YANMAR

OPERATOR'S MANUAL

DIESEL TRACTOR

EB3100

Oct. 2011 edition

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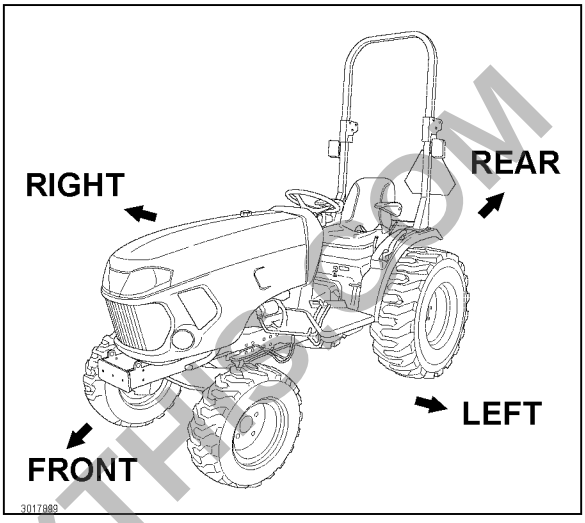
1. SAFETY PRECAUTIONS

1. About The Operator's Manual

The *Operator's Manual* presents messages that help the operator remain aware of potential hazards and possible tractor damage in operating and servicing the tractor. Carefully study all of the information in the *Operator's Manual* so that the operator can avoid personal injury or property damage.

NOTE

- Unless otherwise stated, the expressions right hand side, left hand side, front side and rear side, used throughout the *Operator's Manual* are relative to the operator's position.



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Traveling System	Clutch			N/A
	Steering			Full Independent
	Transmission			Hydro Static Transmission (HST), 2 Range Speeds
	Brake			Wet Disc
	Minimum Turning Radius		m (ft.)	2.5 (8.2)
Hydraulic Unit	Hydraulic Control System			Position Control, Open Center
	Pump Capacity (main)		L/min (US gal/min)	Approximately 18.1 (4.8)
	Pump Capacity (steering)		L/min (US gal/min)	Approximately 20.0 (5.3)
	3-Point Hitch			Category 1
	Max. Lift Force	Lift Point	kg (lb.)	650 (1429)
		24 inch Behind Lift Point	kg (lb.)	550 (1209)
	System Pressure		MPa (psi)	16.7 (2429)
Power Take Off (PTO)	Rear	Shaft Size		SAE 16/32, 15-Splines
		Type		Independent
		Speed / Engine	min^{-1} (rpm)	541 / 2500
	Mid	Shaft Size		SAE 16/32, 15-Splines
		Type		Independent
		Speed / Engine	min^{-1} (rpm)	2118/2500

2. Traveling Speeds

(At rated engine min^{-1} (rpm))

	Range gear lever	Approximate rated speed	
		km/h	"(mph)"
Forward	Low	7.3	"(4.6)"
	High	21.1	"(13.2)"
Reverse	Low	7.3	"(4.6)"
	High	21.1	"(13.2)"

NOTE

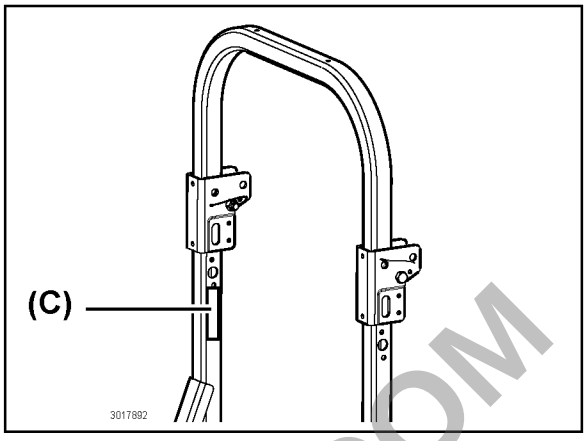
● The listed traveling speeds are those obtained with tyre R3.

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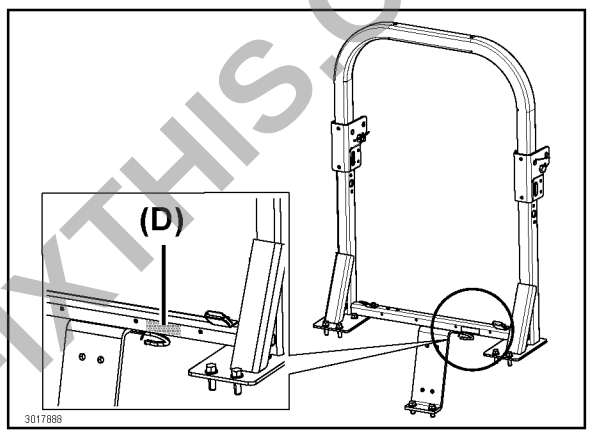
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After accepting delivery of the tractor, immediately find the serial numbers and enter the numbers into the following table.

- The information in the table must come in handy, if for some reason, the serial numbers on the tractor are covered, erased or become illegible.



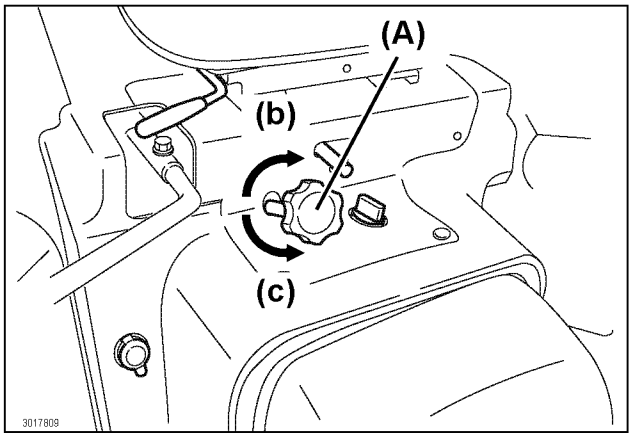
	Type/Model	Serial No.
Tractor		
Engine		
Roll-Over Protective Structure (ROPS)		
Date of Purchase		
Name of Dealer		



(C) Roll-Over Protective Structure (ROPS) model
(D) Roll-Over Protective Structure (ROPS) serial number

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(A) Hydraulic flow control/stop knob
(a) Knob turned counterclockwise:
- *increases the rate of drop speed*
- *unlocks the hydraulic lift*

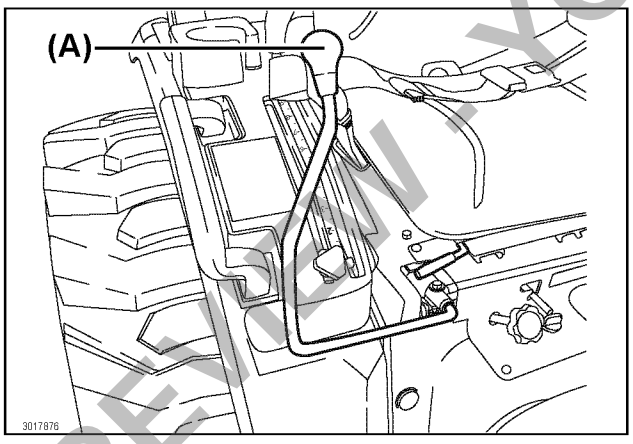
(b) Knob turned clockwise:
- *decreases the rate of drop speed*

Knob turned clockwise until the knob stops turning:
- *locks the hydraulic lift*

2. Operate the Implement Control Valve

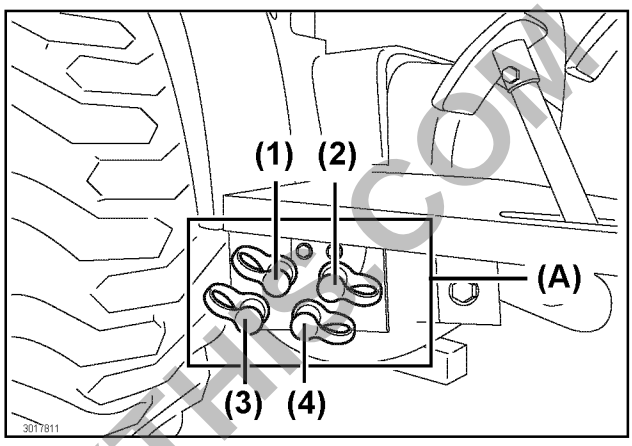
■ Implement Control Lever

1. Use the implement control lever to operate the optional mounted implements.



(A) Implement control lever

2. There are 4 hydraulic quick couplers (color coded by the rubber plugs).
   - The hydraulic quick couplers are located under the right foot deck.
   - The hydraulic quick couplers are used to connect the tractor's hydraulics to the implement's hydraulic cylinders.
3. Use the hydraulic quick couplers in pairs: 1 & 2 and 3 & 4.
4. After the couplers and hydraulic lines have been connected, the attached implement moves in a direction opposite to the expected direction:
   - Interchange the hydraulic line connections between couplers 1 & 2.
   - Interchange the hydraulic line connections between couplers 3 & 4.



(A) Hydraulic quick couplers
(1) Blue
(2) Green
(3) Red
(4) Yellow

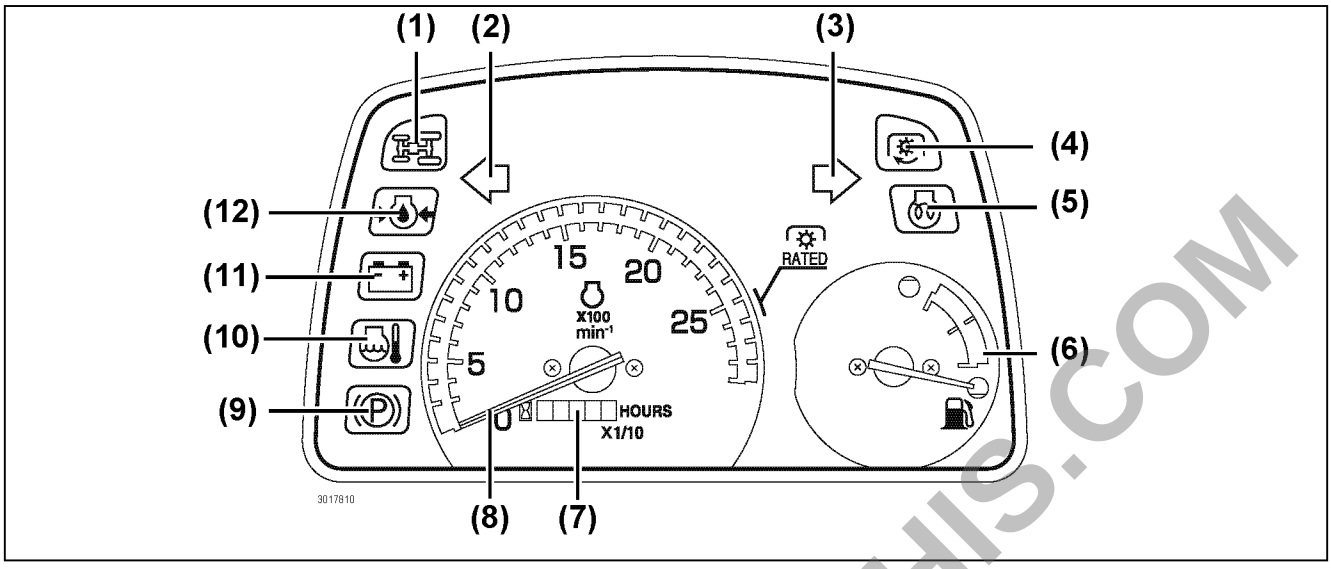
IMPORTANT
- Avoid interchanging the hydraulic lines between coupler 1 and coupler 3. Contact YOUR LOCAL YANMAR TRACTOR DEALER for technical assistance.
- Avoid interchanging hydraulic lines between coupler 2 and coupler 4. Contact YOUR LOCAL YANMAR TRACTOR DEALER for technical assistance.
- When the hydraulic quick couplers are not used, always leave the color coded rubber plugs inserted to the hydraulic quick couplers.
  - the preceding action prevents damage and contamination of the female hydraulic quick couplers

NOTE
- The implement control valve has a float position.
- When the implement control valve is in the float position, the implement that is lowered to the operating positions follow the ground contour.
  - to use the float position, push the implement control lever forward beyond the valve detent position

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3. Instrument Panel



(1) 4-Wheel drive indicator light
The 4-wheel drive indicator light illuminates while the tractor is operated in the 4-wheel drive.

(2) Hazard lights/left turn signal indicator light
The hazard lights/left turn signal indicator light illuminates while the hazard lights and/or the left turn signal light is turned ON.

(3) Hazard lights/right turn signal indicator light
The hazard lights/right turn signal indicator light illuminates while the hazard lights and/or the right turn signal light is turned ON.

(4) Power Take Off (PTO) indicator light
Power Take Off (PTO) indicator light illuminates when Power Take Off (PTO) switch is in the ON position.

(5) Glow plug indicator light
The glow plug indicator light illuminates while the starter key switch is in the ON position and indicates that engine is being preheated. The light remains illuminated for approximately 20 seconds. Start the engine only after the glow plug indicator light turns OFF.

(6) Fuel gauge
Indicates how much fuel is in the fuel tank.

(7) Hour meter
Indicate the total accumulated operating hours.

(8) Tachometer
Indicates the current engine speed in increments of 100 min^{-1} (rpm).

NOTE
- The RATED mark on the tachometer indicates the appropriate engine speed to operate the Rear Power Take Off (PTO) shaft at the standard speed of 540 min^{-1} (rpm).

(9) Parking brake indicator light
Indicate parking brake is engaged.

NOTE
- In some cases, even when the parking brake lock lever appears to be in the "LOCKED" position, the parking brake itself may not be actually securely locked.

(10)Coolant temperature warning light
The light illuminates when the current coolant temperature in the engine is too high.

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Implement		Description	Unit	Maximum Amount
Trailer		Load Capacity	kg (lb.)	600 (1323)
		Drawbar Load	kg (lb.)	240 (529)
Mower	Rotary-Cutter	Cutting Width	mm (inch)	1525 (60)
		Weight	kg (lb.)	271 (598)
	Finish Mower	Cutting Width	mm (inch)	1525 (60)
		Weight	kg (lb.)	230 (507)
Rotary Tiller		Tilling Width	mm (inch)	1576 (66)
		Weight	kg (lb.)	231 (510)
Box Scraper		Cutting Width	mm (inch)	1525 (60)
		Weight	kg (lb.)	251 (554)
Rear Blade		Cutting Width	mm (inch)	1525 (60)
		Weight	kg (lb.)	133 (294)
Landscape Rake		Cutting Width	mm (inch)	1525 (60)
		Weight	kg (lb.)	113 (250)
Loader		Lift Capacity (at Pivot)	kg (lb.)	430 (948)
		Bucket Weight	kg (lb.)	64 (141) / 71 (156)
		System Pressure	MPa (psi)	17.2 (2428)
Backhoe		Digging Depth	mm (ft.)	1981 (6.5)
		Weight	kg (lb.)	540 (1190)
		Oil Pressure	MPa (psi)	17.3 (2428)

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3. SPECIFICATIONS

1. Specifications Table

Model				EB3100
Power Take Off (PTO) Power			kW (hp)	17.5 (23.5)
Engine	Maker			YANMAR
	Model			3TNV88-BNJK
	Type			4 Cycle Inline, Water-Cooled Diesel
	Number of Cylinders			3
	Bore and Stroke		mm (inch)	88 × 90 (3.46 × 3.54)
	Total Displacement		L (cu. in.)	1.642 (100.2)
	Gross Power		kW (hp)	23.3 (31.2)
	Net Power		kW (hp)	22.4 (30.0)
	Rated Revolution		min^{-1} (rpm)	2500
	Maximum Torque		N•m (ft•lbs)	98 - 107 (73-3 - 79.0)
	Battery			540 CCA, 12 - 37 (5Hr) Deka: D25233D
	Fuel			Diesel Fuel
Capacities	Fuel Tank		Litre (US gal)	Approximately 27 (7.1)
	Engine Oil		Litre (qt.)	Approximately 3.4 (3.6)
	Engine Coolant		Litre (qt.)	Approximately 2.0 (2.1)
	Transmission Oil		Litre (US gal)	Approximately 17.5 (4.6)
Dimensions	Overall Length (without 3-Point Hitch)		mm (inch)	2766 (108.9)
	Overall Width (with R4 Tyres)		mm (inch)	1287 (50.7)
	Overall Height (with Roll-Over Protective Structure (ROPS), R4 Tyres)		mm (inch)	2407 (95)
	Overall Height (with R4 Tyres) (Top of Steering Wheel)		mm (inch)	1341 (52.8)
	Wheel Base		mm (inch)	1655 (65.2)
	Min. Ground Clearance (with R4 Tyres)		mm (inch)	268 (10.6)
	Tread (with R4)	Front	mm (inch)	920 (36.2)
		Rear	mm (inch)	956 (37.6)
Weight (with Roll-Over Protective Structure (ROPS) and R4 Tyres)			kg (lb.)	948 (2093)
Traveling System	Tyre	Ag (R1)	Front	N/A
			Rear	N/A
		Turf (R3)	Front	24 × 8.50-14 4PR
			Rear	36 × 14-15 4PR
		Industrial (R4)	Front	23 × 8.50-12
			Rear	14-17.5

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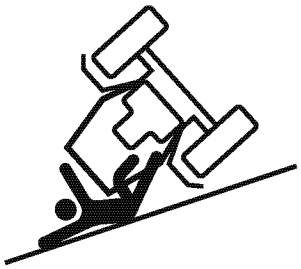
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■ Operate on Slopes and Rough Terrain

⚠ WARNING

Be extremely cautious when driving the tractor on a slope and rough terrain. Observe the following precautions.

- **Before driving the tractor on a slope or a rough terrain, engage the 4-wheel drive for the following purposes:**
  - **to increase traction**
  - **to greatly assists in climbing steep slopes**
  - **to improve braking power on sloped, frozen, wet or graveled surfaces**
  - **always be aware that the danger of tipping over is still present**
- **Add weight to the tractor as necessary.**
- **Drive at a lower speed to prevent skidding and loss of steering control.**
- **Keep away from slopes steeper than 15 degrees.**
- **Avoid parking the tractor perpendicular to the slope.**
- **Avoid turning or changing travel directions on a slope.**
- **Before approaching a slope, select an appropriate speed setting.**
- **Make sure to travel at a lower speed when on a slope.**
- **Avoid shifting the range gear lever while traveling on a slope. The preceding action can make the tractor uncontrollable and suddenly roll down the hill.**
- **Do not move the range gear lever in N (neutral) position when on the slope.**
- **Sudden operating the tractor on an uphill slope can cause the front wheels to lift off the ground and result in an extremely dangerous situation.**
- **To prevent the preceding danger:**
  - **run the engine at a lower speed**
  - **slowly start the tractor**



- **Avoid parking the tractor perpendicular to a slope.**
  - **if parking on a slope is unavoidable, chock all the tyres safely and securely and engage the parking brake securely, for details, see "6. Lock and Set the Parking Brake" on page 7-3**
- **On a slope, the tractor is unstable and more prone to severe injury or even death. Always be alert.**
- **Avoid traveling backward, up and down on a slope to prevent tipping over.**
- **Keep away from ditch or deep mud to avoid the risk of the tractor tipping over.**
- **Always drive slowly on any slope. Avoid under any circumstances sudden change of speeds or directions.**
- **For increased stability of the tractor on slope:**
  - **always use tyres with the widest possible tyre tread width**
  - **follow the instructions for proper weighting**
  - **for details, see "Chapter 12. TYRES, WHEELS AND WEIGHT" on page 12-1**

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12. TYRES, WHEELS AND WEIGHT

⚠ WARNING

- **Avoid mounting a tyre on a rim by an unauthorized person.**
- **Always have an authorized professional with the proper equipment mount the tyre on the rim.**

- **Always inflate tyres to the correct tyre air pressure.**
- **Avoid exceeding the recommended tyre air pressure specified in the *Operator's Manual*.**

- **Always keep the tractor securely supported while:**
  - **changing the wheels**
  - **adjusting the tyre tread width**

- **Always keep the wheel bolts tightened to the specified torque.**
- **Avoid operating the tractor with loose wheels, rims, weights and axles.**

1. Tyres

⚠ WARNING

Avoid injury!

- **Avoid mounting a tyre on a rim by an unauthorized person.**
- **Always have an authorized professional with the proper equipment mount the tyre on the rim.**
- **Always inflate tyres to the correct tyre air pressure.**
- **Avoid exceeding the recommended tyre air pressure specified in the *Operator's Manual*.**

IMPORTANT

- Only use the tyres approved by Yanmar tractor dealers.
- Always install the same tyres types in the front wheels and the rear wheels (e.g., R3 front and R3 rear, or R4 front and R4 rear).

	Tyre Size	Tyre Air Pressure (maximum) MPa (psi)	
		Without front mounted implements or ballast	With front mounted implements or ballast
Front	R3: 24 × 8.50-14 4PR	0.152 (22)	0.152 (22)
	R4: 23 × 8.50-12	0.241 (35)	0.241 (35)
Rear	R3: 36 × 14-15 4PR	0.138 (20)	0.138 (20)
	R4: 14-17.5	0.207 (30)	0.207 (30)

- 2 tyre sizes are provided for the front wheels.
- Another 2 tyre sizes are provided for the rear wheels.
- The recommended tyre air pressures for the tyres are as specified in the table above.
- The tyre air pressure gradually decreases as the tyres are used and as time elapses.
- Check the tyre air pressure before starting the day's operation.
- When the tyre air pressure is low, inflate the tyres to the recommended tyre air pressures.

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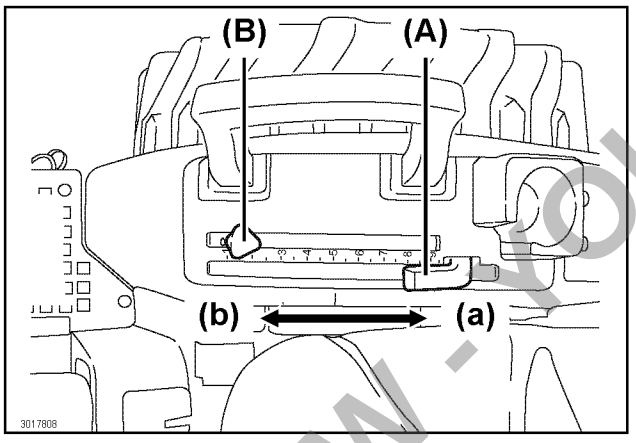
■ Use the 3-Point Hitch Control Lever

NOTE
- The 3-point hitch delivered with the tractor is a Category 1.

1. Use the 3-point hitch control lever to raise and lower the implement attached to the 3-point hitch.

NOTE
- The 3-point hitch control lever is labeled 1 to 9.
- The numbers:
  - for reference purposes only
  - does not indicate any exact height position for the implement that is attached to the 3-point hitch
- The lower the number, the closer the lower links is to the ground.

2. Adjust the position stop knob to set the desired lowest position of the implement from the ground.



(A) 3-point hitch control lever
(B) Position stop knob
(a) Moving the 3-point hitch control lever backward raises the implement.
(b) Moving the 3-point hitch control lever forward lowers the implement.

■ Use the Position Stop Knob

NOTE
Use the position stop knob to:
- Limit the downward movement of the lower links.
- Set a minimum distance between the attached implements and the ground.

1. Operate the attached implement.
2. Use the 3-point hitch control lever to establish the desired working height (distance from the ground) of the implement.
3. Loosen the position stop knob.
4. Move the position stop knob rearwards until position stop knob stops against the 3-point hitch control lever.
5. Tighten the position stop knob to fix on that particular position.
   - Every time the 3-point hitch control lever stops against the position stop knob, the implement is lowered to the established working height.

■ Hydraulic Flow Control/Stop Knob

⚠ WARNING
- **Lowering the 3-point hitch too fast can lead to accident or tractor failure.**
- **Adjust the hydraulic flow control/stop knob:**
  - **the time for lowering the implement from the highest position to the lowest position, is 2 seconds or longer**
- **Do not attempt to operate an implement on a road.**
- **While the tractor is traveling:**
  - **keep the 3-point hitch control lever in the raised position**
  - **lock the 3-point hitch control lever with the position stop knob**
  - **do not fully close the hydraulic flow control/ stop knob**
  - **closing the hydraulic flow control/stop knob can cause damage to the hydraulic lift circuit**
- **During maintenance:**
  - **do not use the hydraulic flow control/stop knob as a means to keep the implements raised**
  - **loss of hydraulic pressure may cause the implement to suddenly drop**
  - **set the implement on solid blocks, or remove the implement before starting any maintenance**
- **The hydraulic flow control/stop knob determines the speed at which the lower link is lowered.**

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