SAFE OPERATION

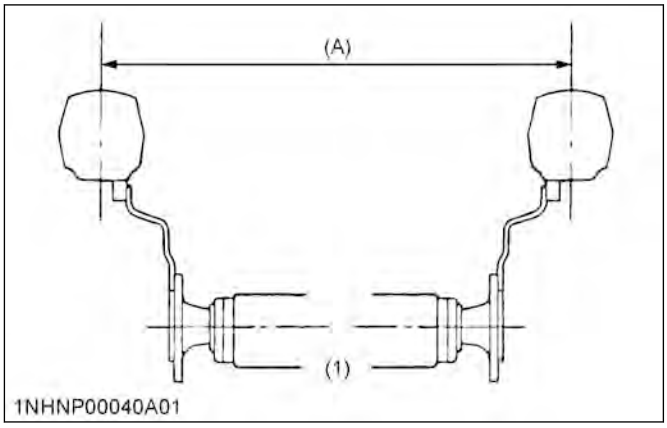
Careful operation is your best insurance against an accident.
Read and understand this manual carefully before operating the tractor.
All operators, no matter how much experience they may have, should read this and other related manuals before operating the tractor or any implement attached to it. It is the owner's obligation to instruct all operators in safe operation.

BEFORE OPERATING THE TRACTOR

Know your equipment and its limitations. Read this entire manual before attempting to start and operate the tractor.

1. General

- Pay special attention to the safety labels on the tractor.
- Do not operate the tractor or any implement attached to it while under the influence of alcohol, medication, controlled substances or while fatigued.
- Before allowing other people to use your tractor, explain how to operate and have them read this manual before operation.
- Never wear loose, torn, or bulky clothing around tractor. It may catch on moving parts or controls, leading to the risk of an accident.
  Use additional safety items, such as a hard hat, safety boots or shoes, eye and hearing protection, gloves and so on, as appropriate or required.
- Do not allow passengers to ride on any part of the tractor at any time. The operator must remain in the tractor seat during operation.
- Check brakes, clutch, linkage pins and other mechanical parts for improper adjustment and wear. Replace worn or damaged parts promptly. Check the tightness of all nuts and bolts regularly.
  (See MAINTENANCE on page 91.)
- Keep your tractor clean. Dirt, grease, and trash build up may contribute to fires and lead to personal injury.
- Use only implements meeting the specifications listed in this manual or implements approved by KUBOTA.
  (See IMPLEMENT LIMITATIONS on page 25.)
- Use proper weights on the front or rear of the tractor to reduce the risk of upsets. Follow the safe operating procedures specified in the implement or attachment manual.
- The narrower the tread, the greater the risk of a tractor upset. For maximum stability, adjust the wheels to the widest practical tread width for your application.
  (See TIRES, WHEELS AND BALLAST on page 84.)



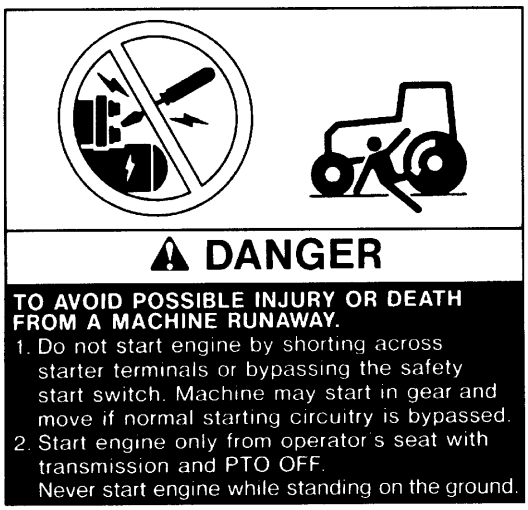
(1) Rear wheels *(A) Tread width*

- Do not modify the tractor. Unauthorized modification may affect the function of the tractor, which may result in personal injury.

2. CAB and ROPS

- KUBOTA recommends the use of a CAB or roll over protective structures (ROPS) and seat belt in almost all applications. This combination will reduce the risk of serious injury or death, should the tractor be upset. Check for overhead clearance which may interfere with a CAB or ROPS.
- Set the parking brake and stop the engine. Remove any obstructions that may prevent the ROPS from rising or folding. Do not allow any bystanders near the tractor. Always perform the adjustment from a stable position at the rear of the tractor. Hold the top of the ROPS securely when raising or folding. Make sure that all pins are installed and locked.
- If the CAB or ROPS is loosened or removed for any reason, make sure that all parts are reinstalled correctly before operating the tractor.
- Never modify or repair any structural member of a CAB or ROPS because welding, bending, drilling, grinding, or cutting may weaken the structure.
- A damaged CAB or ROPS structure must be replaced, not repaired or revised.
- If any structural member of the CAB or ROPS is damaged, replace the entire structure at your local KUBOTA Dealer.

(1) Part No. 6C090-4965-1



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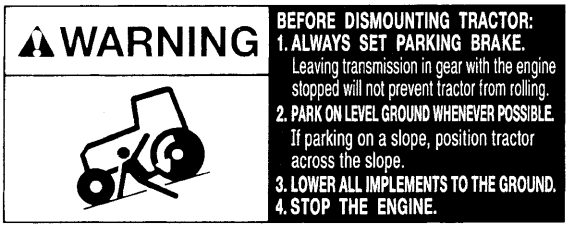
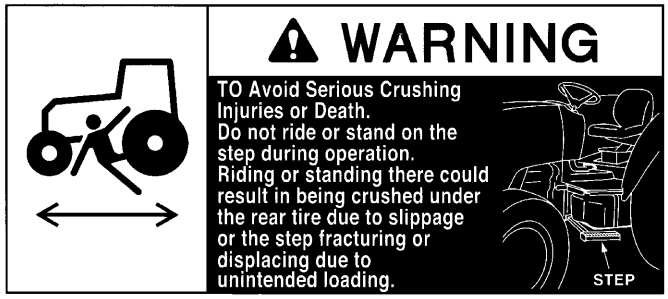
(2) Part No. 6C150-4743-1



1AGAIBDAP040E

(3) Part No. 3A111-9801-1



1AGAIDHAP099A

(4) Part No. TA040-4958-1
Do not touch hot surface like muffler, etc.

1AGAEENAP007B

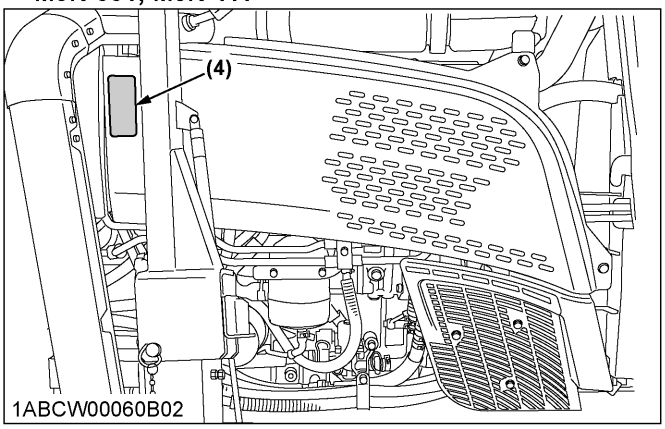
(5) Part No. K3512-4719-1
Do not touch hot surface like muffler, etc.

1BDABANAP080B

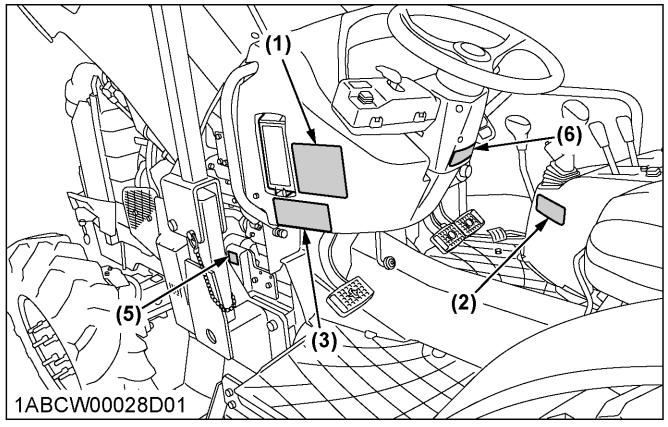
(6) Part No. 3F240-9857-1

1AGAIBDAP039A

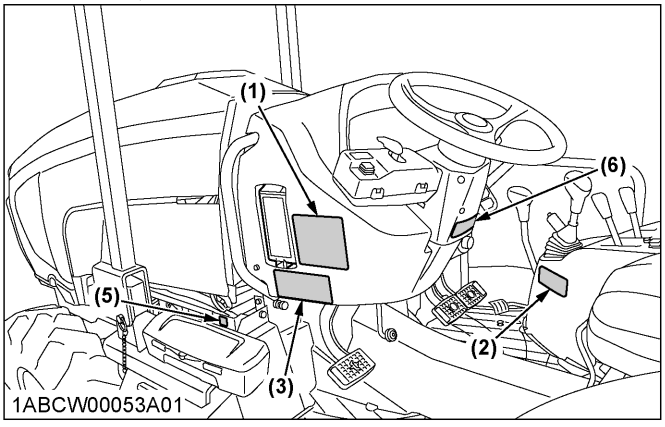
M5N-091, M5N-111



M4N-071



M5N-091, M5N-111



1ABCW00048A01

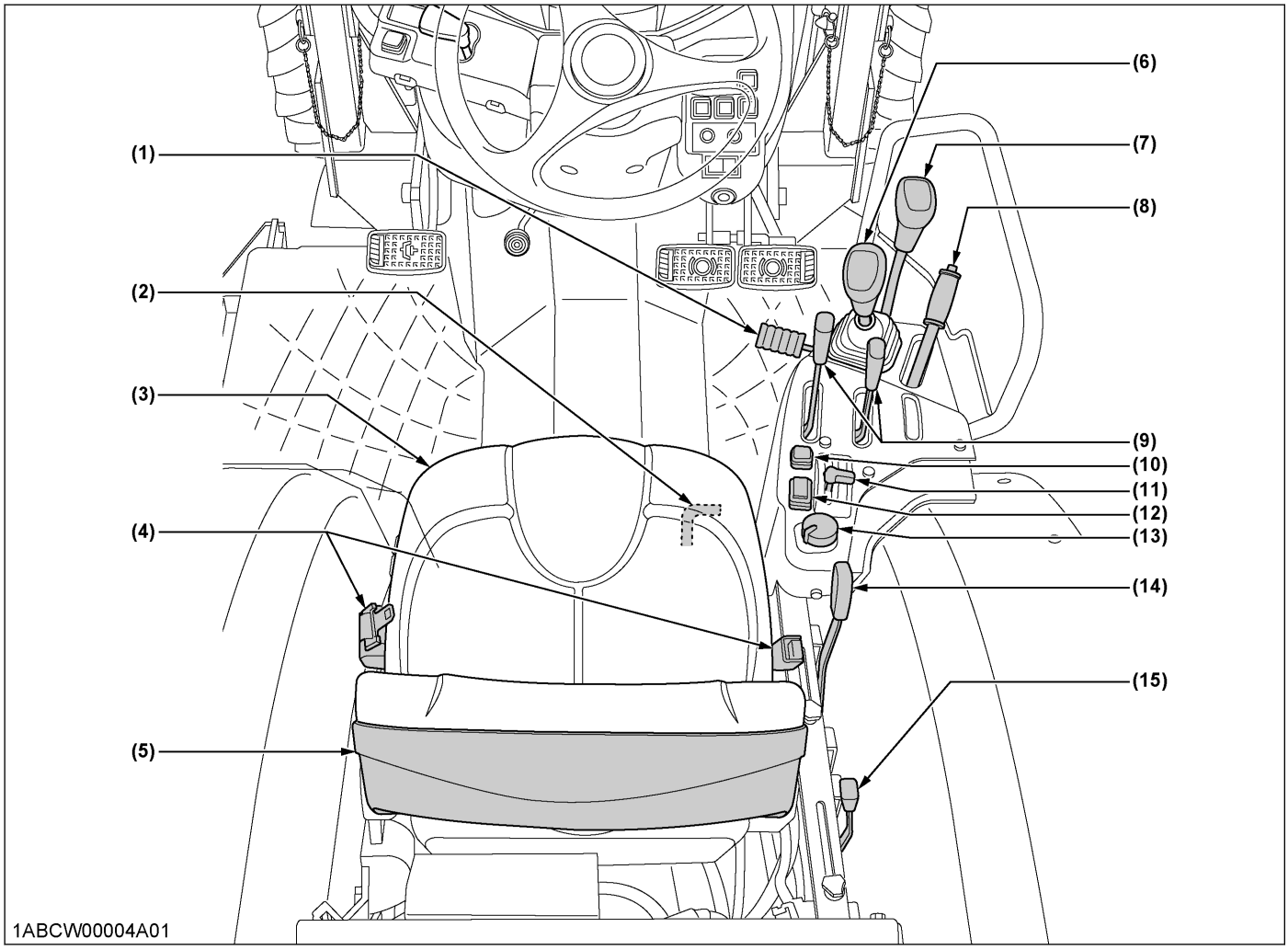
SPECIFICATIONS

SPECIFICATION TABLE

Model				M4N-071	M5N-091	M5N-111
				4WD		
Engine	Model			V3800-TE4	V3800-TIEF4	
	Type			Direct injection, water-cooled 4 cycle diesel, common rail system, turbocharger	Direct injection, water-cooled 4 cycle diesel, common rail system, turbocharger, intercooler	
	Number of cylinders			4		
	Total displacement		cm^3 (cu.in.)	3769 (230)		
	Bore and stroke		mm (in.)	100 x 120 (3.9 x 4.7)		
	Rated revolution		rpm	2400		
	Low idling revolution		rpm	800 to 850		
	Rated engine HP (97/68/EC)		kW (HP)	54.1 (72.6)	69.1 (92.6)	78.8 (105.7)
	Net power *1		kW (HP)	52.5 (70.4)	64.7 (86.7)	74.4 (99.8)
	PTO power (factory observed) *1		kW (HP)	45.5 (61)	[without DS] 58.1 (78) [with DS] 55.9 (75)	[without DS] 67.9 (91) [with DS] 65.6 (88)
	Maximum torque		N·m/rpm (ft·lbs/rpm)	270/1500 (199/1500)	307/1500 (226/1500)	345/1500 (254/1500)
	Battery capacity			12V, RC: 160 min, CCA 900A		
	Fuel tank capacity		L (U.S.gals.)	76 (20.1)		
	Engine oil capacity		L (U.S.qts.)	10.7 (11.3)		
	Coolant capacity		L (U.S.qts.)	10.0 (11)		
	DEF/AdBlue® capacity		L (U.S.gals.)	---	12.3 (3.2)	
Dimensions	Overall length		mm (in.)	3750 (147.6)	3950 (155.5)	
	Overall width (minimum tread)		mm (in.)	1310 (51.6)	1360 (53.5)	
	Overall height		mm (in.)	2504 (98.6)	2529 (99.6)	
	Wheel base		mm (in.)	2130 (83.9)		
	Tread	Front	mm (in.)	1050 (41.3)	1100 (43.3)	
		Rear	mm (in.)	945 to 1385 (37.2 to 54.5)		
	Minimum ground clearance		mm (in.)	290 (11.4) (drawbar bracket)		
Weight			kg (lbs.)	2290 (5049)	2430 (5357)	
Traveling system	Standard tire size	Front tires		8-16		
		Rear tires *2		12.4-24		
	Clutch			Multiple wet disc, electronic hydraulically operated		
	Steering			Hydraulic power steering		

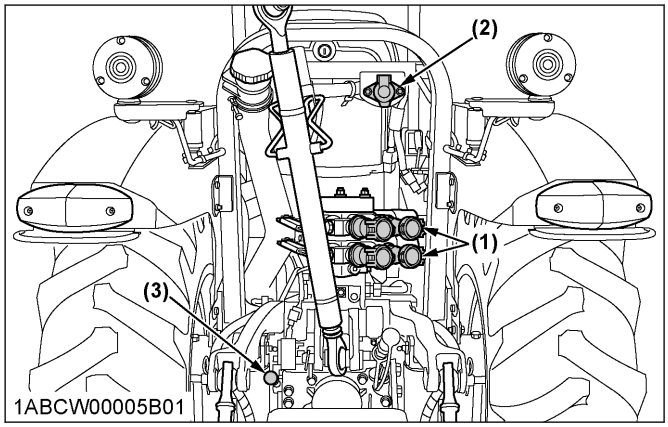
(Continued)

FOOT AND HAND CONTROLS



Illustrated contents

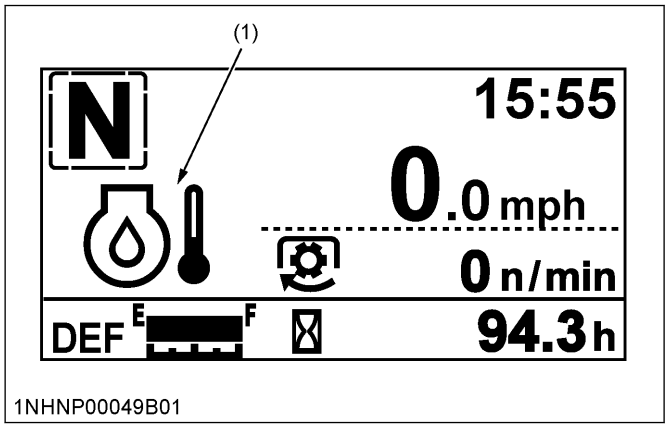
(1) *Foot throttle…57*
(2) *Differential lock pedal…67*
(3) *Operator's seat…49*
(4) *Seat belt…50*
(5) *Glove box…50*
(6) *Main gear shift lever…55*
(7) *Range gear shift lever…55*
(8) *Parking brake lever…53*
(9) *Remote control valve lever…80*
(10) ***Dual speed** shift switch (**dual speed** model for **M5N-091**, **M5N-111**) …56*
(11) *Hand throttle lever…57*
(12) *RPM dual memory switch…65*
(13) *PTO clutch control switch…70*
(14) *Position control lever…78*
(15) *Draft control lever…78*



Illustrated contents

(1) *Remote control valve…79*
(2) *Trailer electrical outlet…69*
(3) *PTO gear shift lever…71*

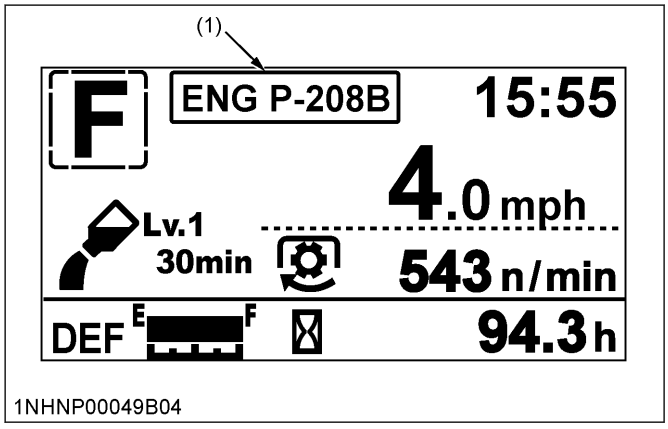
completely released, the indicator will go off and the buzzer will stop.



(1) Low temperature regulation indicator

3. DEF/AdBlue® freeze warning (M5N-091, M5N-111)

When operating in cold weather, the DEF/AdBlue® is automatically thawed while the engine is running. However, in weather conditions of under -30 ℃(-22 ℉), the DEF/AdBlue® cannot be completely thawed and thus, an error/warning code "**ENG P-208B**" appears on the instrument panel's LCD screen.
If the error/warning code "**ENG P-208B**" appears on the screen, stop the engine and restart it after 10 seconds. After restarting the engine, the error/warning code "**ENG P-208B**" will disappear and the thawing of the DEF/AdBlue® will resume.
In case the error/warning code "**ENG P-208B**" remains on the screen even after restarting the engine several times, contact your local KUBOTA Dealer.



(1) Error/warning code

STOPPING THE ENGINE

IMPORTANT :
M5N-091, M5N-111

- **When the engine is stopped-shutdown, DEF/AdBlue® flow is reversed in the DEF/AdBlue® lines and related piping and returned back into the DEF/AdBlue® tank after cooling the DEF/AdBlue® injector.**
  The SCR system continues working several minutes after engine shutdown to complete this purge process.
- **Do not turn the machine main battery power off to the engine until the DEF/AdBlue® return cycle purge process is completed. Turning off the main battery power to the engine and aftertreatment system prior to completion may damage the system or cause it to malfunction.**

NOTE :

- **If removing the key does not stop the engine, consult your local KUBOTA Dealer.**
- **Some noise heard for a couple of minutes after the engine has been stopped. This is because DEF/AdBlue® is still flowing through the circuit to cool down the DEF/AdBlue® injector.**

1. After slowing the engine to idle, wait 3 to 5 minutes for turbo to slow down and then turn the key to *"OFF"*.
2. Remove the key.

WARMING UP THE ENGINE

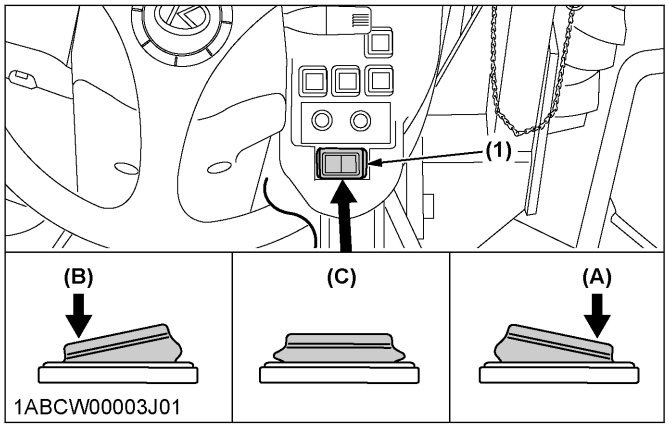
⚠ WARNING
To avoid personal injury or death:

- **Be sure to set the parking brake during warm-up.**
- **Be sure to set all shift levers to the *"NEUTRAL"* positions and to place PTO switch in *"OFF"* position during warm-up.**

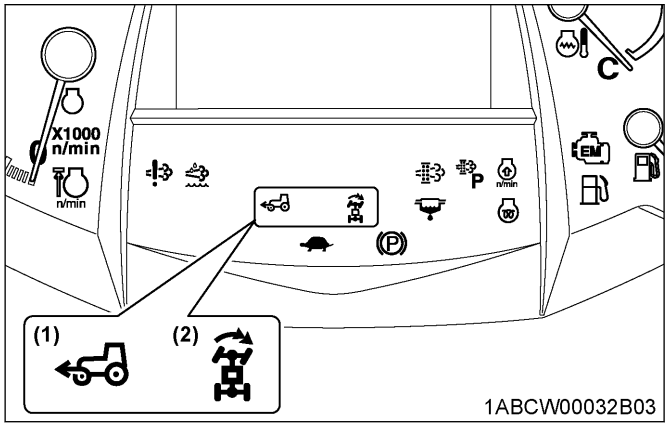
For 5 minutes after engine start-up, allow the engine to warm up without applying any load; this is to allow oil to reach every engine part. If load should be applied to the engine without this warm-up period, trouble such as seizure, breakage or premature wear may develop.

1. Warm-up and transmission fluid at low temperature range

Hydraulic oil serves as transmission fluid. In cold weather, the oil may be cold with increased viscosity.
This can cause delayed oil circulation or abnormally low hydraulic pressure for some time after engine start-up. This in turn can result in trouble in the hydraulic system.
To prevent the above, observe the following instructions:
Warm up the engine at about 50% of rated rpm according to the following table:



(1) 4WD switch and Bi-speed turn switch
(B) Bi-speed turn "ON"
(C) 2WD "ON"
(A) 4WD "ON"



(1) 4WD indicator
(2) Bi-speed turn indicator

NOTE :

- **This switch can be operated when the tractor is on the go or at rest without depressing the clutch.**
- ***Bi-speed turn* system works when you press the 4WD and *Bi-speed turn* switch and the front tire (inside of the turn) exceeds 35 degrees.**
  ***Bi-speed turn* makes the front tire speed 1.6 times faster than the standard 4WD front tire speed.**
- ***Bi-speed turn* operates only when the tractor travel speed is 10 km/h (6.2 mph) or less at the start of the turn.**

19.1 Front-wheel drive and *Bi-speed turn* usage

Front-wheel drive is effective for the following jobs:

- When greater pulling force is needed, such as working in a wet field, when pulling a trailer, disking or harrowing.
- When working in sandy soil.
- When working on a hard soil where a rotary tiller might push the tractor forward.
- For increased braking at reduced speed.

Bi-speed turn use is effective for the following jobs:

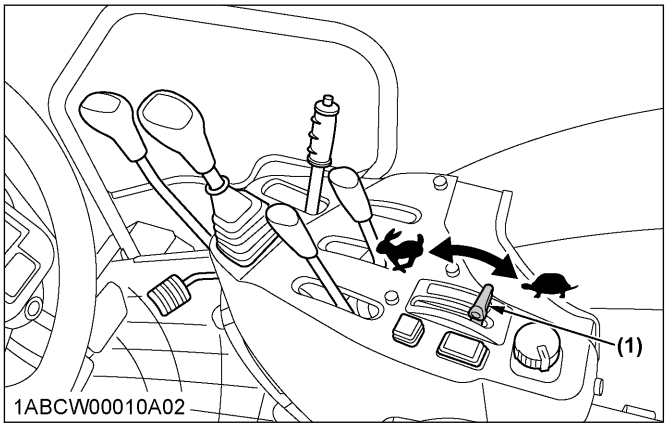
- Turning at the end of rows. (planting, cultivating, harrowing.)
- Increasing maneuverability when working in tight spaces.

IMPORTANT :

- **Tires will wear quickly if the front-wheel drive is engaged on paved roads.**

20. Hand throttle lever

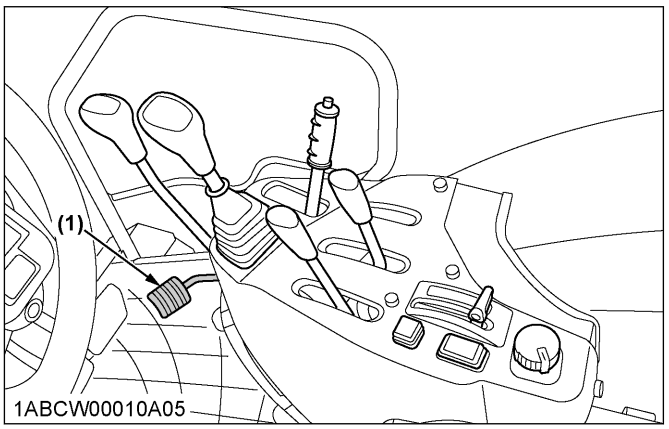
Pulling the throttle lever back decreases engine speed, and pushing it forward increases engine speed.



(1) Hand throttle lever
"DECREASE"
"INCREASE"

21. Foot throttle

Use the foot throttle when traveling on the road. Press down on it for higher speed. The foot throttle is interlocked with the hand throttle lever; when using the foot throttle, keep the hand throttle lever in low idling position.



(1) Foot throttle

STOPPING THE TRACTOR

1. Slow down the engine.
2. Step on the clutch and brake pedal.
3. Wait for the tractor to stop.

PTO

PTO OPERATION

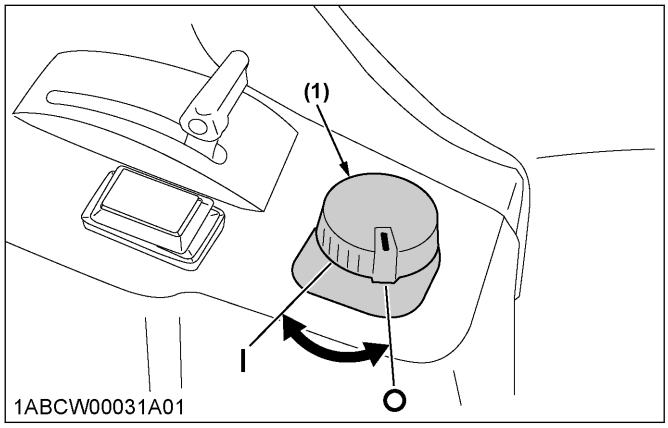
⚠ WARNING

To avoid personal injury or death:

- **Disengage the PTO, stop the engine, and allow all rotating components to come to a complete stop before connecting, disconnecting, adjusting, or cleaning any PTO driven equipment.**

1. PTO clutch control switch

The PTO clutch control switch engages or disengages the PTO clutch which gives the PTO independent control.



(1) PTO clutch control switch *O "OFF"* *I "ON"*

Turn the switch to *"ON"* to engage the PTO clutch. Turn the switch to *"OFF"* to disengage the PTO clutch.

IMPORTANT :

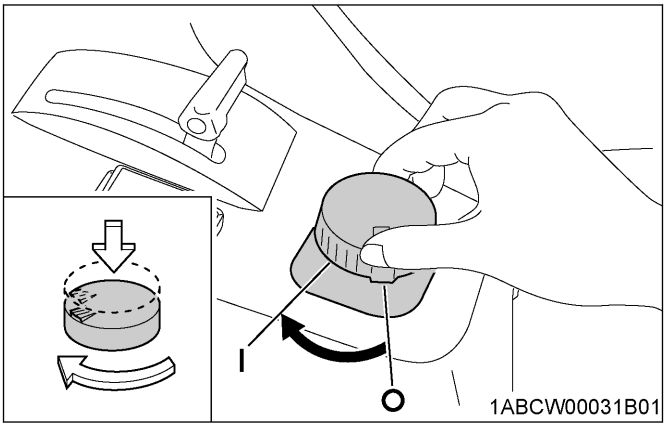
- **To avoid shock loads to the PTO, reduce engine speed when engaging the PTO, then open the throttle to the recommended speed.**

NOTE :

- **Tractor engine will not start if PTO clutch control switch is in the engaged *"ON"* position.**
- **If the PTO system is engaged and you stand up from the seat, the warning buzzer will whistle for about 10 seconds after standing up.**
  This is because the tractor is equipped with *"Operator Presence Control System"*.

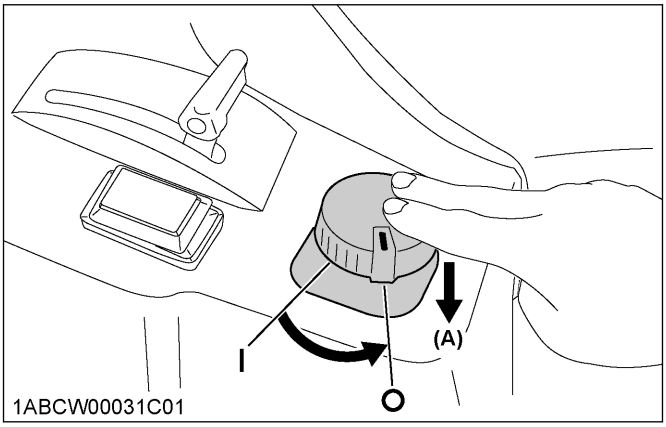
To turn *"ON"*

1. While pushing the switch, turn clockwise to the I position and release your hand. (In the ON position, switch slightly rises itself.)



To turn *"OFF"*

1. Tap on top of the switch, and the switch will return to the OFF position.



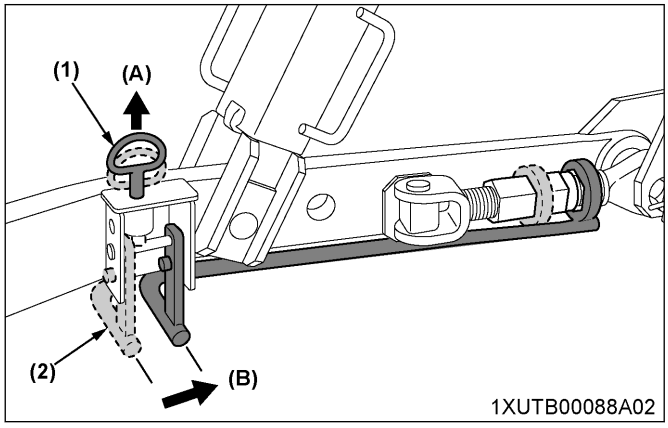
(A) "PUSH"

2. PTO clutch indicator

The PTO clutch indicator turns on while PTO clutch control switch is in *"ON"* (engage) position.

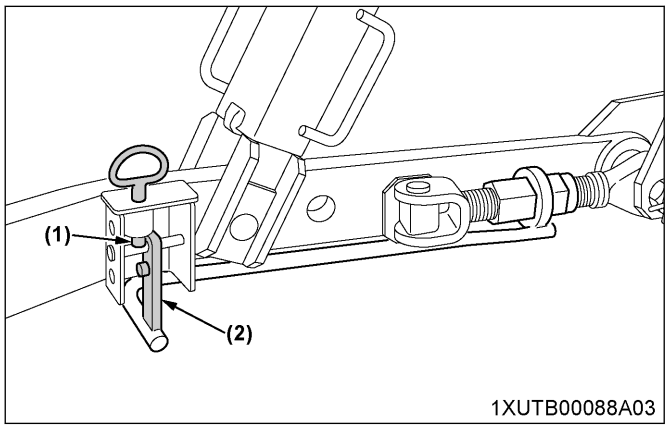
7.1 Turnbuckle unlocked position

1. Lift the set-pin and slide the hex wrench handle forward.



(1) Set-pin
(2) Hex wrench handle
(A) "Lift"
(B) "Slide forward"

2. Lower the set-pin and make sure the hex wrench handle cannot move past the set-pin tip.



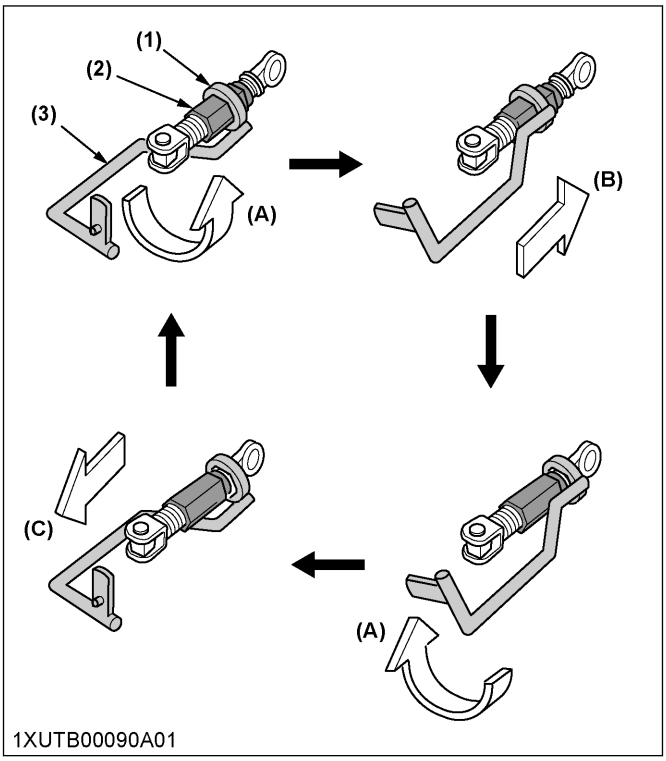
(1) Set-pin
(2) Hex wrench handle

7.2 Rotating the turnbuckle

1. Use the hexagonal part of the wrench and the hex wrench handle to rotate the turnbuckle once.
2. Slide the hex wrench handle forward to release it from the turnbuckle.
3. Rotate the hex wrench handle and slide it backward until the hexagonal part is locked on the turnbuckle.
4. Repeat steps 1 to 3 until the desired stabilizer length is achieved.

Rotating	Stabilizer length	Lower link width
clockwise	Shorten	Widen
Counterclockwise	Lengthen	Narrow

Example: turnbuckle (RH) counterclockwise



(1) Hexagonal part
(2) Turnbuckle
(3) Hex wrench handle
(A) "Rotate"
(B) "Slide forward"
(C) "Slide backward"

NOTE :
- **Adjusting the left hand side stabilizer is done the same way as for the right hand side stabilizer.**

DRAWBAR

⚠ WARNING
To avoid personal injury or death:
- **Never pull from the top link, the rear axle or any point above the drawbar. Doing so could cause the tractor to tip over rearward.**

1. Adjusting drawbar length

1. When towing an implement, it is recommended that the (A) hole in drawbar be utilized.

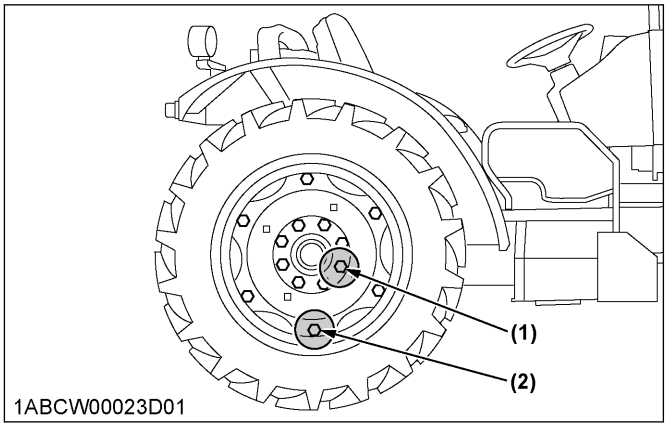
3. Rear wheels

Rear tread width can be adjusted, as shown, with the standard equipped tires.
To change the tread width:

1. Remove the wheel rim and/or disc mounting bolts.
2. Change the position of the rim and/or disc (right and left) to the desired position, and tighten the bolts.

IMPORTANT :

- **Always attach wheels as shown in the drawing.**
- **If not attached as illustrated, transmission parts may be damaged.**
- **When re-fitting or adjusting a wheel, tighten the bolts to the following torques then recheck after driving the tractor 200 m (200 yards) and 10 times of shuttle movement by 5 m (5 yards), and thereafter according to service interval.**
  (See MAINTENANCE on page 91.)



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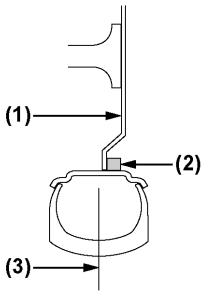
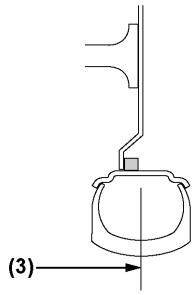
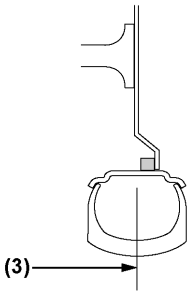
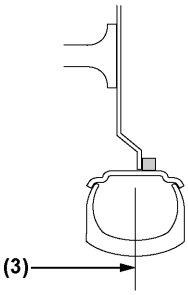
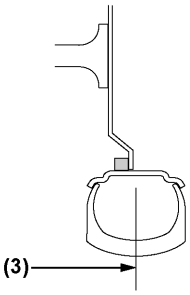
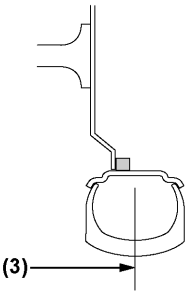
(1)	(2)	
	Steel disk	Cast iron disk
260 to 304 N·m 26.5 to 31.0 kgf·m 191.8 to 224.2 ft·lbs	244 N·m 24.9 kgf·m 180 ft·lbs	260 to 304 N·m 26.5 to 31.0 kgf·m 191.8 to 224.2 ft·lbs

		 1ABCW00008A01	 1ABCW00008A02	 1ABCW00008A03	 1ABCW00008A04	 1ABCW00008A05	 1ABCW00008A06
12.4-24	945 mm (37.2 in.)	1000 mm (39.4 in.)	1230 mm (48.4 in.)	1335 mm (52.6 in.)	1280 mm (50.4 in.)	1385 mm (54.5 in.)
380/85R24	---	1090 mm (42.9 in.)	1135 mm (44.7 in.)	1240 mm (48.8 in.)	1375 mm (54.1 in.)	---
380/85R24 Cast	---	1130 mm (44.5 in.)	1110 mm (43.7 in.)	1185 mm (46.7 in.)	1355 mm (53.3 in.)	---
480/65R24	---	1125 mm (44.3 in.)	1115 mm (43.9 in.)	1195 mm (47.0 in.)	1345 mm (53.0 in.)	---

(1) Rear wheel disc
(2) Rear wheel rim
(3) Tread

PERIODIC SERVICE

⚠ WARNING
To avoid personal injury or death:
- **Do not work under any hydraulically supported devices. They can settle, suddenly leak, or be accidentally lowered. If necessary to work under the tractor or any machine elements for servicing or adjustments, securely support them with stands or suitable blocking beforehand.**

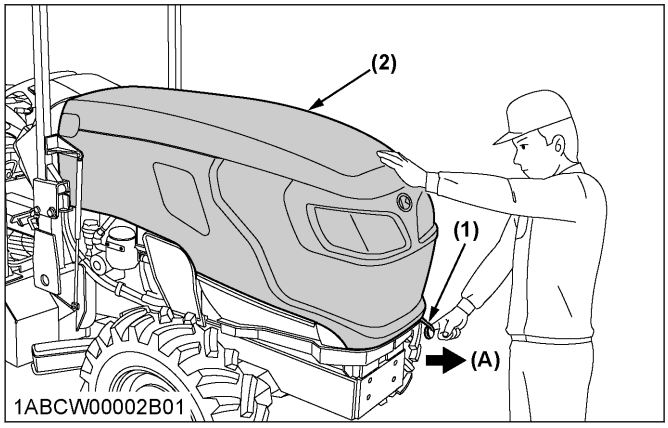
HOW TO OPEN THE HOOD

⚠ WARNING
To avoid personal injury or death from contact with moving parts:
- **Never open the hood while the engine is running.**
- **Do not touch the muffler or exhaust pipes while they are hot; severe burns could result.**
- **Hold the hood with the other hand while unlocking the release lever.**

1. Hood

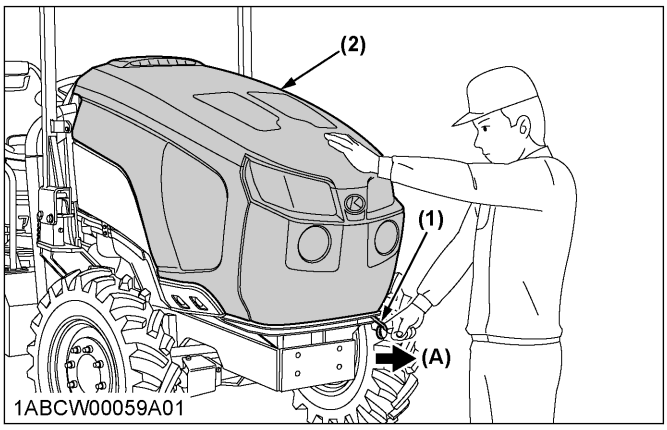
1. To open the hood, hold the hood, pull the release lever and then open the hood.

M4N-071



(1) Release lever *(A) "PULL"*
(2) Hood

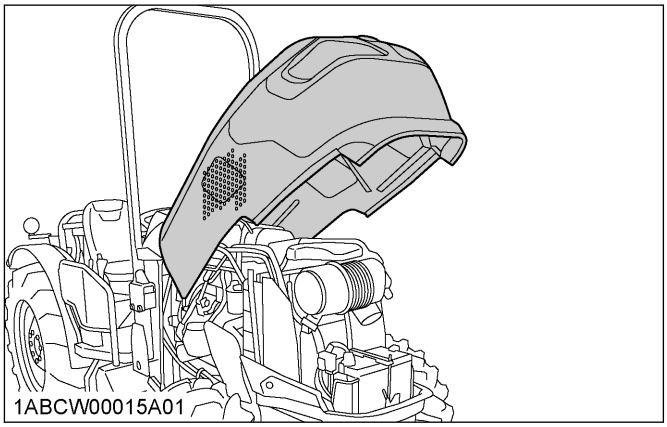
M5N-091, M5N-111



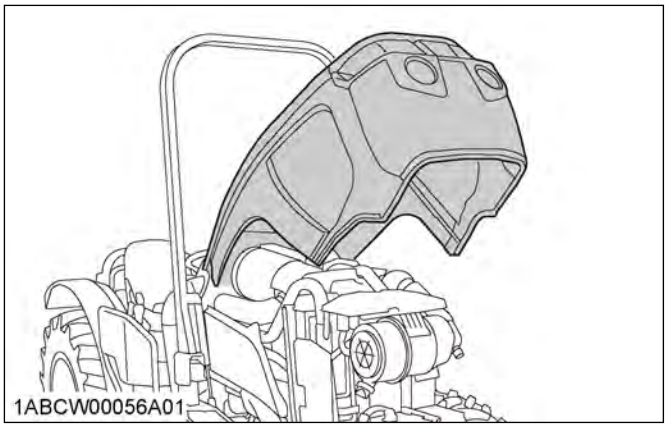
(1) Release lever *(A) "PULL"*
(2) Hood

NOTE :
- **To close the hood, push the hood into position using both hands.**

M4N-071



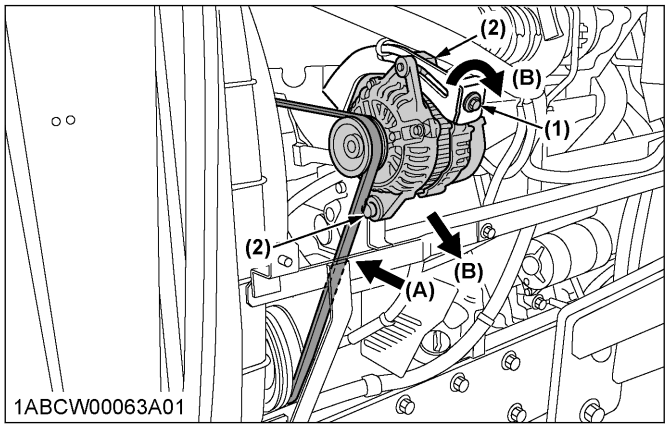
M5N-091, M5N-111



M5N-091, M5N-111

Proper fan belt tension	A deflection of between 13 to 15 mm (0.51 to 0.59 in.)when the belt is pressed in the middle of the span.

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to the belt between pulleys.
3. If the tension is incorrect, loosen the alternator mounting bolts and turn the adjusting bolt to adjust the belt tension within acceptable limits.
4. Replace the fan belt if it is damaged.



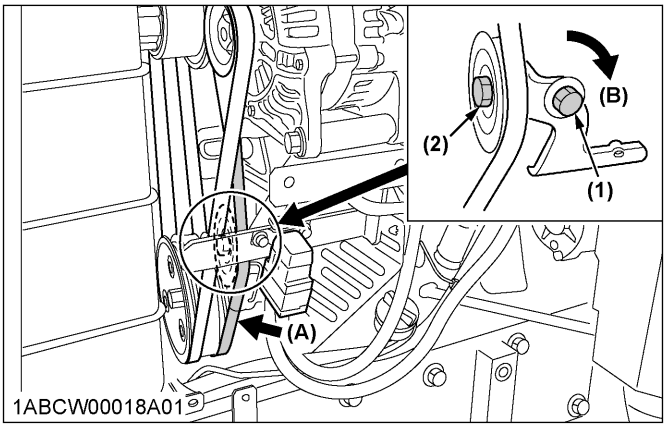
(1) Adjusting bolt *(B) To tighten*
(2) Alternator mounting bolt
(A) Check the belt tension

M4N-071

Proper fan belt tension	A deflection of between 10 to 12 mm (0.39 to 0.47 in.) when the belt is pressed in the middle of the span.

1. Stop the engine and remove the key.
2. Apply moderate thumb pressure to belt between pulleys.
3. If tension is incorrect, loosen the tension pulley mounting nut and turn the adjusting bolt to adjust the belt tension within acceptable limits.
4. Replace fan belt if it is damaged.

IMPORTANT :
- **Make sure that the V-belt tension is as specified as shown in the table above after tightening the tension pulley mounting nut.**



(1) Adjusting bolt *(A) Check the belt tension*
(2) Alternator mounting bolt *(B) To tighten*

4. Adjusting brake pedal

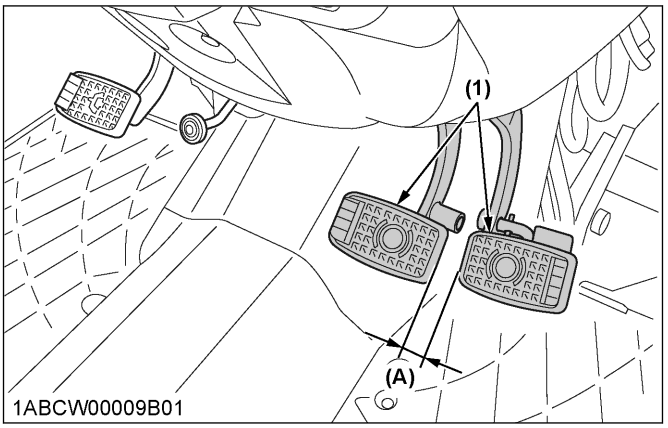
⚠ WARNING

To avoid personal injury or death:
- **Park on flat ground, stop the engine and chock the wheels before checking the brake pedal.**
- **To prevent uneven braking, the specification must be within the recommended limit. If found to be beyond the specification range, contact your local KUBOTA dealer for adjusting the brakes.**

4.1 Checking brake pedal free travel

Proper brake pedal free travel	7 to 14 mm (0.3 to 0.6 in.) on the pedal
	Keep the free travel in the right and left brake pedals equal.

1. Set the parking brake.
2. Slightly depress the brake pedals and measure free travel at the top of pedal stroke.

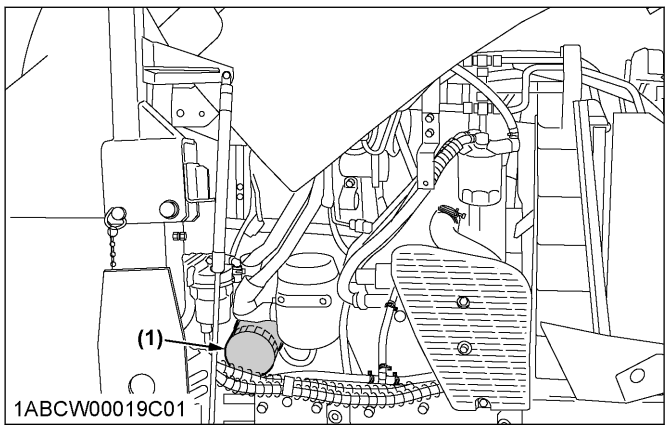


(1) Brake pedals *(A) "FREE TRAVEL"*

NOTE :
- **Brake pedals should be equal when depressed.**

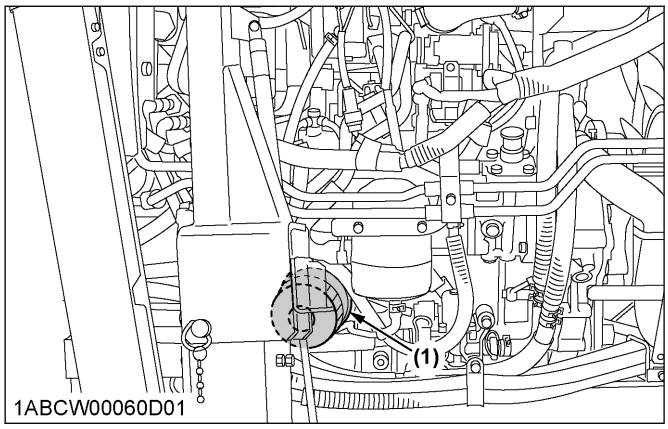
4. After the new filter has been replaced, the engine oil normally decreases by a small amount. Make sure that the engine oil does not leak through the seal and be sure to check the oil level on the dipstick. Then replenish the engine oil up to the prescribed level.

M4N-071



(1) Engine oil filter

M5N-091, M5N-111



(1) Engine oil filter

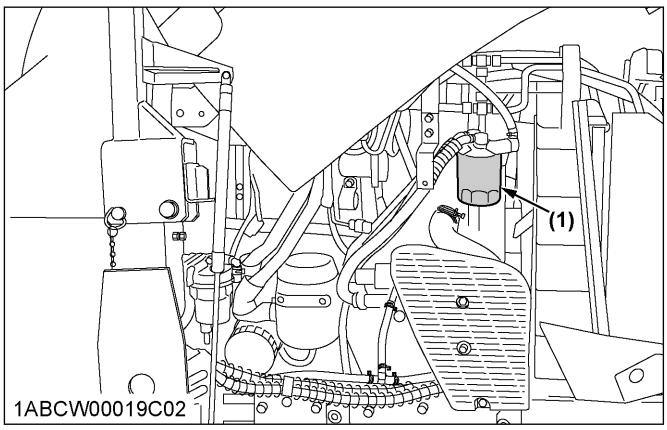
IMPORTANT :

- **To prevent serious damage to the engine, use only a KUBOTA genuine filter.**

3. Replacing fuel filter

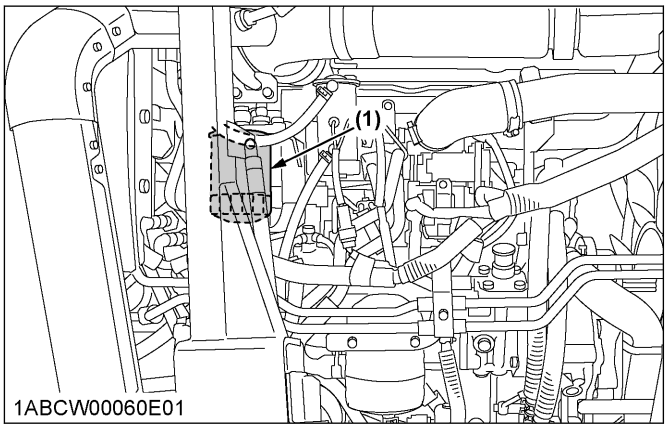
1. Remove the fuel filter.
2. Put a film of clean fuel on the rubber seal of the new filter.
3. Tighten the filter quickly until it contacts the mounting surface.
   Tighten the filter by hand an additional 1/2 turn only.
4. Bleed the fuel system.
   (See 1. Bleeding fuel system on page 127.)

M4N-071



(1) Fuel filter

M5N-091, M5N-111



(1) Fuel filter

4. Replacing hydraulic oil filter

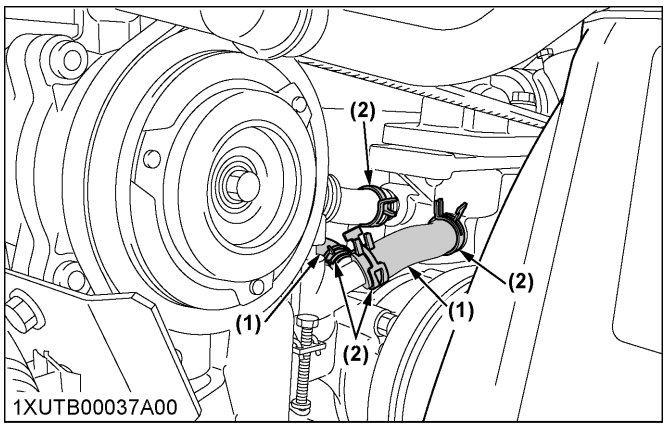
⚠ WARNING

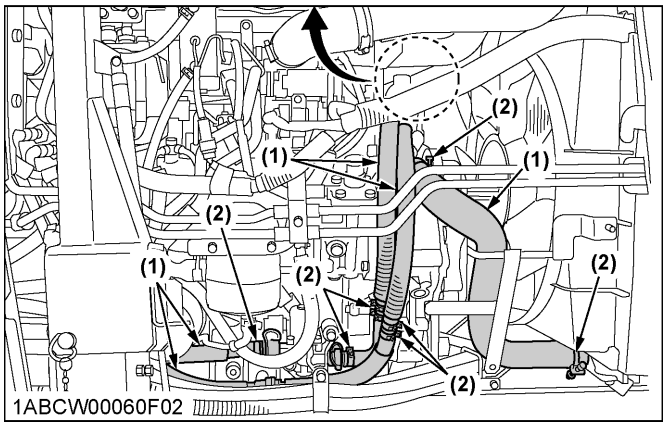
To avoid personal injury or death:

- **Be sure to stop the engine before changing the oil filter cartridge.**
- **Allow the engine to cool down sufficiently; oil can be hot and can burn.**

1. Remove the drain plug at the bottom of the transmission case and drain the oil completely into an oil pan.

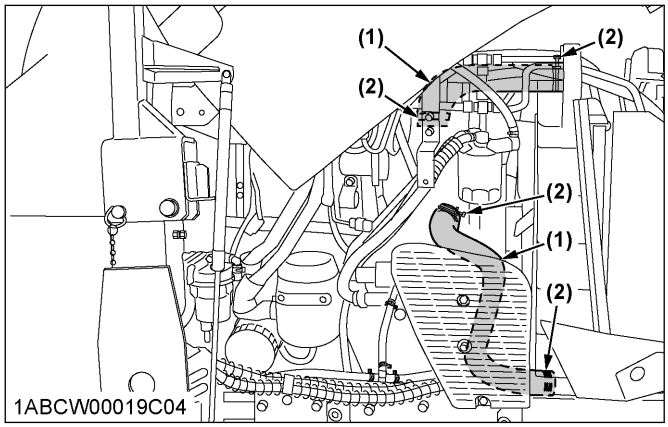
M5N-091, M5N-111





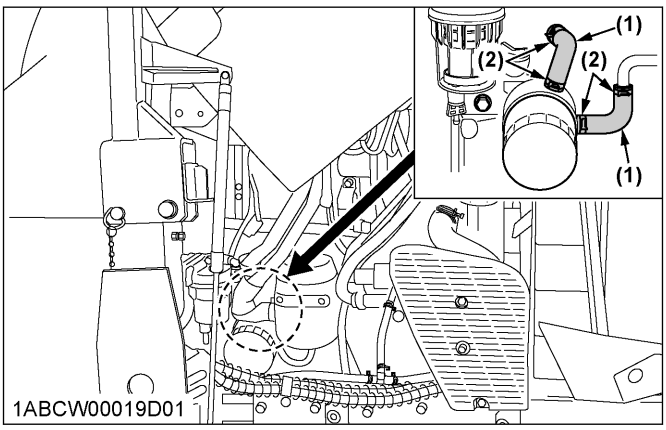
(1) Radiator hoses *(2) Hose clamps*

M4N-071



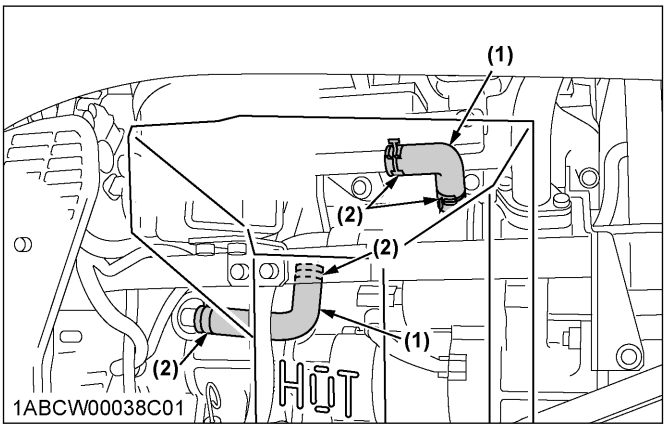
(1) Radiator hoses *(2) Hose clamps*

M4N-071



(1) Radiator hoses *(2) Hose clamps*

M4N-071



(1) Radiator hoses *(2) Hose clamps*

6.1 Overheating countermeasures

Take the following actions in the event the coolant temperature is nearly at or over the boiling point, also called *"overheating"*.

1. Park the tractor in a safe place and keep the engine idling unloaded.
2. Allow the engine to idle unloaded for about 5 minutes before stopping it, rather than stopping it suddenly.
3. Keep away from the machine for another 10 minutes or while the steam blows out.
4. Check that there are no dangers such as burns. Get rid of the causes of overheating according to the troubleshooting section of this manual.
   (See TROUBLESHOOTING on page 133.)
   Afterward, restart the engine.

7. Checking fuel line

1. Check to see that all lines and hose clamps are tight and not damaged.

5. Replacing lift cylinder hose

Consult your local KUBOTA Dealer for this service.

6. Replacing brake hose

Consult your local KUBOTA Dealer for this service.

7. Replacing master cylinder kit

Consult your local KUBOTA Dealer for this service.

8. Replacing equalizer kit

Consult your local KUBOTA Dealer for this service.

9. Replacing brake seal 1 and 2

Consult your local KUBOTA Dealer for this service.

SERVICE AS REQUIRED

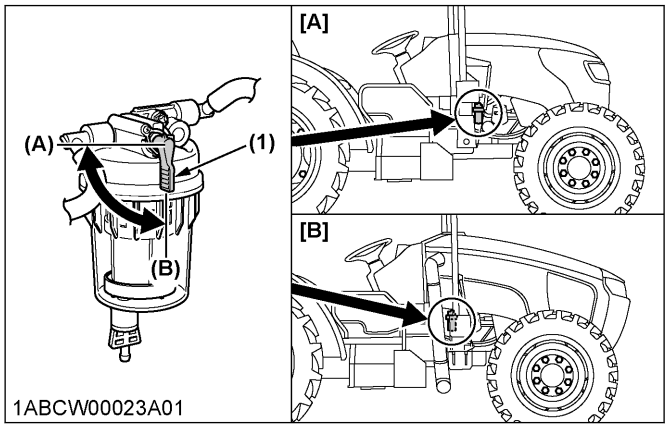
1. Bleeding fuel system

Air must be removed:

- When the fuel filter or lines are removed.
- When the water is drained from the water separator.
- When the tank is completely empty.
- After the tractor has not been used for a long period of time.

Bleeding procedure is as follows:

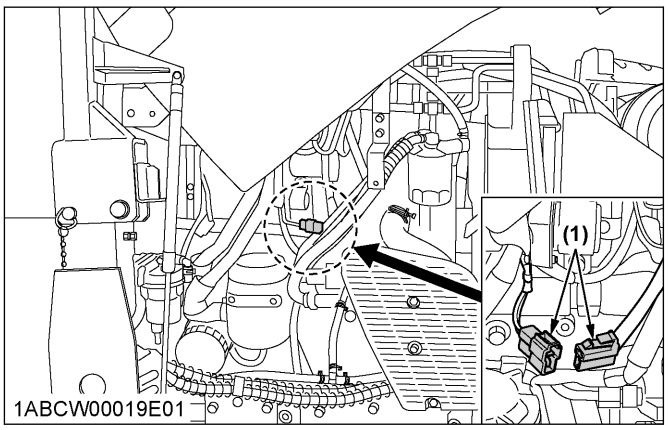
1. Fill the fuel tank with fuel, and open the fuel shutoff-valve.



(1) Fuel shutoff-valve
(A) "CLOSE"
(B) "OPEN"
[A] M4N-071
[B] M5N-091, M5N-111

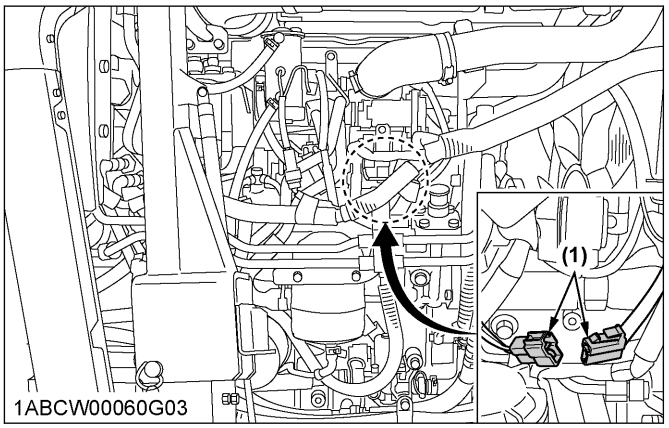
2. Disconnect the heater connector.

M4N-071



(1) Connector

M5N-091, M5N-111

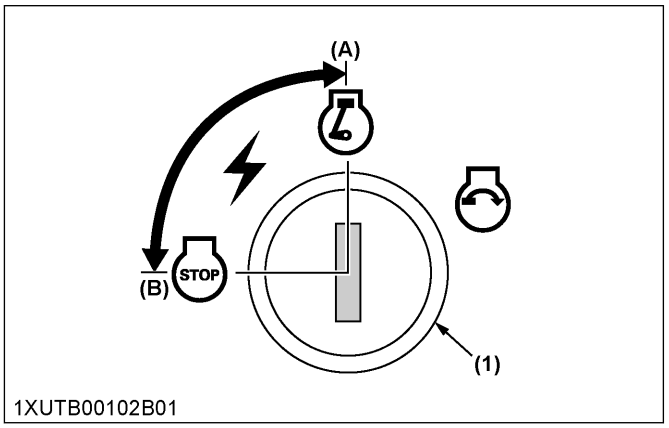


(1) Connector

IMPORTANT :

- **Do not try air-bleeding with the heater in operation. Otherwise the battery may be damaged.**

3. Turn *"ON"* and *"OFF"* the key switch repeatedly 10 times or so at the following intervals. This lets the air out of the fuel line.
   a. Key switch *"ON"* time: 30 seconds
   b. Key switch *"OFF"* time: 15 seconds



(1) Key switch
(A) "ON"
(B) "OFF"

G

H

I

J

L

M

O