

OPERATOR'S MANUAL

Kubota

**MODELS: B1200 - B1400
B1500 - B1600
B1702 - B1902**



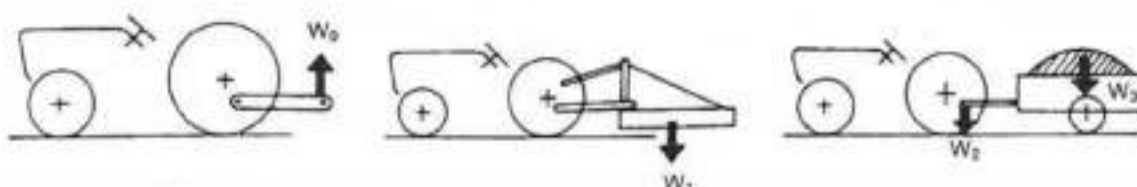
IMPLEMENT LIMITATIONS

The KUBOTA tractor has been thoroughly tested for proper performance with implements sold or approved by KUBOTA. Use with implements which exceed the maximum specifications listed below, or which are otherwise unfit for use with the KUBOTA Tractor may result in malfunctions or failures of the tractor, damage to other property and injury to the operator or others. [Any malfunctions or failures of the tractor resulting from the use with improper implements are not covered by the warranty].

	Tread (max. width) with farm tyres		Lower link end max. loading weight (W_0)
	Front	Rear	
B1410 - B1610	858mm	1031mm	300kg

	Actual Figures		
	Implement weight W_1 and/or size	Max. Drawbar Load W_2	Trailer loading weight W_3 Max. capacity
B1410 - B1610	As in the following list (Shown on the next page)	330kg	100kg

Lower link end max. loading weight : The max. allowable load which can put on the lower link end: W_0
 Implement weight: The implement's weight which can be put on the lower link: W_1
 Max. drawbar load: W_2
 Trailer loading weight: The max. loading weight for trailer (With trailer's weight): W_3



NOTE:

- Implement size may vary depending on soil operating conditions

Implement		Remarks	B1410 - B1610
Mower	Mid-mount	Max cutting width (cm)	122
		Max weight (kg)	140
	Rotary-cutter (1-blade)	Max cutting width (cm)	107
		Max weight (kg)	140
	Rear-mount (2 or 3 blade)	Max cutting width (cm)	122
Max weight (kg)		140	
Flail-mower	Max cutting width (cm)	170	
Sickle bar	Max cutting width (cm)	122	
Rotary tiller		Max tilling width (cm)	107
		Max weight (kg)	170
Bottom plough		Max size (cm)	30 x 1
Disc plough		Max size (cm)	56 x 1
Cultivator		Max size (cm)	122 1 Row
Disc harrow		Max harrowing width (cm)	122
		Max weight (kg)	120
Sprayer		Max tank capacity (L)	150
Front blade		Max cutting width (cm)	122
		Sub frame	Necessary
Rear blade		Max cutting width (cm)	152
		Max weight (kg)	160
Front loader		Max lifting capacity (kg)	200
		Max width (cm)	110
		Sub frame	Necessary
Box blade		Max cutting width (cm)	107
		Max weight (kg)	170
Back hoe		Max digging depth (cm)	183
		Max weight (kg)	270
		Sub frame	Necessary
Snow blower		Max working width (cm)	107
		Max weight (kg)	160
		Sub frame	Necessary
Trailer		Max load capacity (kg)	1000

Note:

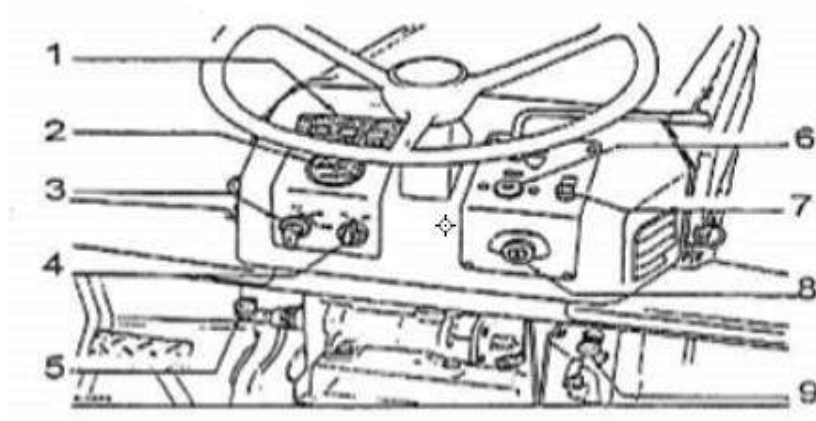
- Implement size may vary depending on soil operating conditions

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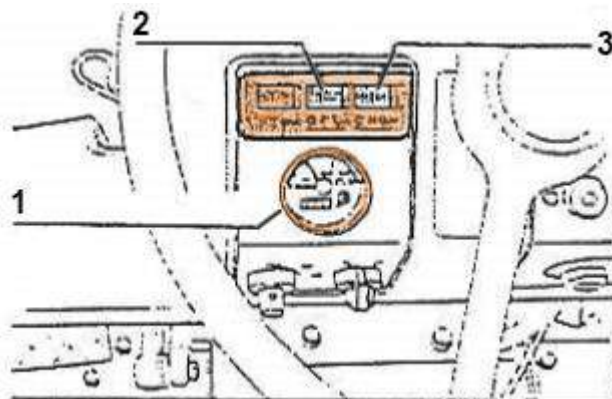
1. DASHBOARD & CONTROLS

1.1. Dashboard



1. Control panel
2. Hour meter
3. Light switch
4. Indicator switch
5. Decompression lever
6. Glow plug indicator
7. Horn
8. Ignition switch
9. Engine stop switch

Control Panel (1)



1. Engine rev counter (RPM)
2. Oil pressure warning light (OIL)
3. Battery charging light (CHG)

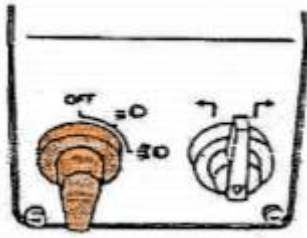
Oil Pressure Warning Light

This light warns against any drop in engine oil pressure. It will illuminate when the ignition switch is in the ON position and in normal operation will extinguish once the engine is running.

Battery Charging Light

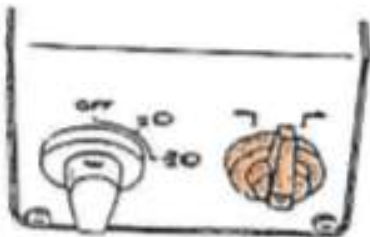
This light warns against insufficient battery charging. It will illuminate when the ignition switch is in the ON position and in normal operation will extinguish once the engine is running.

Light Switch (3)



- Headlamps off
- Headlamps low beam
- Headlamps full beam

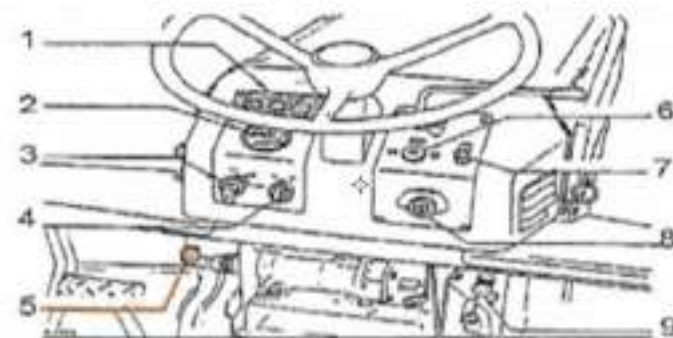
Indicator Switch (4)



Select left/right indicator.

Turn the switch back to the central position once the maneuver is complete.

Decompression Lever (5)



Pull lever to decompress the engine.

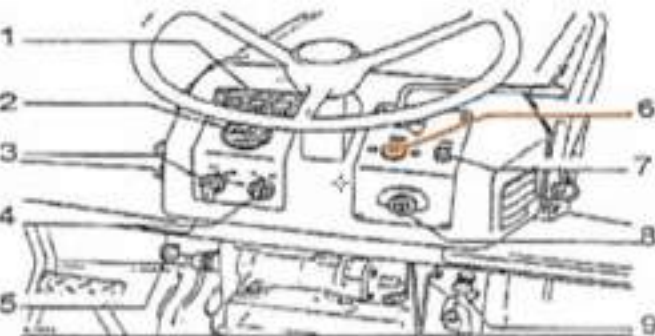
Use in the following cases:

- When starting the engine in cold weather
- If the battery is low on charge

WARNING:

After using the decompression lever, ensure the lever is back in its original position.

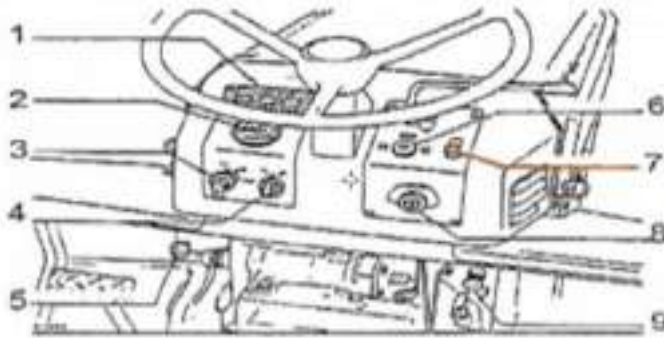
Glow Plug Indicator (6)



Indicates that the combustion chamber has reached pre-heating level.

The glow plugs are energized when the ignition switch is in either the TS or START position.

Horn (7)



The horn operates by pushing the button when the ignition switch is in the ON position.

Ignition Switch (8)



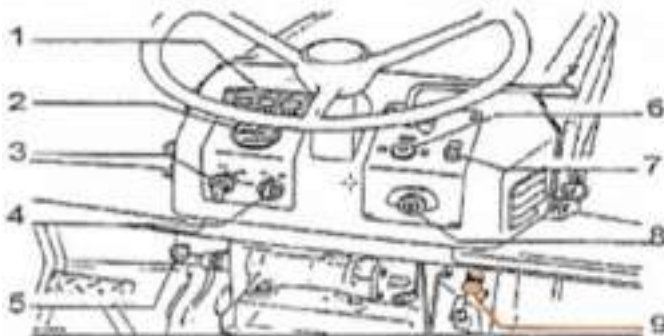
Starting procedure:

- Insert/remove key
- Preheating by glow plugs (Minitrac)
- Fully depress the clutch pedal to start the engine

Ignition switch positions:

- TS Glow plugs only
- OFF Power supply off
- ON Power supply on
- START Glow plugs/engine start

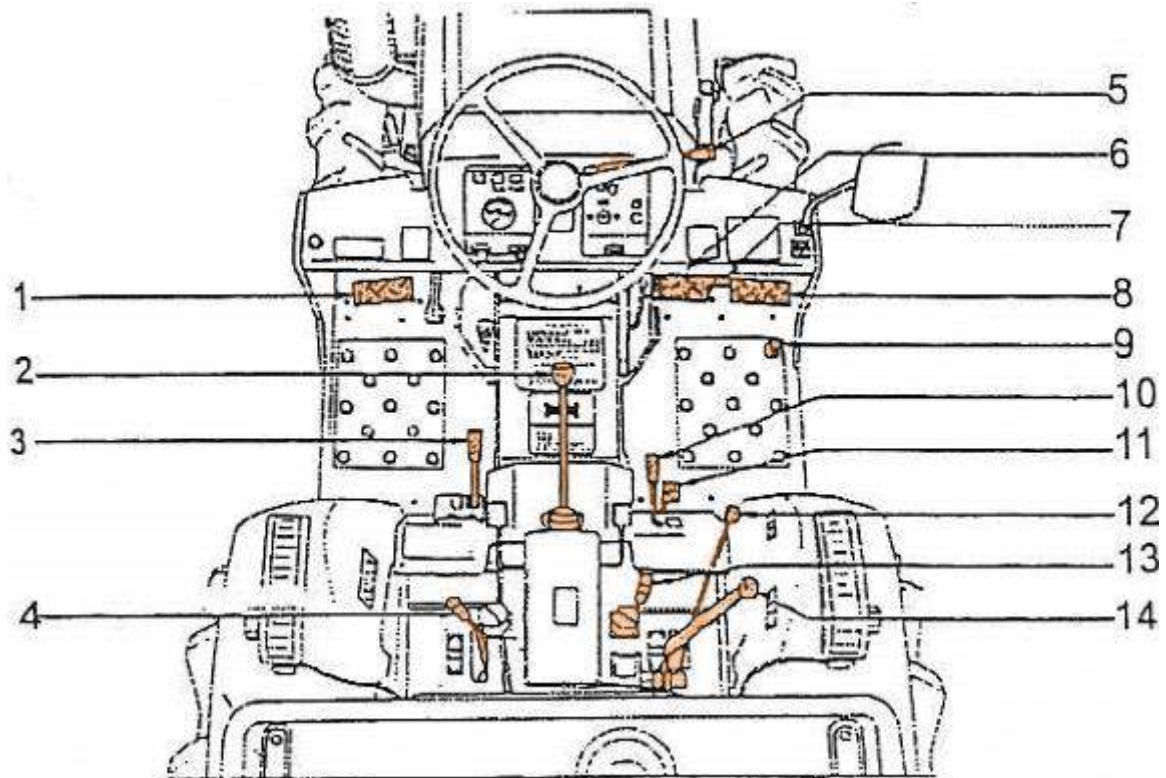
Engine Stop Switch (9)



The engine will stop when this lever is fully pulled out.

Once the engine has stopped, ensure the lever is immediately pushed back to its original position. If it is not fully pushed back, then the engine will not start again.

1.2. Controls



1. Clutch pedal
2. Main transmission gear lever
3. PTO transmission gear lever
4. 2WD or 4WD gear lever (under seat)
5. Hand accelerator lever
6. Right brake pedal
7. Brake pedal connection plate
8. Left brake pedal
9. Foot accelerator pedal
10. Intermediate transmission gear lever (low/high ratio)
11. Differential lock pedal
12. Attachment raise/lowering lever (via hydraulic connections at rear of the tractor)
13. Crawler gear lever (under seat)
14. Hydraulic lift-arm control lever

Main Transmission, Intermediate Transmission and Crawler Gear Levers

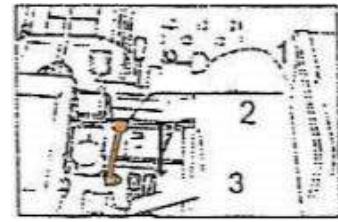
By combining the 3 gear lever options below, 12 forward gears and 4 reverse gears can be selected:



Main Transmission (2)



Intermediate Transmission (10)



Crawler Gear (13)

Intermediate gear – Low ratio	1 st Gear
	2 nd Gear
	3 rd Gear
	Reverse
Intermediate gear – High ratio	1 st Gear
	2 nd Gear
	3 rd Gear
	Reverse
Crawler gear – Low ratio	1 st Gear
	2 nd Gear
	3 rd Gear
	Reverse
Crawler gear – High ratio	1 st Gear
	2 nd Gear
	3 rd Gear
	Reverse

Use of the Crawler Gear:

Crawling speed can cause malfunctions or engine problems. TO avoid these, please follow the instructions below:

When to use?	<ul style="list-style-type: none"> When working on a tight turning circle , or if the soil is very fine When working on a tight turning circle, or if the soil is too hard When transplanting When trenching When loading or unloading the vehicle
When <u>not</u> to use?	<ul style="list-style-type: none"> When coming out of the mud When pulling a trailer (Minitrac)

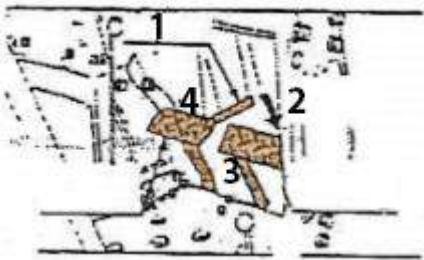
Clutch Pedal (1)

The clutch transmits power to each operational part. The clutch is OFF when the pedal is fully depressed, and ON when the pedal is released.

The engine cannot be started unless the clutch is fully depressed.

Brake Pedal (6/7/8)

Contrary to normal vehicles, the left and right brakes operate independently of each other. When driving on the road, use the brake connection plate. When working off-road, do not use this plate.

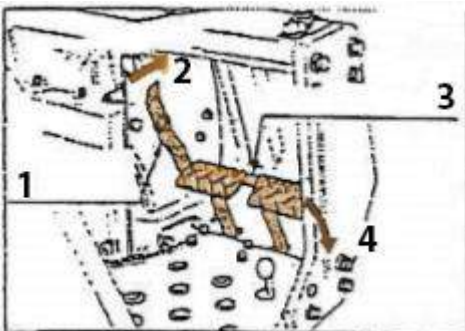


1. Connection plate
2. Swivel plate into position when driving on a road
3. Right hand side brake pedal
4. Left hand side brake pedal

Safety Recommendation: When driving downhill, uphill or on low ditches, make sure to use the brake connection plate. (Minitrac)

Parking Brake

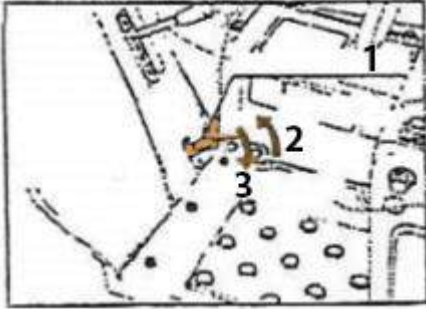
Connect right and left brake pedals, depress them and pull the parking brake lever, this will push the bolt in the slot and lock the wheels.



1. Parking brake lever
2. Pull lever until it engages with the brake pedal
3. Connection plate on
4. Depress to release parking brake

Differential Lock Pedal (11)

Prevents skidding by turning both rear wheels at same speed. When the pedal is fully depressed, the differential is locked, when the pedal is released it is unlocked.



1. Differential lock pedal
2. Release to unlock
3. Depress to lock

How and when to use the differential lock pedal:

Although it is very useful if used properly, incorrect use can cause serious damage or the tractor to roll over.

1. When you cannot go forward because of a tyre skidding, when you go in or come out of a field, or when operating a front loader
2. When the tyre is stuck in mud
3. When the tyre skids under power or when ploughing

Warning:

1. When engaging the differential lock system, reduce the engine revs
2. When the pedal is engaged (or when you are depressing it), do not turn
3. When the pedal is difficult to release, release the clutch or lightly depress each brake pedal, left and right (pushing too hard can cause damage).

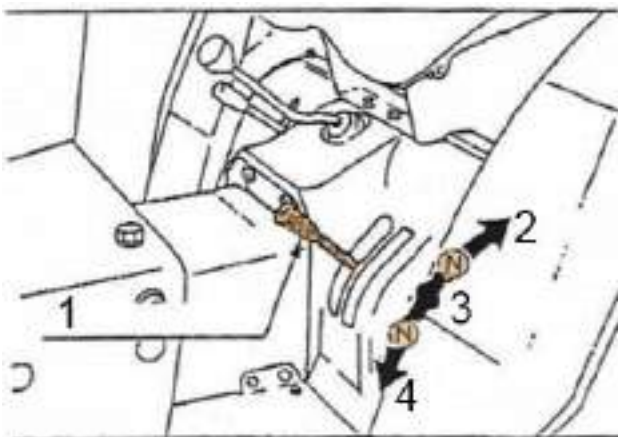
Safety Instructions: It is extremely dangerous to turn when the differential lock pedal is engaged. Failing to follow these instructions can result in serious accidents.

PTO Transmission Gear Lever (3)

By using this gear lever you can obtain 3 PTO gears.

Before changing PTO gears ensure the following:

- The PTO has stopped turning
- The clutch is depressed



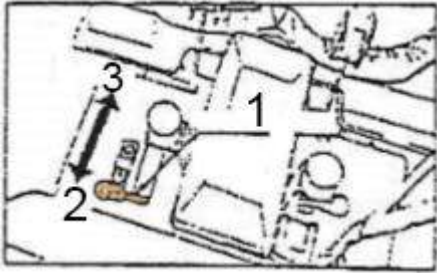
1. PTO gear lever
2. 1st gear: 550 RPM
3. 2nd gear: 770 RPM
4. 3rd gear: 1150 RPM

Safety Instructions: When not in use, the PTO shaft needs to be greased and covered. It could otherwise be caught by a person or machine and cause a serious accident

2WD or 4WD Gear Lever (4)

The 2WD/4WD lever is situated under the seat.

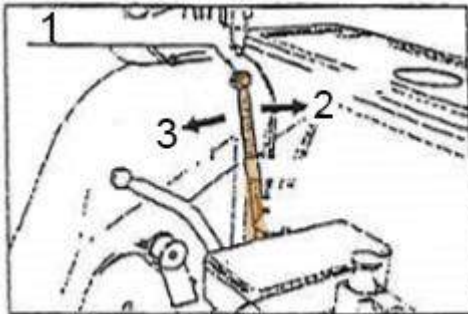
Depress the clutch pedal and bring the lever to the ON position (backwards) to engage the front wheel transmission i.e. 4WD. Bring the lever to the OFF position (forwards) to disengage 4WD and return to 2WD.



1. Front wheel drive gear lever
2. OFF position (i.e. 2WD)
3. On position (i.e. 4WD)

Hydraulic Lift Control Lever (14)

The oil pressure control operates at all times when the engine is running, whether or not the clutch is engaged.



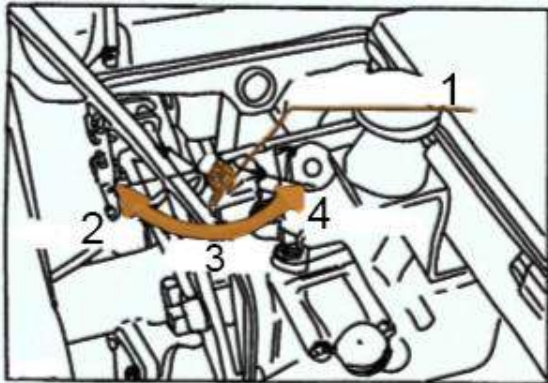
1. Pressure control
2. Pull lever backwards to raise
3. Push lever forwards to lower

This lever enables the lifting arm to be raised or lowered. When the lever is pulled back, the lifting arm is raised. When the lever is pushed forward, the lifting arm will lower.

Attachment Lowering Control Lever (12)

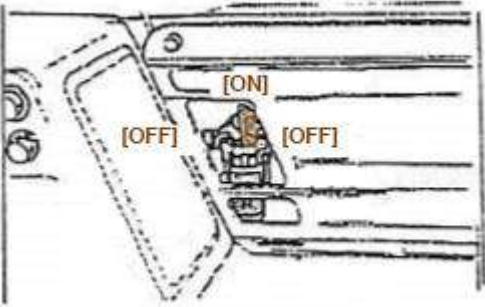
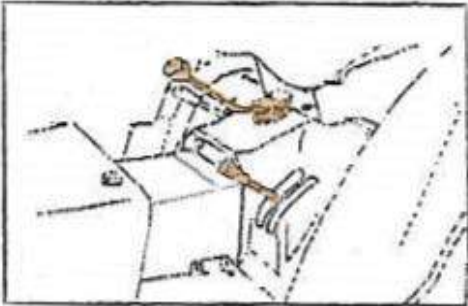
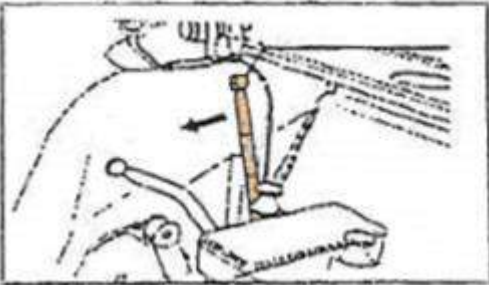
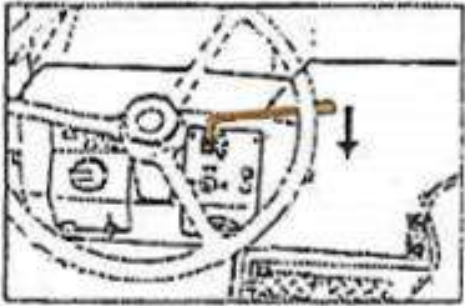
The speed adjustment lever is situated under the seat.

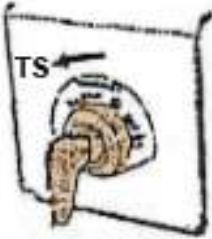
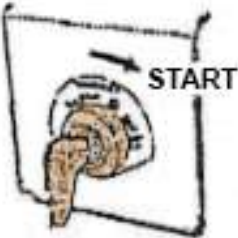
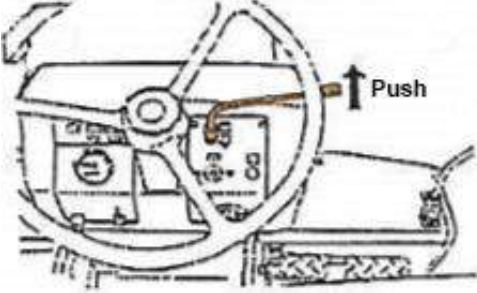
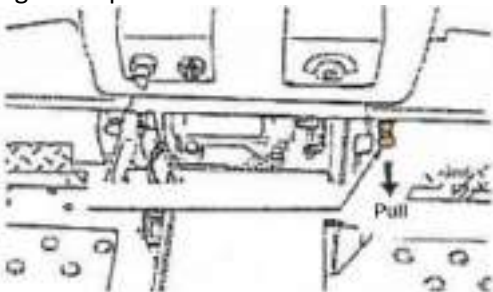
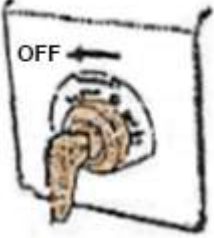
When the lever is turned clockwise, the lift arm lowering speed is slowed down. When turned to anticlockwise, then the lift arm lowering speed is increased (Minitrac).



1. Lower speed control lever (under seat)
2. Lower lifting arm slower
3. Adjustment range
4. Lower lifting arm faster

2. OPERATING & DRIVING

Pre-start Checks	<p>Before starting the engine make sure that:</p> <ol style="list-style-type: none">1. The diesel tap is on: 2. Gear and PTO levers are in neutral: 3. The hydraulic lift control lever is down: 
Starting the Engine	<ol style="list-style-type: none">1. Pull the hand accelerator towards you to increase the revs: 2. Pre-heating – turn the ignition key to the left to the TS position to heat the glow plugs. In cold weather turn the key for 15 to 30 seconds until the glow plug indicator glows red.

	 <p>3. Fully depress the clutch pedal and turn the ignition key to the START position.</p> 
Stopping the Engine	<p>1. Push the hand accelerator forward to tick-over speed:</p>  <p>2. Pull the engine stop switch:</p>  <p>3. Turn the ignition key to the OFF position:</p> 
Driving the Tractor	<p>It is necessary to warm up the engine for 5 minutes before driving, to make sure all the parts are well lubricated and to avoid overheating and deterioration.</p>

Warning: Ensure the parking brake is engaged during warm up.

How to start and drive the tractor:

1. Make sure both brake pedals are connected
2. Use the hand accelerator to change from tick-over to moderate speed
3. Fully depress the clutch pedal
4. Bring the gear lever, the intermediate transmission gear lever and the hydraulic control to the required position.

- Warning:** It is not possible to change transmission when driving. It is necessary to stop the tractor and depress the clutch pedal (Minitrac).
5. Slowly releasing the clutch pedal will cause the tractor to start moving

Warning: Do not leave your foot on the clutch pedal when driving as this could cause the clutch bearings to seize. When using the clutch pedal, quickly depress and slowly release (Minitrac).

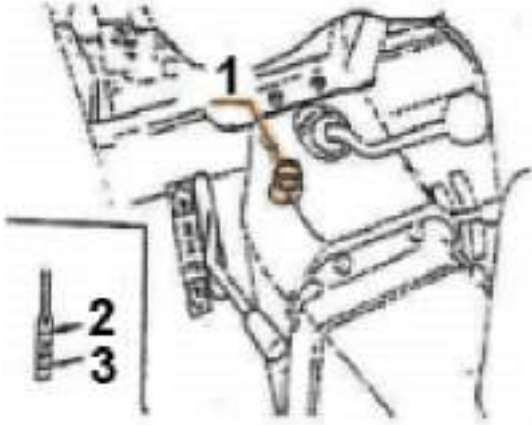
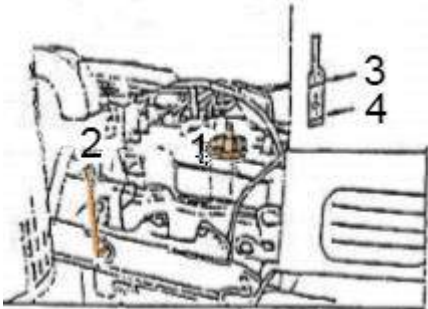
Safety instruction: When the tractor is moving, watch the back, front and both sides to avoid an accident.

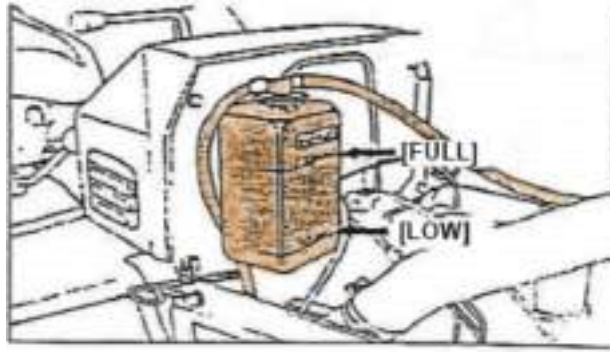
How to stop:

1. Push the hand accelerator forward to tick-over position
2. Depress brake and clutch pedals
3. Once the tractor has totally stopped, bring the gear lever to neutral
4. If an attachment is connected, slowly push the control lever forward to lower the attachment
5. Make sure the parking brake is ON
6. Stop the engine with the engine stop switch

Warning: Do not park downhill without placing chocks against the wheels.

3. MAINTENANCE & CHECKS

Rear Axle Oil Level	<p>Take out the oil dip-stick, wipe it, and reinsert. Remove dipstick once again and check level (Minitrac).</p> <p>It is necessary to add oil when the level is below the minimum limit, but never exceed the maximum limit.</p>  <p>The diagram shows a side view of the rear axle assembly. A dipstick gauge is labeled '1'. An inset shows the dipstick with two horizontal lines: the top line is labeled '2' for the maximum oil level and the bottom line is labeled '3' for the minimum oil level.</p> <ol style="list-style-type: none">1. Rear axle oil dip-stick gauge location2. Maximum oil level3. Minimum oil level
Engine Oil Level	<p>When checking the oil level, make sure the tractor is on a flat surface. It is impossible to check accurately if the tractor is not level.</p>  <p>The diagram shows the engine compartment. The oil filling cap is labeled '1'. The dipstick is labeled '2'. An inset shows the dipstick with two horizontal lines: the top line is labeled '3' for the maximum oil level and the bottom line is labeled '4' for the minimum oil level.</p> <ol style="list-style-type: none">1. Oil filling cap2. Dipstick3. Maximum oil level4. Minimum oil level <p>Check the oil level before starting or more than 3 minutes <u>after</u> the engine has stopped. At other times, the check will not be accurate as oil stagnates in certain engine parts.</p>
Water Level	<p>Next to the radiator is a top-up tank which automatically supplies the radiator with coolant should the water level drop.</p>

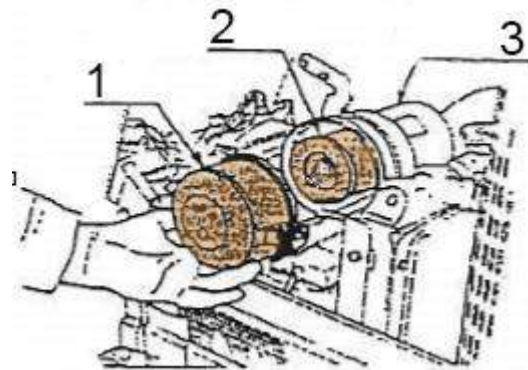


The water level must be checked in the top-up tank and maintained between the **Full** and **Low** positions.

Air Filter Cleaning

The air filter protects the engine from damaging dust and sand. It must therefore be cleaned regularly to avoid engine seizure.

Clean out the dust from the filter cowl.
Clean out the dust from the filter

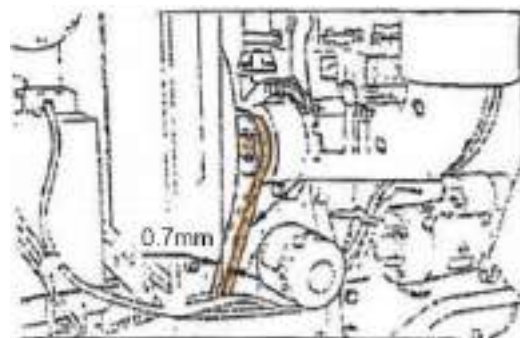


1. Cowl
2. Filter element
3. Air filter

Warning: when installing the filter cowl, check that the "top" sign is well at the top. The filter housing will otherwise leak air and particles will damage the filter (Minitrac).

Fan Belt Tension

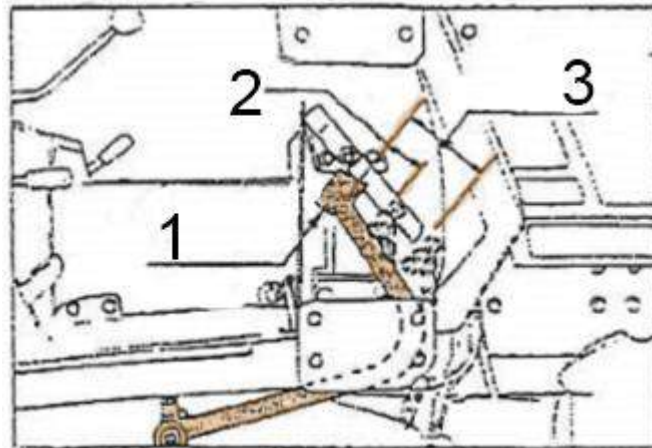
If the fan belt is badly adjusted, then the battery may not charge correctly and may go flat. A badly adjusted fan belt may also cause the engine to overheat.



Check and adjust the slack movement in the centre of the belt to $\pm 0.7\text{mm}$.
Check the fan belt for damage and replace if necessary.

Brake Pedal Adjustment

In order to avoid any accidents, brakes must be adjusted properly. Make sure the play is between 30mm and 40mm on each pedal, and that they are properly balanced.

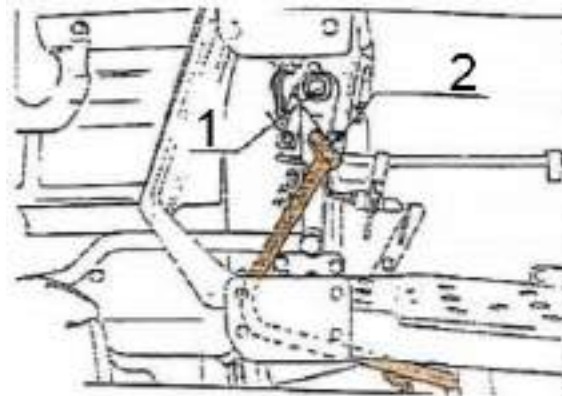


1. Brake pedal
2. Brake pedal play
3. Left and right brake pedal adjustment

Clutch Pedal Adjustment

If the clutch is not properly adjusted, it can slip and therefore reduce the amount of power transmitted from the engine.

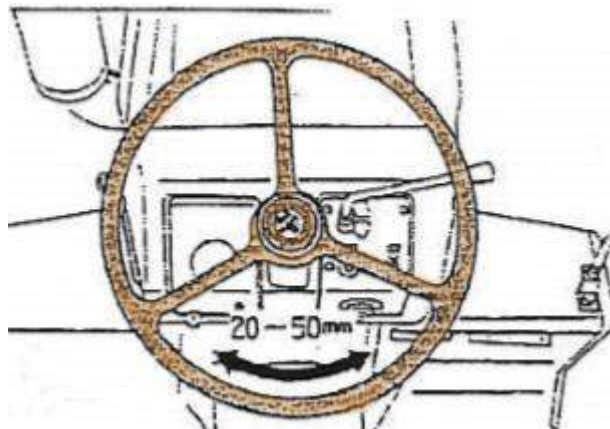
Check that the clutch pedal play is between 20mm and 30mm.


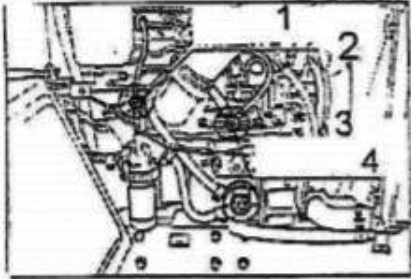
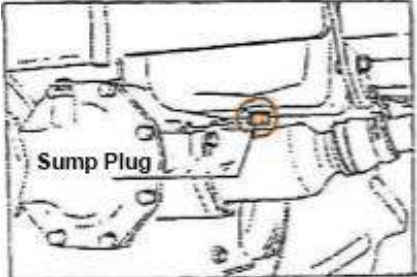


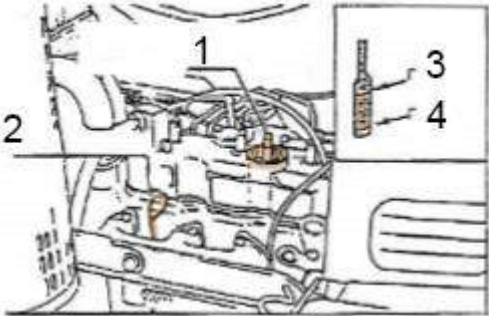
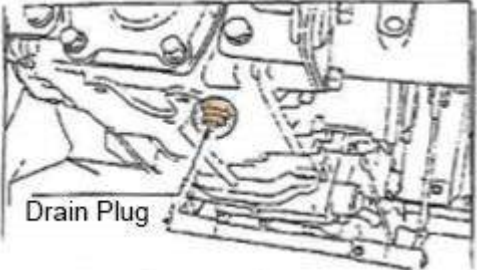
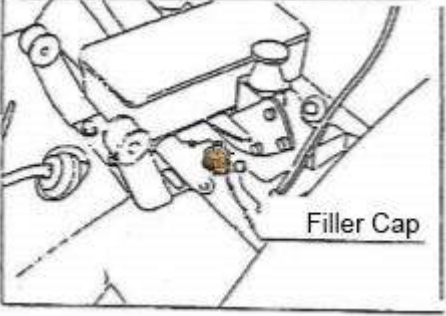
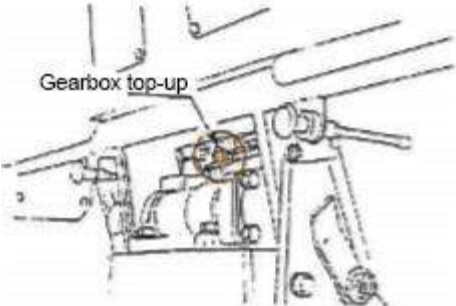
1. Clutch play
2. Clutch pedal

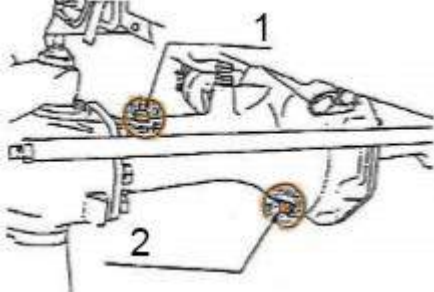
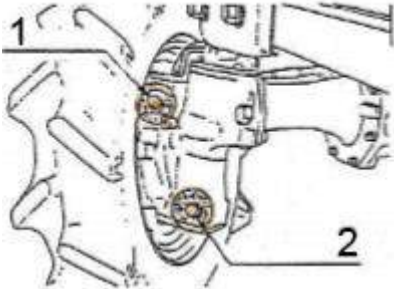
Steering Wheel Adjustment

Care must be taken with the steering wheel adjustment, and check the play by turning it left and right.



Exhaust Fumes	Check the exhaust fumes for colour:
	<ul style="list-style-type: none"> • Colourless Normal
	<ul style="list-style-type: none"> • Black The fuel is too rich causing imperfect combustion • White When the temperature is low, the engine oil can burn and appear as white steam
Fuel – Diesel	<p>If there is sand or grit in the diesel, the injection pump will not work.</p> <p>A filter must be used when filling up the diesel tank.</p>
Fuel Filter	<p>Water and grit present in the fuel will be extracted by the fuel filter. When the filter is blocked/full, turn off the fuel tap, remove and clean the filter.</p> <p>Air must always be removed when refitting the filter as follows:</p> <ul style="list-style-type: none"> • Turn the fuel filter to the ON position  <ul style="list-style-type: none"> • Open the taps as follows  <p>Open 1-2. At the top of the injection pump Open 3-4. At the top of the filter</p> <p>Warning: Only open the pump tap and filter tap when draining (Minitrac).</p> <ul style="list-style-type: none"> - Half fill the tank - Turn the filter tap off - Fill the tank up to the top - Run the engine for one minute then stop it - Turn off the pump tap <p>Warning: Only open the pump tap and filter tap when draining (Minitrac).</p>
Engine Oil Change	<p>Drain the engine oil by unscrewing the drain plug from the engine sump:</p> 

	<p>Refit the sump plug after draining, then refill the engine with new oil to the maximum limit (3.4 litres):</p>  <ol style="list-style-type: none"> 1. Oil filler cap 2. Oil gauge 3. Maximum oil level 4. Minimum oil level
<p>Transmission Oil Change</p>	<p>Remove the rear axle drain plug and drain the transmission oil:</p>  <p>Replace the drain plug and refill to the maximum limit (17 litres):</p> 
<p>Gearbox Oil Checks</p>	<p>Top-up the gearbox oil as necessary:</p> 
<p>Front Axle Oil Change</p>	<p>Unscrew the front axle drain plug and drain the oil (+/- 1.5 litres).</p> <p>Refit the drain plug and refill with new SAE90 oil up to the maximum limit (+/- 1.5 litres).</p>

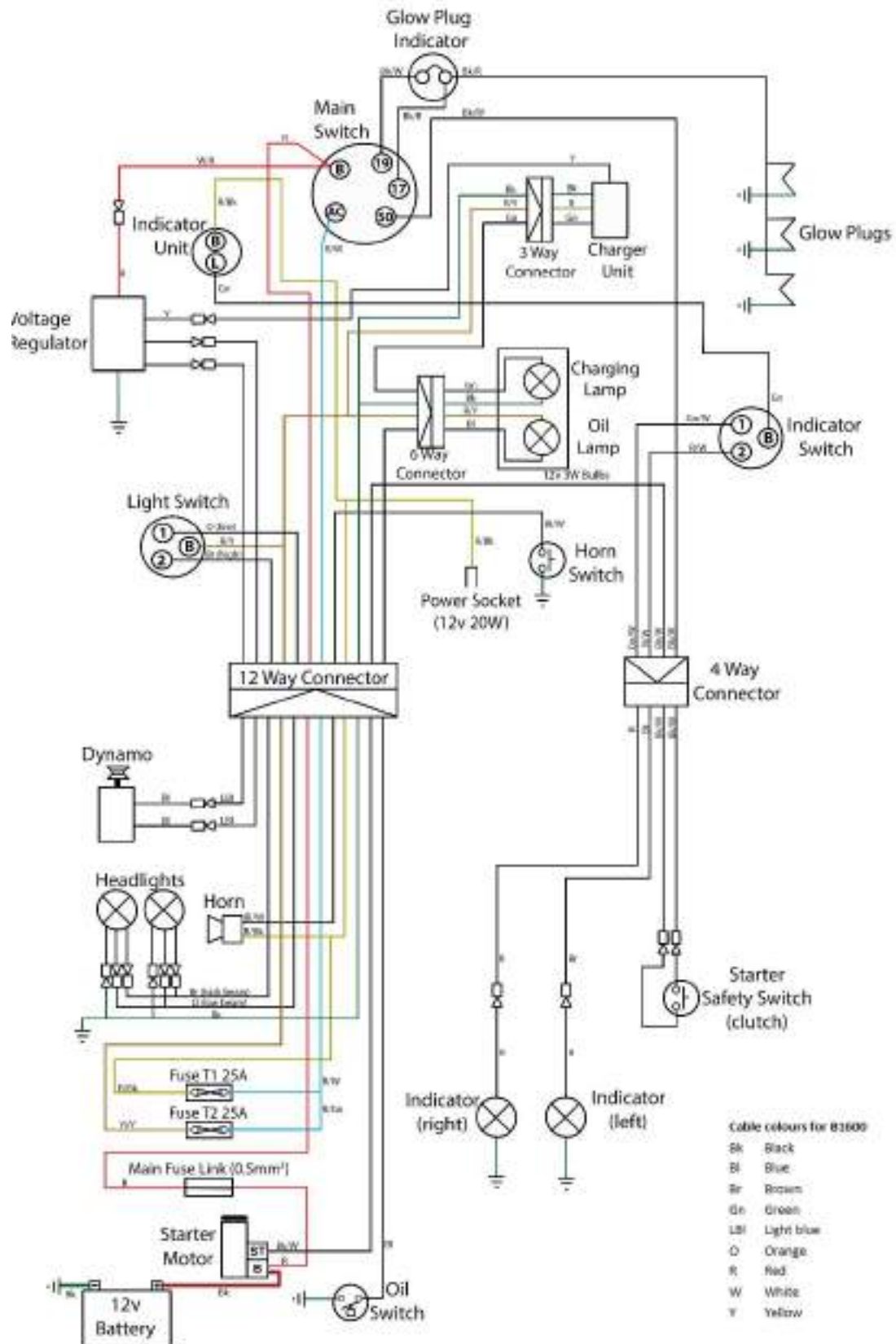
	 <ol style="list-style-type: none"> 1. Filling plug 2. Drain plug
<p>Oil Change of Left/Right Wheel Bearings</p>	<p>Unscrew the left and right drain plugs and drain the oil (0.5 litres).</p> <p>Refit the drain plugs and refill with new SAE90 oil up to the maximum limit.</p>  <ol style="list-style-type: none"> 1. Filling plug 2. Drain plug

4. SPECIFICATIONS

Model		B1200DT	B1400DT	B1600DT
Engine	Engine Model	D750L	D850L	D950
	Type of Engine	Vertical, water cooled, 4-cycle diesel		
	Number of cylinders	3		
	Displacement Volume	762cc	855cc	927cc
	Power	12HP/2600RPM	14HP/2600RPM	16HP/2600RPM
	Cylinder (diameter/stroke)	68 x 70mm	72 x 70mm	75x70mm
	Fuel Type	Kubota diesel heavy oil or diesel light oil		
	Starter	Self-starter (with glow plug compressor)		
	Self-starter Power	12V/0.6kw		12v/0.8kw
	Lubricating System	Trachoid pump forced feed system		
	Cooling System	Pressure type radiator (natural circulation)		
	Battery Capacity	NT60 (35Ah)	NT80 (45Ah)	NS70L (65Ah)
	Fuel Tank Capacity	20L		
	Engine Oil Capacity	3.4L		
	Cooling Water Capacity	3.4L (including reserve tank)		
Transmission Oil Capacity	17L			
Dimensions	Total Length	2140mm (without rotary)	2180mm (without rotary)	2420mm (without rotary)
	Total Width	1030mm (tread 820mm)	1050mm (tread 810mm)	1090mm (tread 850mm)
	Total Height	1865mm	1880mm	1900mm
	Wheel Base	1250mm		1350mm
	Ground Clearance	225mm (front wheel)	235mm (front wheel)	240mm (front wheel)
Tread	Front	770mm		
	Rear	770-820-870mm	760-810-860mm	850-970mm
Tyre Size	Front	5.00-12-2PR		5.00-12-4PR
	Rear	7-14/16-2PR	8-16-4PR	8.3-22-4PR
Weight (without rotary, dry)		482kg	500kg	640kg
PTO	Location	Rear of transmission casing (front engine)		
	Ground Clearance	430mm	480mm	
	Revolving Direction	Clockwise (watching from rear)		
	Speed Change	3 speeds		
	Shaft Dimension	6 spline, 35mm diameter		
Clutch		Dry single clutch		
Steering Gear		Ball screw type		
Transmission Type		Selective sliding gear		
Speed Change		Forward 6 speeds, reverse 2 speeds		
Minimum Turning Radius		1.73m	1.75m	1.79m
Brake System		Single system – right/left independent (with connection system)		
Differential Gear		Front and rear		

5. ELECTRICAL

Kubota B1400 Wiring Diagram



Kubota B1400 Electrical Component Location

