

# OPERATOR'S MANUAL

# KUBOTA TRACTOR

MODELS L235 • L275



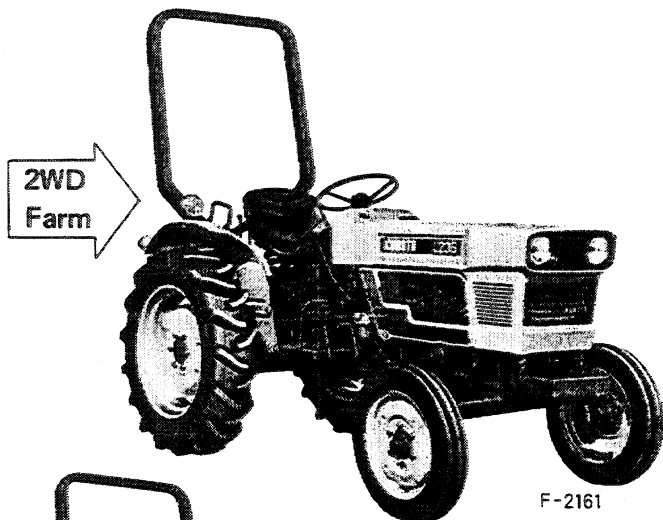
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*READ AND SAVE THIS MANUAL*

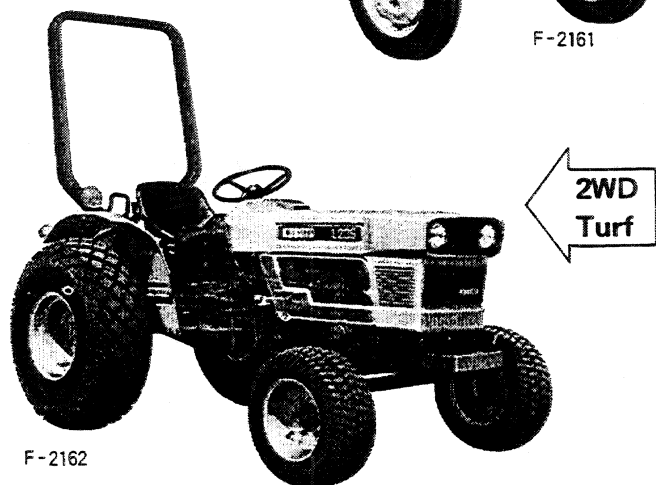
**Kubota**



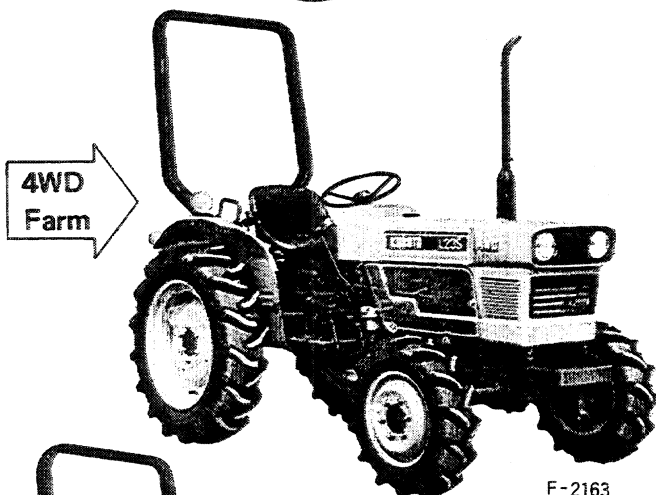
# L235 SERIES



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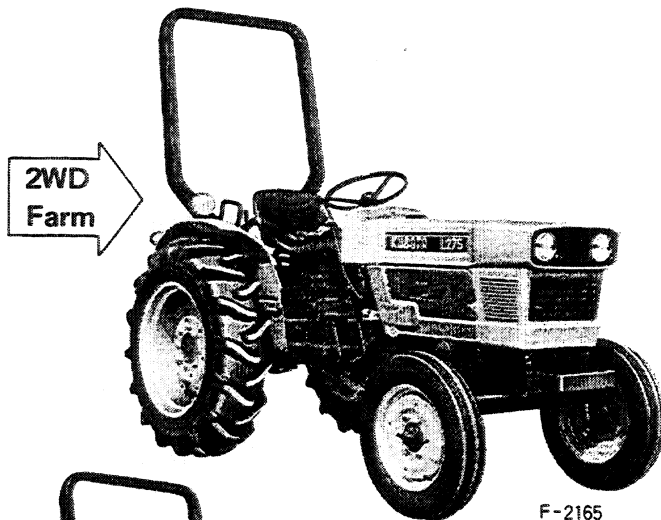


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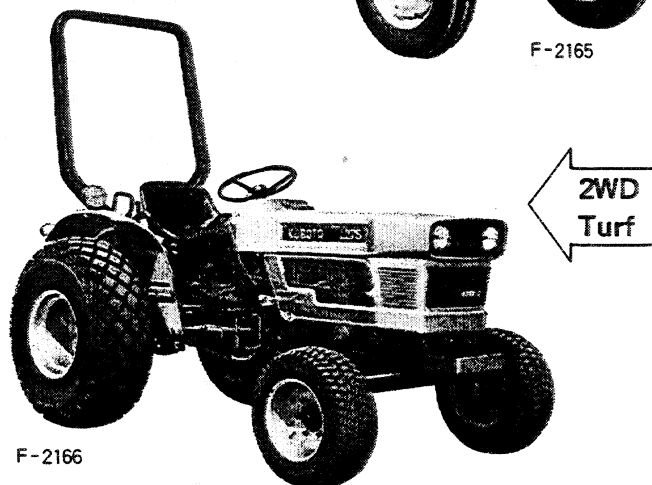


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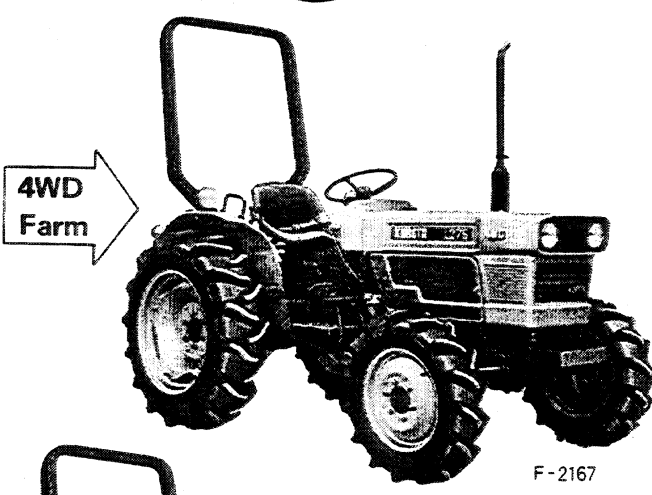
# L275 SERIES



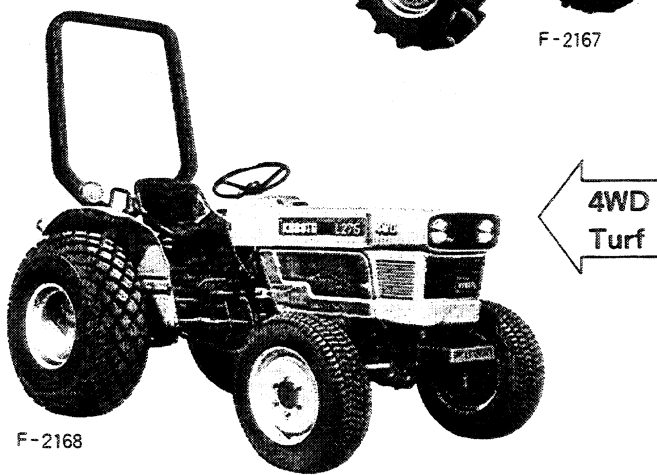
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# FOREWORD

You are now the proud owner of KUBOTA L235/L275. This tractor is a product of Kubota quality engineering and manufacturing. It is made of the finest materials and under rigid quality control system. It will give you long, satisfactory service. To obtain the best use of your tractor, please read this manual carefully. It will help you become familiar with the operation of the tractor and contains many helpful hints about tractor maintenance. It is Kubota's policy to utilize as quickly as possible every advance in our research. The immediate use of new techniques in the manufacture of products may cause some small parts of this manual to be outdated. Kubota distributors and dealers will have the most up-to-date informations.

Please do not hesitate to consult with them.



## SAFETY ALERT SYMBOL

This is the industry "Safety Alert Symbol." This symbol is used to call your attention to items or operations that could be dangerous to you or other persons using this equipment. Please read these messages carefully.

It is essential that you read the instructions and safety regulations before you attempt to assemble or use this unit.



# FOR SAFE OPERATION

Read these safety tips. Improper use of the tractor and its equipments can result in injury. To reduce this possibility, pay complete attention to the job at hand, and observing the following cautions. If you can prevent an accident, your time will have been spent well.

## 1. Fuel Supply and Starting Engine

- (1) Always stop the engine before refueling.
- (2) To avoid the danger of exhaust fume poisoning, do not operate the engine in a closed building without proper ventilation.
- (3) Before starting the engine, sit in the seat, disengage the clutch, and place shift levers in the neutral position. Fasten seat belt if equipped with ROPS.
- (4) Before starting the tractor, check to see that there are no people around.
- (5) Before driving the tractor in reverse, check to see that there are no obstacles around.

## 2. Operation

- (1) Unreasonable operation such as on dangerous terrain, beyond the load capacity or beyond the intended use of the tractor must be avoided as it may cause the tractor to tip over. Refer to "Specifications of Implement Limitations" on page 4 which outlines the maximum loads for safe tractor operation.
- (2) For your safety ROPS with a seat belt is recommended by KUBOTA for most applications. Check operator's manual and discuss with your local dealer.



### CAUTION:

- Always use seat belt when the tractor is equipped with a ROPS. Never use the seat belt when the tractor is not equipped with a ROPS.

(ROPS: Roll-Over Protective Structures)

- (3) Keep all safety covers in place.
- (4) When working in cooperation with other tractors, let the other drivers know what you are doing.
- (5) Keep people away from the tractor during operation.
- (6) When using an implement, be sure to install the proper ballast weight on the tractor.

## 3. Loading and Unloading

- (1) Securely fix a rugged ramp with non-skids and check to see that there are no people around before starting to load or unload.
- (2) When loading or unloading, chock or block the truck tires.

## 4. Traveling

- (1) Before traveling on the road, be sure to interlock the two brake pedals.
- (2) If descending a slope, never disengage the clutch or shift levers to neutral to avoid overspeeding.
- (3) When traveling on the public road, observe the traffic regulations.
- (4) Always slow down the tractor before turning. Turning at a high speed may tip the tractor over.
- (5) Do not drive with your foot resting on the clutch pedal.
- (6) Do not apply the differential lock while traveling.
- (7) Before operating, widen the rear wheel tread to the outermost recommended position for better stability.

## 5. Operating with Implement

When installing or using the implement, be sure to read the instruction for the implement and keep precautions in mind.

## 6. Other Operating Cautions

- (1) Never operate the tractor or any agricultural equipment while under the influence of alcohol or other drugs, or while under fatigue.
- (2) Avoid driving the tractor in loose, bulky clothes.
- (3) Check, service and clean the tractor after stopping the engine, follow the directions of the Operator's Manual.
- (4) Avoid touching the muffler and the radiator during or immediately after operating.  
Service or check the tractor after it has completely cooled off.
- (5) When working in the fields or muddy areas, be sure to scrape off mud or soil from the bottom of your shoes before mounting the tractor.
- (6) Before allowing other people to use your tractor, explain how to operate and lend this manual beforehand.
- (7) Read the implement operator's manual to insure safe operating procedures.
- (8) Only use 2nd PTO gear if such speed is recommended in label, implement manual, or other instructions. Otherwise, use only 1st PTO gear speed (9r/s; 540 rpm).
- (9) Keep first aid kit and fire extinguisher near by at all times.
- (10) 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 causing personal injury.  
For pulling, attach to the drawbar (fixed or swinging type). Use the 3-point hitch only with equipment designed for 3-point hitch usage.

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# 1. SERVICING OF TRACTOR

Your dealer is interested in your new tractor and has the desire to help you get the most value from it. After reading this manual thoroughly, you will find that you can do some of the regular maintenance yourself.

However, when in need of parts or major service, be sure to see your KUBOTA dealer.

For service, contact the KUBOTA Dealership from which you purchased your tractor or your local authorized KUBOTA dealer.

When in need of parts, be prepared to give your dealer both the tractor and engine serial numbers.

The tractor serial number is located on the transmission housing on the right-hand side of the tractor. The engine serial number is located on the engine crankcase, right side. Locate the serial numbers now and record them in the space provided.

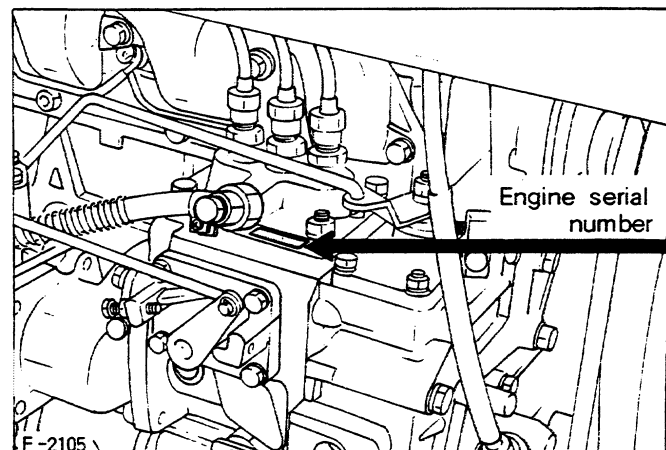
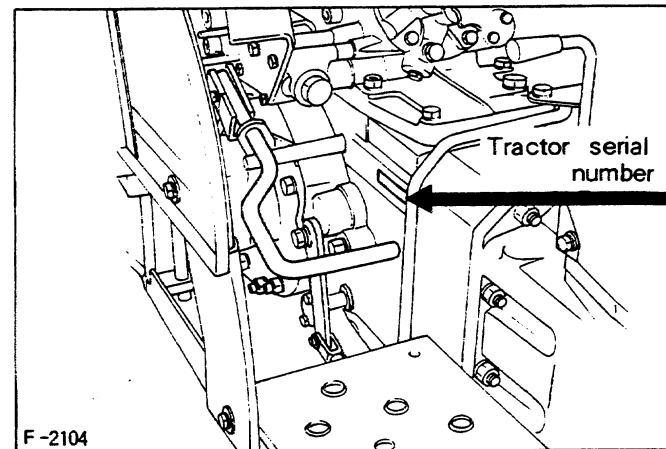
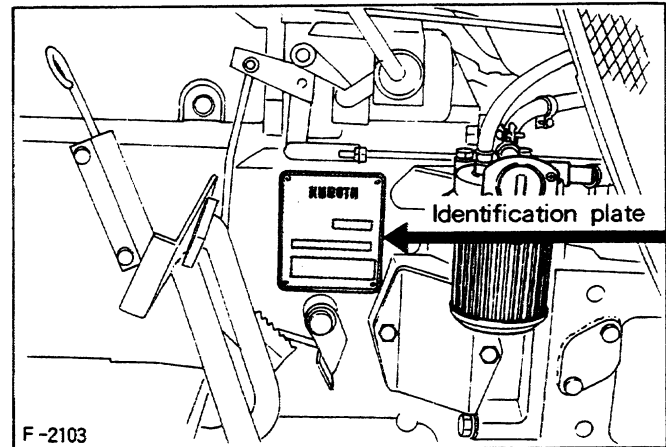
## KUBOTA L235 / L235DT / L275 / L275DT

Tractor Serial No. \_\_\_\_\_

Engine Serial No. \_\_\_\_\_

Date of Purchase \_\_\_\_\_

(To be filled in by purchaser)



# 2. SPECIFICATIONS

Model		L235 (2WD)		L235 (4WD)		L275 (2WD)		L275 (4WD)			
Engine gross power		17.5 kW (23.5 HP)*				20.5 kW (27.5 HP)*					
PTO power		14.2 kW (19 HP)*				17.2 kW (23 HP)*					
Engine	Model	KUBOTA D1102-A				KUBOTA D1302-A					
	Type	Vertical, water-cooled, 4-cycle diesel									
	No. of cylinders	3				3					
	Bore and stroke	76 x 82 mm (3.0 x 3.2 in.)				82 x 82 mm (3.2 x 3.2 in.)					
	Total displacement	1115 cm <sup>3</sup> (68.0 cu.in.)				1299 cm <sup>3</sup> (79.3 cu.in.)					
	Rated revolution	43.3 r/s (2600 rpm)				43.3 r/s (2600 rpm)					
	Fuel	Diesel fuel No. 1 [below -10°C (15°F)] Diesel fuel No. 2 [above -10°C (15°F)]									
	Starter	Electric starter with battery, glow plug and decompression device, 12V, 1.0 kW									
	Lubrication	Forced lubrication by trochoidal pump									
	Cooling	Water with pressurized radiator									
Battery	12 V 65 Ah (optional 70 Ah)				12 V 70 Ah						
Capacities	Fuel tank	28 ℓ (7.4 U.S.gals.)				28 ℓ (7.4 U.S.gals.)					
	Engine crankcase	6.1 ℓ (6.4 U.S.qts.)				6.1 ℓ (6.4 U.S.qts.)					
	Engine coolant	6.6 ℓ (7.0 U.S.qts.)				6.6 ℓ (7.0 U.S.qts.)					
	Transmission case	24 ℓ (25.4 U.S.qts.)				24 ℓ (25.4 U.S.qts.)					
	Steering box (manual steering)	0.3 ℓ (0.3 U.S.qt.)				0.3 ℓ (0.3 U.S.qt.)					
	Front axle diff. case (total)	—		2.3 ℓ (2.4 U.S.qts.)		—		2.6 ℓ (2.7 U.S.qts.)			
	Front axle gear case	—		0.3 ℓ (0.3 U.S.qt.)		—		0.3 ℓ (0.3 U.S.qt.)			
Tires	Front	Farm 4.00-15	Turf 23 x 8.50-12	Farm 6-14	Turf 25 x 8.50-14	Farm 5.00-15	Turf 23 x 8.50-12	Farm 7-16	Turf 27 x 8.50-17		
	Rear	9.5-24	13.6-16	9.5-24	13.6-16	11.2-24	13.6-16	11.2-24	13.6-16		
Dimensions	Overall length	mm (in.)	2860 (112.6)	2860 (112.6)	2860 (112.6)	2860 (112.6)	2860 (112.6)	2860 (112.6)	2860 (112.6)		
	Overall width	mm (in.)	1255 (49.4)	1490 (58.7)	1255 (49.4)	1490 (58.7)	1400 (55.1)	1490 (58.7)	1400 (55.1)		
	Overall height	mm (in.)	1385 (54.5)	1330 (52.4)	1950 (76.8)	1320 (52.0)	1390 (54.7)	1340 (52.8)	1985 (78.1)		
	with muffler	(Horizontal)	(Horizontal)	(Vertical)	(Horizontal)	(Horizontal)	(Horizontal)	(Vertical)	(Horizontal)		
	Wheel base	mm (in.)	1690 (66.5)	1690 (66.5)	1640 (64.6)	1640 (64.6)	1690 (66.5)	1690 (66.5)	1640 (64.6)		
	Min. ground clearance	mm (in.)	340 (13.4)	295 (11.6)	260 (10.2)	255 (10.0)	365 (14.4)	295 (11.6)	310 (12.2)		
	Treads	Front	mm (in.)	1010 (39.8)	1100 (43.3)	1000 (39.4)	1070 (42.1)	960 (37.8)	1045 (41.1)		
								1120 (44.1)	1205 (47.4)		
								1200 (47.2)	1285 (50.6)		
								1310 (51.6)	1395 (54.9)		
	Rear	mm (in.)	1015 (40.0)	1145 (45.1)	1015 (40.0)	1145 (45.1)	1030 (40.6)	1030 (40.6)			
							1125 (44.3)	1125 (44.3)			
							1220 (48.0)	1220 (48.0)			
							1305 (51.4)	1305 (51.4)			
		1135 (44.7)		1135 (44.7)			1400 (55.1)	1400 (55.1)			
	Weight		kg (lbs.)	885 (1950)	890 (1960)	960 (2115)	970 (2140)	975 (2150)	890 (1960)	1050 (2315)	1000 (2200)
	PTO Shaft		Transmission case rear (rear PTO) and engine front (front PTO)								
	Rear PTO		SAE 1-3/8 (with overrunning clutch on single clutch tractor)								
Revolutions with single clutch		2 speeds (9 and 13.8 r/s at 40.5 engine r/s) (540 and 828 rpm at 2430 engine rpm)									
with dual clutch		1 speed (9 r/s at 40.3 engine r/s) (540 rpm at 2415 engine rpm)									
Clutch		Dry single plate or two plates (live PTO; optional)									
Steering		Ball screw type manual steering or integrated type power steering (Optional)									
Transmission		With mechanical shuttle, 8 forward and 7 reverse									
Min. turning radius		m (feet)	2.5 (8.2)	2.7 (8.9)		2.5 (8.2)		2.7 (8.9)			
Brake		Wet disk type									
Differential		Bevel gear									

Note: \*Manufacturer's estimate



### ■ Traveling speeds

Model		L235		L275	
Tire sizes		9.5–24	13.6–16	11.2–24	13.6–16
Forward	1	1.34 km/h (0.83 mph)	1.22 km/h (0.76 mph)	1.38 km/h (0.86 mph)	1.22km/h (0.76mph)
	2	2.06 km/h (1.28 mph)	1.87 km/h (1.16 mph)	2.13 km/h (1.32 mph)	1.87km/h (1.16mph)
	3	3.49 km/h (2.17 mph)	3.17 km/h (1.97 mph)	3.60 km/h (2.24 mph)	3.17km/h (1.97mph)
	4	4.69 km/h (2.91 mph)	4.24 km/h (2.63 mph)	4.82 km/h (3.00 mph)	4.24km/h (2.63mph)
	5	5.57 km/h (3.46 mph)	5.05 km/h (3.14 mph)	5.75 km/h (3.57 mph)	5.05km/h (3.14mph)
	6	8.54 km/h (5.31 mph)	7.75 km/h (4.82 mph)	8.82 km/h (5.48 mph)	7.75km/h (4.82mph)
	7	14.51 km/h (9.02 mph)	13.16 km/h (8.18 mph)	14.97 km/h (9.30 mph)	13.16km/h (8.18mph)
	8	19.40 km/h (12.05 mph)	17.60 km/h (10.94 mph)	20.02 km/h (12.44 mph)	17.60km/h (10.94mph)
Reverse	1	1.21 km/h (0.75 mph)	1.10 km/h (0.68 mph)	1.24 km/h (0.77 mph)	1.10km/h (0.68mph)
	2	1.85 km/h (1.15 mph)	1.68 km/h (1.04 mph)	1.92 km/h (1.19 mph)	1.68km/h (1.04mph)
	3	3.14 km/h (1.95 mph)	2.86 km/h (1.78 mph)	3.24 km/h (2.01 mph)	2.86km/h (1.78mph)
	4	4.21 km/h (2.62 mph)	3.82 km/h (2.37 mph)	4.34 km/h (2.70 mph)	3.82km/h (2.37mph)
	5	5.02 km/h (3.12 mph)	4.55 km/h (2.83 mph)	5.18 km/h (3.22 mph)	4.55km/h (2.83mph)
	6	7.70 km/h (4.78 mph)	6.98 km/h (4.34 mph)	7.94 km/h (4.93 mph)	6.98km/h (4.34mph)
	7	13.01 km/h (8.08 mph)	11.86 km/h (7.37 mph)	13.49 km/h (8.38 mph)	11.86km/h (7.37mph)

(Specifications and design subject to change without notice)

# 3. SPECIFICATIONS OF IMPLEMENT LIMITATIONS

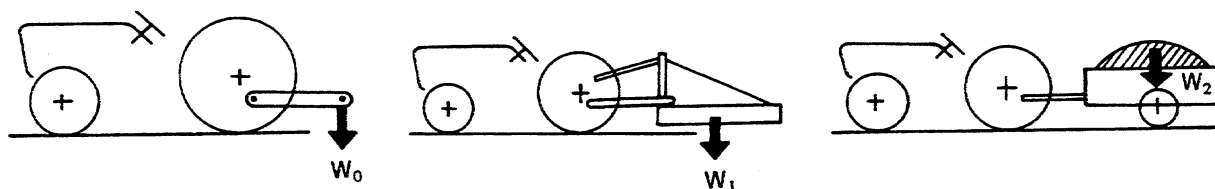
The Kubota L235/L275 tractors have been thoroughly tested for proper performance with implements sold or approved by KUBOTA. Use with implements which exceed the maximum specifications listed below, or which are otherwise unfit for use with the Kubota L235/L275 tractors may result in malfunctions or failures of the tractor, damage to other property and injury to the operator or others. [Any malfunctions or failures of the tractor resulting from use with improper implements are not covered by the warranty.]

L235	Tread with farm tires mm (in.)			Operating condition	Lower link end max. loading weight $W_0$	Actual figures		
	Front		Rear			Implement weight $W_1$	Trailer loading weight $W_2$	
	2WD	4WD						
1	1010 (39.8)	1000 (39.4)	1015 (40.0)	General control operation (Flat ground and slope condition)	Below 500 kg (1100 lbs.)	As in the following list	Below 1000 kg (2200 lbs.)	
2			1135 (44.7)					
L275	1	960 (37.8)	1100 (43.3)	1030 (40.6)	Hard load operation (Flat ground condition)	Below 600 kg (1320 lbs.)	As in the following list	Below 1500 kg (3300 lbs.)
	2	1120 (44.1)		1125 (44.3)				
	3	1200 (47.2)		1220 (48.0)	Medium load operation (Flat ground or slope condition)	Below 500 kg (1100 lbs.)		
	4	1310 (51.6)		1305 (51.4)				
	5	—		1400 (55.1)	Light load operation (Slope condition)	Below 350 kg (770 lbs.)	30% less than the list figures	

Lower link end max. loading weight..... The max. allowable load which can be put on the lower link end:  $W_0$

Implement weight ..... The implement's weight which can be put on the lower link:  $W_1$

Trailer loading weight ..... The max. loading weight for trailer (without trailer's weight):  $W_2$



Implement		Remarks	L235(2WD)	L235(4WD)	L275(2WD)	L275(4WD)
Rotary mower	Rear (1 Blade)	Max. cutting width Max. weight	152 cm (60 in.) 295 kg (650 lbs.)	152 cm (60 in.) 295 kg (650 lbs.)	152 cm (60 in.) 295 kg (650 lbs.)	152 cm (60 in.) 295 kg (650 lbs.)
	Mid or rear (2~3 Blade)	Max. cutting width Max. weight	183 cm (72 in.) 295 kg (650 lbs.)	183 cm (72 in.) 295 kg (650 lbs.)	183 cm (72 in.) 295 kg (650 lbs.)	183 cm (72 in.) 295 kg (650 lbs.)
	Sickle bar	Max. cutting width	183 cm (72 in.)	183 cm (72 in.)	183 cm (72 in.)	183 cm (72 in.)
Rotary tiller		Max. tilling width Max. weight	127 cm (50 in.) 295 kg (650 lbs.)	127 cm (50 in.) 295 kg (650 lbs.)	127 cm (50 in.) 295 kg (650 lbs.)	127 cm (50 in.) 295 kg (650 lbs.)
Bottom plow		Max. size	12 in. x 2	12 in. x 2	14 in. x 2	14 in. x 2
Disc plow		Max. size	22 in. x 2	22 in. x 2	24 in. x 2	24 in. x 2
Cultivator		Max. size	152 cm (60 in.) 1 Row	152 cm (60 in.) 1 Row	152 cm (60 in.) 1 Row	152 cm (60 in.) 1 Row
Disc harrow		Max. harrowing width Max. weight	168 cm (66 in.) 295 kg (650 lbs.)	168 cm (66 in.) 295 kg (650 lbs.)	168 cm (66 in.) 295 kg (650 lbs.)	168 cm (66 in.) 295 kg (650 lbs.)
Sprayer		Max. tank capacity	303 ℓ (80 gals.)	303 ℓ (80 gals.)	303 ℓ (80 gals.)	303 ℓ (80 gals.)
Front blade		Max. cutting width Max. weight Sub frame necessary	152 cm (60 in.) 250 kg (550 lbs.)	168 cm (66 in.) 250 kg (550 lbs.)	168 cm (66 in.) 250 kg (550 lbs.)	168 cm (66 in.) 250 kg (550 lbs.)
Rear blade		Max. cutting width Max. weight	152 cm (60 in.) 295 kg (650 lbs.)	168 cm (66 in.) 295 kg (650 lbs.)	168 cm (66 in.) 295 kg (650 lbs.)	168 cm (66 in.) 295 kg (650 lbs.)
Front-end loader		Max. lifting capacity Max. width Oil pressure, relief valve  Sub frame necessary	363 kg (800 lbs.) 152 cm (60 in.) 12.3 MPa (126 kgf/cm <sup>2</sup> ) (1800 psi)	363 kg (800 lbs.) 152 cm (60 in.) 12.3 MPa (126 kgf/cm <sup>2</sup> ) (1800 psi)	363 kg (800 lbs.) 152 cm (60 in.) 12.3 MPa (126 kgf/cm <sup>2</sup> ) (1800 psi)	363 kg (800 lbs.) 152 cm (60 in.) 12.3 MPa (126 kgf/cm <sup>2</sup> ) (1800 psi)
Box blade		Max. cutting width Max. weight	152 cm (60 in.) 295 kg (650 lbs.)	152 cm (60 in.) 295 kg (650 lbs.)	152 cm (60 in.) 295 kg (650 lbs.)	152 cm (60 in.) 295 kg (650 lbs.)
Back hoe (Should be used with 1st or 2nd stage rear tread)		Max. digging depth Max. weight Sub frame necessary	213 cm (84 in.) 500 kg (1100 lbs.)	213 cm (84 in.) 500 kg (1100 lbs.)	213 cm (84 in.) 500 kg (1100 lbs.)	213 cm (84 in.) 500 kg (1100 lbs.)
Snow blower		Max. working width Max. weight Sub frame necessary	152 cm (60 in.) 250 kg (550 lbs.)	152 cm (60 in.) 250 kg (550 lbs.)	152 cm (60 in.) 250 kg (550 lbs.)	152 cm (60 in.) 250 kg (550 lbs.)
Trailer		Max. load capacity	1500 kg (3300 lbs.)	1500 kg (3300 lbs.)	1500 kg (3300 lbs.)	1500 kg (3300 lbs.)
Three point lift		Max. load capacity	See page 4.			

# 4. HANDLING NEW TRACTOR

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

A new tractor just off the factory production line has been, of course, well fitted and tested, but the various parts are not accustomed to severe types of work, so care should be taken to operate the tractor for the first 100 hours at a slower speed and avoid excessive work or operation until the various parts become well "broken-in." The manner in which the tractor is handled during the "breaking-in" period greatly affects the life of your tractor. Therefore, to obtain the maximum performance and the longest life of the tractor, it is very important to properly break-in your tractor.

In handling a new tractor the following precautions should be well observed.

■ **Do not operate the tractor at full speed for the first 100 hours.**

- Do not start quickly nor apply the brakes suddenly.
- In winter, run the tractor after fully warming up the engine.
- Do not run at speeds faster than necessary.
- On rough roads, slow down to suitable speeds. Do not operate the tractor at fast speed.

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

■ **Changing lubricating oil for new tractors**

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

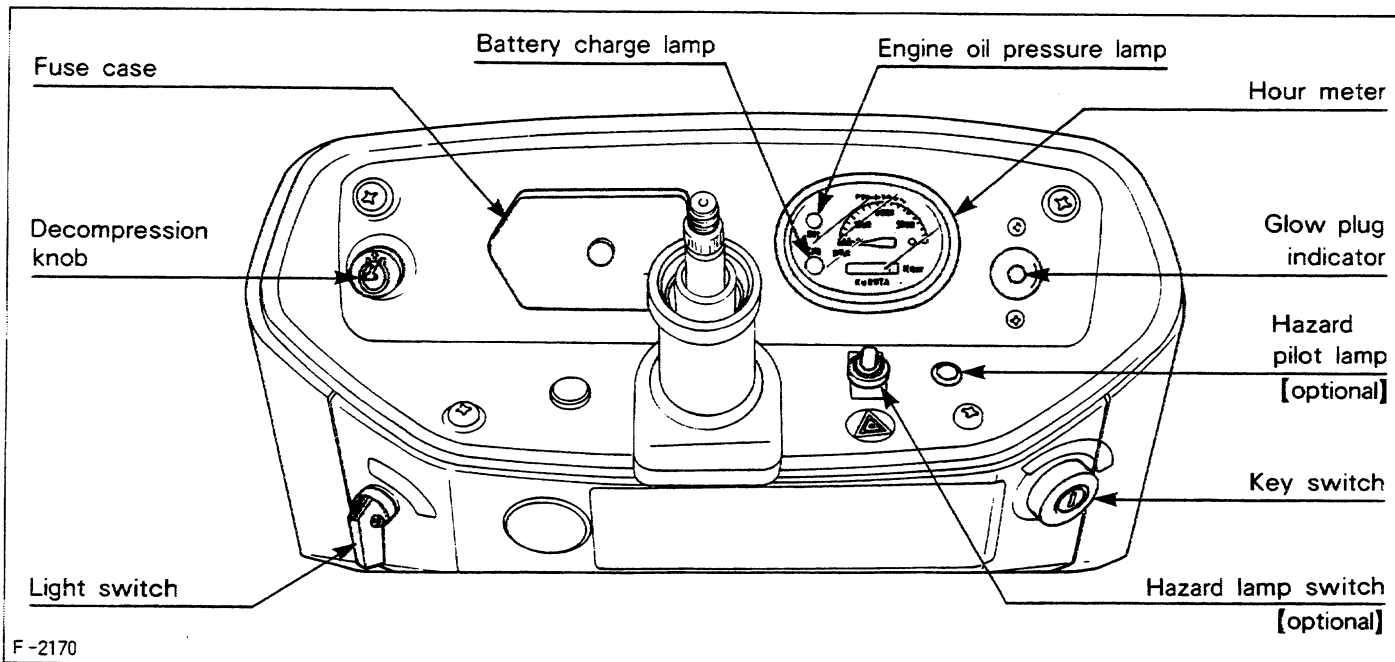
For further details of exchange interval hours, see check list.

■ **Read "For Safe Operation" to assure Safe Operation.**

Please read "For Safe Operation."

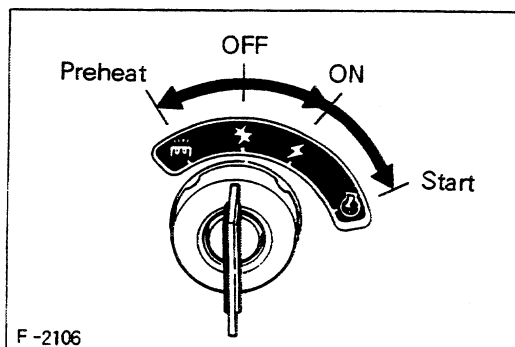
# 5. INSTRUMENT PANEL AND CONTROLS

## 5.1 SWITCHES



### ■ Key Switch

Inserting the key and turning it one click to the right, closes the electrical circuit and lights up the engine oil pressure lamp (RED). Depress the clutch pedal to disengage the clutch. Next, turning the key left activates the glow plug (preheating coil), proceeding to preheat the combustion chamber. After the glow plug lamp has turned red and that the engine has been preheated completely, turn the key switch right and the cell starter will start to rotate and the engine should start. Release the key switch and it will return to the ON position.



### IMPORTANT:

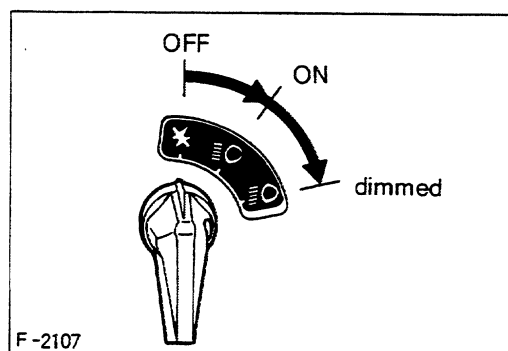
- Because of the safety device, the engine may not be started except when the clutch is disengaged.

### ▲ Glow Plug Indicator (Pre-heating Indicator)

When the starter switch is turned to the left, the glow plug indicator becomes red. This shows the condition of pre-heating in the combustion chamber.

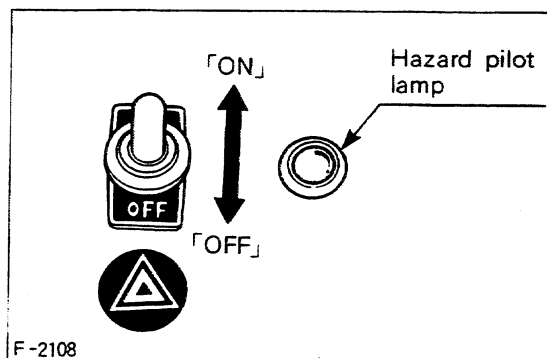
### ■ Light Switch

Turning the light switch one click to the right illuminates the headlights and taillights. Next, turning it one more click illuminates the dim headlights.



### ■ Hazard Lamp Switch (Optional)

When hazard lamp switch is pushed to on position, the hazard lamps blink. (For USA, Hazard lamp is standard.)



### ■ Horn Button (Optional)

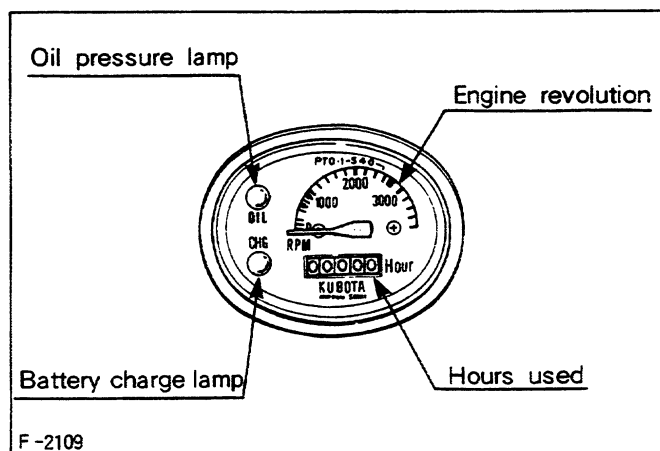
The horn will sound at key switch on position.

### ■ Hour Meter

This meter shows the number of hours the tractor has been operated at rated engine rpm.

The last digit (white background) indicates 1/10 of an hour. The time in minutes will be shown by multiplying by six to last digit on white background.

Example **0 1 7 0 1** ... 170 hours 6 minutes used  
Moving hand indicates the revolution per minute of the engine.



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### ■ Decompression Knob

To assist in cold weather starting, or starting with a weak battery, the following procedures should be used:

- Set throttle to proper starting position.
- Pull out the decompression knob.
- Engage starter and allow engine RPM to build up.
- While cranking engine, push decompression knob back in to allow engine to start.

### ■ Engine Oil Pressure Lamp

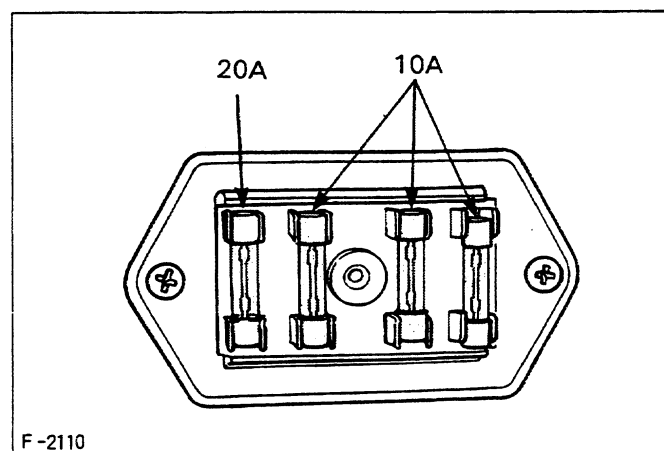
The oil pressure lamp will glow red when the starter switch is turned on. This indicates the light and electrical wiring are functioning properly. The light should go out after engine starts. If light remains on, stop engine and determine cause.

### ■ Battery Charge Lamp

The battery charge lamp will glow red when the main switch is turned on and should go out as engine starts. If the lamp continues to glow above idle speeds, the battery is being discharged, indicating the electrical system should be checked.

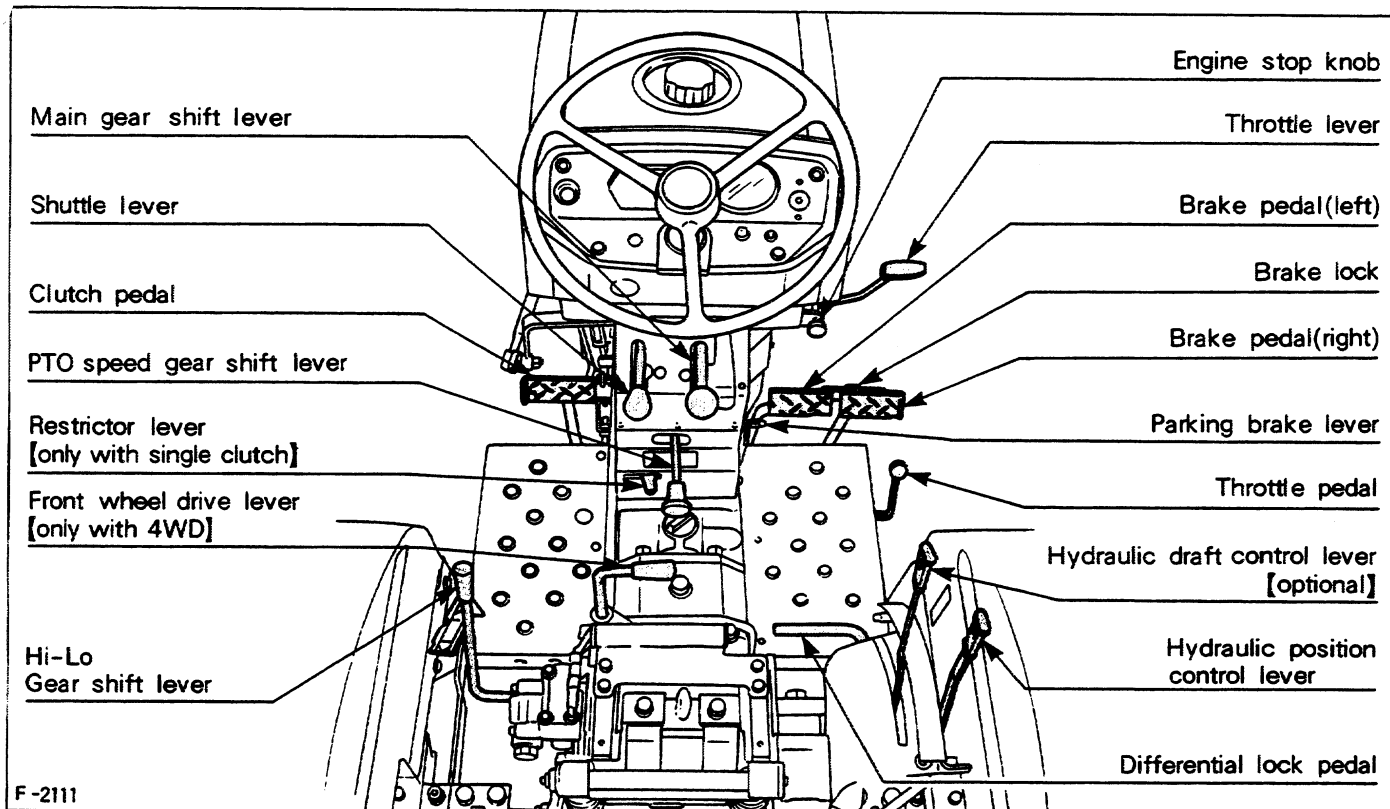
### ■ Fuses

There are three 10 ampere fuses and a 20 ampere fuse in the fuse box to safeguard the electric circuit. There are also spare fuses.



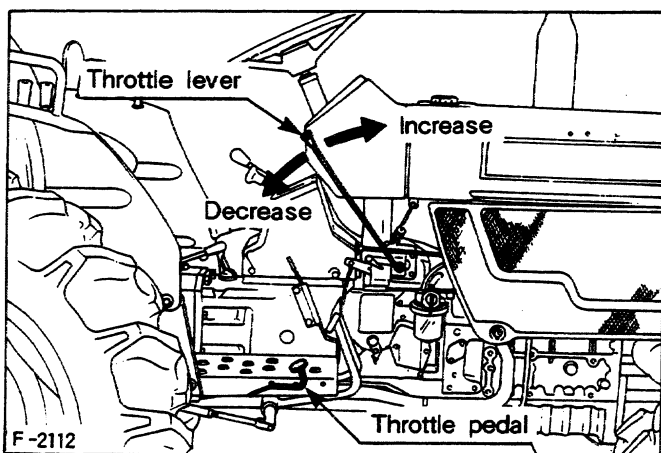
F-2110

## 5.2 CONTROLS



### ■ Throttle Lever

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

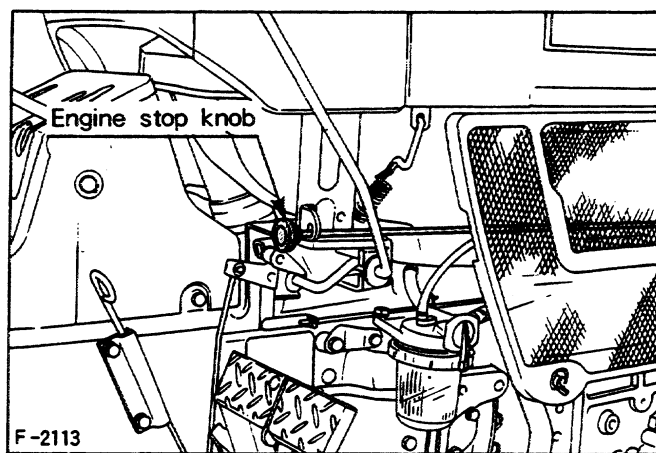


### ■ Throttle Pedal

Depressing the pedal increases engine speed. The throttle pedal may also be used to increase above engine speed set with the throttle lever.

### ■ Engine Stop Knob

Pull engine stop knob backward and hold it until the engine stops.



## ■ Main Gear Shift Lever & Hi-Lo Gear Shift Lever

Main gear shift lever pattern is in the form of an "H." Hi-Lo gear shift lever moves two stages, "High" and "Low."

By combination and use of the main gear shift lever and the Hi-Lo gear shift lever, eight speeds are obtained.

### ■ Shuttle Lever

Shift the shuttle lever forward to obtain forward speeds and shift it backward to obtain reverse speeds.

For your safety, the highest reverse speed (8th reverse) is restricted with interlock device.

Or at the 8th reverse speed (high range in Hi-Lo gear shift position and the 4th in main gear shift position) either shuttle lever or main gear shift lever will return to neutral position when attempting to shift into 8th reverse.

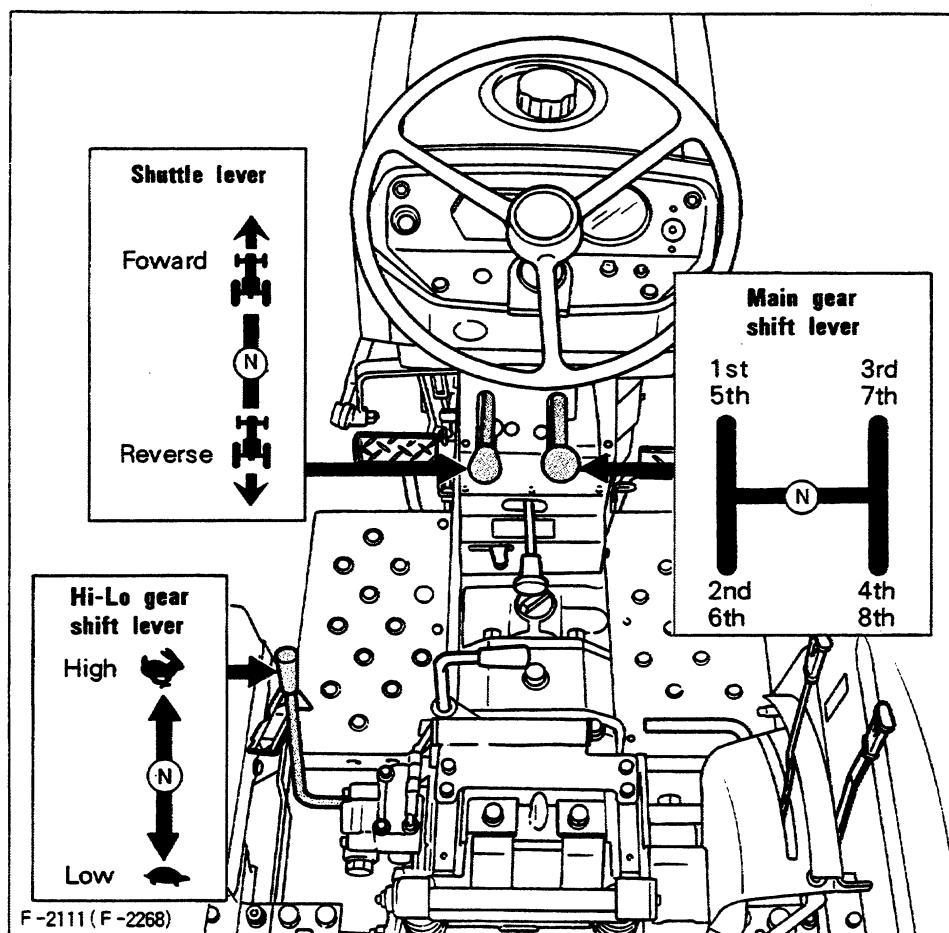
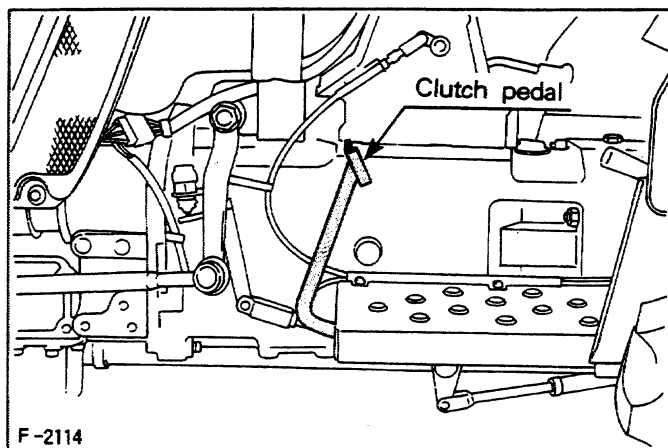
This gives a total of eight forward speeds and seven reverse speeds.

### IMPORTANT:

- (1) Do not intend to shift Hi-Lo gear shift lever while both main gear shift lever is shifted to the 4th (8th) speed position and shuttle lever to reverse position.
- (2) To change speed, press the clutch pedal completely down and stop the tractor before attempting to proceed with speed change.

### ■ Clutch Pedal (with Single Clutch)

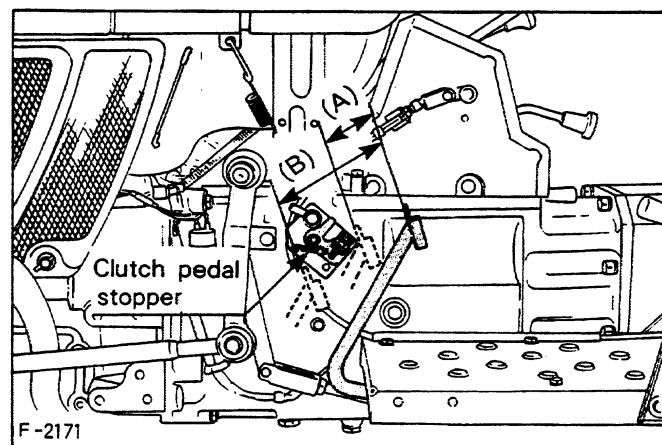
The clutch is disengaged when the clutch pedal is fully pressed down.



### ■ Clutch Pedal (with Dual Clutch)

The transmission clutch is disengaged when the clutch pedal is pressed down half-way. The PTO clutch remains engaged. Both transmission and PTO clutch are disengaged when the pedal is fully pressed down.

By using clutch stopper, only transmission clutch is disengaged even the pedal is fully pressed down.





It is recommended to use the stopper when operating the tractor with an implement not requiring PTO power such as front-end loader, blade, etc. to avoid excessive slip of PTO clutch.

- (A) Only the transmission clutch is disengaged.
- (B) Both the transmission and the PTO clutch are disengaged.

#### IMPORTANT:

- (1) The clutch pedal must be quickly disengaged and be slowly engaged.
- (2) Never operate the tractor with your foot resting on the clutch pedal. Doing so may contribute to premature clutch wear.



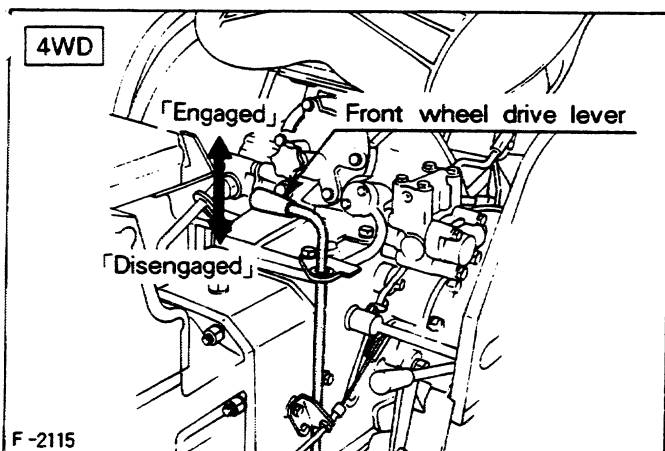
#### CAUTION:

- Never use the clutch pedal stopper when operating PTO powered equipment.

#### ■ Front Wheel Drive Lever (4 WD)

The front wheel drive is used only when greater traction power is required or to prevent the tractor from lunging during rotary tilling hard soil.

Pulling up the lever engages the front wheels for 4 wheel drive.

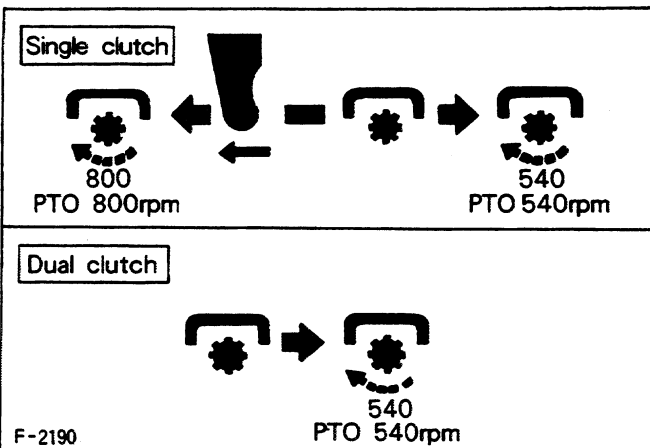
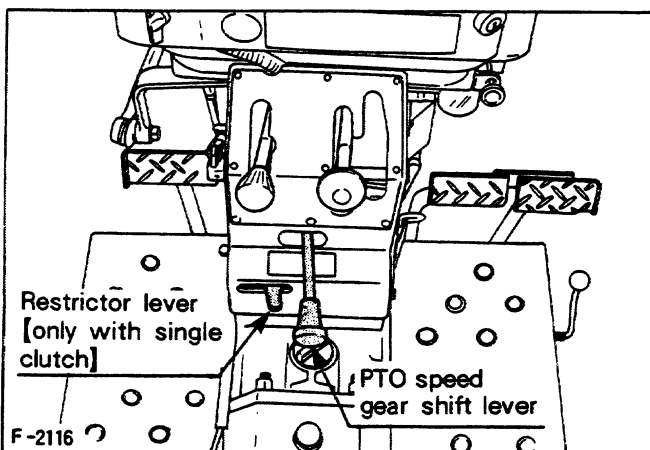


#### ■ PTO Speed Gear Shift Lever (with Single Clutch)

The tractor has two speeds—540 & 800 rpm. To use 800 rpm, release restrictor lever to the left and shift the lever to desired position.

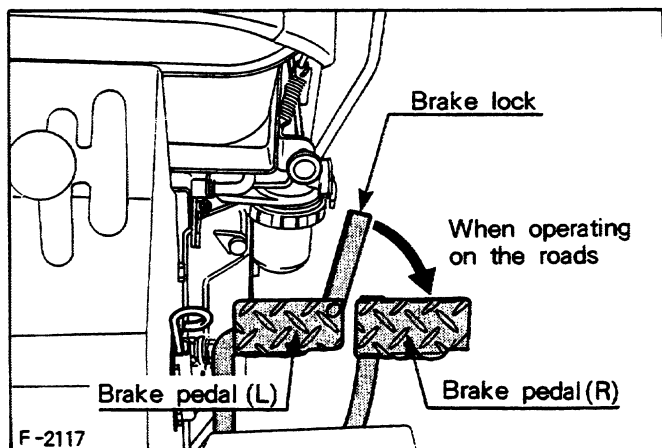
#### ■ PTO Speed Gear Shift Lever (with Dual Clutch)

The tractor has a 540 rpm speed.



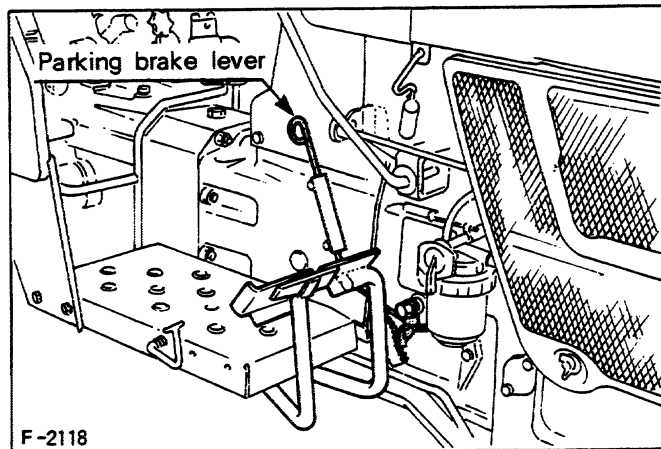
### ■ Brake Pedals (Right and Left)

- (1) Before operating the tractor on a road, be sure to interlock the right and left pedals as illustrated below. It will be very dangerous to use only one brake.
- (2) Use individual brakes to assist in making sharp turns. Disengage the brake lock and depress only one brake pedal.



### ■ Parking Brake Lever

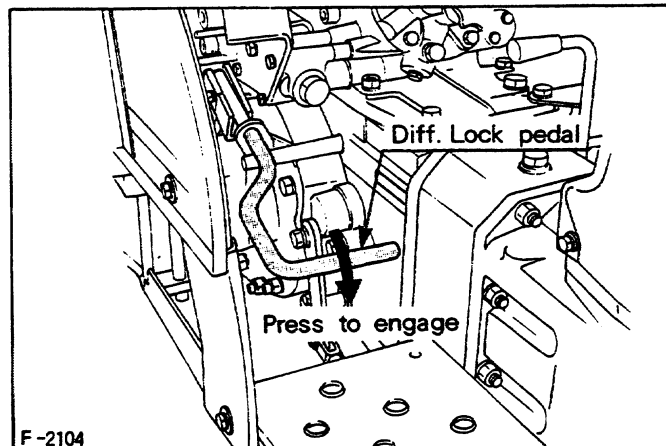
- (1) To set the parking brake;
  - Interlock the brake pedals.
  - Depress the brake pedals.
  - Latch the brake pedals with the parking brake lever.
- (2) To release the parking brake, depress the brake pedals again.



### ■ Differential Lock Pedal

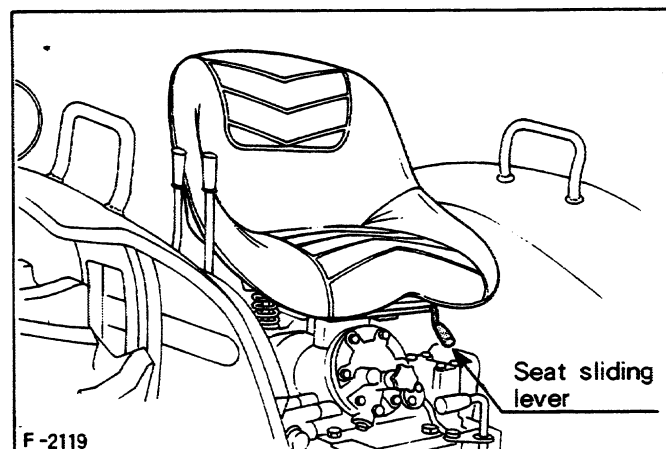
Differential lock is applied only in cases where: the wheels are likely to slip, or only one of the rear wheel slips.

Lightly stepping on the differential lock pedal with the heel makes the rear wheels run at equal speed. To unlock, just release the pedal.



### ■ Seat

The operator's seat position can be adjusted forward and backward in 60 mm (2.4 in.) range by pulling the seat sliding lever.



### ■ How to Open the Hood

To open the hood, remove the hood latches located both sides.

Lift the hood from the rear.



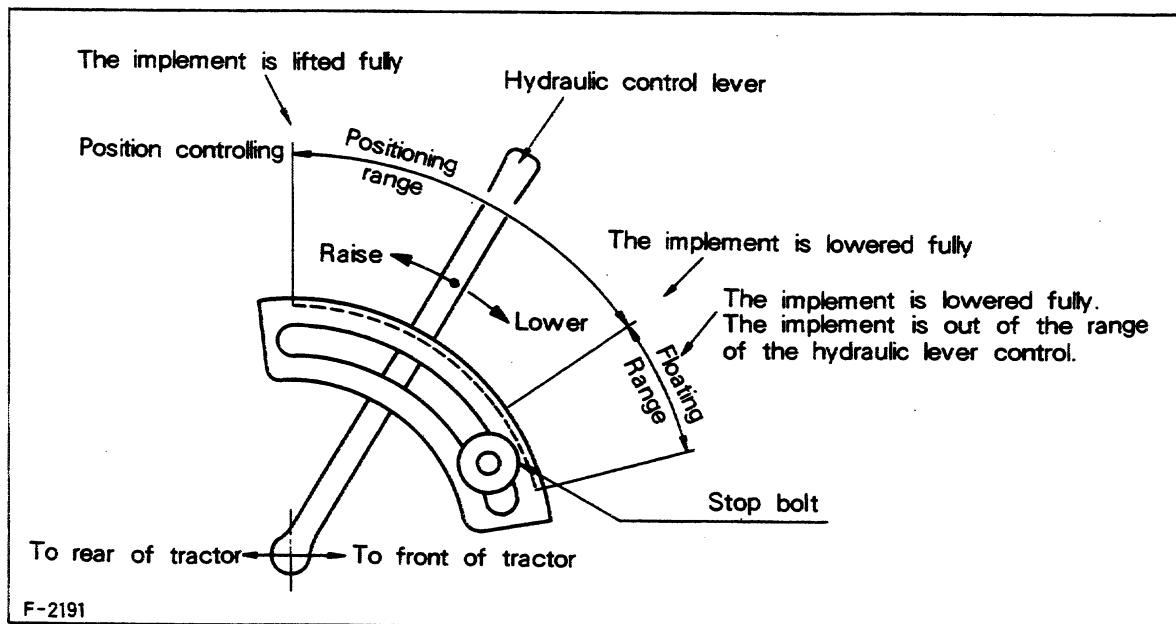
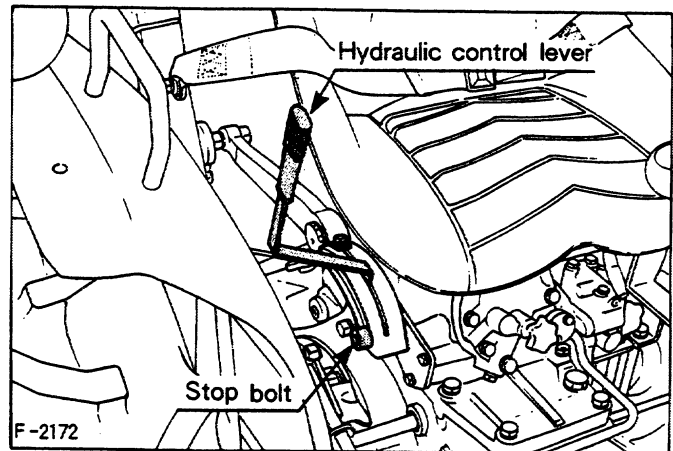
#### CAUTION:

- Never open the hood while the engine is running.

### ■ Hydraulic Control Lever

Operating the hydraulic control lever actuates the hydraulic lift arm, which controls the elevation of 3-point hitch mounted implement.

To lower implement, push the lever forward; to raise it, pull the lever back.



#### IMPORTANT:

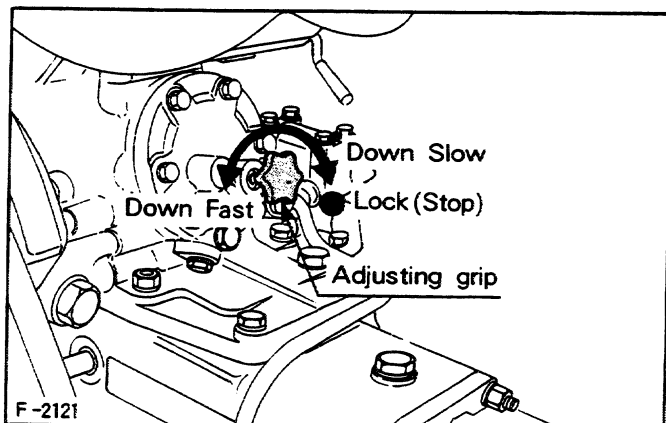
- (1) Do not operate until the engine is well warmed up. If operation is attempted while the engine is still cold, the hydraulic mechanism will not fully function and its service life will be shortened.
- (2) If noises are heard when the implement is lifting after the hydraulic control lever has been activated, the hydraulic mechanism is not adjusted properly. Unless corrected the unit will be damaged. Contact your Kubota dealer for adjustment.

### ■ 3-point Hitch Down Speed Control

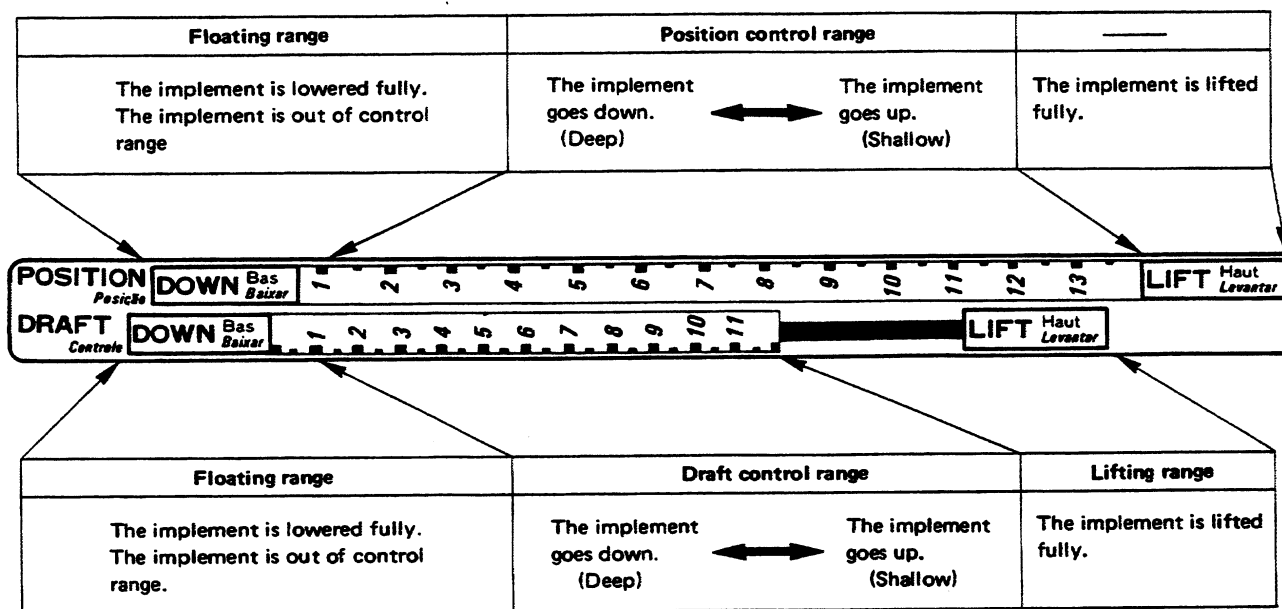
Adjust down speed of implement by turning the grip under the seat. The lowering speed depends on weight of implement and operating speed.

Adjust grips clockwise for slow lowering speed, counter-clockwise for faster lowering speed.

Do not tighten the grip excessively to lock the hydraulics.



## ■ Draft Control (Optional)

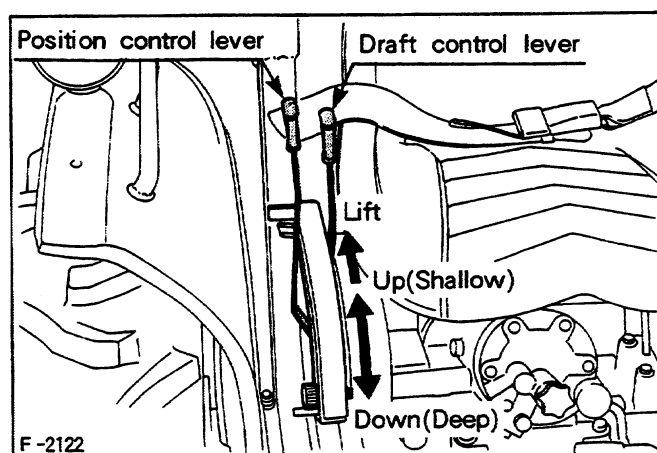


When using draft control, set the position control lever to "LIFT."

Similarly set the draft control lever to "LIFT" when using position control.

This control is useful when working with implements (e.g.; plows, harrows, etc.) which do not have—or do not use—wheels or other means for resting on the ground and adjusting the working depth.

- (1) In the floating range, the implement is lowered fully.
- (2) In the draft range, the draft control system will automatically adjust the implement's working depth to maintain an even pull on the tractor regardless of the soil condition.
- (3) When the draft control lever is pulled backwards, the implement depth becomes shallow, and when pushed forwards, becomes deep.
- (4) In the position of "Lift," the implement is lifted fully.



## ■ Power Steering (Optional)

- (1) The power steering system is actuated only while the engine is running. It makes the steering wheel a little hard to turn when the engine runs at low speed. As long as the engine is off, the tractor with power steering functions in the same manner as the ones without power steering.
- (2) Do not turn the steering wheel carelessly while the tractor is stopped or steer the tractor forcibly with a front wheel in a ditch. Otherwise the front wheels and the front axle will wear out quickly.
- (3) Avoid operating the tractor continuously with the steering wheel turned all the way to either side. Keeping the relief valve activated causes oil to deteriorate, and the pump and link will be damaged or worn very quickly.
- (4) Do not turn the steering wheel when the tractor travels at high speed, or the front wheels and the front axle will quickly wear out. It may also cause the tractor to tip over.



### CAUTION:

- Power steering makes the steering wheel easy to turn. Drive the tractor with care especially when traveling on a road.

## 5.3 AUXILIARY HYDRAULICS



### CAUTION:

- Escaping hydraulic fluid under pressure can have sufficient force to penetrate skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to system, be sure all connections are tight and that lines, pipes, and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks. If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

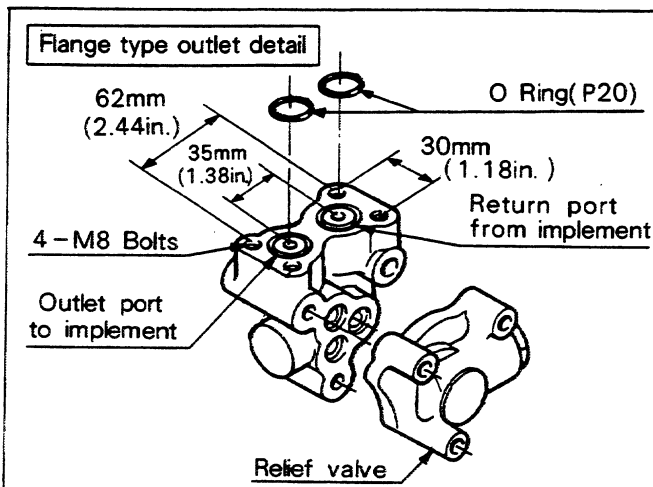
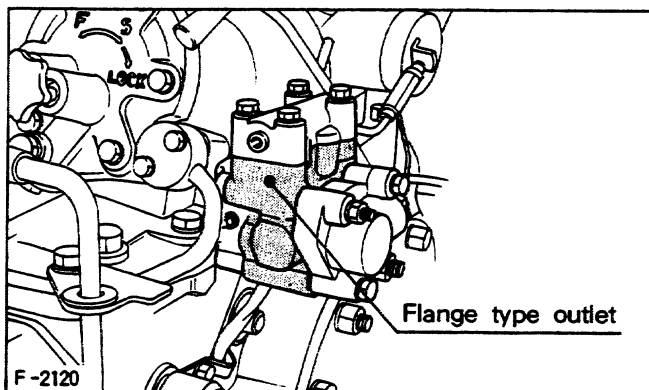
On the tractor two types of hydraulic outlets are provided.

- (1) Stop engine.
- (2) Lower both position control lever and draft control lever (if provided) down to the lowest positions.

## ■ Hydraulic Flange Type Outlet (Optional)

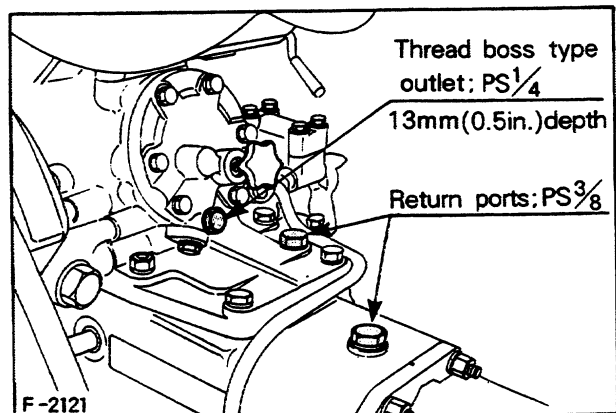
The hydraulic flange type outlet should be used when the use of both the 3-point hitch and the auxiliary hydraulics are required.

Be sure to use a control valve of the "power beyond type" for the operation of the flange type outlet.



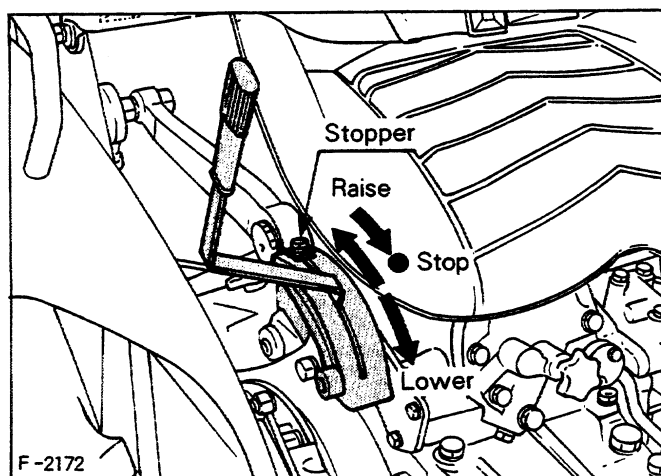
### ■ Thread Boss Type Outlet

If no additional control valve on an implement is provided, the implement can be operated by the hydraulic control lever on the tractor. Connect the implement hydraulic hose to the tractor as illustrated below.



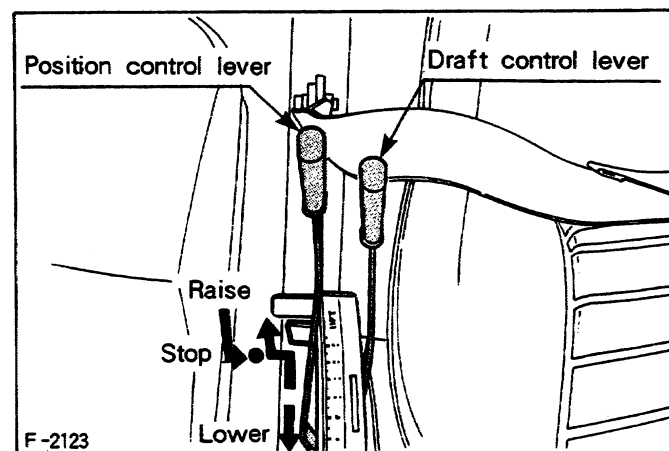
#### (Operation with position control only)

- (1) Remove the stopper from the position control lever guide.
- (2) Place the 3-point hitch down speed adjusting grip to the lock position to prevent the 3-point hitch from lowering.
- (3) To raise implement, pull the lever back fully. When the relief valve is activated, push the position control lever forward a little to prevent the system from operating at relief pressure.
- (4) To lower implement, push the lever forward.



#### (Operation with draft and position control)

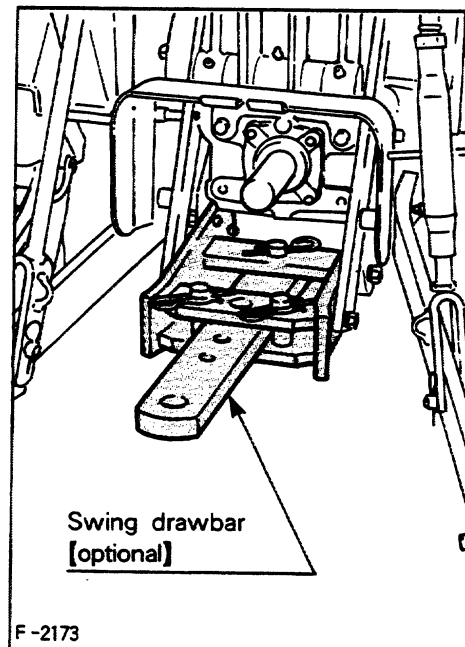
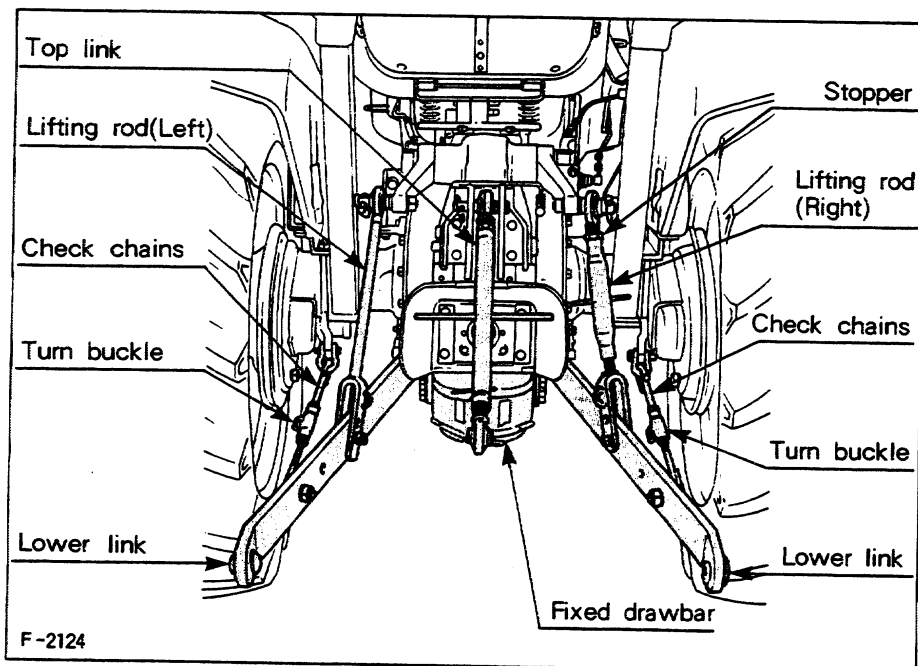
- (1) Place the 3-point hitch down speed adjusting grip + the lock position to prevent the 3-point hitch from lowering.
- (2) Pull the draft control lever completely back.
- (3) To raise implement, pull the position control lever completely back beyond the stop. When the relief valve is activated, push the lever forward until the relief valve goes off.
- (4) To lower implement, push the lever forward.



#### IMPORTANT:

- (1) When using the thread boss type outlet, place 3-point hitch down speed adjusting grip to lock position to avoid lowering 3-point hitch.
- (2) Clean the tractor in the area of hydraulic outlets before opening the tractor hydraulic system to connect the auxiliary hydraulic system. Insure that the implement hydraulic system is full of fluid and that it is compatible with the fluid in the tractor.

# 6. THREE-POINT HITCH & DRAWBAR

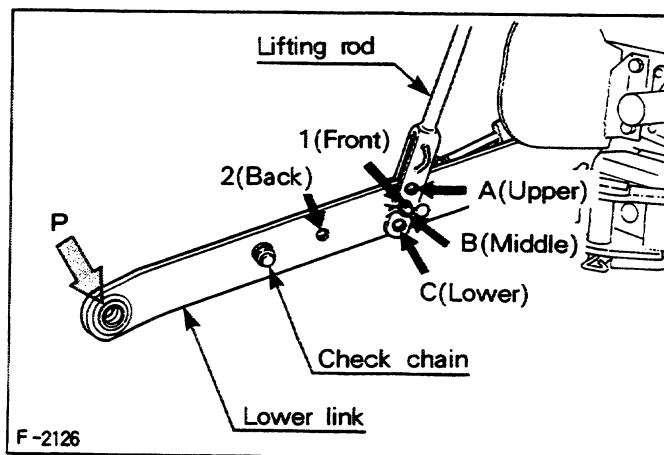
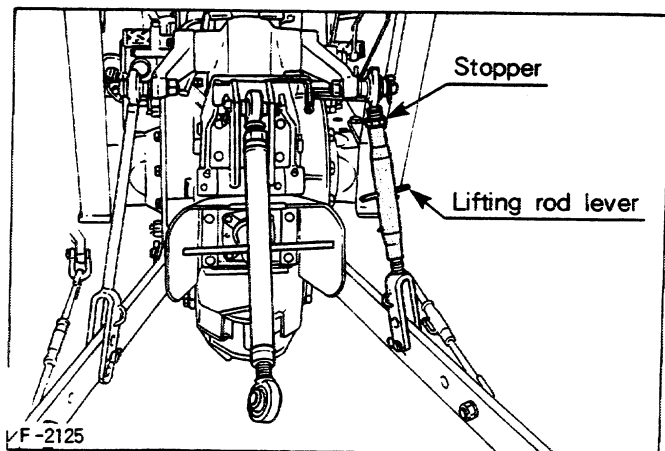


## ■ Adjustment of Top Link

- 1) Adjust the angle of the implement to the desired position by shortening or lengthening the Top Link.
- 2) The fixing position of the top-hitch varies according to the type of implement being used.

## ■ Adjustment of Lifting Rod

- 1) Adjust the position of the implement evenly by moving the lifting rod lever.
- 2) After the adjustment is completed, secure with the stopper.
- 3) Correct positioning of the lifting rod to the lower link is shown below. Positioning varies according to the type of implement being used.



Lower Link End Height (P)

Hole used	L235 (with 9.5-24 tire)	L275 (with 11.2-24 tire)
1 & A	865 mm (34.1 in.)	875 mm (34.4 in.)
1 & B	820 mm (32.3 in.)	840 mm (33.1 in.)
1 & C	765 mm (30.1 in.)	785 mm (30.9 in.)

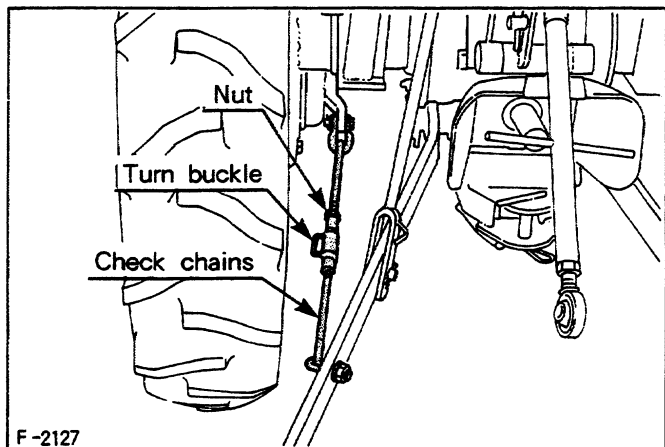


### CAUTION:

- Never use lower link 2 (Back) hole.

### ■ Adjustment of Check Chains

Adjust the turn-buckle to control horizontal sway of the implement.



Type of implement	Chain adjustment
Plow, furrower, sub-soiler, cultivator, ditcher	Loosen until the implement can be moved 50~60 mm (2~2.5 in.) horizontally.
Rotary, mower, hay rake, tedder, ridger	Tighten



# 7. WHEELS, TIRES AND TREAD



## CAUTIONS:

Never operate tractor with a loose rim, wheel, or axle.

- (1) Any time bolts are loosened, retighten to specified torque.
- (2) Check all bolts frequently and keep them tight.

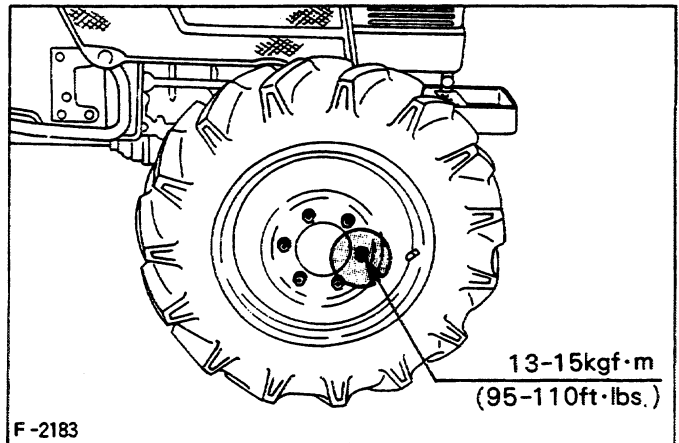
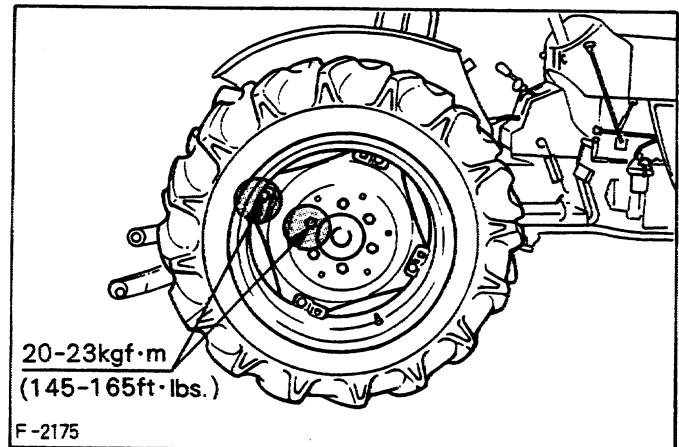
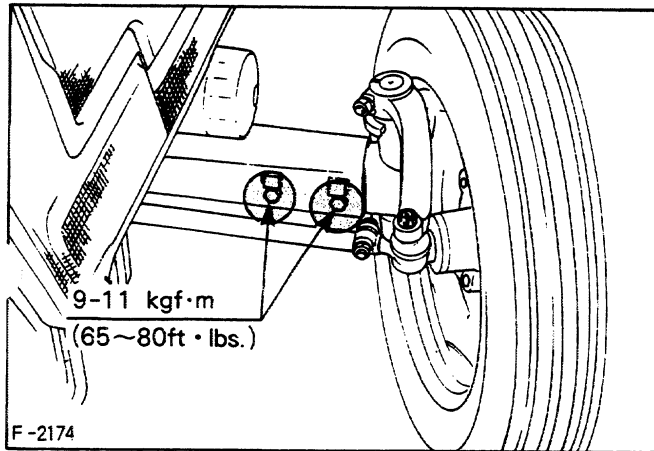
## IMPORTANT:

Follow same checking procedure when tractor is first used.



## CAUTION:

To widen wheel tread decreases danger when working on slopes or hills, or when working with trailer, etc.



## 7.1 TREAD(L235)

Front axle is not adjustable.

Check and retighten as instructed on page 19.

Front	4.00-15 Farm (2WD)	6-14 Farm (4WD)	23x8.50-12 Turf (2WD)	25x8.50-14 Turf (4WD)
	 1010mm (39.8 in.)	 1000mm (39.4 in.)	 1100mm (43.3 in.)	 1070mm (42.1 in.)
Rear	9.5-24 Farm (2WD-4WD)		13.6-16 Turf (2WD-4WD)	
	 1015mm (40.0 in.)	 1135mm (44.7 in.)	 1145mm (45.1 in.)	

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### IMPORTANT:

- (1) Always attach tires as shown in the above drawings.
- (2) If not attached as illustrated, transmission parts may be damaged.

Do not use tires larger than specified.

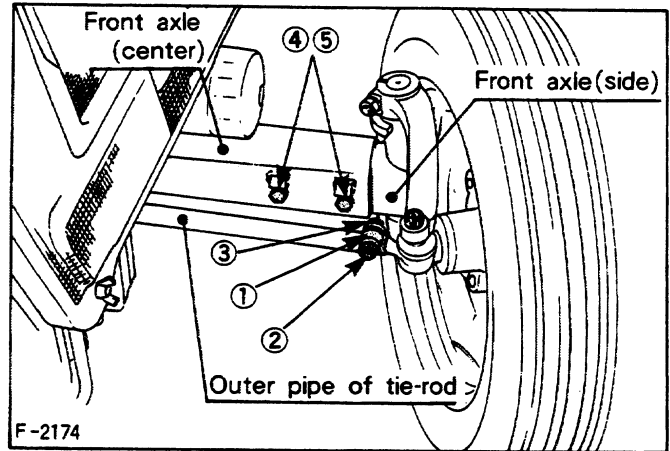
## 7.2 TREAD(L275)

### [FRONT]

The 2WD front axle is a 4 stage adjustable axle.

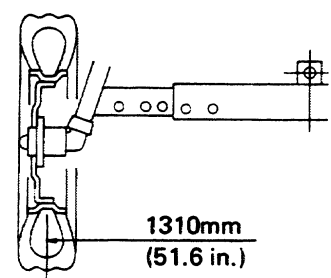
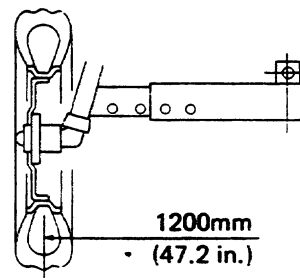
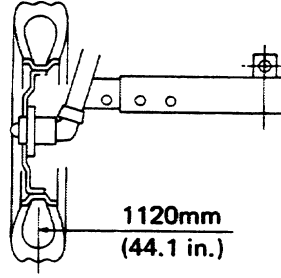
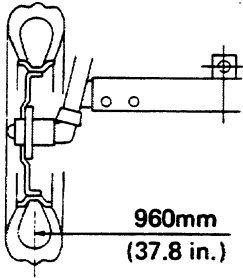
The 4WD front axle is not adjustable.

- (1) Loosen nut ② of clamp ① on the outer pipe of tie-rod, and remove bolt ③.
- (2) Jack up front end of tractor. Loosen nut ④ and remove bolt ⑤, four bolts. Then it is possible to separate the front axle (left) (right), and (center).
- (3) Insert bolt ⑤ into the hole of the desired width and tighten with nut ④. Insert bolt ③ into the inner pipe of the tie-rod and tighten.
- (4) Select the bolt holes for the front axle (side), and (center) according to the illustration.

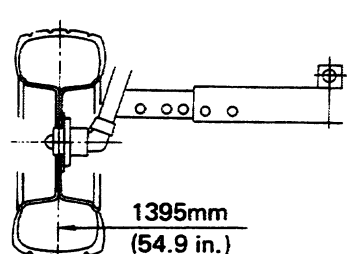
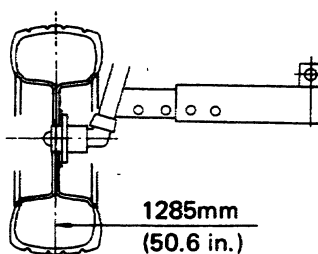
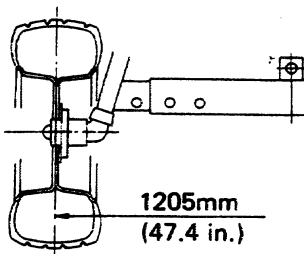
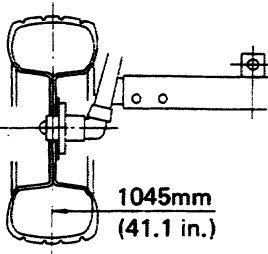


F-2174

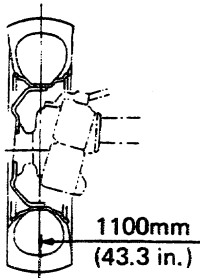
#### 5.00-15 Farm (2WD)



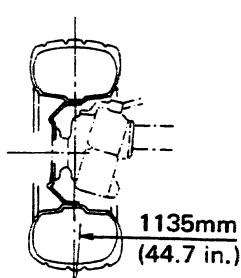
#### 23x8.50-12 Turf (2WD)



#### 7-16 Farm (4WD)



#### 27x8.50-15 Turf (4WD)



#### IMPORTANT:

- (1) Always attach tires as shown in the above drawings.
- (2) If not attached as illustrated, transmission parts may be damaged.

Do not use tires larger than specified.

**[REAR]**

The rear axle tread widths are adjustable in 5 stages from 1030 to 1400 mm (40.6 to 55.1 in.) by changing the installation of the tire (together with rim) to the disk, to suit the type or condition of work.

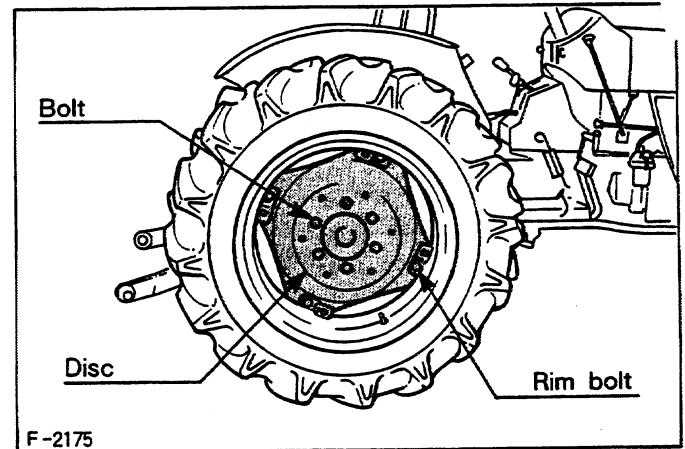
In either case, the tire should be installed so that the arrow mark would show the direction of rotation. Furthermore, the tire mark on the ground should be in "V" shape.

To change the present tread to the desired tread, all of the arrow mark would show the direction of rotation. Furthermore, the tire mark on the ground should be in "V" shape. Remove rim bolts, slide in peripheral direction to move to outside or inside of disk and set.

Change the left with the right tire, and set to the inside or outside of the disk.

Change the direction of the disk.

Check and retighten as instructed on page 19.



11.2-24 Farm (2WD-4WD)			
<p>1030mm (40.6 in.)</p>	<p>1125mm (44.3 in.)</p>	<p>1220mm (48.0 in.)</p>	<p>1305mm (51.4 in.)</p>
11.2-24 Farm (2WD-4WD)	13.6-16 Turf (2WD-4WD)		
<p>1400mm (55.1 in.)</p>	<p>1145mm (45.1 in.)</p>		

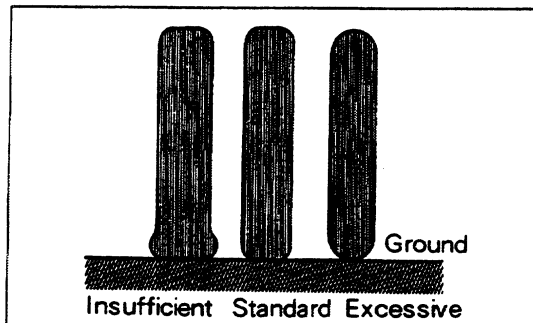
**IMPORTANT:**

- (1) Always attach tires as shown in the above drawings.
- (2) If not attached as illustrated, transmission parts may be damaged.

Do not use tires larger than specified.

## 7.3 TIRES

Though the tire pressure is factory-set to the prescribed level, it naturally drops slowly in the course of time. Thus, check it everyday and inflate as necessary. To inflate the wheel tires, use an air compressor or hand pump.



### CAUTION:

- Do not attempt to mount a tire. This should be done by a qualified person with the proper equipment. Qualified persons with the proper tire mounting equipment should recognize the following warning.



### WARNING:

- Never exceed 241 kPa (35 psi) when attempting to seat a bead. If beads have not been seated by the time the pressure reaches 241 kPa (35 psi), deflate the assembly, reposition the tire on the rim, relubricate and reinflate. After seating the bead, adjust inflation pressure as recommended in the inflation pressure chart.

### ■ Liquid Weight

Water and calcium chloride solution is an economical means of adding weight to the wheels. The addition of calcium chloride is recommended to prevent the water from freezing.

Use of this method of weighting the wheels has the full approval of the tire companies. See your tire dealer for this service. Do not fill any tire more than 75% full (to valve stem level).

#### Liquid weight per tire (75 Percent filled)

Tire sizes	9.5–24	11.2–24
Slush free at $-10^{\circ}\text{C}$ ( $13^{\circ}\text{F}$ ) Solid at $-30^{\circ}\text{C}$ ( $-23^{\circ}\text{F}$ ) [Approx. 1 kg (2 lbs.) $\text{CaCl}_2$ per 4ℓ (1 gal) of water]	75 kg (165 lbs.)	103 kg (227 lbs.)
Slush free at $-24^{\circ}\text{C}$ ( $-12^{\circ}\text{F}$ ) Solid at $-47^{\circ}\text{C}$ ( $-52^{\circ}\text{F}$ ) [Approx. 1.5 kg (3.5 lbs.) $\text{CaCl}_2$ per 4ℓ (1 gal) of water]	81 kg (178 lbs.)	108 kg (237 lbs.)
Slush free at $-47^{\circ}\text{C}$ ( $-52^{\circ}\text{F}$ ) Solid at $-52^{\circ}\text{C}$ ( $-62^{\circ}\text{F}$ ) [Approx. 2.25 kg (5 lbs.) $\text{CaCl}_2$ per 4ℓ (1 gal) of water]	85 kg (187 lbs.)	115 kg (253 lbs.)

### IMPORTANT:

- Do not fill the following tires with water.  
4.00–15    6–14    23x8.50–12    27x8.50–15  
5.00–15    7–16    25x8.50–14

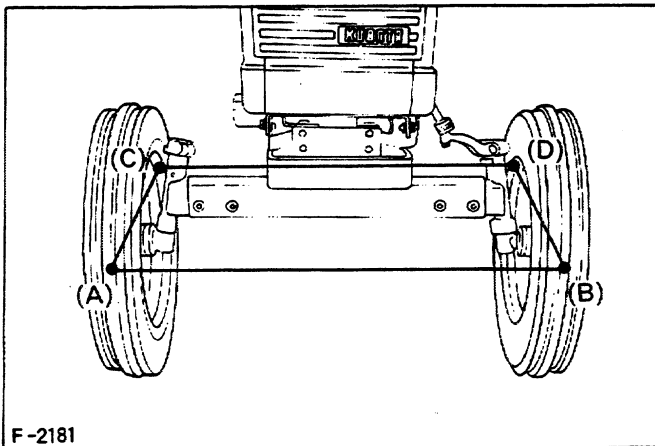
### ■ Inflation Pressure

Rear	9.5–24, 4PR	100 kPa (1.0 kgf/cm <sup>2</sup> ; 14 psi)
	11.2–24, 4PR	100 kPa (1.0 kgf/cm <sup>2</sup> ; 14 psi)
	13.6–16, 4PR	100 kPa (1.0 kgf/cm <sup>2</sup> ; 14 psi)
Front	4.00–15, 4PR	220 kPa (2.2 kgf/cm <sup>2</sup> ; 32 psi)
	5.00–15, 4PR	220 kPa (2.2 kgf/cm <sup>2</sup> ; 32 psi)
	6–14, 4PR	200 kPa (2.0 kgf/cm <sup>2</sup> ; 28 psi)
	7–16, 4PR	180 kPa (1.8 kgf/cm <sup>2</sup> ; 26 psi)
	23x8.50–12, 2PR	80 kPa (0.8 kgf/cm <sup>2</sup> ; 12 psi)
	25x8.50–14, 4PR	160 kPa (1.6 kgf/cm <sup>2</sup> ; 23 psi)
	27x8.50–15, 2PR	80 kPa (0.8 kgf/cm <sup>2</sup> ; 12 psi)

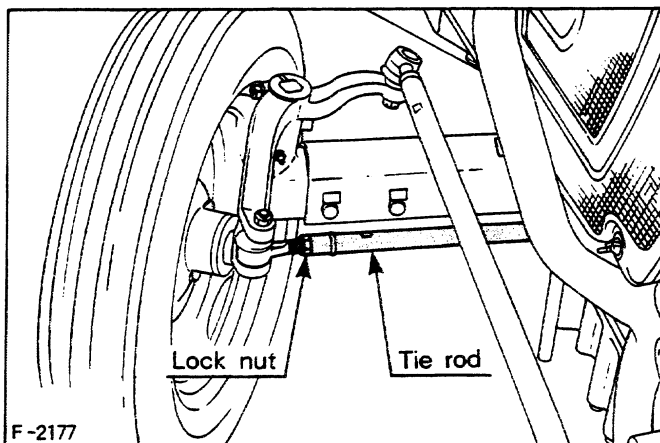
## 7.4 TOE-IN

Toe-in equals distances (C)(D)–(A)(B), or 2 to 8 mm (0.1 to 0.3 in.).

To adjust toe-in loosen the lock nut and adjust the length of the tie rod until the proper toe-in measurement is obtained. Retighten the lock nut.



F-2181



F-2177

# 8. OPERATING INSTRUCTIONS

## Pre-Start Checks

Prior to starting the engine, make pre-start checks according to the Maintenance Check List on page 27 to 28.

## 8.1 OPERATING THE ENGINE



### CAUTIONS:

- (1) Do not start the engine in a closed room. Otherwise, the air will be polluted with exhaust gas which is very dangerous.
- (2) Make it a rule to set main gear shift lever, shuttle lever and PTO speed gear shift lever to the "neutral" positions before starting the engine.

### ■ Starting

- (1) Sit in the operator's seat. If the tractor is equipped with a ROPS, fasten the seat belt.
- (2) Set the parking brake.
- (3) Place Main gear shift lever, Shuttle lever and PTO speed gear shift lever in the Neutral positions.
- (4) Place hydraulic control lever in lowest position.
- (5) Set the throttle lever approximately 1/4 of the way forward (approximately 1500 rpm position).
- (6) Insert the key into the key switch and turn it on.
- (7) Make sure that the engine oil pressure lamp is on.
- (8) Fully depress the clutch pedal and turn the key switch left, until the glow plug lamp turns red. Though the glow plug lamp turns red in about 10 seconds, it takes at least 20 seconds until the preheating coil in the combustion chamber is fully heated. The lower the ambient temperature, the longer the preheating time. For the necessary preheating time, refer to the table below:

Temperature	Preheating Time
Over 0°C (32°F)	20 – 30 sec.
0 to -5°C (32 to 23°F)	40 – 60 sec.

- (9) Turn the key switch to the start position and the starter will turn and the engine should start.
- (10) Make sure that the engine oil pressure lamp has gone off. If the lamp is still on, immediately stop the engine and check the lubrication system.
- (11) Perform warm-up operations by running the engine at the medium speed.

### IMPORTANT:

- (1) Do not turn the key switch while the engine is running.
- (2) When the temperature is below 0°C (32°F), place the high-low gear shift lever in the neutral position and keep the engine at medium speed to warm up the lubricant of engine and transmission at least 10 minutes.

And after that depress the clutch pedal several times slowly.

If the tractor is operated before the lubricant of engine and transmission is warm enough, the tractor life will be shortened.

- (3) Don't operate the tractor under full load condition until it is sufficiently warmed up.
- (4) Don't use starting fluid.

### ■ Starting with Weak Battery or in Cold Weather

Perform the following procedure between the steps (6) and (10) on Starting:

- (1) Pull out the decompression knob.
- (2) Depress the clutch pedal all the way and turn the key switch to the start position.
- (3) After the flywheel starts to run at full pitch in 3 to 5 seconds, push the decompression knob back. If necessary, operate preheating before drawing the decompression knob.

### IMPORTANT:

- When the ambient temperature is less than -15°C (5°F), remove the battery from the tractor and store it somewhere warm until next operation.

### ■ Stopping

- (1) Pull the engine stop knob completely and hold it until the engine stops.
- (2) Turn the key switch off and pull the key out of the switch.

### IMPORTANT:

- Although engine can be stopped by drawing the decompression knob, this should never be done except in such an emergency case that the engine cannot be stopped by pulling the engine stop knob. Especially, if the decompression knob is drawn while the engine is running at high speed, there is the danger that the valve seat may be damaged or that the decompression device may malfunction. For this reason, be absolutely sure not to draw the decompression knob when the engine is running except in emergency cases.

## 8.2 OPERATING THE TRACTOR

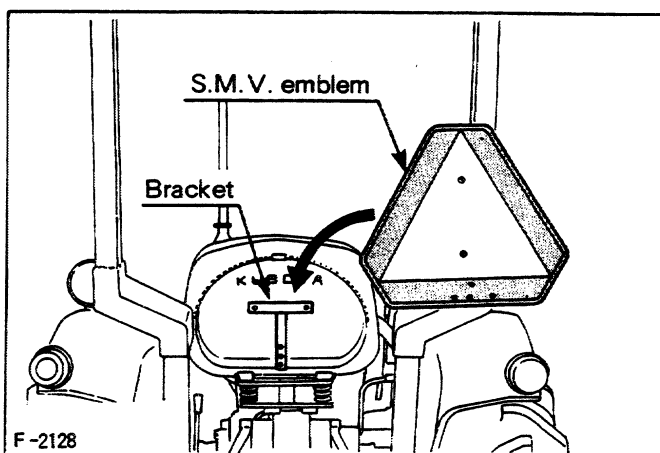
### ■ Starting

- (1) Depress the clutch pedal to disengage the clutch.
- (2) Shift levers to the desired speed position.
- (3) Unlock the parking brake.
- (4) Speed up the engine by moving the throttle lever forward.
- (5) Slowly release the clutch pedal.



#### CAUTIONS:

- (1) Interlock the right and left brake pedals before starting. Uneven braking results in a sharp turn, which may even turn over the tractor.
- (2) Do not allow any person other than the driver to ride on the tractor.
- (3) Do not drive the tractor close to the edges of ditches or banks which may break under the weight of the tractor, especially when the ground is loose or wet.
- (4) Slow the tractor down to a safe speed before turning.
- (5) Do not drive the tractor on the road with the implement in motion.
- (6) After the differential lock has been used, be sure to see that it has been released.
- (7) When traveling on a road, attach the S.M.V. emblem to the tractor to identify itself to be a low speed vehicle at where it is required.



#### IMPORTANT:

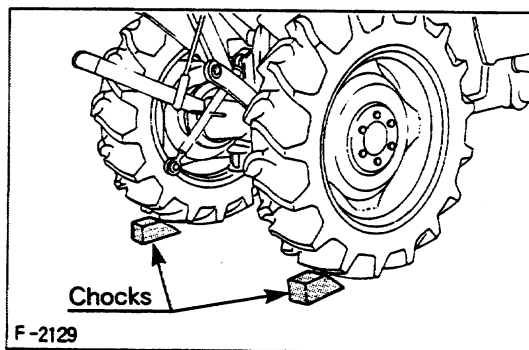
- (1) Do not move the tractor with the parking brake on.
- (2) Do not operate the tractor with your foot resting on the clutch pedal. This may contribute to premature clutch wear.
- (3) Gear shift levers cannot be shifted while the tractor is moving. To shift levers be sure to stop the tractor and depress the clutch pedal.

### ■ Stopping

- (1) Slow down the engine.
- (2) Interlock the right and left brake pedals and put on the parking brake.

### ■ Parking

- (1) When parking, be sure to put on the parking brake.
- (2) If necessary to park on an incline, be sure to chock the wheels to prevent accidental rolling of the machine.



- (3) Before getting off the tractor, be sure to stop the engine and lower the implement to the ground.

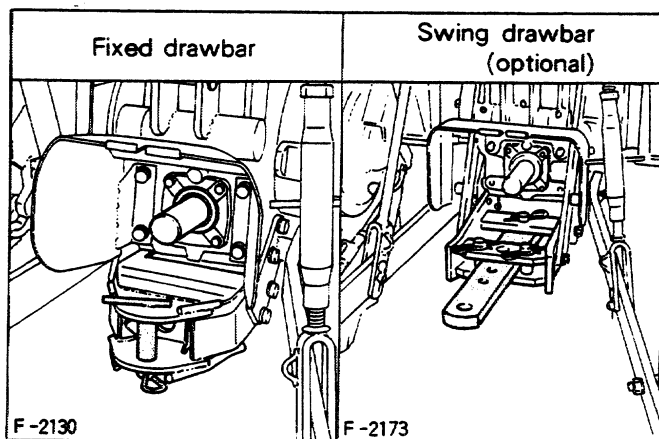
## 8.3 PULLING



#### CAUTION:

- 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 causing personal injury.

For pulling, attach to the drawbar (fixed or swinging type). Use the 3-point hitch only with equipment designed for 3-point hitch usage.



## 8.4 CHECK DURING DRIVING

While driving, make the following checks to see that all the parts are functioning normally.

### ■ Cooling Water



#### CAUTION:

- Do not remove radiator filler cap until coolant temperature is below its boiling point. Then loosen cap slightly to the stop to relieve any excess pressure before removing cap completely.

If the temperature of the cooling water rises above 100°C (212°F), the overheat alarm whistles. Immediately stop the engine and exercise the following checks and remedies, with the safety caution in mind.

- (1) Shortage or leakage of the cooling water.
- (2) Foreign matter on the radiator net and dust and dirt between the radiator fins and tube.
- (3) Loose the fan drive belt.
- (4) Blockage in the radiator tube.

### ■ Engine Oil Pressure Lamp

The pressure lamp signals to the operator that the engine oil pressure is below the prescribed level. If the lamp should go on during operation, immediately stop the engine and check;

- (1) The level of the engine oil. (See page 30 )
- (2) The conditions of the lubrication system.

### ■ Battery Charge Lamp

The charge lamp signals to the operator that alternator is not charging the battery.

If the lamp goes on during operation, immediately stop the engine and check:

- (1) Wiring failure.
- (2) Connection failure of alternator and regulator.

### ■ Fuel

Do not allow the fuel tank to empty completely.

Doing so will allow air to enter into the fuel system. Should this happen, the fuel system must be bled. (See page 29 )

### ■ Exhaust Fumes

- (1) Exhaust fumes are colorless at normal output drive.
- (2) If the exhaust turns dark continuously during driving, this probably indicates an overburden on the engine. In such a case, corrective action should be applied to conditions of operation so that subsequent damage to the engine can be avoided.

### ■ Urgent Stop

Should the following abnormally take place, immediately stop the engine.

- (1) The engine suddenly slows down or speeds up.
- (2) Unusual noises are suddenly heard.
- (3) Exhaust fumes suddenly become very dark.
- (4) The engine oil pilot lamp goes on while operating.
- (5) The battery charge lamp goes on while operating.

For checks and remedies in the above situations, consult your dealer for instruction.

## 8.5 DIRECTIONS FOR OPERATING

### ■ Differential Lock Pedal

Observe the following precautions when applying the differential lock.

- (1) Apply the differential lock moderately. Limit its use to the below situations.
  - When the tractor enters or leaves the farm field, it cannot move straight because of excessive individual wheel-spin under difficult or slippery field conditions.
  - One rear wheel is caught in a loose area of the field and the tractor cannot move due to wheel-spin.
  - In the case of plowing, the rear wheel closer to the ridge is caught in the loose soil and is affected by wheel-spin.
- (2) The use of the differential lock must be limited to a particular period of time and cannot be applied beyond that limit.
- (3) When the rear wheel is subjected to excessive loads, even releasing the pedal sometimes may not unlock the differential although the pedal springs back. Should the differential not unlock when turning the tractor, lightly step on the brake pedal opposite to the turn side or turn back the steering wheel and run the tractor straight. By doing so, the differential can be unlocked. If the brake pedal of the turn side is depressed during turning, the differential lock system takes on an undue load. Be careful about such a improper operation.



#### CAUTION:

- The tractor cannot turn with the differential locked and attempting to be very dangerous.



# 9. MAINTENANCE

## 9.1 DAILY CHECK

To prevent trouble from occurring, it is important to know the conditions of the tractor well. Check it before starting.



### CAUTION:

- Be sure to check and service the tractor on a flat place with the engine shut off and the parking brake on.

- (1) Check the parts where there was trouble before.
- (2) Walking around the tractor;
  - 1) Check the tire pressure, and check for wear and damage. (See page 23 )
  - 2) Check for oil and water leaks.
  - 3) Check the engine oil level.  
(See page 30 )
  - 4) Check the amount of transmission oil.  
(See page 31 )
  - 5) Check if there is enough fuel. (See page 29 )

- 6) Check if there is enough coolant in the radiator.  
(See page 34 )
- 7) Check for dust load on the air cleaner dust cup.  
(See page 36 )
- 8) Check the tractor body for damage and check that all bolts and nuts are tight.
- 9) Check the pilot lamps for failure.
- 10) Check the S.M.V. emblem for damage and clean or replace as necessary.
- (3) While sitting in the operator's seat;
  - 11) Check the throttle pedal, brake pedals and clutch pedal. (See page 38 )
  - 12) Check the parking brake.
  - 13) Check the steering wheel. (See page 39 )
- (4) Turning the key switch on;
  - 14) Check the performance of the pilot lamps.
  - 15) Check headlights, tail lights and hazard lamps, clean if necessary.
- (5) Starting the engine;
  - 16) Check the color of the exhaust fumes.

## 9.2 LUBRICANTS

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

Place	Capacity	Lubricants										
Engine crankcase	6.1 ℓ (6.4 U.S.qts.)	<ul style="list-style-type: none"><li>● Engine oil: API Service CC or CD Below 0°C (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</li></ul>										
Transmission	24 ℓ (25.4 U.S.qts.)	<ul style="list-style-type: none"><li>● Multi-grade transmission fluid</li></ul> <p>The fluid listed below or equivalent are recommended.</p> <table><tr><th>Maker</th><th>Brand (Standard)</th></tr><tr><td>KUBOTA</td><td>UDT hydrostatic transmission fluid</td></tr><tr><td>SHELL</td><td>DONAX-TD, DONAX-TM</td></tr><tr><td>Mobil</td><td>Mobil Fluid 350</td></tr><tr><td>Exxon</td><td>Torque Fluid 56</td></tr></table>	Maker	Brand (Standard)	KUBOTA	UDT hydrostatic transmission fluid	SHELL	DONAX-TD, DONAX-TM	Mobil	Mobil Fluid 350	Exxon	Torque Fluid 56
Maker	Brand (Standard)											
KUBOTA	UDT hydrostatic transmission fluid											
SHELL	DONAX-TD, DONAX-TM											
Mobil	Mobil Fluid 350											
Exxon	Torque Fluid 56											
Front axle differential case (4WD)	L235 2.3 ℓ (2.4 U.S.qts.) L275 2.6 ℓ (2.7 U.S.qts.)	<ul style="list-style-type: none"><li>● Gear oil SAE80 or SAE90</li></ul>										
Front axle gear case (Right & left) (4WD)	0.3 ℓ (0.3 U.S.qt.)	<ul style="list-style-type: none"><li>● Gear oil SAE80 or SAE90</li></ul>										
Steering gear box (Manual steering)	0.3 ℓ (0.3 U.S.qt.)	<ul style="list-style-type: none"><li>● Gear oil SAE80 or SAE90</li></ul>										
King pins (2WD) Center pin Pedal shaft Clutch release hub Seat adjuster	moderate amount	<ul style="list-style-type: none"><li>● SAE multi-purpose type grease</li></ul>										
Speed restriction wire	moderate amount	<ul style="list-style-type: none"><li>● Machine oil</li></ul>										

### 9.3 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 and clean the oil filter.	30 to 31
	(2) After the initial 50 hours of use, change the transmission fluid and the oil filter cartridge.	31 to 32
	(3) Quick starts or sudden braking should be avoided.	—
Every 75 hours	Change engine oil.	31
Every 100 hours	Lubricate the following points. King pins, Pedal shaft, Center pin, Speed restriction wire.	33 to 34
	Check the following points to be connected securely. Hydraulic inlet pipe clamps, Fuel pipe clamps	29
	Clean air cleaner element.	36
	Clean fuel filter.	30
	Check battery electrolyte level.	36
	Check fuel pipe.	29
	Check fan drive belt tension.	38
	Check clutch play.	38
	Check brake play.	38
	Check steering wheel play.	39
	Check front axle support.	39
Every 150 hours	Change engine oil filter cartridge.	31
	Check radiator hose.	35
	Check steering gear box oil level.	33
Every 300 hours	Change transmission fluid. Transmission case, front axle differential case (4WD), front axle gear case (right and left) (4WD). ● Change transmission oil filter cartridge.	31 to 32
Every 400 hours	Change fuel filter.	—
Every 500 hours	Clean radiator interior.	35
Every one to two months	Recharge Battery if necessary.	37
Every 3 months	Change scale inhibitor and coolant.	35
Every year or every 6 times of cleaning	Change air cleaner element.	36
Every year	Change anti-freeze and coolant.	35
Every 2 years	Change battery, if necessary.	—
	Change radiator hose and tightener band.	35
	Change fuel pipe and tightener band.	29 to 30
	Change hydraulic hoses and tightener band.	—

# 10. CHECK AND MAINTENANCE

## 10.1 FUEL

### ■ Checking and Refueling



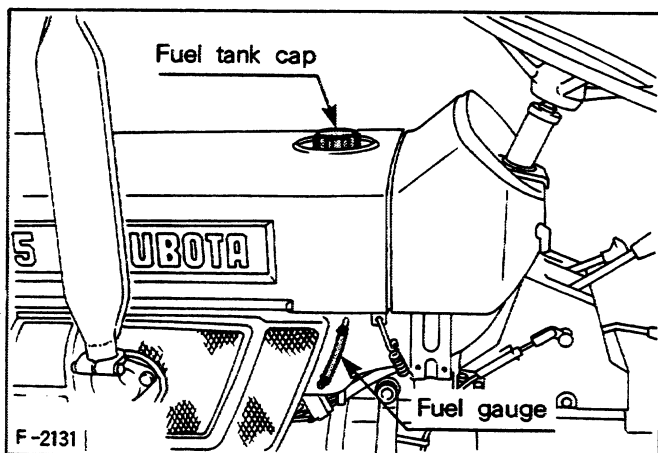
#### CAUTION:

- Stop the engine before adding fuel. Keep away from sparks and flames.

- (1) Check the fuel level. Take care that the fuel level does not fall under the prescribed lower limit.

Fuel tank capacity	28 ℓ (7.4 U.S. gals.)
--------------------	-----------------------

- (2) Use high speed diesel fuel or No. 2 diesel fuel.
- (3) Use No. 1 diesel fuel, if temperature is below  $-10^{\circ}\text{C}$  ( $15^{\circ}\text{F}$ ).



#### IMPORTANT:

- (1) Always use a strainer in refueling to prevent fuel injection pump contamination.
- (2) Once the fuel tank becomes empty air is admitted to the fuel system, in such case, it will be necessary to bleed the fuel system before the engine will start.

### ■ Bleeding the Fuel line

Air must be removed:

- (1) When the fuel filter and piping are removed.
- (2) When tank is completely empty.
- (3) After the tractor has not been used for a long period of time.

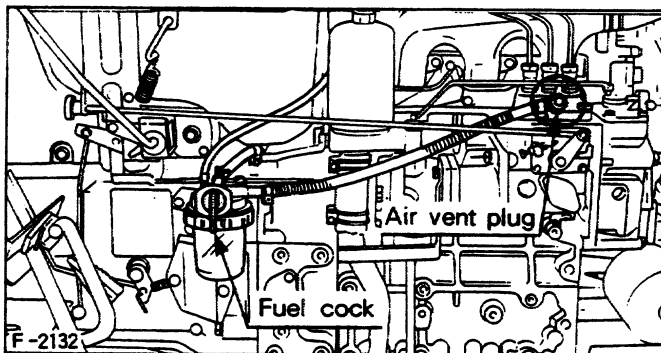
Bleeding procedure is as follows:



#### CAUTION:

- Do not bleed the fuel system when the engine is hot.

- (1) Fill the fuel tank with fuel, and open the fuel cock.



- (2) Open the air vent plug on the fuel injection pump.
- (3) Close the air vent plug when air bubbles disappear from the fuel flowing out.

### ■ Checking Fuel Pipe



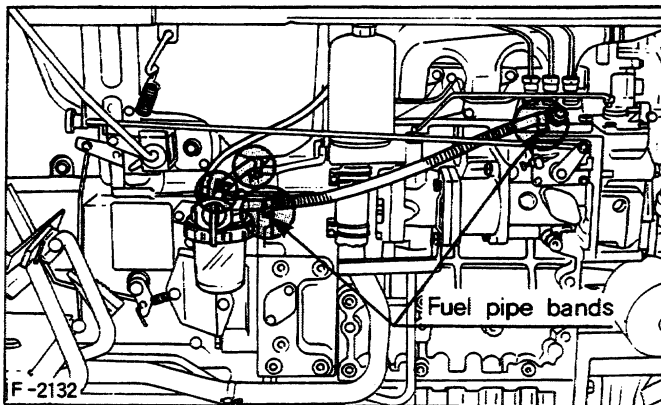
#### CAUTIONS:

- (1) Stop the engine when attempting the check and change prescribed below.
- (2) Never fail to check the fuel pipe periodically.

The fuel pipe is subject to wear and aging, fuel may leak out onto the running engine, causing a fire.

Although checking the fuel pipe connections is recommended every 100 service hours, it should be done every 6 months if operation does not exceed 100 hours in 6 months.

- (1) If the tightener band is loose, apply a slight coat of lubricant onto the threads and securely retighten it.



- (2) The fuel pipe is made of rubber and ages regardless of period of service. Change the fuel pipe together with the tightener band every two years and securely tighten.
- (3) However, if the fuel pipe and tightener band are found damaged or deteriorated earlier than two years, then change or remedy.
- (4) After the fuel pipe and tightener band have been changed, bleed the fuel system.

#### IMPORTANT:

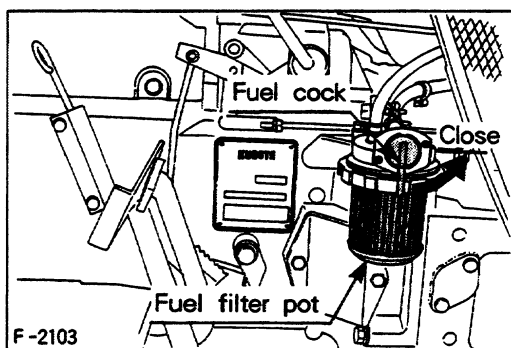
- When the fuel pipe is disconnected for change, close both ends of the fuel pipe with a piece of clean cloth or paper to prevent dust and dirt from entering. Entrance of dust and dirt causes malfunction of the fuel injection pump. In addition, particular care must be taken not to admit dust and dirt into the fuel pump.

#### ■ Cleaning the Fuel Filter Pot

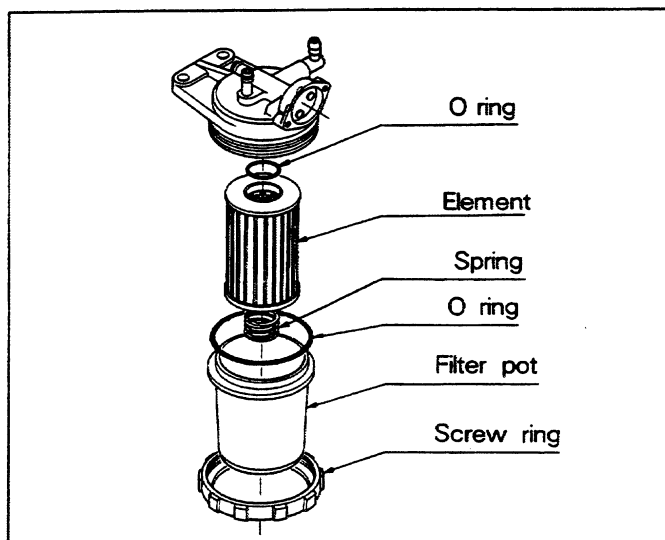
When period of operation reaches approx. 100 hours, clean the fuel filter.

This job should not be done in the field, but in a clean place so as to prevent dust intrusion.

- (1) Close the fuel filter pot cock.



- (2) Unscrew and remove the top cap, and rinse the inside with kerosene.
- (3) Take out the element and dip it in the kerosene to rinse.



- (4) After cleaning, reassemble the fuel filter, keeping out dust and dirt.
- (5) Bleed the injection pump.

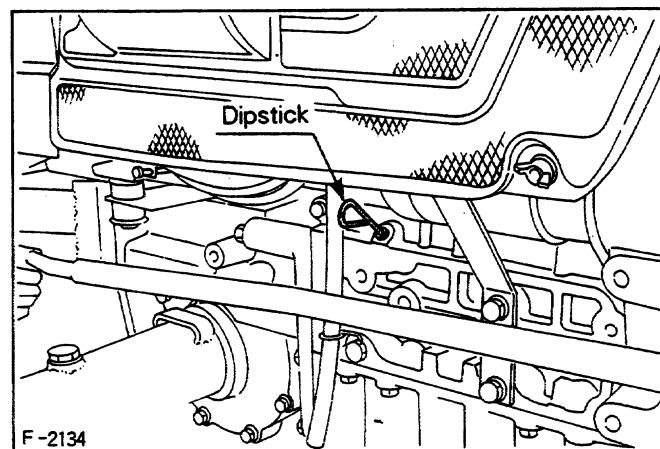
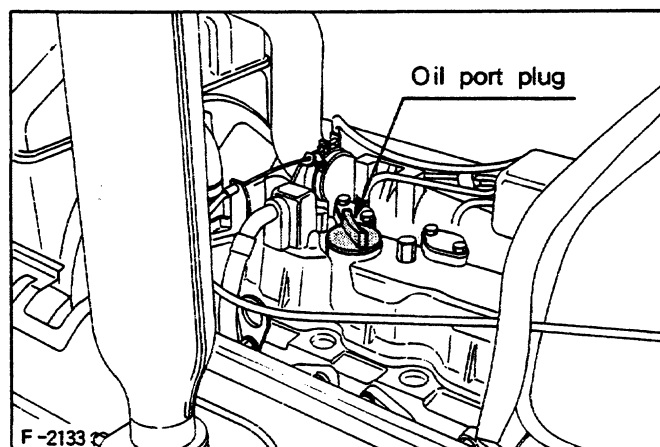
#### IMPORTANT:

- If dust and dirt enter the fuel, the fuel pump and injection nozzle are subject to quick wear. To prevent this, be sure to clean the fuel filter pot periodically.

## 10.2 ENGINE OIL

#### ■ Oil Level Check and Replenishment (See page 27)

- (1) Check engine oil before starting the engine and 5 minutes or more after the engine has stopped.
- (2) To check the oil level, draw out the dipstick, wipe it clean, replace it, and draw it out again. Check to see that the oil level lies between the two notches.
- (3) If the level is too low, add new oil to the prescribed level at the oil port.



- (4) When using an oil of different maker or viscosity from the previous one, remove all of the old oil. Never mix two different types of oil.
- (5) Use the proper Engine Oil SAE according to the ambient temperatures.

Refer to 9.2 "LUBRICANTS."

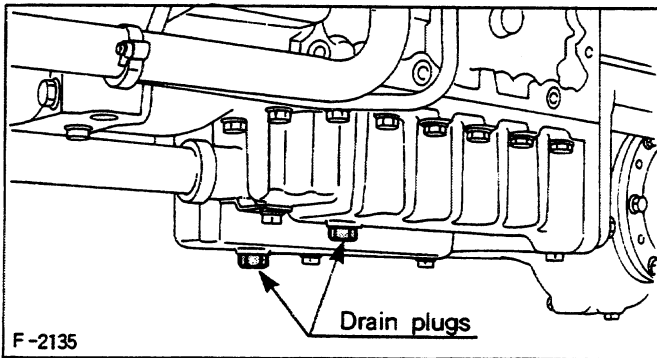
## ■ Engine Oil Change



### CAUTION:

- Before changing the oil, be sure to stop the engine.

- (1) To change the used oil, remove the drain plugs at the bottom of the engine and drain the oil completely. All the used oil can be drained out easily when the engine is still warm.



- (2) Reinstall the drain plugs.
- (3) Fill with the new oil up to the upper notch on the oil gauge.

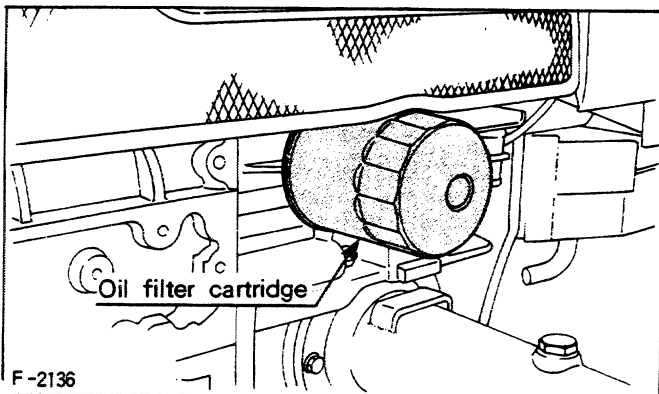
## ■ Engine Oil Filter Cartridge Change



### CAUTION:

- Be sure to stop the engine before changing the oil filter cartridge.

- (1) The oil filter cartridge must be changed every 150 service hours.
- (2) Apply a slight coat of oil onto the cartridge gasket.
- (3) To install the new cartridge, screw it in by hand. Over tightening may cause deformation of rubber gasket.
- (4) After the new cartridge has been replaced, the engine oil normally decreases a little. Thus see that the engine oil does not leak through the seal and be sure to read the oil level on the gauge. Then, replenish the engine oil up to the prescribed level.



### IMPORTANT:

- To prevent serious damage to the engine, replacement element must be highly efficient. Use only a KUBOTA genuine filter or its equivalent.

## 10.3 TRANSMISSION FLUID



### CAUTION:

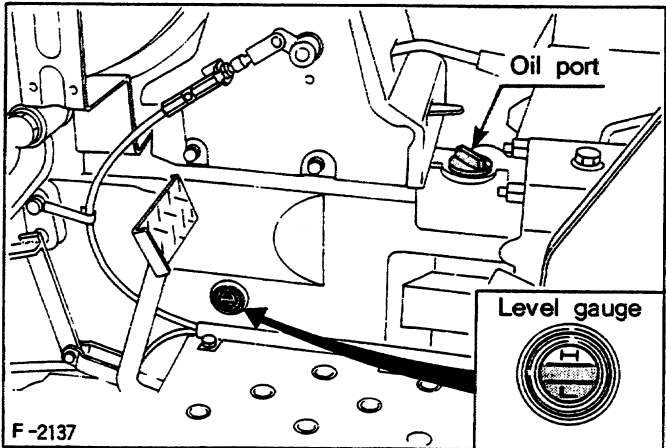
- Be sure to stop the engine before checking and changing the transmission fluid.

## ■ Transmission Fluid Check and Replenishment

View the fluid level through the fluid level gauge.

If short, replenish through the port.

Use multi-grade transmission fluid. (See page 27 )

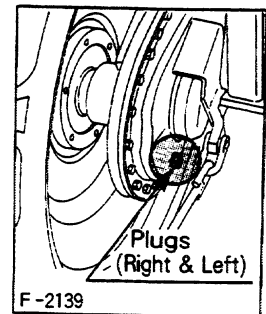
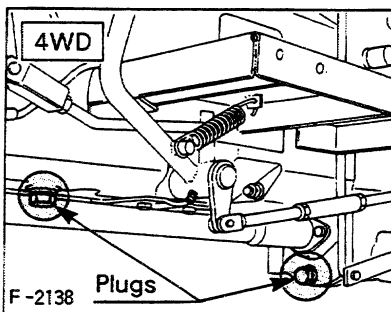
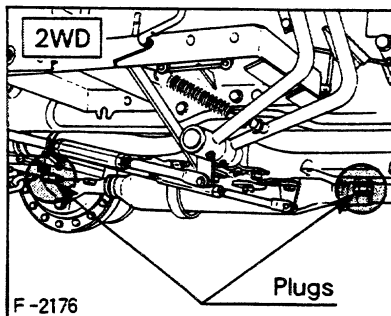


## ■ Transmission Fluid Change

The fluid in the transmission case is also used for the hydraulic system.

To drain the transmission case, place oil pan underneath the transmission case and remove the drain plugs at the bottom of the transmission case and rear axle cases (both sides).

After draining, disassemble and change the filter cartridge. After reassembling, fill with new multi-grade transmission fluid.



**IMPORTANT:**

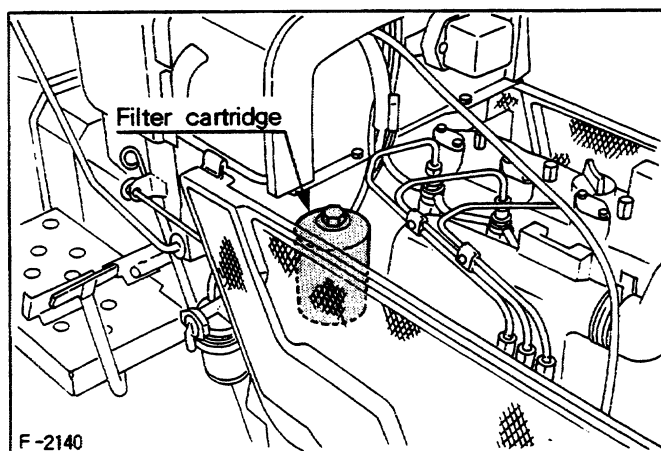
- Never operate the tractor immediately after changing the transmission fluid and filter cartridge. Keeping the engine at medium speed for a few minutes prevents the damage of transmission.

**CAUTION:**

- Be sure to stop the engine before changing the oil filters.

**■ Transmission Oil Filter Cartridge Change**

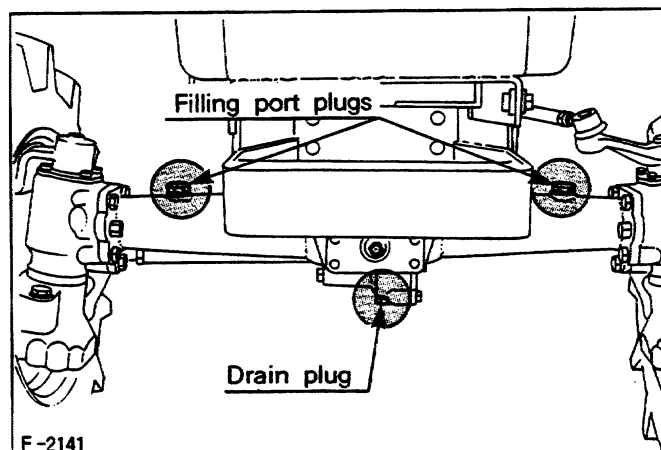
- (1) The oil filter cartridge must be changed every 300 service hours.
- (2) Remove the two wing bolts which secure the hood side cover (right side).
- (3) Remove the oil filter cartridge by using the filter wrench.
- (4) Apply a slight coat of oil onto the cartridge gasket.
- (5) To install the new cartridge, screw it in by hand. Over tightening may cause deformation of rubber gasket.
- (6) After the new cartridge has been replaced, the transmission fluid level will decrease a little. Make sure that the transmission fluid does not leak through the seal, and check the fluid level.

**IMPORTANT:**

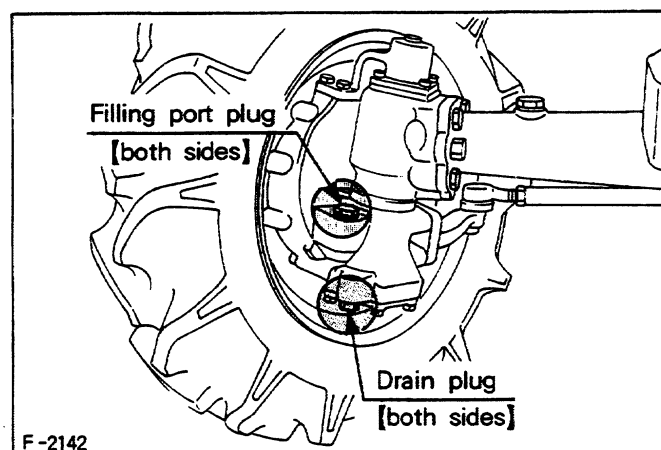
- (1) To prevent serious damage to hydraulic system, replacement of filter must be a highly efficient, 10  $\mu$ m filter. Use only a KUBOTA genuine filter or its equivalent.
- (2) When using the auxiliary hydraulics, replace the transmission oil filter cartridge after initial 50 service hours.

**10.4 CHANGING FRONT AXLE DIFFERENTIAL CASE OIL (4WD) (See page 27)**

Remove the drain and filling port plugs. After draining, replace the drain plug and fill with new oil.

**10.5 CHANGING FRONT AXLE GEAR CASE OIL (RIGHT AND LEFT) (4WD) (See page 27)**

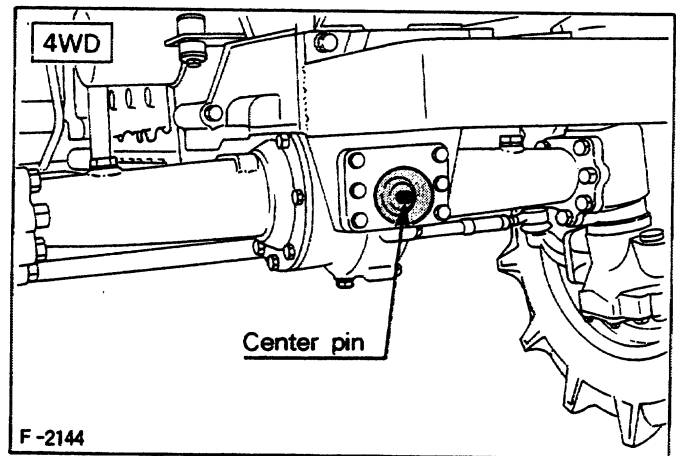
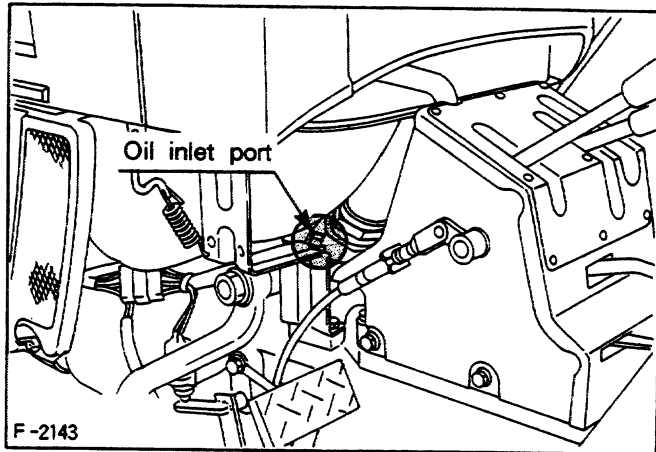
Remove the drain and filling port plugs to drain the used oil. After draining, replace the drain plug and fill with new oil.



## 10.6 STEERING GEAR BOX OIL (See page 27)

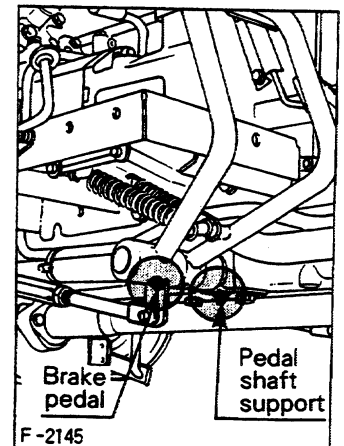
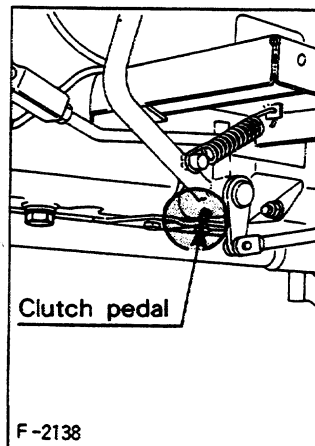
— Manual Steering Only —

If the oil is insufficient, fill with gear lube up to the oil inlet port.



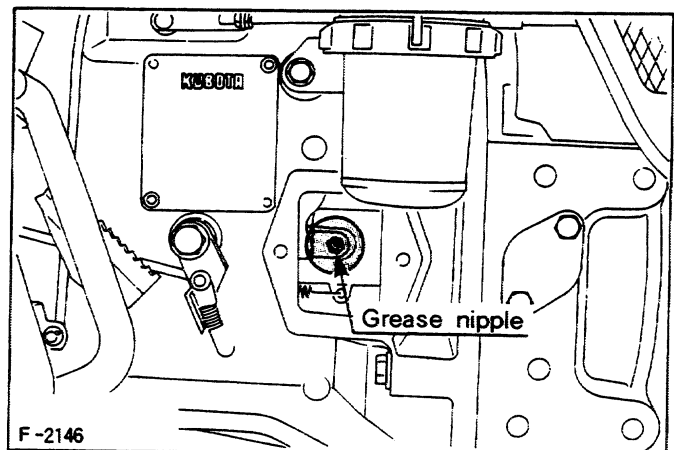
### ■ Pedal Shaft

Grease brake, clutch pedal and pedal shaft support.



### ■ Clutch Release Hub

Remove the cover and sparingly lubricate the clutch release hub (throughout bearing). Too much grease will adversely effect the clutch performance.

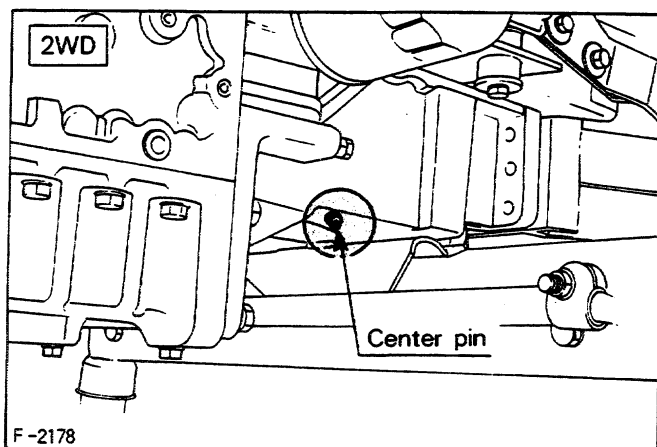
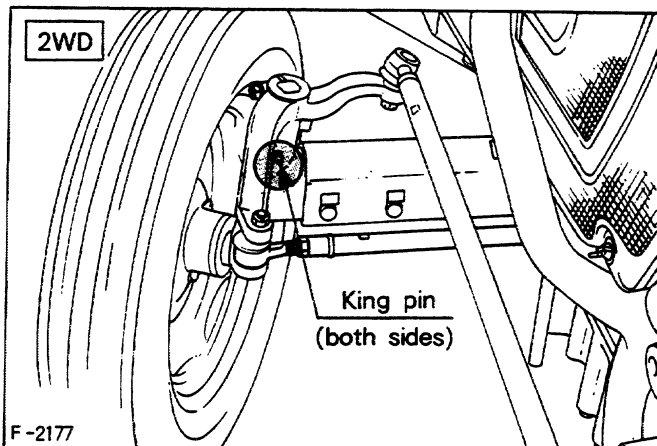


## 10.7 OILING AND GREASING POINTS BEFORE STARTING

Oil or grease the following points before starting.

### ■ King Pins (2WD) and Center Pin (2WD, 4WD)

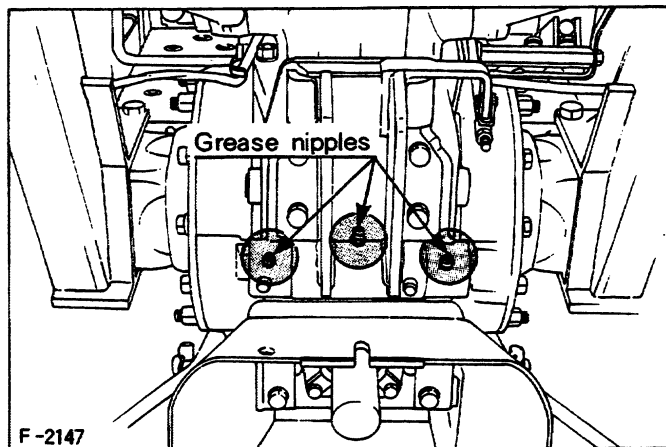
Grease the king pins and center pin with grease gun.



### ■ Top Link Holder

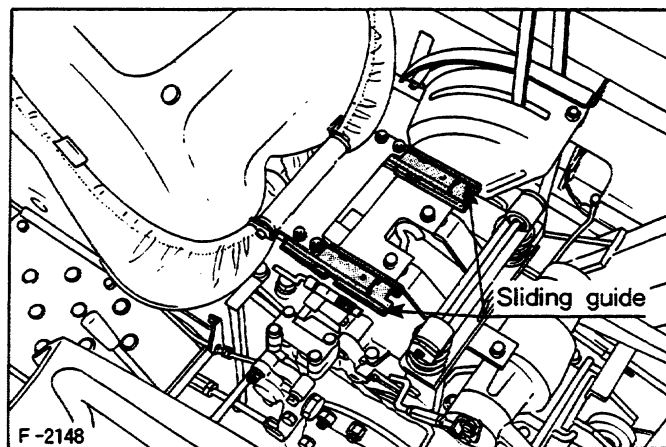
— Optional draft control only —

Grease to three points provided.



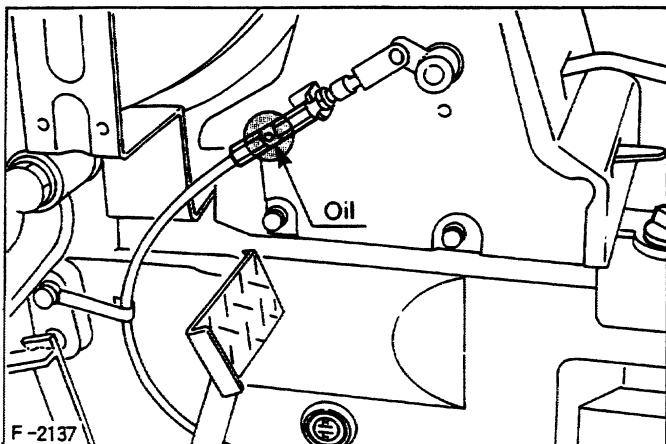
### ■ Seat Adjuster

Apply the grease on the surface of sliding guide.



### ■ Speed Restriction Wire

Oil the wire at the rubber cap as shown below.



## 10.8 RADIATOR



### CAUTION:

- Do not remove radiator filler cap until coolant temperature is below its boiling point. Then loosen cap slightly to the stop to relieve any excess pressure before removing cap completely.

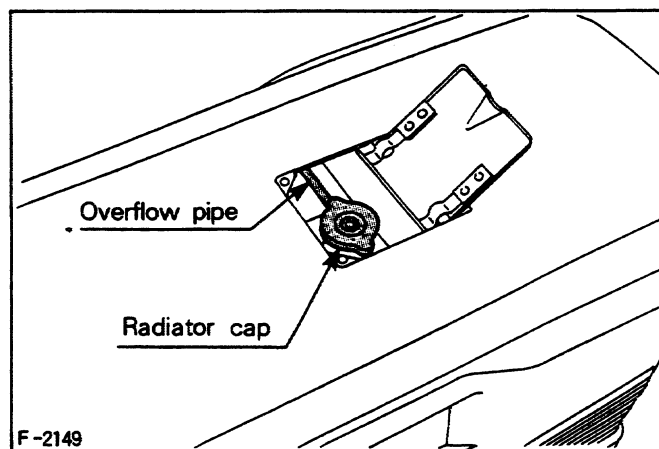
### ■ Checking, Replenishing and Changing Coolant

- Remove the radiator pressure cap and check to see that the coolant level is just below the port. If low, add clean water.

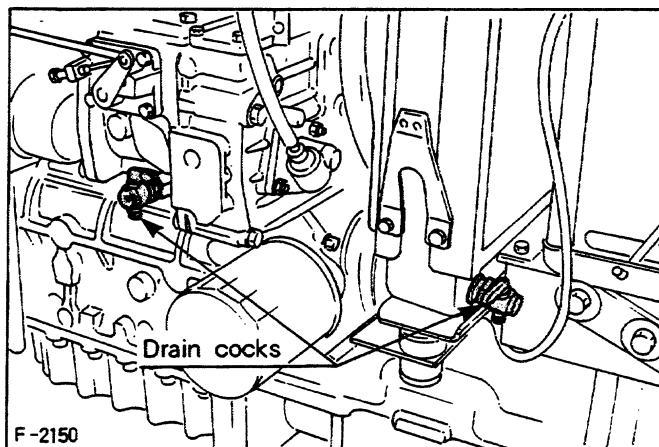
Prescribed quantity	6.6 l (7.0 U.S. qts.)
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### IMPORTANT:

- Use clean, fresh water to fill the radiator.
- Securely tighten the radiator cap.



- To drain the used coolant, open the radiator drain cock and remove radiator cap. The radiator cap must be removed to completely drain the radiator.



- Be sure to close the pressure cap securely. If the cap is loose or improperly closed, water may leak out and the engine could overheat.



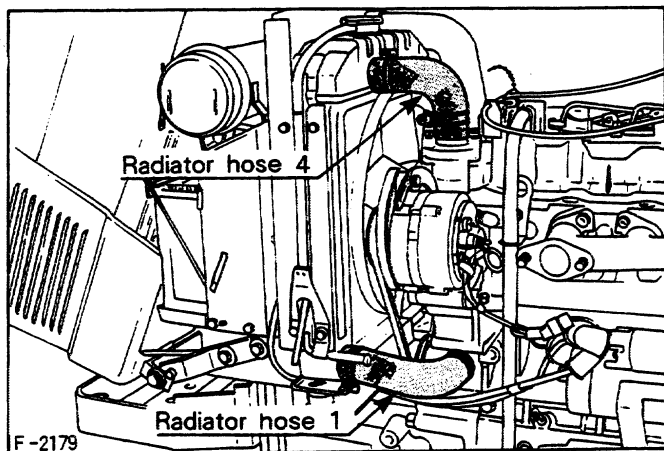
- (5) Radiator should be filled with part of anti-freeze and water at all times as recommended by the anti-freeze manufacturer. The anti-freeze contains a corrosion inhibitor and will allow a higher operating temperature in the radiator during the hot season.
- (6) Don't use an anti-freeze and scale inhibitor at the same time.

### ■ Checking Radiator Hose

Checking radiator hose tightness is prescribed about every 150 service hours, but every 6 months is all right so long as service duration does not exceed 150 hours in 6 months.

- (1) If the tightener band is loose, apply a slight coat of oil and securely retighten.
- (2) The radiator hose is made from rubber and tends to age. It must be changed every two years. Also change the tightener band and securely tighten.

Parts Name	Code Nos.	Unit
Radiator hose 1	15321-72851	1
Radiator hose 4	15321-72941	1
Tightener band	15108-72873	2



### ■ Kubota Scale Inhibitor No. 11

- (1) The Kubota Scale Inhibitor No. 11 prevents scale formation in the cooling water. Scale which builds up in either hard or soft water, sharply reduces cooling efficiency.
- (2) The Scale Inhibitor is effective for 3 months so a complete change of cooling water must be done every 3 months.

### ■ Remedying Water Leakage

- (1) A small water leak can be eliminated with the Kubota Radiator Cement No. 40 or equivalent.
- (2) If water leakage should become excessive, consult your local dealer.

### ■ Cleaning Cooling System

- (1) The water cooling system should be cleaned on the following occasions:
  - Every 500 service hours
  - When adding an anti-freeze solution.
  - When changing from water containing anti-freeze to pure water.
- (2) When cleaning the water cooling system, the Kubota Scale Inhibitor No. 20 is recommended to effectively wash away the scale built-up.

### ■ Anti-Freeze

If the cooling water freezes, the engine cylinder and radiator may crack. In cold weather before the temperature drops below 0°C (32°F), drain out the water or add a proper amount of anti-freeze when the tractor is shut down.

- (1) There are two types of anti-freeze solutions, permanent type (PT) and semi-permanent type (SPT). For the Kubota Engine, be sure to use the permanent type.
- (2) When anti-freeze is used for the first time, fill and drain clean water two or three times so as to completely clean the inside of the radiator.
- (3) Radiator should be filled with anti-freeze and water solution as recommended by the anti-freeze manufacturer. The anti-freeze contains a corrosion inhibitor and will allow a higher operating temperature in the radiator during the hot season. Remember that the effective cooling water capacity of the radiator is shown on the table below.

Capacity	6.6 l (7.0 U.S. qts.)
----------	-----------------------

- (4) Mix the anti-freeze and the water, then pour the mixture into the radiator.
- (5) When the cooling water mixed with anti-freeze decreases due to evaporation, replenish with water only. If loss has been due to leaking, water and anti-freeze mixture with the same mix ratio as the original preparation.
- (6) Anti-freeze solutions absorb moisture, so be sure to securely close the container after use.
- (7) Anti-freeze and water should be changed every year.
- (8) Do not use an anti-freeze and a scale inhibitor at the same time. This may cause sludge to form, adversely affecting the engine parts.

### ■ Checking and Cleaning Radiator

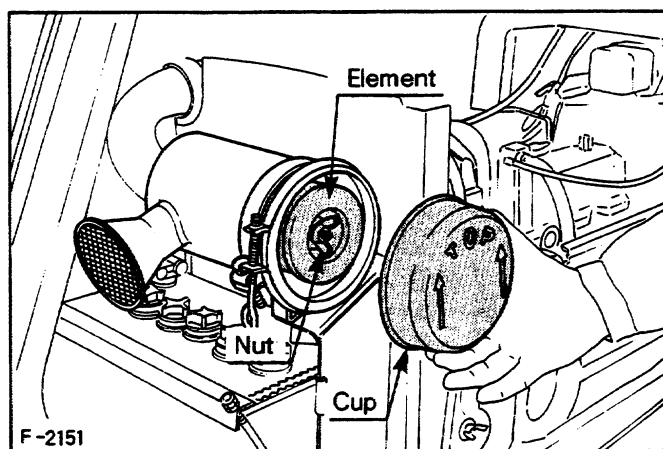
Daily or every 5 hours of operation, check to be sure the radiator net and radiator core are clean.

Dirt or chaff on the radiator net or radiator core decrease cooling performance.

- (1) In that case, detach the net and remove all the foreign materials from them.
- (2) Remove the dust from between the fins and the tube.
- (3) Tighten the fan drive belt as necessary. For this, refer to page 38.
- (4) If scale forms in the tube, clean with KUBOTA scale inhibitor.

## 10.9 AIR CLEANER

- (1) The air cleaner uses a dry element, never apply oil.
- (2) Do not let dust build up to more than a half of the dust cup. Detach the dust cup and clean out the dust—normally once a week, but everyday if working conditions are especially dusty.
- (3) Do not touch the filter element except in cases where cleaning is required.
- (4) When cleaning the element, refer to the instructions attached.
- (5) If the element is stained with carbon or oil, replace the filter.
- (6) Change the element once yearly or every time the air cleaner is rinsed with water (6 times a year).



### IMPORTANT:

- (1) Be sure to refit the dust cup with the arrow ↑ (on the rear) upright. If the dust cup is improperly fitted, dust passes by the dust cup and directly adheres to the element.
- (2) Do not run the engine with filter element removed.

## 10.10 CLEANING AIR FILTER ELEMENT

- (1) To clean the element, use clean dry compressed air on the inside of the element.  
Air pressure at the nozzle must not exceed 0.69 MPa (7 kgf/cm<sup>2</sup>; 100 psi).  
Maintain reasonable distance between the nozzle and the filter.
- (2) To wash the element, use KUBOTA Filter or Donaldson ND-1500 Filter Cleaner which is especially effective on oily and soot-laden filters.  
To use: Dissolve KUBOTA Filter Cleaner in a concentrated solution of cold water. When granules are thoroughly mixed. Add water to make a solution equivalent to 15 g KUBOTA Filter Cleaner for each 1ℓ (1 quart) of water. (2 oz KUBOTA Filter Cleaner for each 1 gallon of water.) Allow element to soak 15 minutes. Then agitate element to dislodge loosened dust—rinse in clear water—allow element to dry.

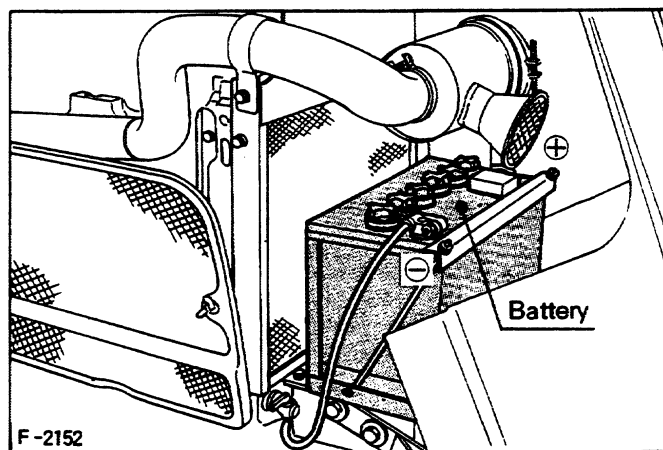
## 10.11 BATTERY



### CAUTION:

- Never remove the battery cap while the engine is running.  
Keep electrolyte away from eyes, hands and clothes. If you are spattered with it, wash it away completely with water.

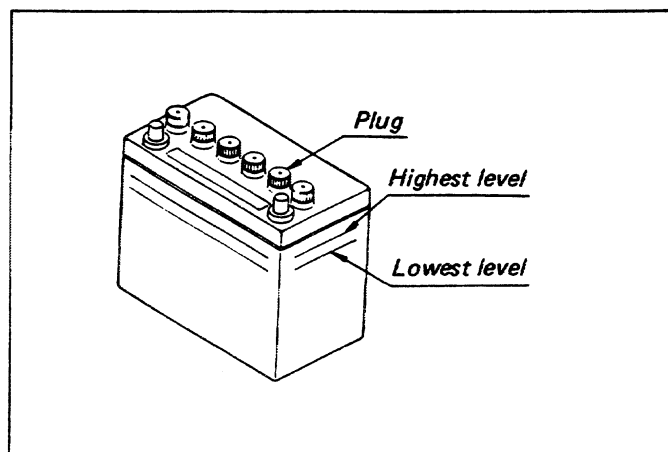
Mishandling the battery shortens the service life and adds to maintenance costs. Be sure to handle it correctly so that it will develop its full potential performance.



### CAUTION:

- Gas given off by batteries is explosive. To avoid injury or battery damage, avoid sparks near the batteries.

- (1) If the battery is weak, the engine is difficult to start and the lamps become dim. It is important to check the battery daily and recharge before trouble occurs.
- (2) The water in the electrolyte evaporates during recharging. Liquid shortage damages the battery and excessive liquid spills over and damages the tractor body. If low, be sure to fill up the battery with distilled water.



- (3) To slow charge the battery connect the battery positive terminal to the charger positive terminal and the negative to the negative, then recharge in the standard fashion.
- (4) A boost charge is only for emergencies. It partially charges the battery at a high rate and in a short time. When using a boost-charged battery, it is necessary to recharge the battery as early as possible after the operation has been finished. Failure to do this extremely affects the service life due to overdischarge.



#### CAUTIONS:

- (1) When connecting the battery, do not reverse the polarities. Connection with reverse polarities causes troubles to the battery and electrical system in the tractor.
- (2) When disconnecting the cord from the battery, start with the negative terminal first. When connecting, start with the positive terminal first. Reversing the steps may cause short-circuiting, should a metallic tool touch the terminals.
- (3) If the tractor is to be operated for a short time without battery (using a slave battery for starting), do not, under any circumstances, interrupt the circuit by switching off the key switch before stopping the engine by means of fuel pump shut off cable. Use additional current (lights) while engine is running. Insulate terminal of battery cable before starting by means of slave battery. If this advice is disregarded, damage to alternator and regulator may result.

#### ■ Directions for Storage

- (1) When shutting down the tractor for long periods of time, remove the battery from the tractor, adjust the electrolyte to the proper level and store in a dry place out of direct sunlight.
- (2) The battery self-discharges even while it is stored. Recharge it once a month in hot seasons and once every two months in cold seasons.

#### IMPORTANT:

- The tractor has been shipped with dry-type battery. Your dealer will fill electrolyte and charge for use for the first time.

#### ■ Charging Dry Type Battery

- (1) Remove vent plugs and discard temporary sealing cardboards and tapes.
- (2) Fill each cell with electrolyte having a specific gravity given in Table 1 up to highest level marked on the battery case side.

Table 1

	AIR TEMPERATURES	
	TEMPERATE Ordinarily below 20°C (68°F)	TROPICAL Frequently above 20°C (68°F)
sp.gr. of Electrolyte for Filling	1.260	1.240
sp.gr. of Electrolyte when fully charged	1.260 to 1.275	1.240 to 1.255

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

Table 2

TYPE	Volts (V)	Number of plate per cell	Capacity at 20 H.R (A.H)	Volume of Electrolyte (ℓ)	Normal Charging Rate (A)
N70ZL	12	15	70	4.7	7
75D26L	12	13	65	4.2	7

- (6) Check temperature of electrolyte, if it reaches 40°C (105°F) lower the charging rate. When temperature too high, reduce charging rate and charge for a proportionately longer period.
- (7) If the tractor is stored after original charge, periodically recharge as shown below:

Table 3

Period of storage from manufactured (months)	freshing charge (times)
0 - 6	about 5 hours
6 - 12	10
over 12	30

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

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

# 11. ADJUSTMENTS



## CAUTION:

- When making adjustments, park the tractor on flat ground and apply the parking brake.

### 11.1 FAN DRIVE BELT TENSION

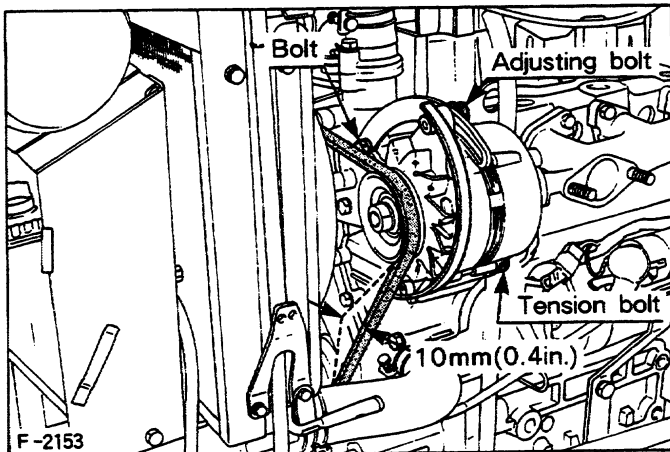
If the fan drive belt becomes loose, the engine may over-heat.

Check the belt tension as shown below.

To adjust, loosen the adjusting bolt and tighten the tension bolt to stretch the belt. After adjustment, securely tighten the adjusting bolt.

Moderate belt tension:

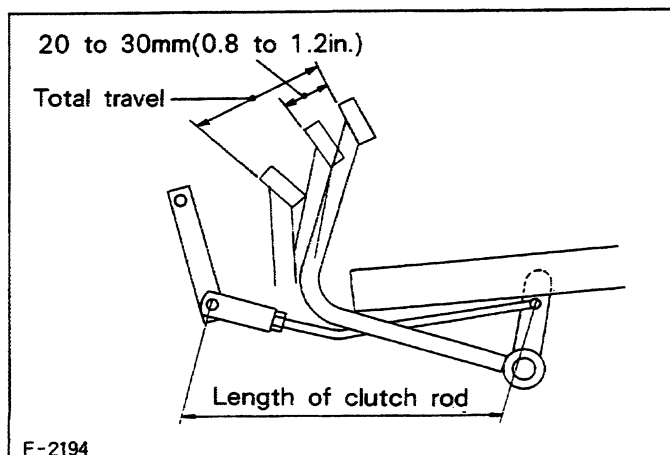
The belt should deflect approx. 10 mm (0.4 in.) when the center of the belt is depressed with a finger pressure of 98N (10 kgf, 22 lbs.).



### 11.2 CLUTCH (WITH SINGLE DISC)

Moderate clutch play ranges from 20 to 30 mm (0.8 to 1.2 in.).

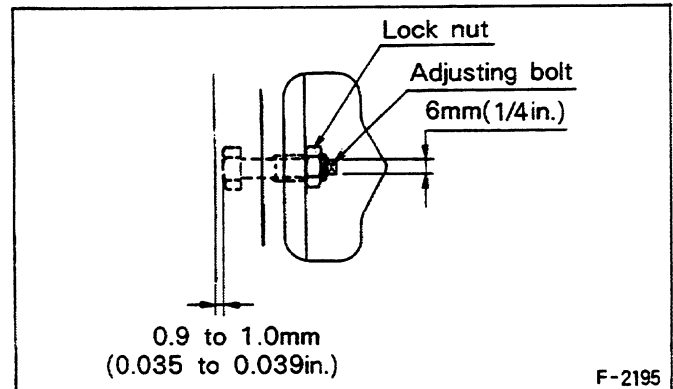
If the clutch becomes difficult to disengage or pedal play decreases, adjust the length of the clutch rod after removing the pin. When the clutch is difficult to disengage, extend the rod. When the clutch play is too little, shorten the rod.



### 11.3 CLUTCH (WITH DUAL DISC)

Moderate clutch play ranges from 20 to 30 mm (0.8 to 1.2 in.).

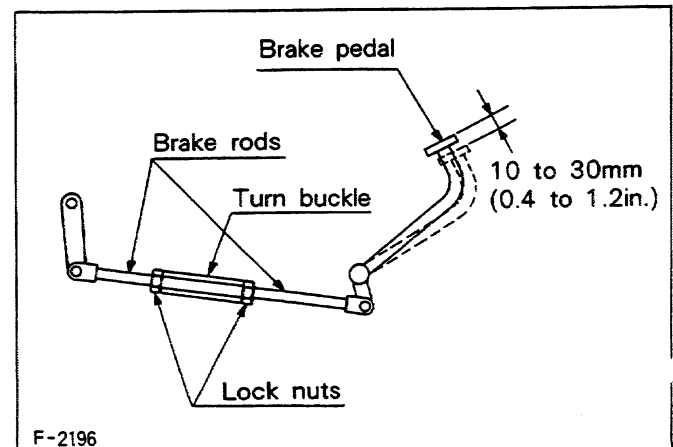
- (1) At first adjust clutch play, same as with single disc clutch.
- (2) Remove the cover located right side of flywheel housing case.
- (3) Loosen the lock nut, tighten the adjust bolt by using 6 mm (1/4 in.) spanner until head of the bolt contacts to pressure plate slightly. Make 3/4 turn counterclockwise to give 0.9 to 1.0 mm (0.035 to 0.039 in.) clearance.



- (4) Tighten the lock nut, holding the adjust bolt.
- (5) Repeat step one and readjust free-play if necessary.

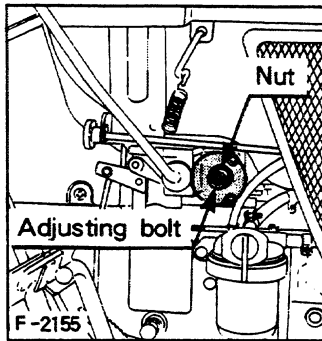
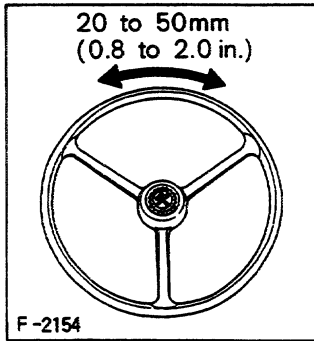
### 11.4 BRAKE

If brake pedal travel becomes too great or travel varies too greatly between the right and left pedals, loosen the turn-buckle lock nut and turn the turnbuckle in the desired direction until the proper pedal travel is achieved. Moderate right and left pedal play ranges from 10 to 30 mm (0.4 to 1.2 in.). After adjustment, interlock the right and left brake pedals and finally tighten the lock nut securely.



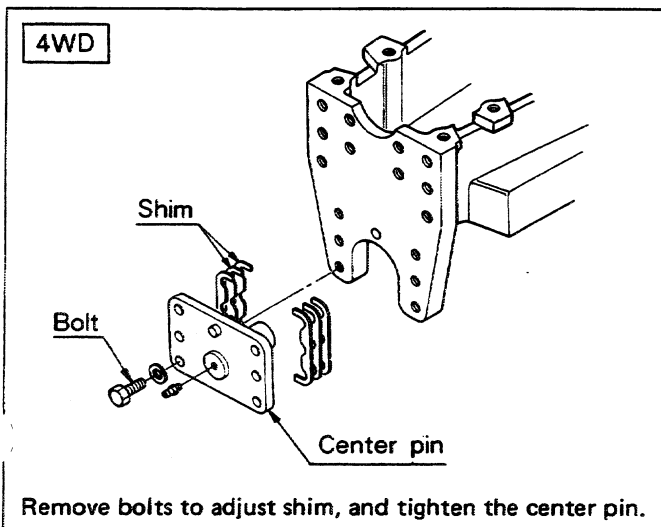
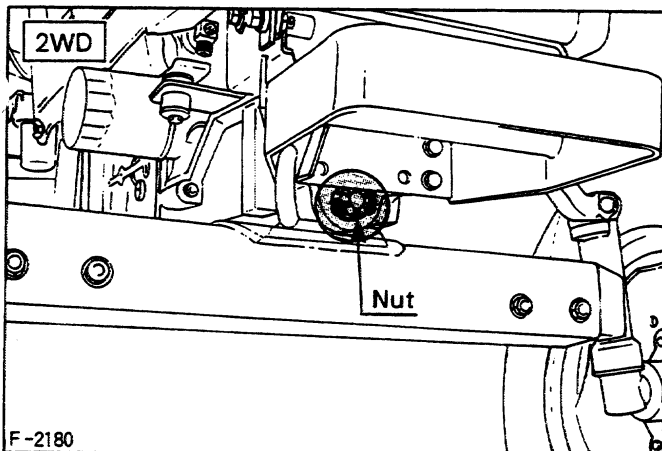
## 11.5 STEERING WHEEL

Moderate steering wheel play is 20 to 50 mm (0.8 to 2.0 in.). To adjust this, loosen the lock nut and turn the adjusting bolt to the right. After adjustment, securely retighten the nut.



## 11.6 FRONT AXLE SUPPORT

Insure front axle support is securely clamped. If not, remove the split cotter pin first, and firmly tighten the nut. Reinstall the cotter pin.



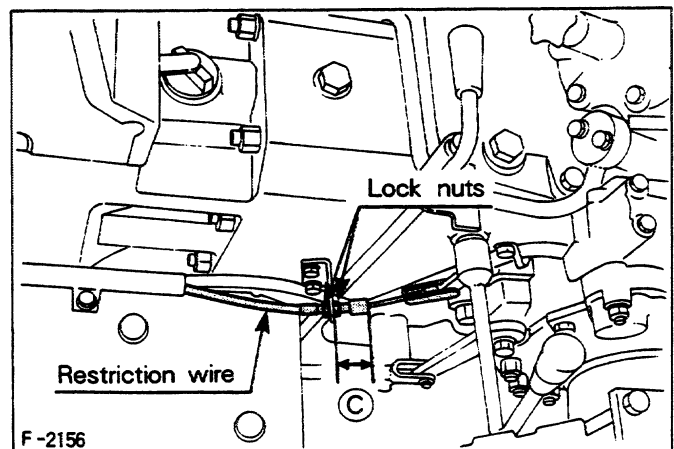
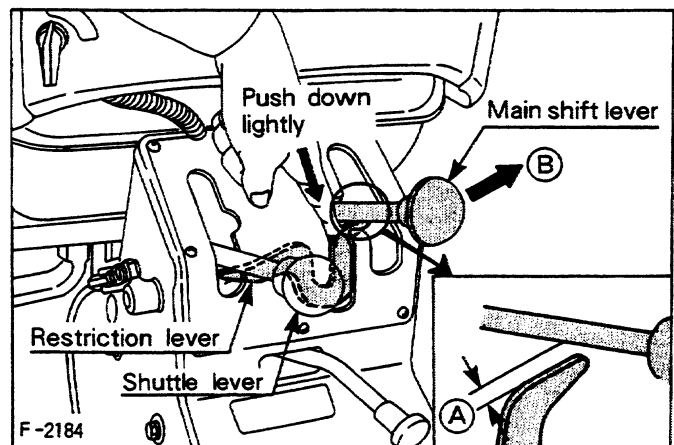
## 11.7 SPEED RESTRICTION WIRE

The speed restriction wire prevents operation in 8th gear reverse.

Moderate length of (A) is 2 to 3 mm (0.08 to 0.12 in.)

Adjust the length of (A) as follows if necessary.

- (1) Shift Shuttle lever into reverse range.
- (2) Shift the Hi-Lo gear shift lever into High range.
- (3) Shift Main shift lever to neutral position and push it to the direction (B).
- (4) Push the restriction lever down lightly to have it contact with Shuttle lever.
- (5) Then measure the length of (A).
- (6) Loosen the lock nuts and adjust length (C) to get length (A) moderate length (2 to 3 mm, 0.08 to 0.12 in.).



# 12. TROUBLESHOOTING

## 12.1 ENGINE TROUBLESHOOTING

### ■ When engine is difficult to start

Cause	Countermeasures
Fuel is thick and doesn't flow	<ul style="list-style-type: none"> <li>* Check the fuel oil tank and fuel oil filter.</li> <li>* Remove water, dirt and other impurities</li> <li>* As all fuel oil will be filtered by the filter, if there should be water or other foreign matters on the filter, replace the filter.</li> </ul>
Air or water mixed in fuel system	<ul style="list-style-type: none"> <li>* If air is in the fuel filter or injection lines, the fuel pump will not work properly. To attain proper fuel injection pressure, check carefully for loosened fuel lines, cap nut, etc.</li> <li>* Loosen air vent screws atop fuel filter and fuel injection pump to eliminate all the air in the fuel oil system.</li> </ul>
Thick carbon deposits on orifice of injection nozzle.	<ul style="list-style-type: none"> <li>* This is caused when water or dirt is mixed in the fuel. Clean the nozzle injection piece, being careful not to damage the orifice.</li> <li>* Check to see if nozzle is working properly or not. If not, install a new nozzle.</li> </ul>
Valve clearance is wrong	<ul style="list-style-type: none"> <li>* Adjust valve clearance. See your KUBOTA dealer.</li> </ul>
Leaking valves	<ul style="list-style-type: none"> <li>* Grind valve.</li> </ul>
Fuel injection timing is wrong	<ul style="list-style-type: none"> <li>* Adjust injection timing. See your KUBOTA dealer.</li> </ul>
Engine oil becomes thick in cold weather and engine cranks slow.	<ul style="list-style-type: none"> <li>* Change grade of oil according to the weather (temperature).</li> </ul>
Low compression	<ul style="list-style-type: none"> <li>* Bad valve or excessive wear of rings, pistons and liners cause insufficient compression. Replace with new parts.</li> </ul>
Battery is discharged and the engine will not crank.	<ul style="list-style-type: none"> <li>* Charge battery.</li> <li>* Use decompression device.</li> <li>* In winter, always remove battery from tractor, charge fully and keep indoors. Install in tractor at time of use.</li> </ul>

### ■ When output is insufficient

Cause	Countermeasures
Carbon struck around orifice of nozzle piece	<ul style="list-style-type: none"> <li>* Clean orifice and needle valve, being very careful not to damage the nozzle orifice.</li> <li>* Check nozzle. If defective, replace with new parts.</li> </ul>
Compression is insufficient. Leaking valves	<ul style="list-style-type: none"> <li>* Bad valve and excessive wear of rings, pistons and liners cause insufficient compression. Replace with new parts.</li> <li>* Grind valves.</li> </ul>
Fuel is insufficient	<ul style="list-style-type: none"> <li>* Check fuel system.</li> </ul>
Overheating of moving parts	<ul style="list-style-type: none"> <li>* Check lube oil system.</li> <li>* Check to see if lube oil filter is working properly.</li> <li>* Filter screens or elements deposited with impurities would cause poor lubrication. Clean screens.</li> <li>* Check to see if bearing clearance are within factory specs.</li> <li>* Check engine timing.</li> </ul>
Valves out of adjustment	<ul style="list-style-type: none"> <li>* Adjust to proper valve clearance. See your KUBOTA dealer.</li> </ul>
Air cleaner is dirty	<ul style="list-style-type: none"> <li>* Clean the element every 100-200 hours of operation.</li> </ul>
Fuel injection pressure is wrong	<ul style="list-style-type: none"> <li>* Adjust to proper pressure. See your KUBOTA dealer.</li> </ul>

### ■ When color of exhaust is specially bad

See your KUBOTA dealer.

### ■ When engine suddenly stops

Cause	Countermeasures
Leak of fuel	<ul style="list-style-type: none"> <li>* Check the fuel tank and refill if necessary.</li> <li>* Also check the fuel system for air or leaks</li> </ul>
Bad nozzle	<ul style="list-style-type: none"> <li>* If necessary, replace with a new nozzle.</li> </ul>
Moving parts are overheated due to shortage of lube oil or improper lubrication	<ul style="list-style-type: none"> <li>* Check amount of engine oil with oil level gage.</li> <li>* Check lubricating oil system.</li> <li>* Check to see if element inside the lubricating oil filter (2) has become old and clogged. If necessary, replace with new element.</li> <li>* Check to see if the engine bearing clearances is within factory specs.</li> </ul>

#### IMPORTANT:

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

### ■ When engine must be stopped immediately

Cause	Countermeasures
Speed suddenly decreases or increases	<ul style="list-style-type: none"> <li>* Check the adjustments and timing of injection and the fuel system.</li> </ul>
Unusual sound is heard suddenly.	<ul style="list-style-type: none"> <li>* Check all moving parts carefully.</li> </ul>
Color of exhaust suddenly turns dark	<ul style="list-style-type: none"> <li>* Check the fuel injection system, especially the fuel injection nozzle.</li> </ul>
Bearing parts are overheated	<ul style="list-style-type: none"> <li>* Check the lubricating system.</li> </ul>
Oil lamp lights up during operation	<ul style="list-style-type: none"> <li>* Check lubricating system.</li> <li>* Check to see if the engine bearing clearances is within factory specs.</li> <li>* Check the function of the regulating valve inside of oil filter (2).</li> <li>* Check pressure switch</li> <li>* Check filter base gasket</li> </ul>

## 12.2 TRACTOR TROUBLESHOOTING

### ■ When tractor does not move while engine is running

Cause	Countermeasure
Speed change lever is at neutral	<ul style="list-style-type: none"> <li>* Check speed change lever</li> </ul>
Parking brake is working	<ul style="list-style-type: none"> <li>* Release the parking brake</li> </ul>

### ■ When 3 point hitch does not move

Cause	Countermeasure
Oil filter is clogged	<ul style="list-style-type: none"> <li>* Clean or change the filter</li> </ul>
3 point hitch does not lower	<ul style="list-style-type: none"> <li>* Check the hydraulic adjusting grip.</li> </ul>

## 12.3 BATTERY TROUBLESHOOTING

Condition of Battery	Cause	Countermeasure	Precaution
Starter does not function	<p>Key is not "ON"</p> <p>Battery over-used until light becomes dim</p> <p>Charging of battery neglected</p> <p>Defective Alternator rectifier.</p> <p>Dirty or corroded terminal contacts</p> <p>Bad brushes, armature or field</p> <p>Life of battery expired</p>	<p>Turn key "ON"</p> <p>Charge for long period by ordinary charging method until specific gravity of 1.26 is reached.</p> <p>Repair Alternator and replace defective rectifier.</p> <p>Charge battery well.</p> <p>Wash terminal with hot water and tighten well.</p> <p>Replace</p> <p>Replace battery</p>	<p>Do not overuse the battery and charge before fully discharged. (Refrain from overdischarging)</p> <p>Check Alternator rectifier.</p> <p>Keep terminals clean, tighten well and grease to prevent corrosion.</p>
From beginning, starter does not function, and lights become dim quickly.	Battery not charged well	Charge battery for long period by ordinary charging method.	Battery must be serviced properly before initial use.
Low electrolyte level.	<p>Battery used with shortage of electrolyte.</p> <p>Battery over-used. Moreover, charging was neglected. (Refrain from over-discharging.)</p> <p>Defective Alternator rectifier. Defective terminal contacts causing sulphation of electrodes.</p>	<p>Add distilled water and charge battery</p> <p>Charge for long period.</p> <p>Check Alternator and rectifier and charge for long period by ordinary charging method.</p>	<p>Make routine checks of electrolyte</p> <p>Do not overuse the battery and fully discharge.</p> <p>Make routine checks of terminals, to make sure they are clean and tight.</p>
Battery cannot be charged.	<p>The current of the Alternator during operation is too high causing plates to drop, warp or short-circuit.</p> <p>Life of battery expired.</p>	<p>Decrease the charging current of Alternator.</p> <p>Exchange defective battery.</p> <p>Exchange battery.</p>	<p>Check charging current of Alternator.</p>
Corrosion of terminals severe.	<p>Current of the Alternator during operation is too large.</p>	<p>Clean scale from terminals and tighten well.</p> <p>Adjust charging current of Alternator.</p>	<p>Keep terminals clean and well tightened.</p> <p>Apply grease to prevent corrosion.</p> <p>Check charging current of Alternator.</p>
Electrolyte decrease rapidly	<p>Over heating due to over charging.</p> <p>Storage battery cracked or has small holes.</p>	<p>Check charging out put.</p> <p>Replace battery</p>	<p>Secure battery to tractor so it would not move.</p>



# 13. LONG-TERM STORAGE



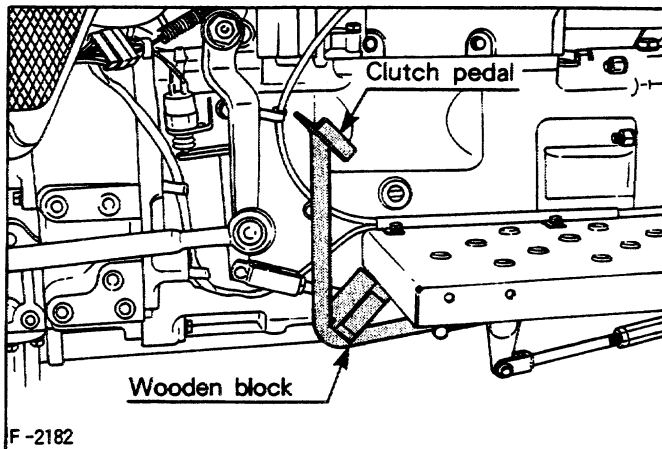
## CAUTION:

- When storing, remove the key from the key switch.

When the tractor will not be operated for two or three months or longer, clean the tractor and perform the following treatment before storage.

- (1) Repair the parts as needed.
- (2) Check nuts and bolts, tighten as necessary.
- (3) Apply grease or engine oil to the parts most likely to rust.
- (4) Remove the weight.
- (5) Pump up the wheel tires to a little above the standard pressure levels.
- (6) Change the engine oil and run the engine for five minutes before running the tractor so that the oil circulates through the entire system.
- (7) Stop the engine by fully pulling the engine stop knob.
- (8) Drain the radiator. Flush and refill with new coolant.
- (9) Lock the clutch pedal with a wooden block.

If the tractor is stored for a long period with the clutch left engaged, the clutch disc may rust, rendering it inoperative.

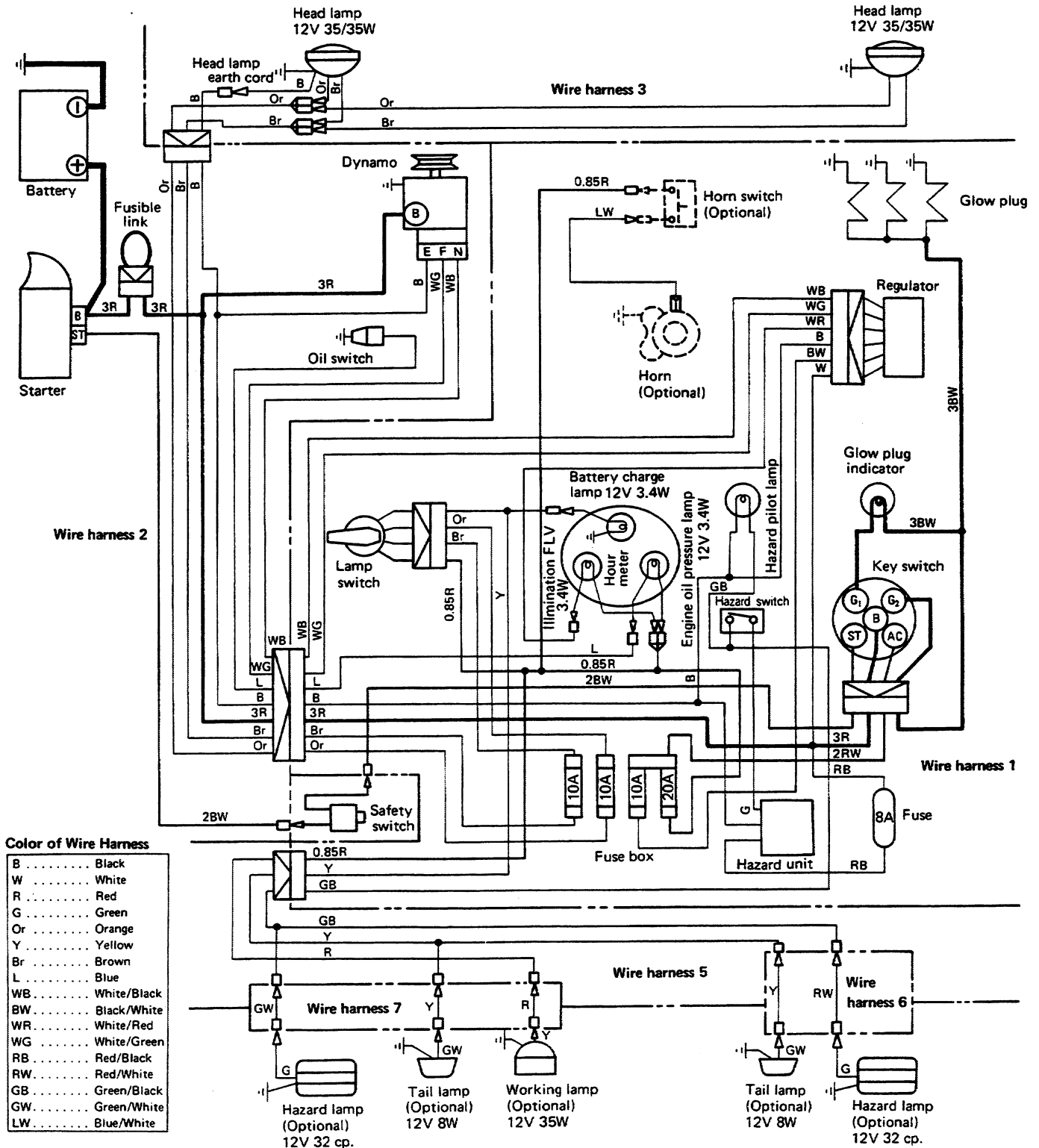


- (10) Lower the implement to the ground.
- (11) Remove the battery from the tractor, recharge it, adjust the electrolyte to the proper level, and store in a dry place out of direct sunlight.
- (12) The battery runs down over time even while in storage. Recharge it once a month in hot seasons and once every two months in cold seasons.
- (13) Store the tractor where dry and sheltered from rain. Further cover the tractor with a tarpaulin.
- (14) When leaving the tractor outdoors, protect the muffler from the rain.

## IMPORTANT:

- To clean the tractor stop the engine. If you must clean the tractor with the engine going, utmost care should be taken not to allow water to enter the air cleaner. Engine trouble may occur if water enters the engine.

# 14. WIRING DIAGRAM



L235 · L275

M. ●. 5-6. 10. K

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## KUBOTA TRACTOR CORPORATION

**CORPORATE OFFICE: 3401 DEL AMO BOULEVARD, TORRANCE, CA 90503**

**WESTERN DIVISION: 6665 Hardaway Road, Stockton, CA 95215 • (209) 931-5051**

**CENTRAL DIVISION: 14855 F.A.A. Blvd., Fort Worth, TX 76155 • (817) 571-0900**

**NORTHERN DIVISION: 2626 Port Road, Columbus, OH 43217 • (614) 492-1100**

**SOUTHEAST DIVISION: 1025 North Brook Parkway, Suwanee, GA 30174 • (770) 995-8855**

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