total travel of the clutch pedal should be adjusted by moving the adjusting bolt and nut to the position where the clutch is completely disengaged.



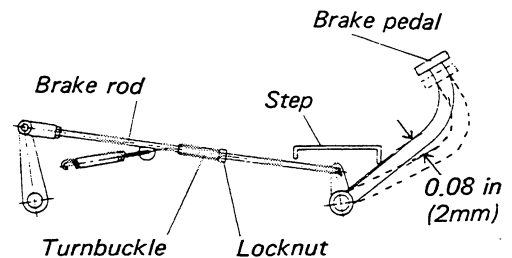
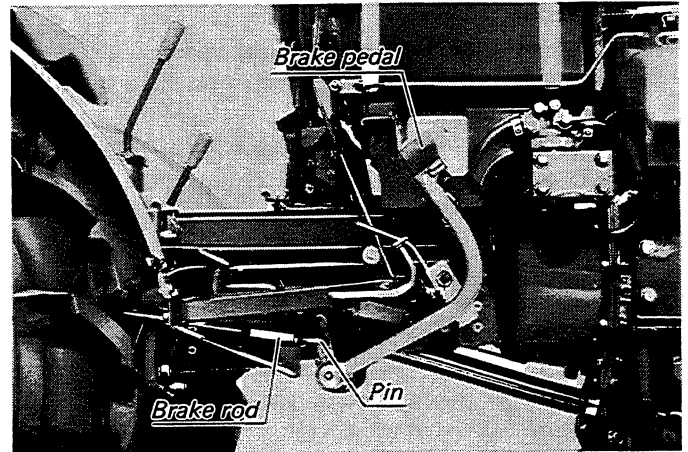
### 8-5 BRAKE

Travel of the brake pedals changes due to wear on the brake linings.

The adjustment of free travel is made by adjusting the length of each brake connecting rod with the turnbuckle used in the rod.

When the free travel is great, shorten the rod; when the free travel is small, lengthen the rod.

Proper free travel of both left and right pedals is 0.08 (2mm). Be sure that the total travel would be the same between both pedals. Check and make certain of this by depressing both pedals linked or interlocked together.



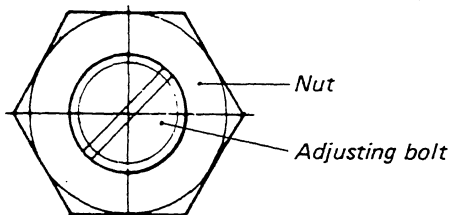
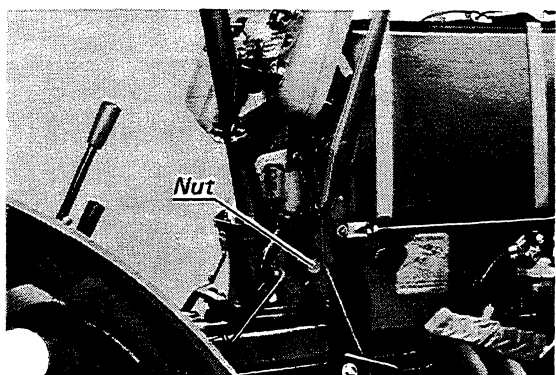
### 3-6 STEERING HANDLE

The free travel of the steering handle should be 0.79 – 1.18 in (20 – 30mm) at its circumference.

Adjust it if so required by loosening the nut and turning the adjusting bolt.

Turning the bolt anti-clockwise makes the free travel of the handle smaller.

After adjustment, be sure to tighten the nut securely.



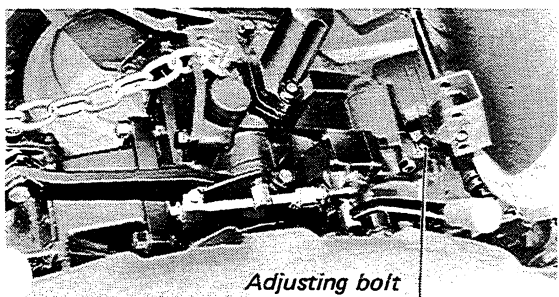
### 8-7 LOWERING SPEED OF IMPLEMENT

Down speed of the implement can be adjusted according to the kind of implement or work.

Adjust the down speed by loosening the lock nut and turning the adjusting bolt on the hydraulic control valve under the seat.

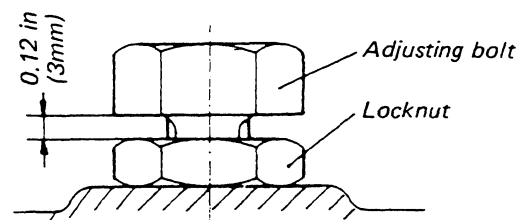
Turn clockwise to lower slowly.

Turn anti-clockwise to lower quickly.



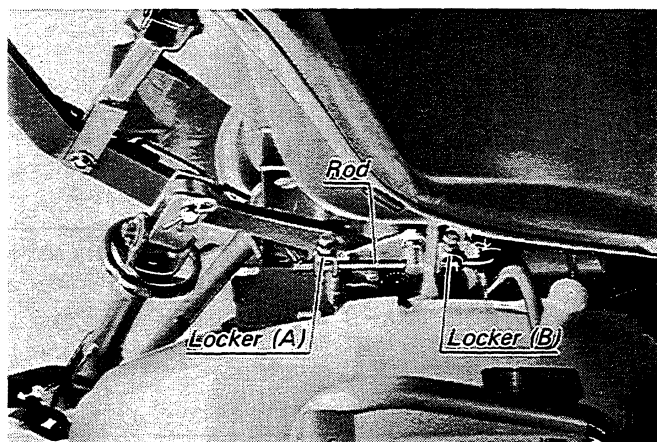
After adjustment, be sure to tighten the lock nut securely.

The standard down speed could be obtained by keeping the bolt head and the lock nut at 0.12in (3mm).



### 8-8 LIFTING AMOUNT OF IMPLEMENT

Lifting or lowering amount of the implement can be changed by moving the position of the lockers.



#### ■ Adjustment of Lowering Limit

Lowering limit is adjusted by the locker (A).

Move the locker (A) to rear side to make the lowering amount larger.

Move the locker (A) to front to make smaller.

#### ■ Adjustment of Lifting Limit

Lifting limit is adjusted by the locker (B).

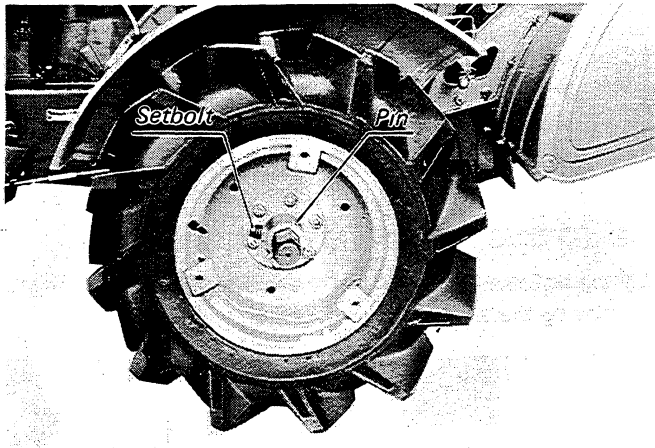
Move the locker (B) to rear side to make the lifting amount smaller.

Move the locker (B) to front to make larger.

### 8-9 ADJUSTMENT OF REAR WHEEL TREAD

The rear wheels are fixed to the hexagonal axle with the pin and the set-bolt.

Adjust the tread to the proper one among 6 stages; 660mm, 710mm, 760mm, 820mm, 870mm and 920mm.

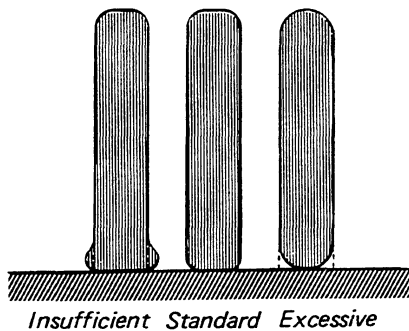


### 8-10 AIR PRESSURE OF TIRES

Standard air pressure is

B6000	Front	6 - 12	16.8 psi (1.2kg/cm <sup>2</sup> )
	Rear	7 - 16	25.6psi (1.8kg/cm <sup>2</sup> )
B6000E	Front	400 - 9	22.4 psi (1.6kg/cm <sup>2</sup> )
	Rear	7 - 16	25.6psi (1.8kg/cm <sup>2</sup> )
B6000ET	Front	20 x 800 - 10	24 psi (1.7kg/cm <sup>2</sup> )
	Rear	27 x 850 - 15	11.2psi (0.8kg/cm <sup>2</sup> )

If insufficient, inflate with air compressor or a high pressure hand pump. Also check and make certain that none of the tires are too worn or damaged.



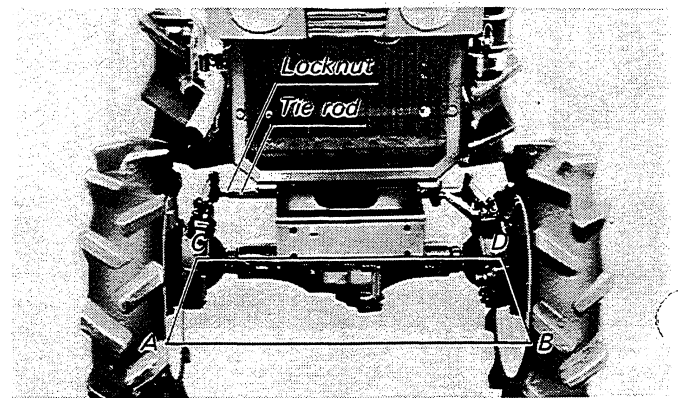
### 8-11 TOE-IN ADJUSTMENT

If the tractor travelling becomes unstable, the steering handle becomes too heavy or hard to return, adjust the toe-in.

First measure the front distance A · B and rear distance C · D between both left and right front tires.

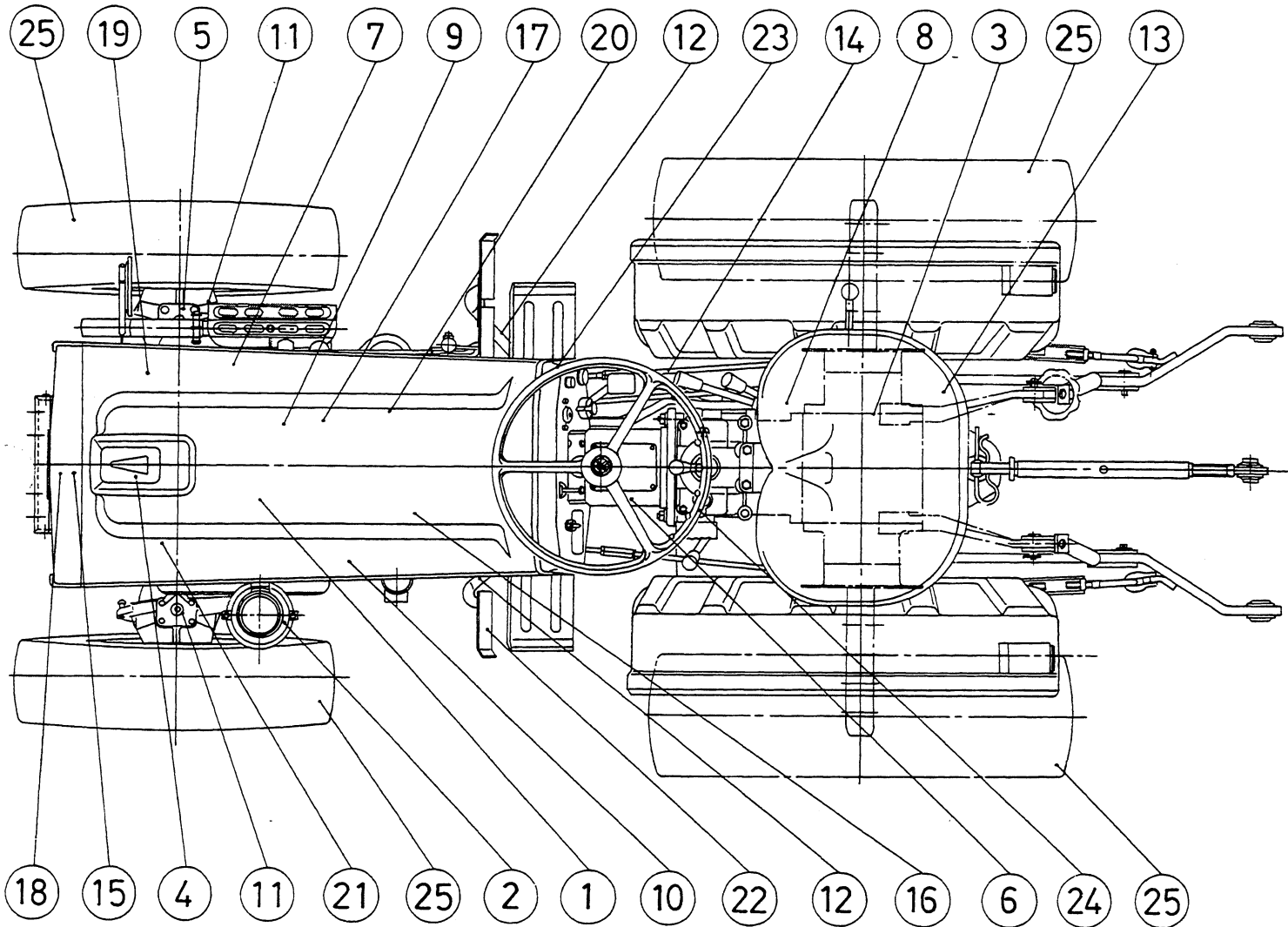
The standard (CD - AB) value is 0 to 0.2in (5mm).

If the difference is more than 0.2in (5mm), adjust the toe-in by loosening the locknut on the tie rod and turning the tie rod.



# 9. Maintenance and Check-List

## 9-1 MAINTENANCE AND CHECK-LIST



(Remarks) ● : Check or Replenishing  
○ : Exchange or Cleaning

No.	Items	Service	Capacity	Operation Time			
				Daily (before operation)	Every 50hrs.	Every 100hrs.	Every 300hrs.
1	Engine crankcase oil	SAE30, 20, 10W-30	0.53GA(2 lit.)	●	○ : Change at initial 35 hours, every 75 hours thereafter.		
2	Air cleaner oil	Same	Up to the level	●	○		
3	Transmission case oil	SAE80	2.38GA(9 lit.)	●	○		○
4	Front axle case oil	SAE80	0.13GA(0.5 lit.)		○		○
5	Front wheel gear case (right & left sides)	SAE80	0.05GA(0.2 lit.)		○ Initial		○ There after
6	Steering case	SAE80	0.05GA(0.2 lit.)				○
7	Crankcase oil filter				○		○
8	Hydraulic oil filter				○		○
9	Fuel filter					○	
10	Cartridge filter			(Change once in 3 years.)			
11	King pin & Rod end	Chassis grease	proper	●			
12	Pedal shafts	Chassis grease	proper	●			
13	Interlocking rod	Lube oil or grease	proper	●			
14	Front wheel drive lever		proper	●			
15	Radiator	Water amount, leakage		●			○
16	Battery	Electrolyte, charg. condition		●	○ : Change once in 1 or 2 months. Replace once in about 2 years.		
17	Fuel tank	Fuel amount	2.64GA(10 lit.)	●			
18	Radiator hose	Leakage		(○ : Replace every 2 years)			
19	Nozzle piece	Checking				○	
20	Fuel pipe	Leakage	(Replace every 2 years)			●	
21	Fan belt	Tention				●	
22	Clutch	Free travel				●	
23	Brake	Free travel				●	
24	Steering	Free travel				●	
25	Tire	Pressure		●			

## 9-2 TROUBLES AND COUNTERMEASURES FOR BATTERY

Condition of Battery	Cause of Trouble	Measures	Precaution
Starter does not function	Battery over-used until light becomes dim.  Charging of battery neglected.  Defective generator, rectifier    Defective terminal contacts   Life of battery expired	Charge for long period by ordinary charging method until gas develops amply. (24 hour charging)  Repair generator and replace defective rectifier.  Charge battery well.  Wash terminal with hot water and tighten well.  Replace battery	Do not overuse the battery and charge before fully discharged. (Refrain from overdischarging)  Check generator, rectifier.    Keep terminals clean, tighten well and grease to prevent corrosion.
From beginning, starter does not function, and lights become dim quickly.	Battery not charged well	Charge battery for long period by ordinary charging method. (24 hr charging)	Charge battery well before using.
Upper part of battery plates white when seen from hole in top.	Battery used with shortage of electrolyte.  Battery over-used. Moreover, charging was neglected. (Refrain from over-discharging.)	Add distilled water and charge battery.  Charge for a long period.	Make routine checks of electrolyte.  Do not overuse the battery and before fully discharged.
Battery cannot be charged, even if tried.	Defective generator, rectifier. Defective terminal contacts causing sulphation of electrodes.  The current of the generator during operation is too large causing electrodes to drop, bend or short-circuit.  Life of battery expired.	Check generator and rectifier and charge for long period by ordinary charging method.  Decrease the charging current of generator. Repair or exchange defective battery.  Exchange battery.	Make routine checks of generator, rectifier and terminals.  Be careful of charging current of generator.
Corrosion of terminals severe and terminals be heated.	Contact of terminals defective, terminals dirty.	Wash terminals and tighten well.	Keep terminals clean and well tightened. Apply grease to prevent corrosion.
Electrolyte decrease rapidly.	Current of the generator during operation is too large.  Tractor being used in hot places.  Storage battery cracked or small holes.	Adjust charging current of generator.  Devise ways so temperature would not rise.  Replace battery	Be careful of charging current of generator.  Be careful temperature does not rise.  Secure battery to tractor so it would not move.

### 9-3 TROUBLES AND COUNTERMEASURES FOR ENGINE

#### ■ When Engine is Difficult to Start

Cause	Countermeasures
Fuel is viscous and doesn't flow	<ul style="list-style-type: none"> <li>* Check the fuel oil tank and fuel oil filter.</li> <li>* Remove water, dirt and other precipitation.</li> <li>* As all fuel oil will be filtered by the filter, if there should be precipitations or other foreign matters on the filter, clean well with kerosene.</li> </ul>
Air or water mixed in fuel oil system	<ul style="list-style-type: none"> <li>* If air mixed in the fuel filter or injection pipe, the fuel pump will not work properly. To attain proper fuel injection pressure, check carefully for loosened fuel pipe coupling, loose cap nut, etc.</li> <li>* Loosen air vent screws stop fuel filter and fuel injection pump to eliminate all the air in the fuel oil system.</li> </ul>
Thick carbon deposits on orifice of nozzle piece	<ul style="list-style-type: none"> <li>* This is caused when water or dirt is mixed in the fuel oil. Clean the nozzle injection piece, being very careful not to damage the orifice.</li> <li>* Check to see if nozzle piece is working properly or not. If not, change for new nozzle piece.</li> </ul>
Valve clearance is wrong	<ul style="list-style-type: none"> <li>* Correct to proper valve clearance of 0.008-0.01in (0.2-0.25mm) when the engine is cold.</li> </ul>
Gas leakage from valve seat	<ul style="list-style-type: none"> <li>* Grind valve.</li> </ul>
Fuel injection timing is wrong.	<ul style="list-style-type: none"> <li>* Adjust to proper fuel injection timing.</li> <li>* The proper injection timing is 78.8°F (26°) before top dead center.</li> </ul>
Lubrication oil becomes viscous in cold weather and rotation of engine becomes heavy.	<ul style="list-style-type: none"> <li>* Pour boiling water into the radiator.</li> <li>* Change grade of oil according to the weather (temperature).</li> </ul>
Compression is insufficient	<ul style="list-style-type: none"> <li>* Bad valve and excessive wear of rings, pistons and liners cause insufficient compression. Replace with new parts.</li> <li>* Remove air cleaner and pour about 5 cc (0.005 qt) lube oil into inlet tube.</li> </ul>
Battery is discharged and the motor cannot pass compression point	<ul style="list-style-type: none"> <li>* Charge battery.</li> <li>* Use decompression device.</li> <li>* In winter, always remove battery from tractor, charge fully and keep indoors. Set to tractor at time of use.</li> </ul>

#### ■ When Output is Insufficient

Cause	Countermeasures
Carbon struck around orifice of nozzle piece	<ul style="list-style-type: none"> <li>* Clean orifice and needle valve, being very careful not to damage the nozzle orifice.</li> <li>* Check nozzle piece to see if good.</li> <li>- If not, replace with new parts.</li> </ul>
Compression is insufficient. Gas leakage from valve seat	<ul style="list-style-type: none"> <li>* Bad valve and excessive wear of rings, pistons and liners cause insufficient compression. Replace with new parts.</li> <li>* Remove air cleaner and pour about 5 cc (0.005 qt) lube oil into inlet tube. Then it is possible to obtain compression.</li> <li>* Grind valves.</li> </ul>
Fuel is insufficient	<ul style="list-style-type: none"> <li>* Check fuel system.</li> </ul>
Overheating of moving parts	<ul style="list-style-type: none"> <li>* Check lube oil system.</li> <li>* Check to see if lube oil filter is working properly.</li> <li>* Filter screens or elements deposited with impurities would cause poor lubrication. Remove impurities.</li> <li>* Check to see if respective bearing clearance is not too large.</li> <li>* Adjust to proper fuel injection 78.8°F (26°) before top dead center.</li> </ul>
Valve timing is wrong	<ul style="list-style-type: none"> <li>* Adjust to proper valve clearance of 0.008-0.01in when the engine is cold.</li> </ul>
Air cleaner is dirty	<ul style="list-style-type: none"> <li>* Clean every 50 hours of operation.</li> </ul>
Fuel injection pressure is wrong	<ul style="list-style-type: none"> <li>* Adjust to proper pressure of 1960 psi (140 kg/cm<sup>2</sup>)</li> </ul>
Wear of the fuel injection pump	<ul style="list-style-type: none"> <li>* Do not use poor quality fuel for it is apt to cause wear of the pump. Only use No.2 diesel fuel.</li> <li>* The fuel injection pump element and delivery valve assembly must be replaced.</li> </ul>



### ■ When Engine Suddenly Stops

Cause	Countermeasures
Lack of fuel	<ul style="list-style-type: none"> <li>* Check the fuel oil tank and refill if necessary.</li> <li>* Also check the fuel system. (Be careful air is not in system.)</li> </ul>
Bad nozzle	<ul style="list-style-type: none"> <li>* If necessary, replace with a new nozzle.</li> </ul>
Moving parts are overheated due to shortage of lube oil or improper lubrication	<ul style="list-style-type: none"> <li>* Check amount of engine oil with oil level gage.</li> <li>* Check lubricating oil system.</li> <li>* Check to see if element inside the lubricating oil filter has become old and clogged. If necessary, replace with new element.</li> <li>* Check to see if the respective bearing clearance is not too large.</li> </ul>

**CAUTION:** When the engine has suddenly stopped, decompress the engine by the decomp and turn the engine lightly by pulling on the fan belt. If the engine turns easily without abnormalities, the cause of the trouble is usually lack of fuel or bad nozzle.

### ■ When Engine Must be Stopped Immediately

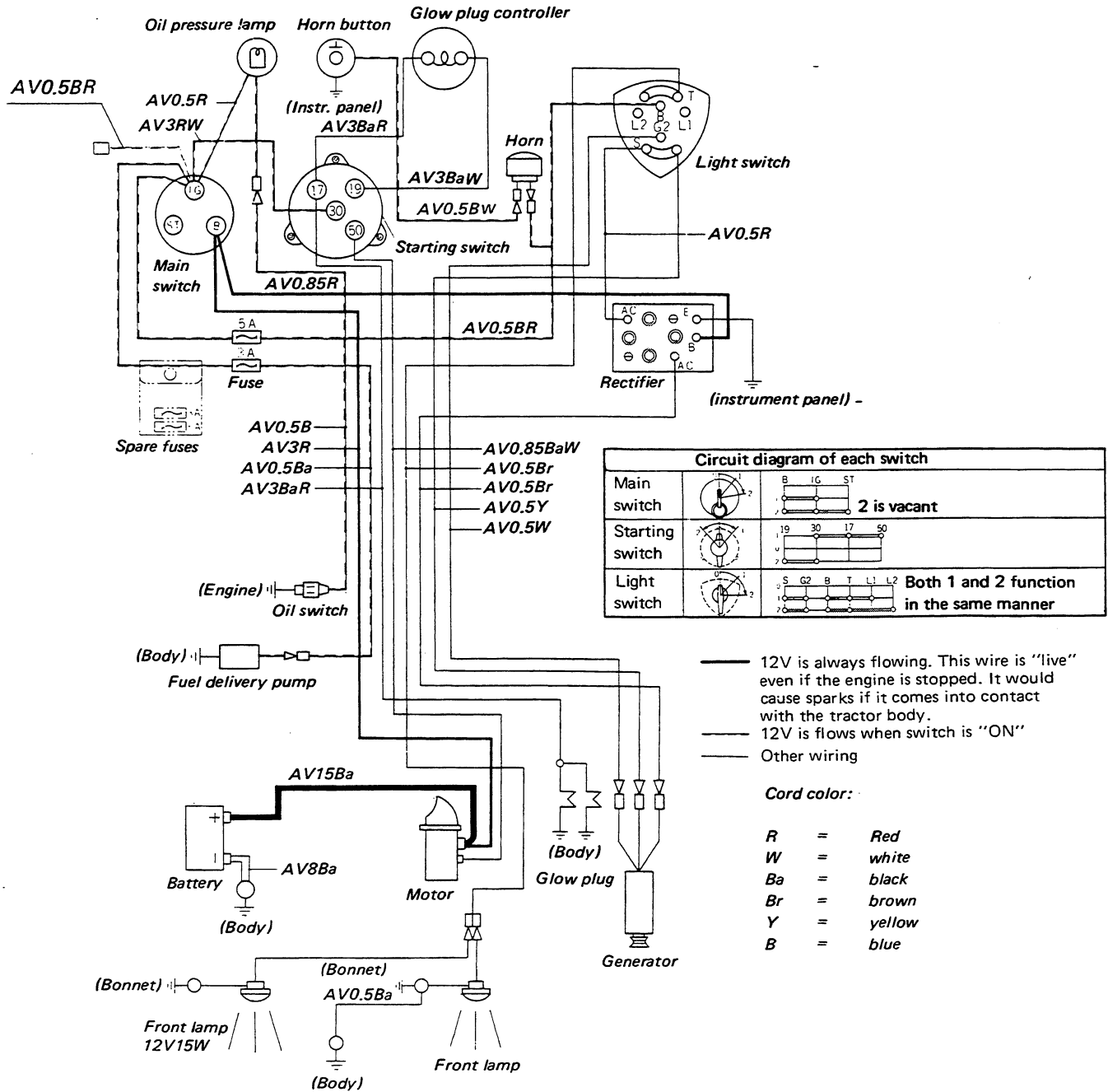
Cause	Countermeasures
Speed suddenly decreases or increases	* Check the adjustments and timing of injection and the fuel system.
Unusual sound is heard suddenly	* Check all moving parts carefully.
Color of exhaust suddenly turns dark	* Check the fuel injection system, especially the fuel injection nozzle.
Bearing parts are overheated	* Check the lubricating system
Oil lamp lights up during operation	<ul style="list-style-type: none"> <li>* Check lubricating system.</li> <li>* Check to see if the respective bearing clearance is not too large.</li> <li>* Check the function of the regulating valve inside of oil pump.</li> </ul>

### ■ When Color of Exhaust Gas is Specially Bad

Cause	Countermeasures
Fuel governing device bad	* Contact dealer for repairs.
Fuel is of extremely poor quality	* Select good quality fuel oil.
Nozzle is bad	* If necessary replace with new nozzle.
Combustion is incomplete	* Cause is poor atomization, improper injection timing, etc. because of trouble in injection system or in poor valve adjustment; or compression leakage, poor compression, etc. Check for the cause.

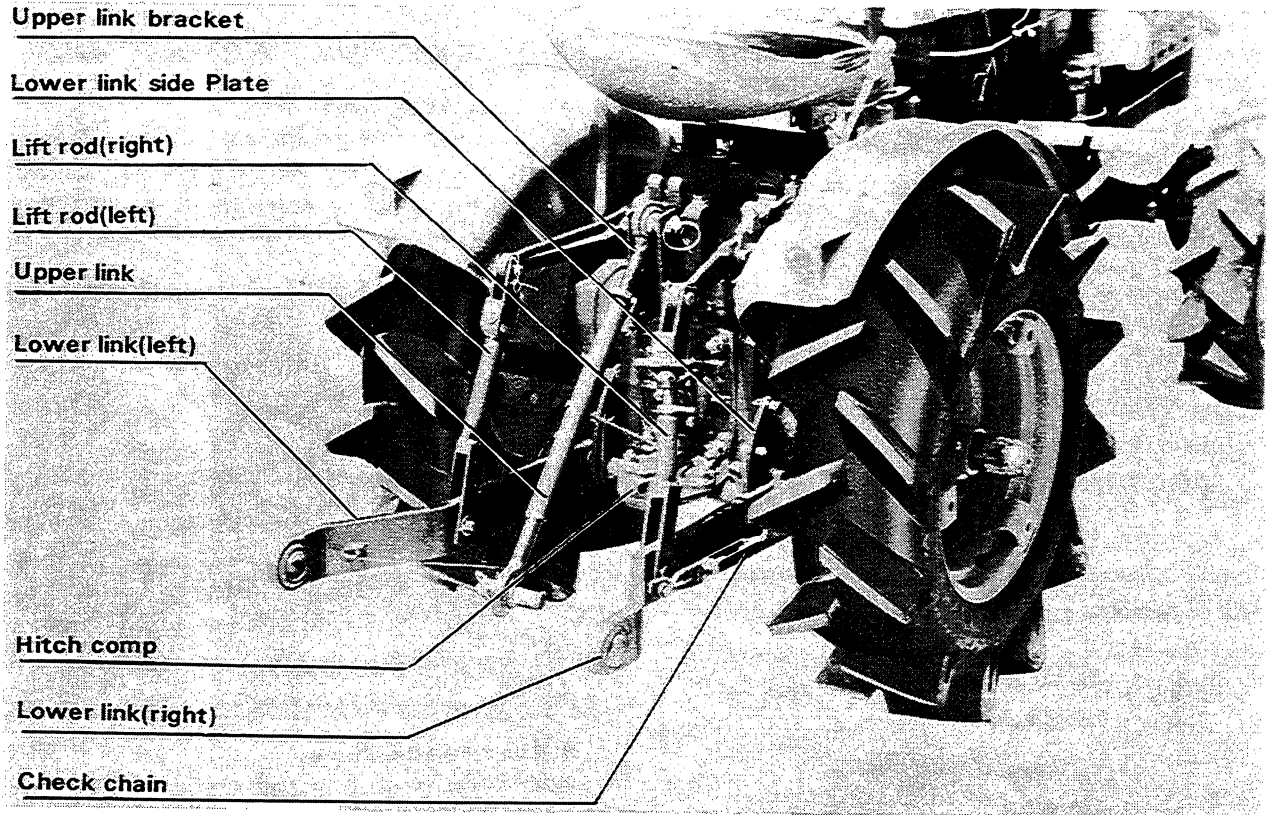
# 10. Wiring Diagram

Wiring Diagram for B6000



Circuit diagram of each switch	
Main switch	<p>2 is vacant</p>
Starting switch	
Light switch	<p>Both 1 and 2 function in the same manner</p>

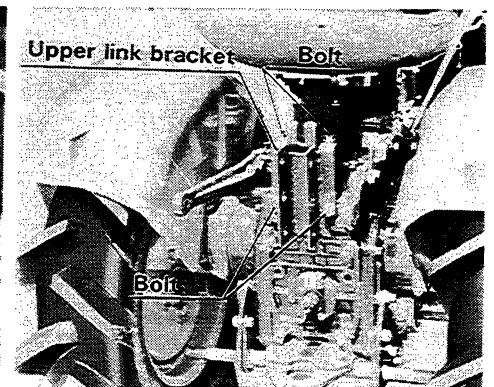
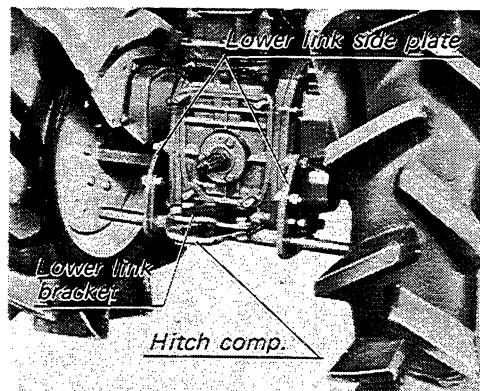
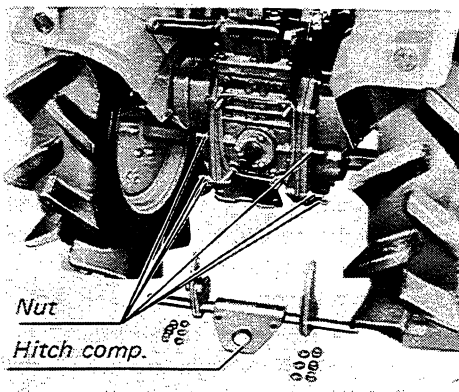
# 11. Three-point Hitch



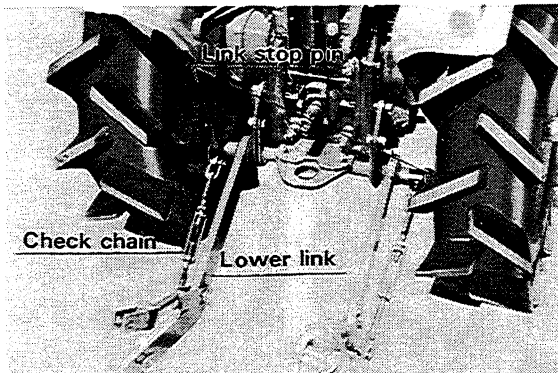
Implements which need a 3-point hitch for connection, can be attached only to B6000.

## 11-1 ATTACHING OF 3-POINT HITCH

- (1) Remove three nuts fastening differential gear case and axle cases provided on each side.
- (2) Attach the hitch comp. to the lower link bracket support by means of two bolts. Then fix the lower link side plates to the main body using differential gear case and axle case fastening nuts.
- (3) Attach the upper link bracket by means of two bolts and nuts.

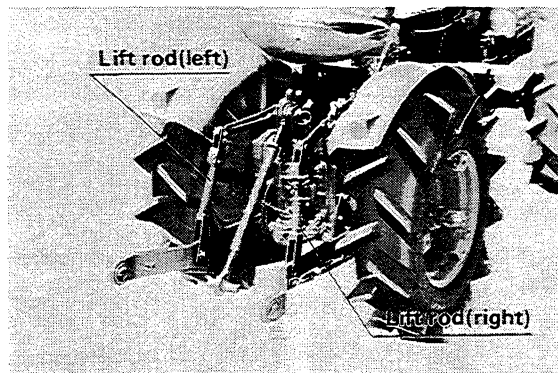


- (4) Place a pair of lower links (right and left) and check chain brackets around the hitch bar. Then attach link stop pins to prevent lower links from slipping out.

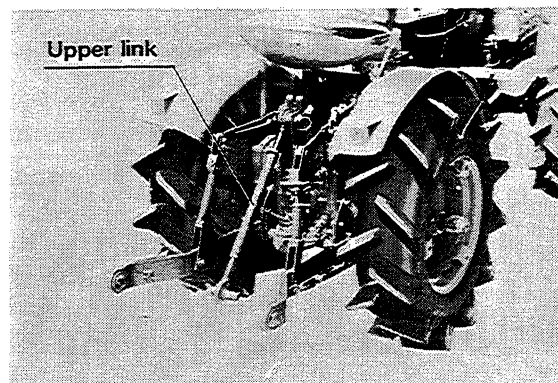


- (5) Attach lift rod (right or the one with handle) to lower link (right) and lift arm (right), and lift rod (left) to lower link and arm (each for left), using pins.

Note: The lift rod is not straight but it is bent a little, thus be careful about its top and bottom ends, or fitting angle.



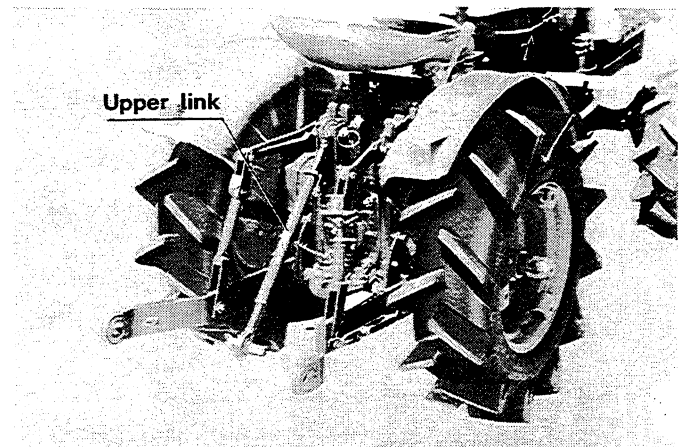
- (6) Attach the upper link by means of upper link fitting bracket pin.



## 11-2 ADJUSTMENT OF 3-POINT HITCH

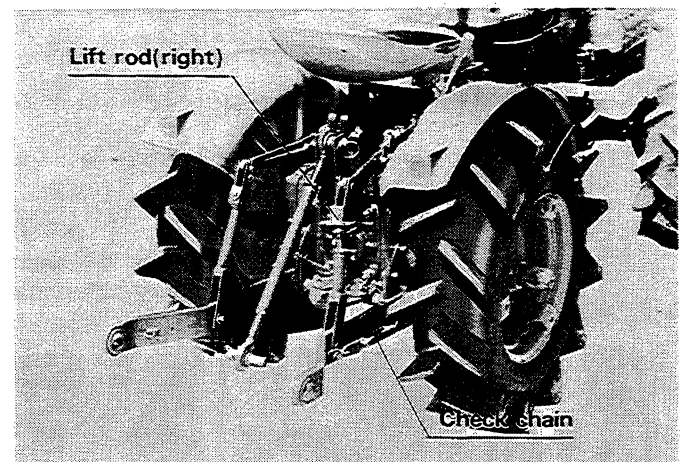
### ■ Adjustment by upper link

By changing the length of the upper link, it is possible to adjust the inclination of the implement attached. For example, when the upper link is shortened, an implement inclines forward resulting in higher plowing efficiency.



### ■ Adjustment by lift rod

The lift rod (right) is provided with a handle for expansion. This handle maintains horizontal balance of an implement.



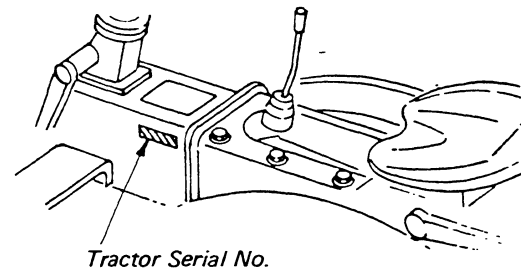
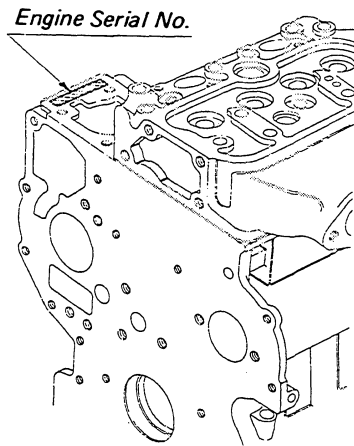
### ■ Adjustment of check chains

The check chains prevent 3-point hitch and rear wheels from touching each other, as might be caused by rolling of an implement.

If the check chains are stretched too tight the force, which has to be born by chain and implement, falls only on the chain and may break it. Thus adjustment of the check chains is necessary so that the lower links do not touch the rear wheels.

# For Servicing

If there are any necessity for difficult adjustments or repairs, please contact your Kubota Dealer stating the Model, Tractor Serial No. and Engine Serial No.



*(Serial No. means a production number.)*

## **ALWAYS USE GENUINE KUBOTA SPARE PARTS !**

Always purchase genuine Kubota parts which can be used without worry. When similar parts on sale in the market is used, it may be the cause of engine troubles or tractor troubles as well as shorten the life of your valuable machine.





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# Kubota®

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