OPERATORS MANUAL

F2000

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SAFE OPERATION

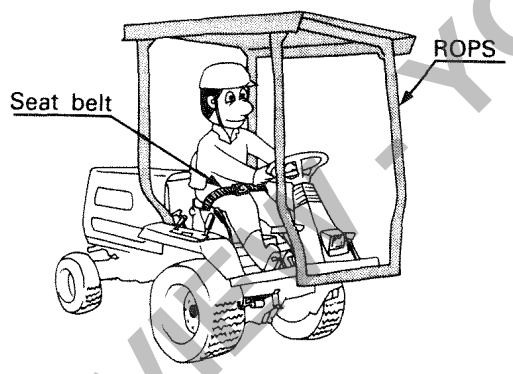
Careful operation is your best insurance against an accident. Read this section carefully before operating the front mower. All operators, whether experienced or not, should read this and other related manuals before operating the mower or any attachment on it. It is the owner's legal obligation to instruct all operators in safe operation.

1. BEFORE OPERATING THE FRONT MOWER

(1) Know your equipment and its limitations. Read this entire manual before attempting to start and operate the front mower.

(2) Pay special attention to the warning, caution and danger labels on the front mower itself. It is the owner's legal obligation to keep these labels clean and to replace any that are missing, illegible, or damaged.

(3) Kubota recommends the use of a ROPS (Roll Over Protective Structure) and seat belt in almost all applications. This combination will reduce the risk of serious injury or death should the front mower tip over.
Never modify or repair a ROPS. Welding, bending, drilling or cutting any portion of the ROPS will weaken the ROPS structure. A damaged ROPS structure must be replaced, not repaired or revised. If any structural member is damaged, replace the entire structure at your local Kubota dealer.



G-2627

(4) Always use the seat belt if the front mower has a ROPS. Never fasten the seat belt without a ROPS. Check the seat belt daily and replace if frayed or damaged.

(5) Do not operate the front mower or any attachments while under the influence of alcohol, medication, controlled substances or when fatigued.

(6) Carefully check the immediate area before operating the front mower or any attachments on it. Check for overhead clearance that may interfere with the ROPS. Do not allow any bystanders around or near front mower during operation.

(7) Before allowing other people to use your front mower, explain how to operate and have them read this manual before operation.

(8) Never wear loose, torn, or bulky clothing around front mower. The clothing may catch on moving parts or controls. Wear and use any additional safety items such as hard hat, safety boots or shoes, eye and hearing protection, gloves, etc. As appropriate or required.

(9) Do not allow passengers, children or non-qualified operators on the front mower at any time. The operator must remain in the front mower seat throughout operation.

(10) Check brakes, clutch, and other mechanical parts for correct adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly. (For further details, see MAINTENANCE AND ADJUSTMENTS section.)

(11) Keep your front mower clean. Accumulations of dirt, grease, and trash can contribute to fires and lead to personal injury.

2. OPERATING THE FRONT MOWER

(1) Always sit in the operator's seat when starting engine or operating levers or controls.

(2) Before starting the engine make sure that all levers are in neutral, the parking brake is engaged, and the clutch and Power Take Off are both disengaged. Fasten the seat belt if the front mower has a ROPS.

(3) Do not start engine by shorting across starter terminals. The front mower may start in gear and move if normal starting circuitry is bypassed.

(4) Do not operate or idle engine in a non-ventiliated area. Carbon monoxide gas is colorless, odorless, and deadly.

(5) Keep all shields and guards in place. Replace any that are damaged or missing.

(6) To avoid tipover, slow down when turning, on uneven terrain, or before stopping.

(7) Do not operate near ditches, holes, embankments, or other terrain which may collapse under the front mower weight. The risk of front mower tipover increases when the ground is loose or wet.

(8) To avoid tipover, operate up and down slopes, not across. Avoid sudden starts and stops on slopes. Slow down, and use extra caution when changing directions on a slope.
Park the front mower on a firm, level surface.

(9) Watch where you are going at all times. Watch for and avoid obstacles. Be alert at curbs, near trees, and other obstructions and hidden hazards.

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2. SPECIFICATIONS

2.1 SPECIFICATION TABLE

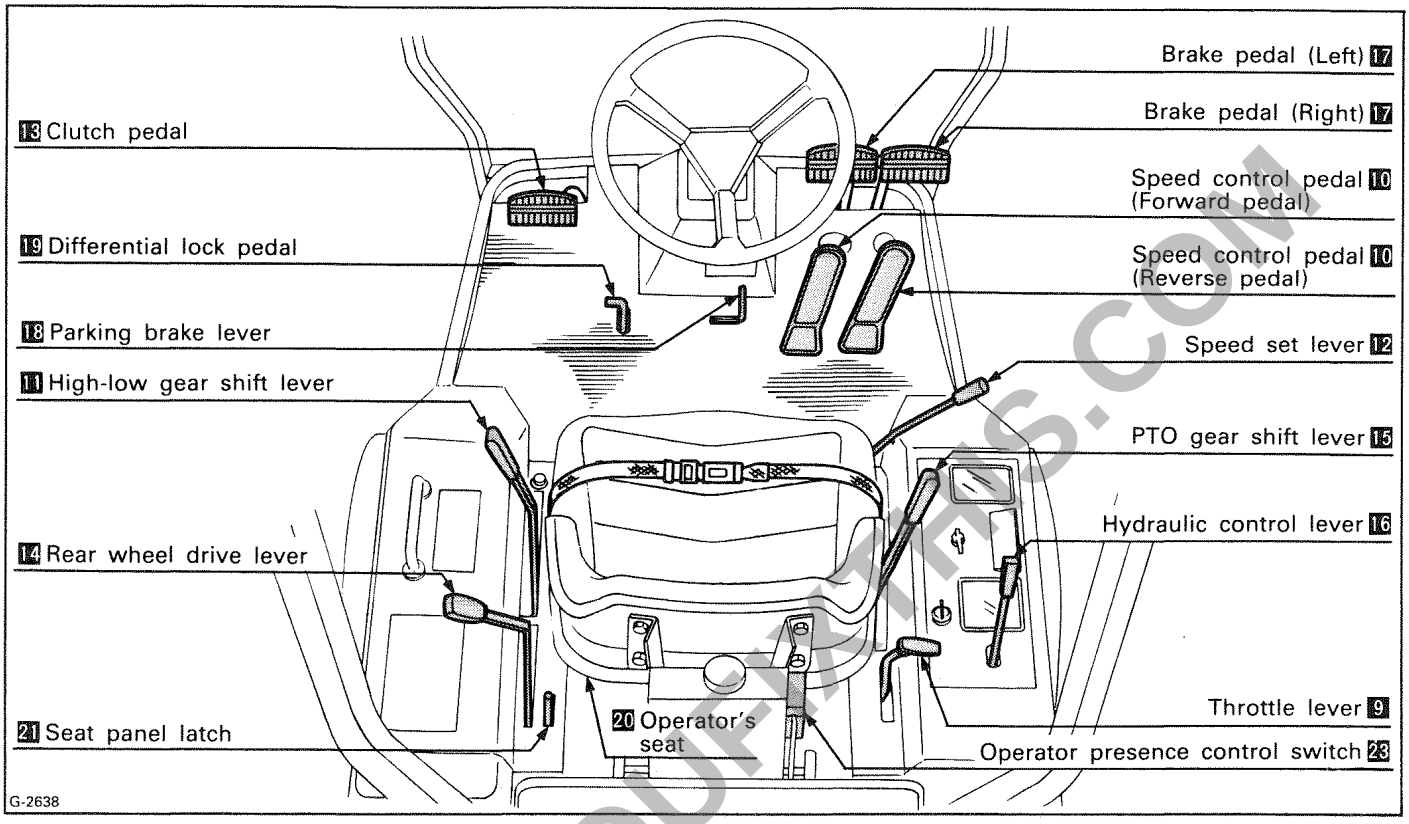
Model			F2000
Engine gross power (SAE)			20 HP (14.9 kW)*1
Engine	Model		D950−FM
	Type		Vertical, water-cooled, 4-cycle diesel
	No. of cylinders		3
	Bore and stroke		3.0 in × 2.8 in (75 mm × 70 mm)
	Total displacement		56.6 cu.in. (927 cm^3)
	Rated revolution		2600 rpm (43.3 r/s)
	Fuel		Diesel fuel No. 2−D [No.1 diesel fuel, if temperature is below −10°C (15°F)]
	Starter		Electric starter with battery, glow plug, 12V, 0.8 kW
	Lubrication		Forced lubrication by trochoidal pump
	Cooling		Water with pressurized radiator
	Battery		12V (65 Ah)
Capacities	Fuel tank		9.0 U.S.gals. (34 ℓ)
	Engine crankcase		3.3 U.S.qts. (3.1 ℓ)
	Engine coolant		3.9 U.S.qts. (3.7 ℓ)
	Transmission case		13.4 U.S.qts. (12.7 ℓ)
	Rear axle diff. case		1.6 U.S.qts. (1.5 ℓ)
	Rear axle gear case		0.5 U.S.qts. (0.5 ℓ)
Tires		Front	23×10.50−12 (4PR) Turf
		Rear	16×6.50−8 (4PR) Turf
Traveling speeds	Forward	Low	4.6 mph (7.4 km/h) *2
		High	9.5 mph (15.2 km/h) *2
	Reverse	Low	2.8 mph (4.4 km/h) *2
		High	5.6 mph (9.0 km/h) *2
Dimensions	Overall length		86.2 in (2190 mm)
	Overall width		44.9 in (1140 mm)
	Overall height		49.6 in (1260 mm)
	Wheelbase		48.6 in (1235 mm)
	Min. ground clearance		6.9 in (175 mm)
	Treads	Front	34.4 in (875 mm) · 36.8 in (935 mm)
		Rear	34.3 in (870 mm)
Weight			1380 lbs (625 kg) (W/O mower deck)
PTO shaft			Transmission case front
Front PTO			Kubota 10 tooth Involute spline 2 speeds (1130 and 2550 rpm at 2600 engine rpm) (18.9 and 42.5 r/s at 43.3 engine r/s)
Clutch			Dry single
Steering			Power, hydrostatic
Transmission			Main-hydrostatic transmission, High-Low gear shift (2 forward, 2 reverse)
Min. turning radius			LH 1.7 feet (0.53 m) W/O brake
Brake			Internal expanding type, right and left independent with interlocking device
Differential			Bevel gear

Note: *1 Manufacturer's estimate
*2 at 2600 engine rpm (43.3 engine r/s)
(Specifications and design subject to change without notice)

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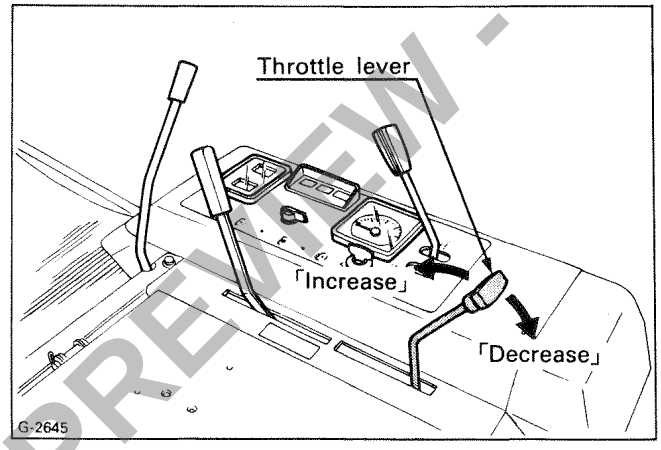
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4.2 CONTROLS



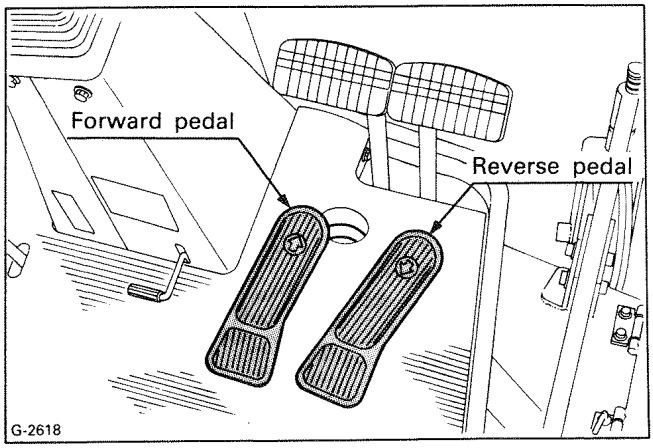
9 Throttle Lever

Pulling the throttle lever rearward decreases engine speed, while pushing it forward increases engine speed.



10 Speed Control Pedal

- **Forward Pedal**
  Depress the forward pedal (Left) with the toe of your right foot to move forward.
- **Reverse Pedal**
  Depress the reverse pedal (Right) with the toe of your right foot to move backward. Speed Set Lever must be disengaged before depressing reverse pedal.



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7. OPERATION

■ Pre-Start Checks

Prior to starting the engine, do pre-start checks according to the Maintenance Check List. (See page 24)

CAUTION:

(1) Read "Safe Operation" in the front of this manual.

(2) Read all warning, caution, and danger labels located on the front mower.

7.1 OPERATING THE ENGINE

CAUTION:

(1) To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.

(2) Pull the speed set lever completely to the rear and to set high-low gear shift lever and PTO gear shift lever to the "neutral" position before starting the engine.

■ Starting

[IMPORTANT]

- When starting the engine after a lengthy storage (more than 3 months), pull the engine stop knob first, then engage the starter for about ten seconds to allow oil to lubricate all engine parts.

(1) Sit in the operator's seat. If the front mower is equipped with a ROPS, fasten the seat belt.

(2) Apply the parking brake.

(3) Pull speed set lever completely to the rear and place high-low gear shift lever and PTO speed gear shift lever in the "neutral" position.

(4) Place the hydraulic control lever in the "down" position.

(5) Push in the engine stop knob.

(6) Insert the key into the key switch and turn one notch.

(7) Make sure that the engine oil pressure light is on.

(8) Depress the clutch pedal fully, turn the key switch right, and hold it for about 5 seconds. (at the preheat position)
For the appropriate preheating time, refer to the table below:

Temperature	Preheating Time
Over 0°C (32°F)	5 sec.
0 to −5°C (32 to 23°F)	10 sec.

(9) Turn the key switch to the start position and the starter will turn and the engine will start.

(10) Make sure that the engine oil pressure light has gone off. If the light is still on, stop the engine immediately and check the lubrication system.

(11) Warm the engine by running it at a medium speed.

[IMPORTANT]

(1) Do not turn the key switch to start position while the engine is running.

(2) When the temperature is below 0°C (32°F), place the main gear shift lever in the neutral position and keep the engine at medium speed to warm the engine and transmission lubricant at least 10 minutes.
If the front mower is operated before the lubricant of engine and transmission is warm enough, the front mower life will be shortened.

(3) Don't operate the front mower under full load conditions until it is sufficiently warmed up.

(4) Do not use starting fluid.

(5) When the ambient temperature is less than −15°C (5°F), remove the battery from the front mower and store it somewhere warm until needed.

■ Stopping the Engine

(1) After idling the engine, turn the key switch to "OFF". The engine stops when the key is turned to "OFF". If the engine does not stop, pull the engine stop knob and hold it until the engine comes to complete stop.

(2) Remove the key switch.

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8.3 MAINTENANCE CHECK LIST

Frequency of Checks	Check Points	Reference Pages
Initial operation (initial 60 hours)	During this period, pay special attention to the following. (1) After the initial 35 hours of use, change the engine oil. (2) After the initial 50 hours of use, change the transmission fluid and oil filter cartridge and clean the transmission strainer. (3) Quick starts or sudden braking should be avoided.	27 to 28
Every 75 hours	Change engine oil.	27
Every 100 hours	Lubricate the following points. Brake pedal shaft, Lift link arm shaft, Clutch release hub.	29
	Check the following points to be connected securely. Hydraulic inlet pipe clamps, Fuel line clamps.	25
	Clean air cleaner element.	32
	Clean fuel filter.	26
	Check battery electrolyte level.	32 to 33
	Check fuel line.	25
	Check fan drive belt tension.	35
	Check clutch play.	35
	Check brake play.	35
	Check steering wheel play.	—
Every 150 hours	Change engine oil filter cartridge.	27
	Check radiator hose.	30
Every 200 hours	Change transmission oil filter cartridges.	28
Every 300 hours	Change transmission fluid. Transmission case, rear axle differential case, front axle gear case (right and left). ● Clean transmission strainer.	27 to 29
Every 400 hours	Change fuel filter.	26
Every 500 hours	Flush radiator.	30 to 31
Every one to two months	Recharge battery if necessary.	32 to 33
Every 3 months	Change scale inhibitor and coolant.	30
Every year or every 6 times of cleaning	Change air cleaner element.	32
Every year	Change anti-freeze and coolant.	30 to 31
Every 2 years	Change battery, if necessary.	—
	Change radiator hose and clamps, if necessary.	30
	Change fuel line and clamps, if necessary.	25
	Change hydraulic hoses and clamps, if necessary.	—

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8. MAINTENANCE

8.1 DAILY CHECK

To prevent trouble from occurring, it is important to perform the following checks before starting.

CAUTION:
- **Be sure to check and service the front mower on a flat area with the engine shut off, the parking brake set and the key removed.**

(1) Check areas where previous trouble was experienced.
(2) While walking around the front mower:
  1) Check the tire pressure, and check for wear and damage. (See page 18)
  2) Check for oil and water leaks.
  3) Check the engine oil level. (See page 26)
  4) Check the amount of transmission fluid. (See page 27)
  5) Check fuel level. (See page 25)
  6) Check coolant level. (See page 30)
  7) Check for dust in the air cleaner dust cup. (See page 32)
  8) Check the front mower body for damage and check the torque of all bolts and nuts.
(3) While sitting in the operator's seat:
  1) Check the speed control pedal, brake pedals and clutch pedal. (See page 35)
  2) Check the parking brake.
  3) Check the steering wheel.
(4) Turning the key switch on:
  1) Check the performance of the warning.
  2) Check headlights, clean if necessary.
(5) Starting the engine:
  1) Check the color of the exhaust fumes.

8.2 LUBRICANTS

To prevent serious damage to hydraulic systems, use only genuine KUBOTA fluid or its equivalent.

Place	Capacity	Lubricants
Engine crankcase	3.3 U.S.qts. (3.1 ℓ)	● Engine oil: API Service CC or CD Below 0° (32°F) SAE10W or 10W—30 0 to 25°C (32 to 77°F) SAE20 or 10W—30 Above 25°C (77°F) SAE30 or 10W—30
Transmission	13.4 U.S.qts. (12.7 ℓ)	(See page 40)
Rear axle differential case	1.6 U.S.qts. (1.5 ℓ)	● Gear oil SAE80 or SAE90
Rear axle gear case (R & L)	0.5 U.S.qts. (0.5 ℓ)	● Gear oil SAE80 or SAE90
Brake pedal shaft Lift link arm shaft Clutch release hub Seat adjuster (Deluxe Seat)	Moderate amount	● SAE multi-purpose type grease

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