

IHI-SHIBAURA TRACTOR

OPERATOR'S MANUAL

MODEL SD 4300
SD 4340
SD 5000T
SD 5040T



A1043



ISHIKAWAJIMA-SHIBAURA MACHINERY CO., LTD.

AGE

122577

A.H. 722 848

FOREWORD

Thank you for selecting an IHI-SHIBAURA Tractor from the large number of agricultural tractors on the market. IHI-SHIBAURA has long experience in manufacturing tractors, and employs up-to-date designing techniques and production facilities. We can assure you that your tractor will be labor-saving, efficient, comfortable and universally useful at all times.

This instruction manual will help you to use IHI-SHIBAURA Wheel Tractors SD4300, SD4340, SD5000T and SD5040T more effectively.

Read this instruction manual carefully for an understanding of working safety, and to obtain efficient operation, and the longest service life out of your tractor.

If you have any questions regarding the IHI-SHIBAURA Wheel Tractors SD4300, SD4340, SD5000T and SD5040T, do not hesitate to ask your dealer.

The specifications of this tractor are subject to change without notice.

A VEHICLE IDENTIFICATION PLATE is located on the left-hand side of the transmission housing. The numbers on the plate are important should your tractor require future service. For your convenience, have your dealer record the numbers in the appropriate spaces below.

IHISHIBAURA	
WHEEL TRACTOR	
MODEL	SD5000T
CHASSIS NUMBER	
ENGINE NUMBER	
ISHIKAWAJIMA SHIBAURA MACHINERY CO., LTD.	
MATSUMOTO CITY, JAPAN.	

IHISHIBAURA	
WHEEL TRACTOR	
MODEL	SD4300
CHASSIS NUMBER	
ENGINE NUMBER	
ISHIKAWAJIMA SHIBAURA MACHINERY CO., LTD.	
MATSUMOTO CITY, JAPAN.	

IHISHIBAURA	
WHEEL TRACTOR	
MODEL	SD5040T
CHASSIS NUMBER	
ENGINE NUMBER	
ISHIKAWAJIMA SHIBAURA MACHINERY CO., LTD.	
MATSUMOTO CITY, JAPAN.	

IHISHIBAURA	
WHEEL TRACTOR	
MODEL	SD4340
CHASSIS NUMBER	
ENGINE NUMBER	
ISHIKAWAJIMA SHIBAURA MACHINERY CO., LTD.	
MATSUMOTO CITY, JAPAN.	

































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INTERNATIONAL SYMBOLS

As a guide to the operation of your tractor, various international symbols have been utilized on the instruments and controls. The symbols are shown below with an indication of their meaning.

	Engine speed		"Tortoise," slow or minimum setting
	Hours recorded		"Hare," fast or maximum setting
	Engine water temperature		Control lever operating direction
	Horn		Rock shaft (raised)
	Engine oil pressure		Rock shaft (lowered)
	Safety Flasher		Remote cylinder (extended)
	Axle connect		Remote cylinder (retracted)
	Axle disconnect		Fuel gauge
	Continuously variable		Electrolyte level
	Increase		Coolant level
	Decrease		Air filter condition
	Alternator charge		Oil filter condition
	Power take-off (on)		Differential lock
	Power take-off (off)		Lower beam
	Caution		Upper beam

SAFETY PRECAUTIONS

A careful operator is the best operator. Most accidents can be avoided by observing certain precautions. Read and take the following precautions before operating this tractor to help prevent accidents. Equipment should be operated only by those who are responsible and instructed to do so.

THE TRACTOR

1. Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.
2. Use the handholds and step plates when getting on and off the tractor to prevent falls. Keep steps and platform cleared of mud and debris.
3. Do not permit anyone but the operator to ride on the tractor. There is no safe place for extra riders.

SERVICING THE TRACTOR

4. Cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while system is hot. Always turn cap slowly to the first stop and allow the pressure to escape before removing the cap entirely.
5. Do not smoke while refueling the tractor. Keep any type of open flame away. Wait for engine to cool before refueling.
6. Keep the tractor in good operating condition for your safety. An improperly maintained tractor can be hazardous.
7. Keep open flame away from battery or cold weather starting aids to prevent fires or explosions. Use jumper cables according to instructions to prevent sparks which could cause explosion.
8. Stop the engine before performing any service on the tractor.
9. Do not modify or alter or permit anyone else to modify or alter this tractor or any of its components or any tractor function without first consulting your SHIBAURA Tractor-Equipment Dealer.

OPERATING THE TRACTOR

10. Apply the parking brake, place the PTO lever in the "N" position, the lift control lever in the down position, and the transmission in neutral before starting the tractor.
11. Do not start the engine or operate controls while standing beside the tractor. Always sit in the tractor seat when starting the engine or operating controls.
12. Do not bypass the safety start switch. Consult your SHIBAURA Tractor-Equipment Dealer if your safety start controls malfunction. Use jumper cables only in recommended manner, improper use can result in tractor runaway.
13. Do not get off the tractor while it is in motion.
14. Shut off the engine and apply the parking brake before getting off the tractor.

15. Do not park the tractor on a steep incline.
16. Do not operate the tractor engine in an enclosed building without adequate ventilation. Exhaust fumes can cause death.
17. If engine ceases operating, stop the tractor immediately.
18. Pull only from the drawbar or the lower link drawbar in the down position. Use only a drawbar pin that locks in place. Pulling from the tractor rear axle or any point above the axle may cause the tractor to upset.
19. If the front end of the tractor tends to rise when heavy implements are attached to the three-point hitch, install front end or front wheel weights. Do not operate the tractor with a light front end.
20. Do not leave equipment in the raised position.
21. Use the SMV signs when traveling on public roads both days and night.
22. Be sure the lights are adjusted to prevent blinding an oncoming vehicle operator.

DRIVING THE TRACTOR

23. Watch where you are going especially at row ends, on roads, around trees and any low hanging obstacle.
24. To avoid upsets drive the tractor with care and at speeds compatible with safety, especially when operating over rough ground, crossing ditches, slopes, and when turning.
25. Lock tractor brake pedals together when transporting on roads to provide two wheels braking.
26. Keep the tractor in the same gear when going downhill as used when going uphill. Do not coast or free wheel down hills.
27. Any towed vehicle whose total weight exceeds that of the towing tractor must be equipped with brakes for safe operation.
28. When the tractor is stuck or tires frozen to the ground, back out to prevent upset.

OPERATING THE PTO

29. When operating PTO driven equipment, shut off the engine and wait until the PTO stops before getting off the tractor and disconnecting the equipment.
30. Do not wear loose clothing when operating the power take-off, or when near rotating equipment.
31. When operating stationary PTO driven equipment, always apply the tractor parking brake and block the rear wheels front and back.
32. To avoid injury, do not clear, adjust, unclog or service PTO driven equipment when the tractor engine is running.
33. Make sure the PTO master shield is installed at all times and always replace the PTO shaft cap when the PTO is not in use.



Whenever you see this symbol it means:

ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!

CONTROLS AND INSTRUMENTS

SEAT, LIGHT, AND ENGINE CONTROLS

TRACTOR SEAT

Your SHIBaura Tractor is equipped with a molded cushion seat. The seat is adjustable to obtain the most comfortable position. It can be moved close to or farther from the steering wheel, by pulling the lever on the left side under the seat, and repositioning the seat as desired, Figure 1. The rear position can be adjusted in 4 stages by every 20 mm (5/8 in.).

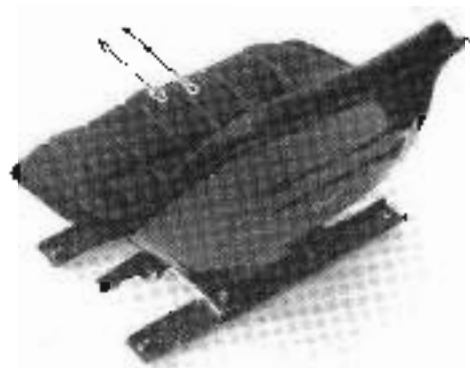


Figure 1 — Tractor Seat

LIGHTING

TURN SIGNAL LAMPS

Your SHIBaura tractor is equipped with turn signal lamps, Figure 2. The switch for the turn signal lamps is located on the left side of the instrument panel.

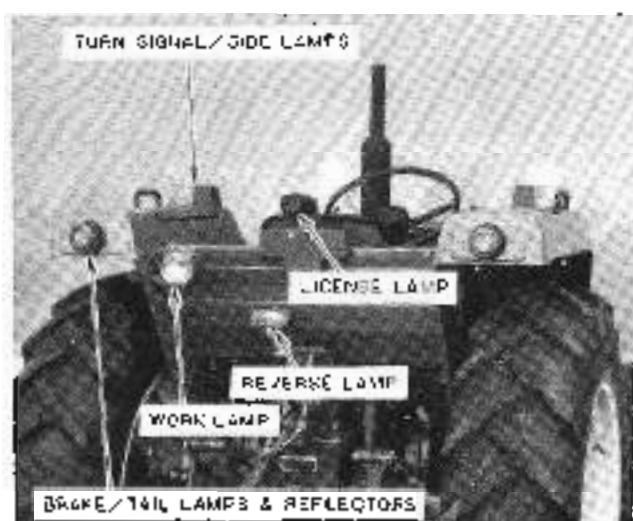


Figure 2 — Turn Signal Lamps

LIGHT SWITCH

The light switch, shown in Figure 3, is a push-pull type switch. Its position are:

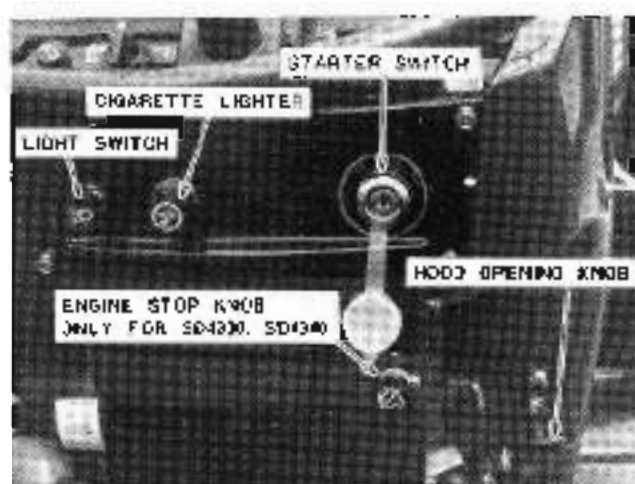


Figure 3 — Light Switch, Cigarette Lighter, Starter Switch, Engine Stop Knob and Hood Opening Knob

Full In off
1st stage Parking Lamps
2nd stage Headlights (High Beam), Side Lamps, License Lamp, Instruments and Tail Lamps
3rd stage Headlights (Low Beam), and refer to the paragraph of the 2nd stage as for others.

INSTRUMENT PANEL

STARTER SWITCH

HEAT The glow plug is heated.

ON Electricity is supplied to the electric circuit.

START The self-starting motor is actuated and the engine starts.

To start, depress the clutch pedal fully and turn the key to the "START" position.

OFF Electricity to the electric circuit is cut off. The key is put in and out at this position. Stop the engine and turn the key to the "OFF" position.

Always check to make certain the transmission main shift lever and PTO lever are in neutral before attempting to start the engine. Refer to page 12 for complete starting instructions.

CONTROLS AND INSTRUMENTS

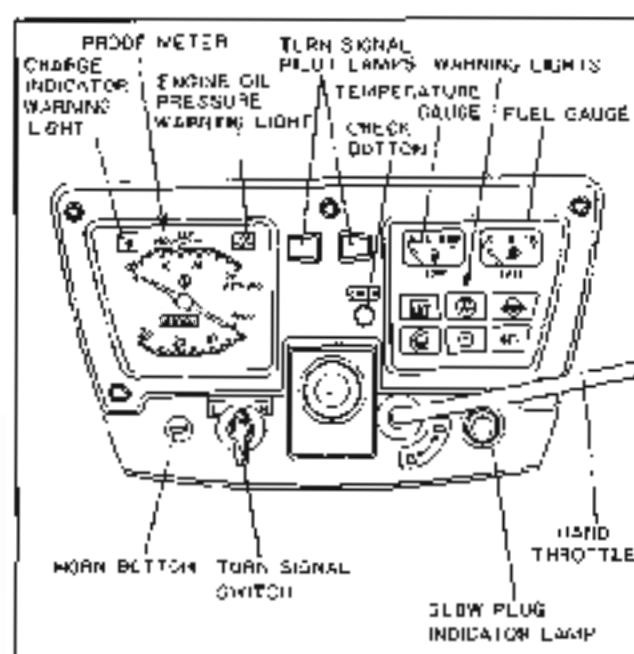


Figure 4 — Instrument Panel

IMPORTANT: The starter switch must remain in the ON position while operating the engine. The warning lights and battery charging system will not function with the switch in the OFF position.

HOOD OPENING KNOB

Pull the hood opening knob is shown in Figure 3, fully rearward to open the hood.

GLOW SIGNAL INDICATOR LAMP & I. Q. S.

1. Turn the key to the "HEAT" position for a moment. Then the glow signal indicator lamp lights and goes out after the combustion chamber is preheated sufficiently (after about 3 seconds).
2. Then turn the key to the "START" position to start the engine.

IMPORTANT: While the engine is still warm, turn the key directly to the "START" position to restart the engine. At this time, the glow signal lamp may light but this does not indicate a trouble.

If the engine is not started, return the key to the "OFF" position and repeat the same procedure after about 30 seconds.

Be sure to keep the key at the "ON" position while the engine is working and at the "OFF" position when it stops.

PROOF-METER

The Proof-Meter is located on the left side of the instrument panel, Figure 4. The Proof-Meter indicates:

- The hours and portions of hours your tractor has operated, based on an average engine speed of 1065 rpm. Engine speeds below 1065 rpm accumulate engine hours at a slower rate than clock hours. Engine speeds above 1065 rpm accumulate engine hours faster than clock hours. Use the Proof-Meter as a guide to determine hourly service and maintenance intervals.
- Use the engine revolutions per minute scale on the upper half of the Proof-Meter when operating PTO driven equipment. Additional information on PTO operation can be found on page 14.
- The scales on the upper half of the Proof Meter indicate ground speeds in kilometers per hour (KPH) for 12th gears. Additional ground speed information can be found on page 47.

FUEL GAUGE

The fuel gauge is shown in Figure 4. The needle in the gauge indicates the amount of fuel in the tank. If the needle is at the "F" marking, the tank is empty.

TEMPERAURE GAUGE

The engine coolant temperature gauge is shown in Figure 4. When the needle is in the middle area, the engine is at its normal operating temperature. The needle at the "H" end indicates an overheated engine.

WARNING LIGHTS

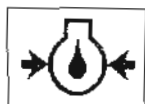
Your SHIBaura tractor is provided with the following warning lamps. If any warning lamp indicates a trouble, investigate the cause as soon as possible.

Push the check button before starting the check. Then 6 warning lamps on the right side light. If not, the bulbs of warning lamps have burnt out. Replace the bulbs with a new one in such a case.



The charge indicator warning lamp lights with the key switch at the "ON" position. It goes out after the engine starts and electricity is charged.

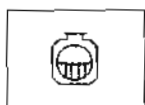
CONTROLS AND INSTRUMENTS



The engine's oil pressure warning lamp lights with the key switch is at the "ON" position. It goes out when the engine starts and the oil starts circulating under a normal pressure.



The battery solution level warning lamp lights when the solution has decreased below the low level line.



Cooling water warning lamp lights when the coolant in the radiator reserve tank decreased below the low level line.



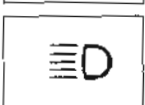
Air cleaner warning lamp indicates the clogged air cleaner element.



Hydraulic system filter lamp indicates the clogged filter element.



Differential locking warning lamp lights while the differential locking clutch is working.



High beam warning lamp lights with the head lamp at the high beam.

IMPORTANT: Check the cooling water of the radiator, battery solution, air cleaner element, etc. actually as well as the monitor lamps.

THROTTLE CONTROLS HAND THROTTLE AND ENGINE STOP CONTROL

SD4300, SD4340

The hand throttle is shown in Figure 4. Pull the throttle down to increase engine rpm. Push the throttle forward to decrease engine rpm. Push the throttle full forward and pull the "Engine Stop Knob" is shown in Figure 3, full rearward to stop the engine.

SD5000T, SD5040T

The hand throttle is shown in Figure 4. Pull the throttle down to increase engine rpm. Push the throttle forward to decrease engine rpm. Push the throttle full forward to stop the engine.

FOOT THROTTLE

The foot throttle, shown in Figure 5, can be used separately, or in conjunction with the hand throttle. With the hand throttle control lever set at a selected engine rpm, the foot

throttle can be used to increase engine rpm to its maximum speed. Upon release of the foot throttle, the engine speed will return to the rpm at which the hand throttle has been set, or idle, if the hand throttle is not at a pre-set position.

BRAKE CONTROLS BRAKE PEDALS

The brake pedals are shown in Figure 5. The right brake pedal is used to brake the right rear wheel. The left pedal is used to brake the left rear wheel. Depress both pedals simultaneously to stop the tractor.

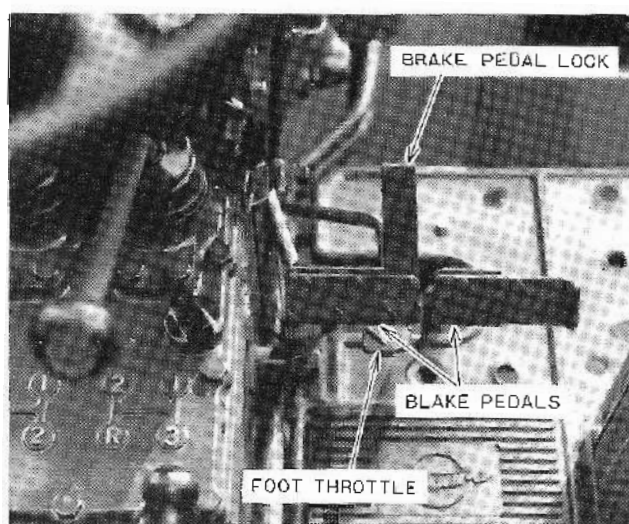


Figure 5 — Foot Throttle and Brake Controls

To assist in making sharp turns at slow speeds, depress the right or left brake pedals as required.



CAUTION: When operating the tractor at high speeds, never attempt to make sharp turns by using the brakes. Sharp turns at high speeds may result in tractor overturn.

BRAKE PEDAL LOCK

The brake pedal lock, shown in Figure 5 is used to secure the brake pedals together. Lock the pedals together whenever the tractor is operated at high speeds and at any time the tractor is used on the highway.

PARKING BRAKE CONTROL

The parking brake control, shown in Figure 6, is used for locking the brake pedals in the applied position. The parking brake should be applied whenever the tractor is parked, Figure 6.

CONTROLS AND INSTRUMENTS

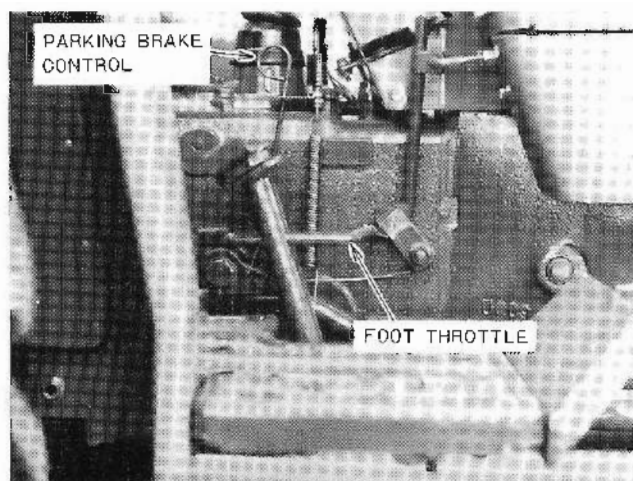


Figure 6 — Parking Brake

To apply the brake:

- Lock the brake pedals together with the brake pedal lock.
- Depress both brake pedals.
- Pull up on the parking brake control. The pawl on the control will engage the teeth on the left-hand brake pedal and will retain the pedals in the applied position.

To release the parking brake:

- Depress the brake pedals to release the pawl.
- Unlock the brake pedals if operating conditions require independent rear wheel braking action.

DIFFERENTIAL CONTROL DIFFERENTIAL LOCK PEDAL

The differential lock pedal is shown in Figure 7. Depressing the pedal locks the rear axle shafts together, providing

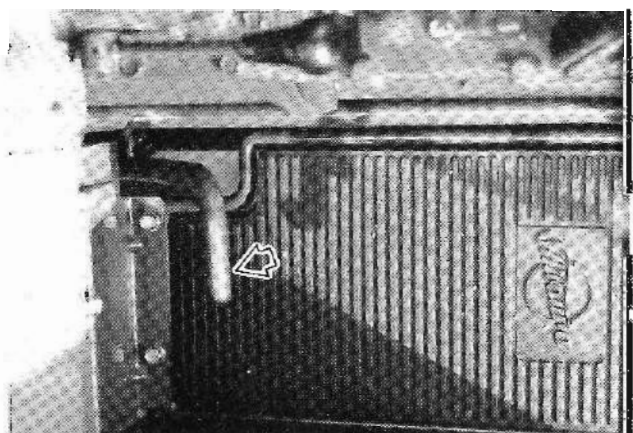


Figure 7 — Differential Lock

additional traction in wet or loose soil. Refer to page 15 for differential lock operating information.



CAUTION: Do not operate the steering wheel with the differential lock engaged to avoid possible danger.

POWER STEERING (FOUR-WHEEL DRIVE SD4340, SD5040T)

The steering is helped by hydraulic power generated with a special power steering oil pressure pump for light steering.



CAUTION: If the engine stops while travelling on a tractor with a power steering, the power system does not work and therefore the steering wheel becomes very heavy.

TRANSMISSION AND PTO CONTROLS

TRANSMISSION GEARSHIFT LEVERS

The transmission main shift lever and range selector lever are shown in Figure 8. A diagram showing the shift pattern is cast into the transmission cover.

Three forward and one reverse speeds are provided for each of the four ranges. This provides a total of 12 forward and 4 reverse speeds.

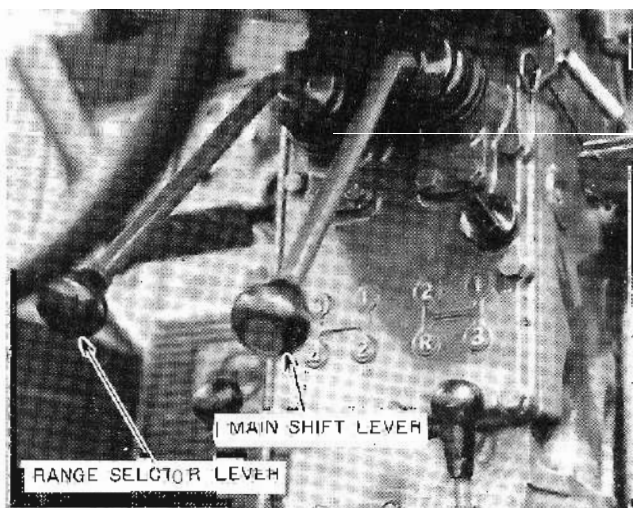


Figure 8 — Transmission Control

CONTROLS AND INSTRUMENTS

CREEPER RANGE

A creeper range with a 7.46 : 1 ratio is available, which provides an additional 12 forward and four reverse speeds or a total of 24 forward and 8 reverse speeds. The control is located on the top left front of the rear-axle center housing, Figure 9.

Full downward movement of the lever engages (ON) the creeper range. Full upward movement disengages (OFF) the creeper range.

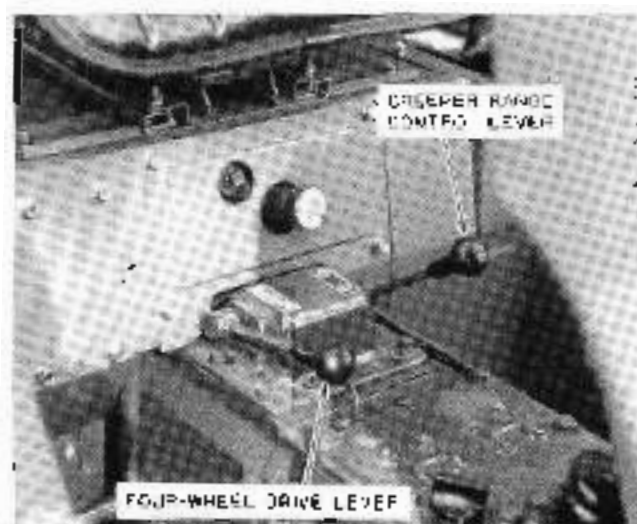


Figure 9 — Creeper Range Control Lever and Four-Wheel Drive Lever

FOUR-WHEEL DRIVE (SD4340, SD5040T)

The shift lever for the four-wheel drive is located on the top right hand front of the rear-axle center housing, Figure 9. Full downward movement of the lever disengages the four-wheel drive (OFF). Full upward movement engages the four-wheel drive (ON).

CLUTCH PEDAL

The foot-operated clutch pedal, Figure 10, must be completely depressed to start (to activate safety start switch), the tractor or to stop forward travel and PTO shaft rotation. Always fully depress the pedal when changing gear ratios, four-wheel drive and creeping range.

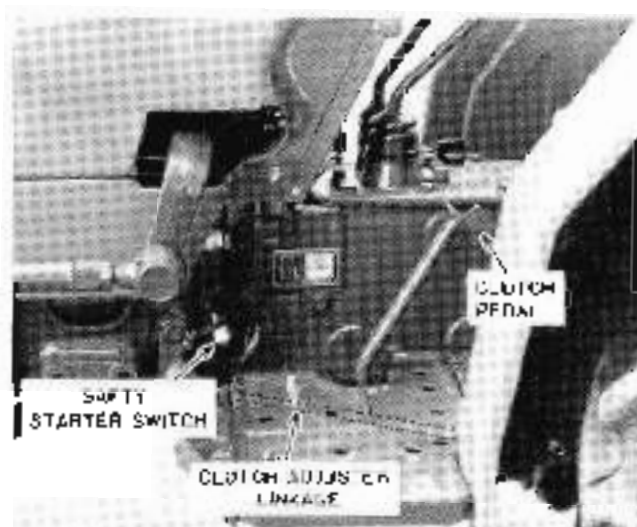


Figure 10 — Clutch Control

DUAL CLUTCH

A dual clutch is available which allows stopping tractor movement while the PTO shaft continues rotation. When the clutch pedal is depressed to position (1), Figure 11; the tractor movement stops while the PTO shaft continues rotation (if the PTO is engaged). If the pedal is depressed completely (2), both tractor and PTO motion stop.

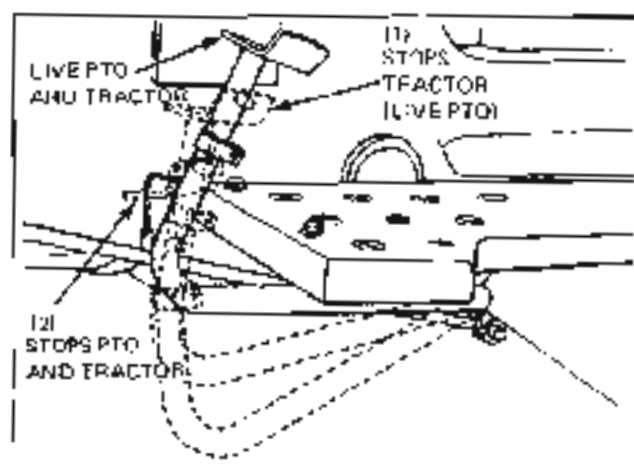


Figure 11 — Dual Clutch

TRANSMISSION PTO GEARSHIFT LEVER

The transmission PTO gearshift lever is shown in Figure 12. A diagram showing the shift pattern for the four PTO speeds appears on the quadrant. If the tractor engine is running, always depress the clutch pedal fully before moving the lever.

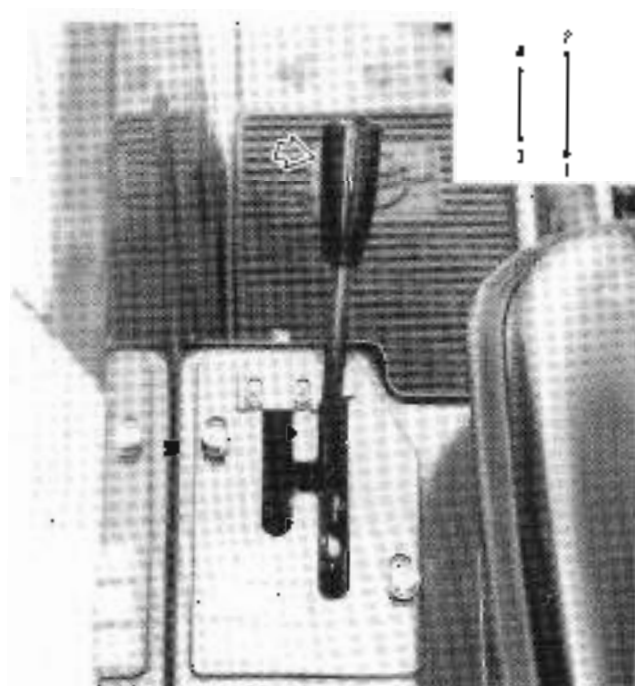


Figure 12 - PTO Control

HYDRAULIC LIFT SYSTEM CONTROLS

HYDRAULIC LIFT CONTROL LEVERS

The hydraulic lift control levers are shown in Figure 13. The levers are located at right hand side of the seat. Outer lever is position control lever, inner lever is draft control lever. Position control lever is used to raise or lower the hydraulic lift arms. To raise the lift arms pull the lever upward. To lower the lift arms, push the lever downward. The adjustable stop is provided for locating the lever at any position in the quadrant. Draft control lever is used to adjust draft load. The lift arms are raised by light draft load when the lever is pulled upward, and by heavy draft load when the lever is pushed down.

FLOW CONTROL VALVE

The flow control valve is shown in Figure 14. Turning the valve "in" (clockwise) will decrease the lowering speed of the lower links, and turning the valve "out" (counterclockwise) will increase the lowering speed of the lower links. Refer to "FLOW CONTROL," page 17, for additional information on operating the flow control valve.

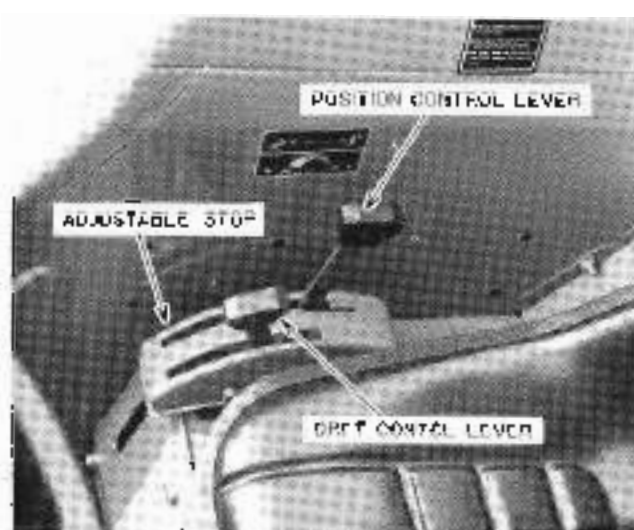


Figure 13 - Hydraulic Lift System Control Draft and Position Control

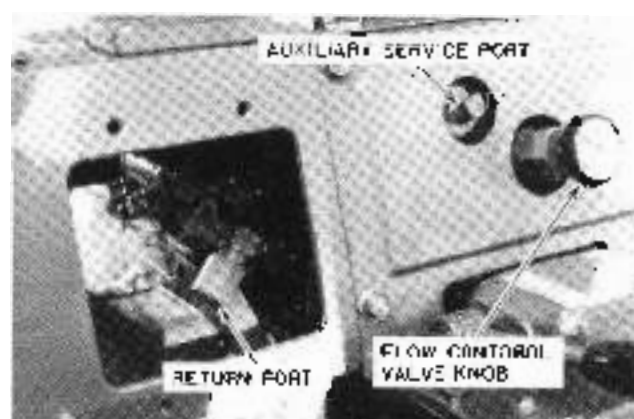


Figure 14 - Hydraulic Flow Control Valve and Auxiliary Service Ports

IMPORTANT: The hydraulic control lever should not be positioned in the notch at the top of the quadrant when raising the tractor hydraulic linkage. The lever should be positioned in the notch only when taking hydraulic oil pressure out of the auxiliary service port for external hydraulic cylinders, motors, etc.

AUXILIARY SERVICE PORT

When using an implement requiring oil pressure such as a dump trailer, etc., use the take-out port of $\frac{3}{8}$ " on the right side of the hydraulic cylinder head. To use another return system such as a hydraulic valve, use the return port of $\frac{3}{8}$ " on the valve cover, Figure 14. For further information on the service ports refer to page 17.

OPERATION

BREAK-IN PROCEDURES

Your SHIBaura Tractor will provide long and dependable service if given proper care during the 50-hour break-in period. During the first 50 hours of operation:

1. Avoid "lugging" the engine. Operating in too high a gear under heavy load may cause engine "lugging." "Lugging" is indicated when the engine will not respond to a throttle increase.
2. Use the lower gear ratio when pulling heavy loads and avoid continuous operation at constant engine speeds. You will save fuel and minimize engine wear by selecting the correct gear ratio for a particular operation. Operating the tractor in low gear with a light load and high engine speed will waste fuel.
3. Avoid prolonged operation at either high or low engine speeds without a load on the engine.
4. Check the instruments frequently and keep the radiator and oil reservoirs filled to their recommended levels. Daily checks include:
 - Engine oil level
 - Radiator coolant

STARTING THE ENGINE

1. Set the main change lever and PTO change lever at the neutral (N) and set the hydraulic lever at the LOWERING position.
2. Pull the throttle lever fully.
3. Turn the key switch momentarily to the preheat (HEAT) position.

The tractor is provided with I. C. S. (SHIBaura Quick Starting System). By turning the key to the "HEAT" position for a moment the glow signal indicator lamp lights and then goes out about 3 seconds later. (Preheating is not required while the engine is warm.)

4. Depress the clutch pedal fully.
5. Turn the key switch to the "START" position, and then the starting motor rotates and the engine starts. Then release the hold of the key and the key returns automatically to "ON" position.
6. Push the throttle lever forward, return the clutch pedal and warm up the engine for 5 to 10 minutes at the idling speed.

SD5000T, SD5040T

Never fail to warm up the engine for 5 to 10 minutes at the idling speed.

(Warming up is not required while the engine is warm.)



Figure 15 — Starter Switch

IMPORTANT: The engine is not started even when the key switch is turned, if the clutch pedal is not stepped fully.

When the pedal is depressed fully, the safety switch is actuated, electricity flows to the starter and the engine is started.

If the engine fails to start, repeat 11 3 to 5 times about 20 minutes later.

While the engine is working, never turn the key to the "START" position.

Be sure to keep the key at the "ON" position while the engine is working and "OFF" when it stops. Or not, it may cause a trouble.

In the cold season, use the cold weather engine oil (for 0°C or below) of SAE 10W30.

STARTING THE TRACTOR WITH JUMPER CABLES

If it is necessary to use jumper cables to start the engine, proceed with the following instructions.

Connect one end of the jumper cable to the tractor battery positive (+) terminal and the other to the auxiliary battery positive (+) terminal. Connect one end of the other cable first to the auxiliary battery negative (-) terminal, and the other end to the battery's ground strap. Follow the starting procedures after the jumper cables are connected.

Idle the engine and turn on all electrical equipment (lights, etc.), then disconnect the cables in reverse order of the connecting procedure above. This will help protect the alternator from damage due to extreme load changes.

NOTE: Reversed battery polarity will damage the voltage regulator and alternator.



CAUTION: Batteries contain sulfuric acid and produce explosive gasses. Follow the instructions below to prevent personal injury.

- Wear eye and skin protection.
- Keep sparks and flame away.
- Always have adequate ventilation while charging or using the battery.
- Follow the battery manufacturer's instructions which are shown on the battery.

STOPPING THE ENGINE

SD4300, SD4340

Push the hand throttle fully forward and pull the "Engine Stop Knob", Figure 3, full rearward to stop the engine, then turn the starter switch, Figure 15, to the "OFF" position.

SD5000T, SD5040T

Push the hand throttle fully forward past idle position to stop the engine, then turn the starter switch, Figure 15, to the "OFF" position.

Never fail to warm the engine at idling speeds for 5 to 10 minutes.

IMPORTANT: Failure to turn the starter switch to the "Off" position after the engine stops will allow the warning lights to remain on, causing the battery to discharge.

OPERATING THE TRANSMISSION, FOUR-WHEEL DRIVE AND PTO

The transmission operates through the use of a clutch pedal, a main shift lever, and a range shift lever. Figure 16 illustrates the pedal and levers involved.

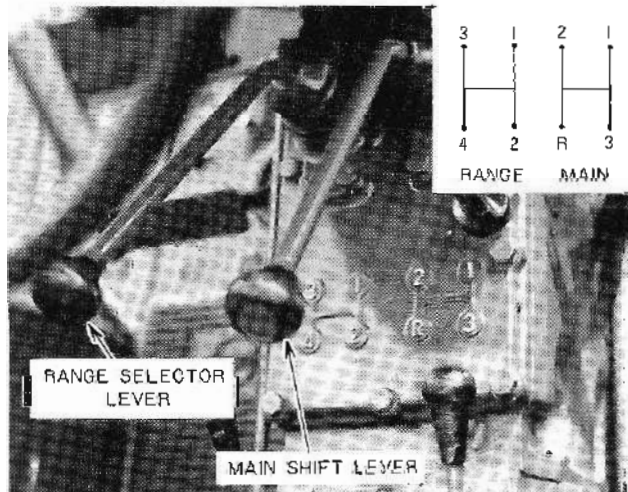


Figure 16 — Transmission Controls and Shift Pattern

Ground speeds for the various gear ratios can be found on page 47. The next table shows the combination of main shift lever and range shift lever positions to obtain the 12 forward and four reverse speeds.

SPEED	RANGE	MAIN
1	1	1
2		2
3		3
4	2	1
5		2
6		3
7	3	1
8		2
9		3
10	4	1
11		2
12		3
R ¹	1	R
R ²	2	R
R ³	3	R
R ⁴	4	R

Speed range combinations

When in motion, always depress the clutch pedal fully and bring the tractor to a complete stop before moving either gearshift lever. Do not attempt to change gears while the tractor is in motion.

NOTE: Avoid using the clutch pedal as a "footrest" (riding the clutch). Prolonged operation in this manner can cause damage to the clutch components.

To change from one gear ratio to another, or to change ranges:

1. Depress the clutch pedal completely.
2. Bring the tractor to a complete stop.
3. Shift to the desired gear and/or range.

The four-wheel drive is engaged and disengaged through the use of the lever on the top right hand front of the rear-axle center housing, Figure 9.

To engage the four-wheel drive, depress the clutch pedal fully and move the four-wheel drive lever full upward. To disengage, move the lever downward.



CAUTION: Do not operate the tractor in four-wheel drive while driving on roads or at high speeds.

OPERATION

IMPORTANT: The front wheel drive should be used only when additional traction is required while operating in loose soil, wet, slippery conditions or on slopes. For normal operation on firm soil, hard surfaces and roading the unit, front wheel drive should be disengaged to maximized tire and driveline life and fuel economy.

POWER TAKE-OFF (PTO)

PTO speeds for the various gear ratios can be found on page 46 which shows PTO control lever positions to obtain the four PTO speeds.

The transmission PTO is controlled through a lever shown in Figure 12. The transmission PTO can be engaged, operated as described following "POWER TAKE-OFF OPERATION."

IMPORTANT: Optional drawbar is required to provide standard PTO drawbar relationship.

PTO SHIELD AND CAP

The PTO shield, shown in Figure 17, is standard equipment. The shield must always be used with both mounted and pull-type PTO equipment.

The PTO cap should always be installed when the PTO is not in use.

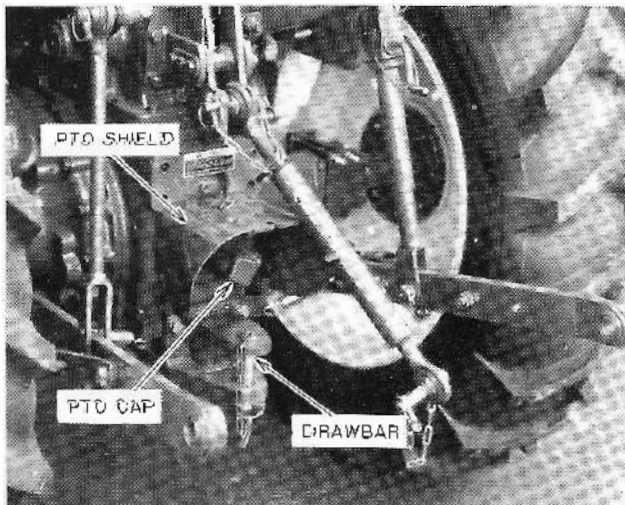


Figure 17 — PTO Shield and Cap

POWER TAKE-OFF OPERATION

1. Stop the engine, set the parking brake, remove the PTO shaft cap, and attach the mounted or pull-type equipment. Make sure the equipment-driven shaft is properly aligned and locked to the tractor PTO drive shaft and that the PTO shield is installed on the tractor.

CAUTION: To reduce the possibility of personal injury and damage to the equipment, comply with the following before attaching or detaching PTO equipment and before working on or clearing PTO equipment.



- Depress the clutch pedal completely and move the transmission mainshaft lever to the neutral (N) position.
 - Set parking brake.
 - Disengage the PTO with the PTO control lever, Figure 12 by the lever to the mid position in the quadrant.
 - Shut off the tractor engine.
 - Wait until the PTO shaft stops turning.
2. With the PTO at the neutral (N) position, start the engine. In the case of mounted equipment, raise and lower the equipment to make sure proper clearances exist.
 3. With the transmission in neutral, depress the clutch pedal completely, then engage the PTO by moving the PTO control lever, Figure 12, to the desired operating range.



CAUTION: Failure to move the PTO lever through its full range may result in damage to the PTO.

4. Check the PTO-driven equipment for proper operation by gradually releasing the clutch pedal and increasing engine rpm.
5. After determining that the equipment is operating properly, depress the clutch pedal and shift to the desired operating gear. Release the pedal gradually to start the PTO and tractor in motion.
6. Disengage the PTO with the PTO control lever when making sharp turns and with mounted equipment in the fully raised position.
7. Disconnect the PTO-driven shaft at the tractor PTO shaft before traveling on highways or for any great distance.
8. Reinstall the PTO shaft cap when the PTO driven

equipment is disconnected from the tractor or when the PTO is not being used.

TOWING THE TRACTOR

To tow your tractor, place the transmission mainshift levers in neutral. Do not exceed 20 km/h. Do not tow your tractor to start it.

If the tractor is to be moved any great distance, use a solid tow bar and pull the tractor at a speed not to exceed 20 km/h.



CAUTION: For safe operation, towing the tractor on the highway is not recommended. Also, for safe operation, never attempt to start the engine by towing.

OPERATING THE DIFFERENTIAL LOCK

The differential lock is engaged by depressing the pedal located on the right side of the rear-axle center housing, Figure 18. Depressing the pedal locks both final drive pinion gear shafts together, preventing one wheel from rotating independently of the other. The lock should be used to obtain additional traction from the opposite wheel whenever one wheel begins to slip wet or loose soil.

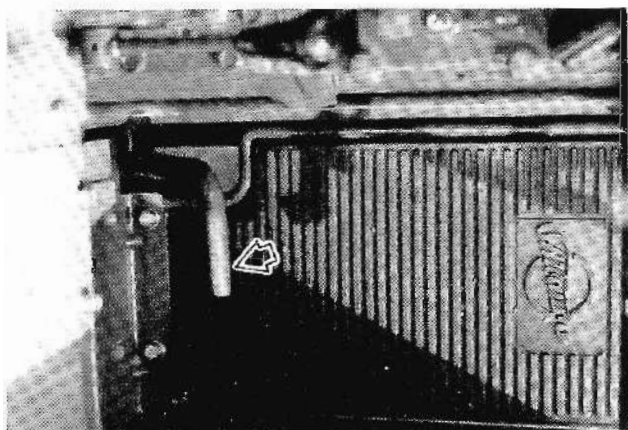


Figure 18 — Differential Lock Pedal

Do not engage the differential lock when driving the tractor on the highway or when ground speed is above 8 km/h.



CAUTION: Do not engage the differential lock when turning the tractor. If the lock is engaged when turning, a loss of steering control will result.

To operate the differential lock, depress and hold down the pedal until the lock is positively engaged. It is best to engage the differential lock while the wheels are turning slowly to minimize shock loads to the drive line. If a wheel spins at high speed, as on ice, reduce engine speed to idle before engaging the lock, or damage may occur. The differential lock is released by releasing the pedal.

NOTE: In some instances the lock may remain engaged after the pedal is released. This may occur when the traction of both rear wheels is not equal the other. Should this happen, the lock may be disengaged by other of two ways.

- Decrease the drawbar pull by raising or disengaging the implement so that neither wheel tends to slip.
- Or —
- Rapidly apply and release a light braking load to the rear wheel that is turning most rapidly.

OPERATING THE HYDRAULIC LIFT SYSTEM

The hydraulic lift system provides accurate, smooth, and instant hydraulic power for raising a variety of compatible equipment whenever the engine is running. The system incorporates both position and draft control to better adapt the tractor to varying types of operating conditions.



CAUTION: Make sure area is clear of people before lowering equipment.

OPERATION

POSITION CONTROL

When operating in position control, there is a definite relationship between the position of the control lever in the quadrant and the position of the equipment. The lever must be moved to change the position of the equipment relative to the tractor. The system will automatically maintain the equipment in the selected position.

Position control provides easy, accurate control of three-point linkage equipment that operates above the ground; such as sprayers, rakes, mowers, etc. It also provides a uniform depth when using a blade or similar equipment on level ground.

IMPORTANT: When working in the position control mode, or when starting the engine, keep the draft control lever pulled down foremost.

DRAFT CONTROL

When operating in draft control, the draft control lever is used to adjust the draft load. Once the lever is positioned, the hydraulic lift system will automatically adjust the depth of the equipment to maintain an even load on the tractor as soil conditions vary. The hydraulic system senses draft-changes through changes in upper link compression. The operation of the upper link draft sensing system is described below:

Upper Link Compression Loads: As the equipment is pulled through the soil, the draft caused by soil resistance tends to rotate the equipment upward around the lower link hitch points. This draft creates a pushing or compressive force on the upper link. When changes in soil resistance cause the draft to increase, the compression force on the upper link will also increase or decrease. These changes in upper link compression signal the hydraulic system, through internal linkage, to raise or lower the equipment, thereby maintaining uniform draft.

Upper Link Tension Loads: When working with long, heavy equipment in light soils or at shallow depths, the soil resistance is not always sufficient to create a compressive force on the upper link. At times the link will be in tension. The hydraulic system will automatically respond to tension as well as compression, thereby controlling working depth, even when using long, heavy equipment.

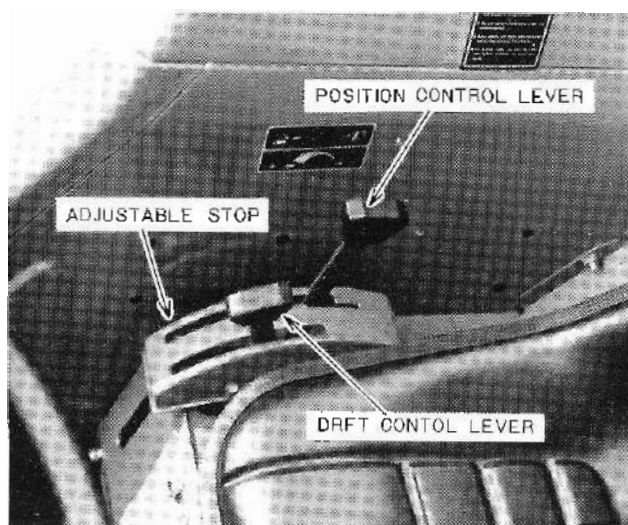


Figure 19 — Hydraulic Lift Control Levers

IMPORTANT: Before starting works, set the draft control lever at the middle position of the lever guide and the position control lever at the lowest position. Move the lever forward if the tilling depth is too shallow and backward if too deep to find the best position.

NOTE: When working in the draft control, the position control lever is pulled down foremost usually. However, if the field conditions vary remarkably (e.g. hard clay and sand areas in the same field), or if the soil is soft and the depth increases gradually during the works, raise the position control lever to set it to a desired depth (set the lowering direction with the adjustable stop). When pushing down the draft control lever foremost, the draft control does not work.

To make a turn while operating in the draft control, raise or lower the implement with the position control lever.



CAUTION: Do not transport or attach equipment when the hydraulic system is in draft control, use position control.

HYDRAULIC LIFT ROCKER

The hydraulic lift rocker, Figure 20, has two holes for attaching the upper link. Attach the link in the lower hole, for light draft loads (cultivating) and in the top hole for heavier draft loads (plowing), as shown.

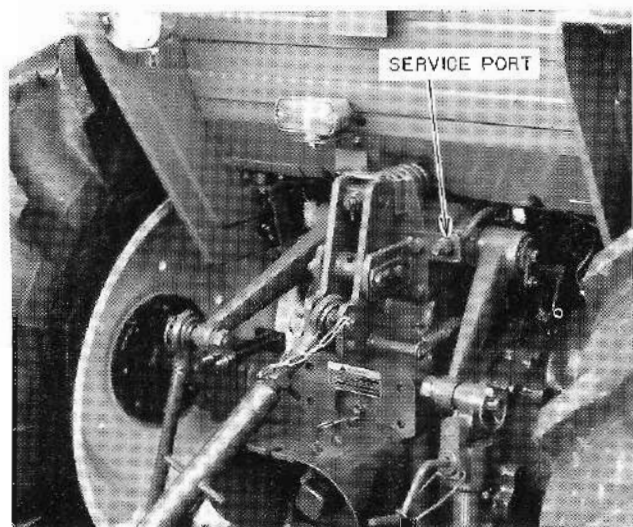


Figure 20 — Hydraulic Lift Rocker

FLOW CONTROL

The flow control valve, Figure 21, provides an adjustment to regulate the flow of oil from the lift cylinder, thus slowing or increasing the rate of drop of the lower links. To adjust the rate of flow, either turn the flow control valve "in" (clockwise) to decrease the rate of drop or "out" (counter-clockwise) to increase the rate of drop.

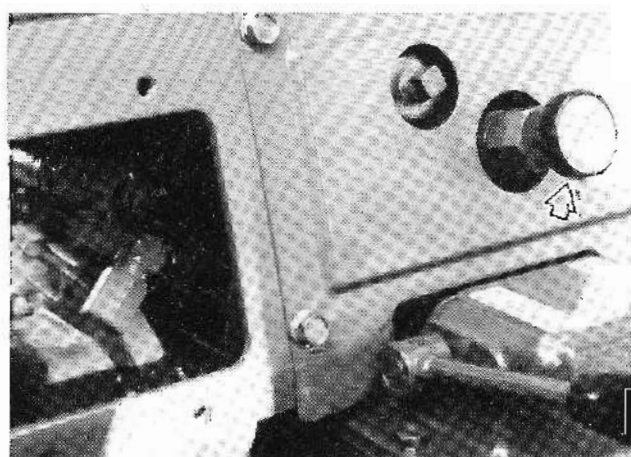


Figure 21 — Flow Control Valve

Operation of Front Loader, etc with the Valve on the Implement Side.

- (1) Set the position control lever at the hydraulic take-out position. (at the notch of the quadrant.)
- (2) Turn the flow control knob clockwise fully to lock the hydraulic system.
- (3) Operate the front loader, etc. with the valve on the implement side.

Operation with the Valve on the Tractor Side

- (1) Turn the flow control knob clockwise fully to lock the hydraulic system.
- (2) Use the position control lever for lifting and lowering an implement and neutral setting.

Lever position:

Lifting: Hydraulic take-out position

Neutral: Uppermost position

Lowering: Lower than the uppermost position



CAUTION: When piping to take out hydraulic, lower the lift arm of the tractor. Be cautious that the lift arm ascends up to the uppermost position when starting the engine after the piping.

ATTACHMENT VALVE (OPTIONAL)

For implements such as a chain trencher which requires lifting and lowering of the 3-point hitch or operation of another hydraulic cylinder, use an attachment valve. For implements such as a dump trailer which is operated with the valve on the tractor side, it is recommended to use the attachment valve for easy operation. Single-acting and double-acting attachment valves are available. Order a proper one depending on the implement.

OPERATION

DRIVING THE TRACTOR



CAUTION: Observe the following precautions when driving the tractor.

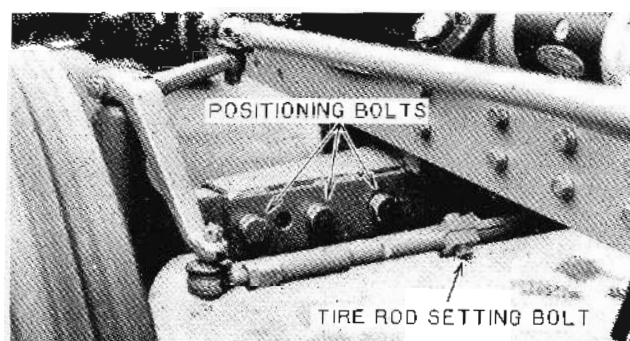
- Watch where you are going — especially at row ends, on roads, and around trees.
- Keep the tractor in gear when going down hill. Use a low gear to maintain control with minimum braking.
- If the tractor is stuck, back out to prevent upsetting the unit.
- Always use the drawbar for pull-type work. Do not pull from any other part of the tractor since it may tip backward.
- Keep the lights adjusted so they do not blind the operator of an oncoming vehicle.
- Engage the clutch slowly when driving out of a ditch, gully, or up a steep hillside. Disengage the clutch promptly should the front wheels rise off the ground.
- Reduce speed before turning quickly or applying brakes. Lock the brake pedals together when traveling at high speeds. Brake both wheels simultaneously when making an emergency stop.
- Never apply the differential lock when turning.
- Use extreme caution and avoid hard applications of the tractor brakes when pulling heavy towed loads at road speeds.
- Towed loads that weigh more than twice the weight of the tractor should have brakes. If not, reduce speed and avoid inclines.
- Always sit in the driver's seat while starting or driving the tractor.

WHEEL TREAD SETTINGS

FRONT WHEEL TREAD SETTINGS (TWO—WHEEL DRIVE ONLY SD4300 AND SD5000T)

The front wheel tread setting is adjustable from 121.5 to 149 cm (47.8 to 58.7 in.) by a combination of repositioning the front axle and reversing the front wheels. See Figure 24. To reposition the front axle.

1. Set parking brake and raise the front of the tractor with a jack placed under the center of the front axle. Set safety stands under each side of tractor frame behind front axle.
2. Loosen the tie rod setting bolt.
3. Remove the positioning bolts. Figure 24, and move the axle sections in or out until the desired setting is obtained, then reinstall the positioning bolts.



WHEEL HUB SETTING POSITION SIDE AXLE POSITION		
	121.5 cm (STD)	132 cm
	130.0 cm	141 cm
	138.5 cm	149 cm

Figure 24 — Front Wheel Tread Settings

4. Position the front wheels in the straight ahead position, then reinstall the tie rod setting bolt.
5. Check the toe-in as outlined on page 41.



CAUTION: Never attempt to widen the tread setting by reversing front wheels on a four-wheel drive system.

NOTE: After changing the front wheel tread setting, the wheel to wheel hub bolts should be torqued to 710-810 kg-cm, side axle adjusting bolts should be torqued to 2450-2750 kg-cm and the tie rod clamp nuts should be torqued to 430-570 kg-cm.

REAR WHEEL TREAD SETTINGS

The rear wheels on the SD4300 and SD5000T are adjustable from 120 to 150 cm (47.2-59.1 in.). Tread width settings are made by changing the position of the rim with respect to the wheel disc, by changing the position of the

wheel disc with respect to the axle, and by interchanging the rear rims from side to side. These various positions are shown in Figure 25.

STANDARD	INTERCHANGE L & R WHEEL	RESET THE RIM AND INTERCHANGE L & R WHEEL
130 cm	140.5 cm	150 cm
RESET THE RIM AND THE DISC	RESET THE RIM AND THE DISC	RESET THE RIM AND THE DISC THEN INTERCHANGE L & R WHEEL
145 cm	155.5 cm	165 cm

Figure 25 - Rear Wheel Tread Settings

NOTE: After changing the rear wheel tread setting, the wheel rim-to-disc nuts should be torqued to 1900-2200 kg/cm and the disc-to-axle bolts should be torqued to 1900-2200 kg/cm.

TRACTOR WEIGHTING

To obtain sufficient traction for maximum performance in heavy draft operations and to counterbalance rear mounted equipment, weight should be added to the tractor in the form of liquid ballast, cast iron weights, as shown in Figure 26 through 28, or a combination of both. Only enough weight should be added to provide good traction and stability.

Adding more weight than is needed results in unnecessary soil compaction and increased rolling resistance and thus higher fuel consumption.

NOTE: When adding weight, adhere to the tire load capacities. Refer to "Tire Pressure" and the "Tire Inflation Versus Permissible Load" table on page 20.

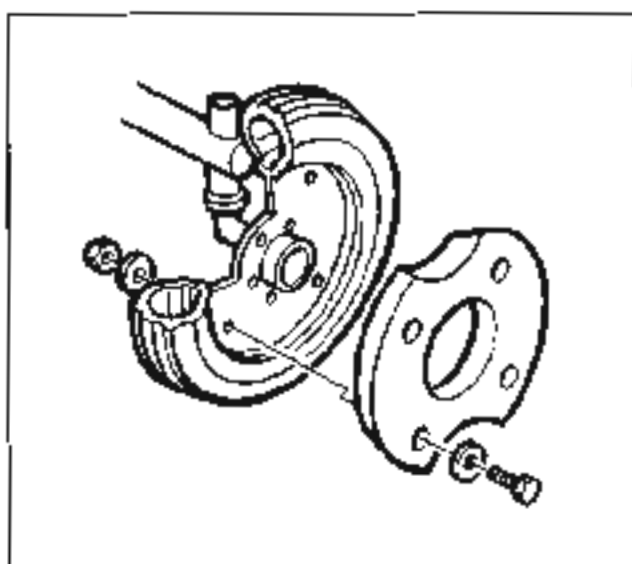


Figure 26 - Front Wheel Weights

WEIGHTING LIMITATIONS

The weighting limitations that follow are limitations only; they do not imply that the tractor should be weighted to obtain the weights shown. Use only enough weight to obtain good performance, and do not exceed the tire load capacities.

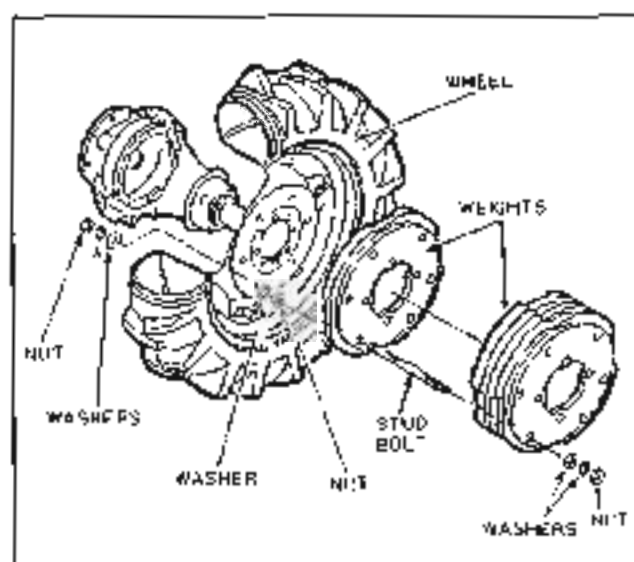


Figure 27 - Rear Wheel Weights

OPERATION

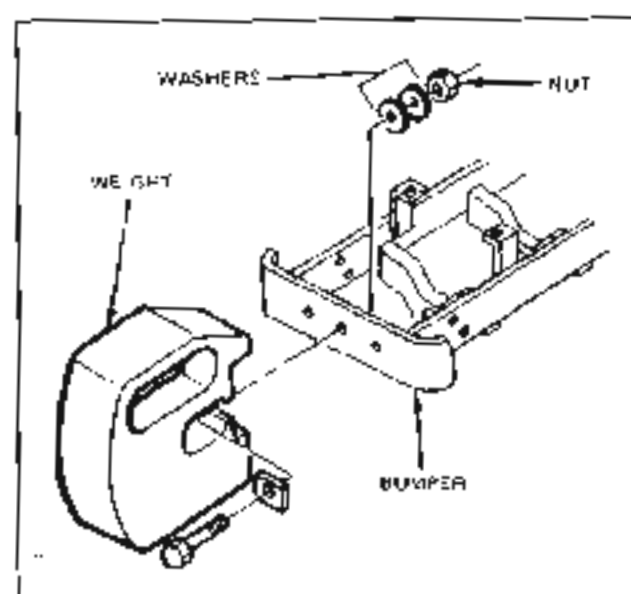


Figure 2B - Front End Weights

TOTAL VEHICLE WEIGHT

Do not add weight exceeding the following:

Front End - 80 kg

Front Wheels - 50 kg (no additional weight on four-wheel drive)

Rear Wheels - 120 kg plus chloride

CAST IRON WEIGHTS (OPTIONAL)

Cast iron weights are a factory installed option or are available as accessories from your IHI-SHIBaura Tractor Dealer. Weights can be mounted on the front wheels, on the front end of the tractor, and on the rear wheels as shown in Figure 2B through 2D.

LIQUID BALLAST

It is a common practice to add weight to the tractor by filling the rear tires with liquid. A calcium chloride (CaCl_2) and water solution is recommended due to its low freezing point and greater density (weight per gallon) than water. Never exceed total recommended weight for the tractor. Because special equipment is required to fill the tires, we recommended that you consult your IHI-SHIBaura Tractor Dealer. Tires should never be filled beyond 75 % (tire filled to the valve stem when the valve stem is at its highest point the top of the wheel.)

TIRE PRESSURE

Tire pressure must be considered when adding weight to the tractor. The following "TIRE INFLATION vs. PERMISSIBLE LOAD" table lists the tire sizes available and shows the maximum load the tires can carry for a given air pressure. Note that the load capacities decrease as inflation pressures decrease, and also that a specific tire pressure is recommended for certain size tires.

TIRE INFLATION vs. PERMISSIBLE LOAD

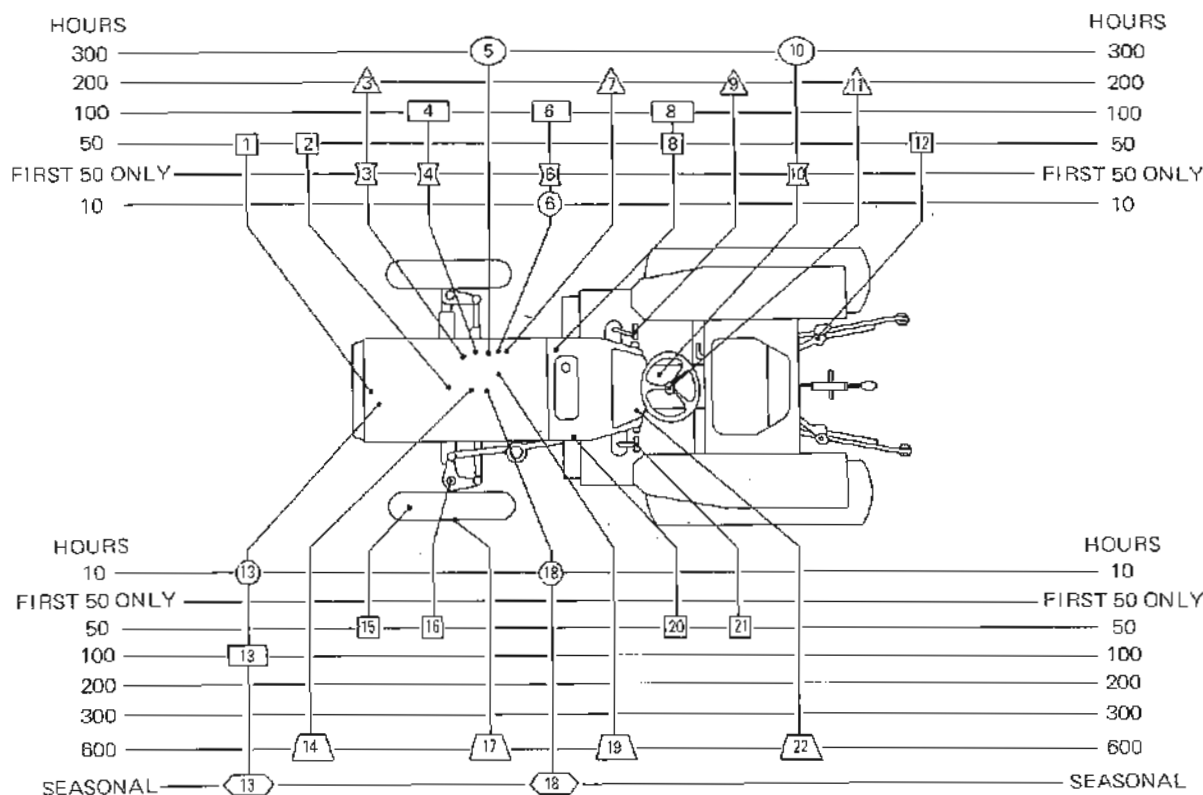
INFLATION PRESSURES - kg/cm ²								
FRONT TIRE SIZE	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2
6.00 x 16 F-2 4PR 8-18 G1 4PR	MAXIMUM PERMISSIBLE LOAD - kg							
	-	-	315	345	370	395	420	445
	300	340	380	415	450	480	-	-
INFLATION PRESSURES - kg/cm ²								
REAR TIRE SIZE	0.8	1.0	1.2	1.4	-			
12.4/11 x 28 R-1 4PR	MAXIMUM PERMISSIBLE LOAD - kg							
	830	945	-	-	-			

NOTE: Do not exceed the maximum load listed. Also, do not under-inflate or over-inflate the tires.

LUBRICATION AND MAINTENANCE

LUBRICATION AND MAINTENANCE CHART—SD4300 SD5000T

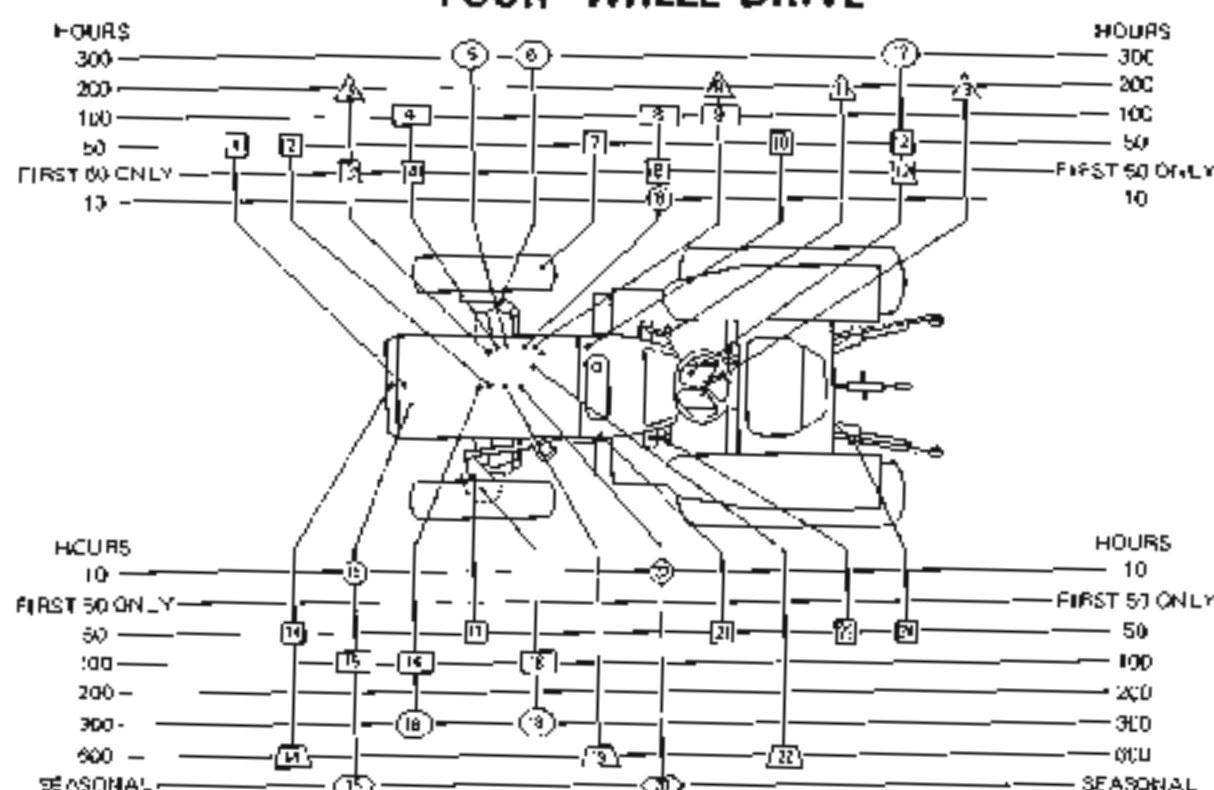
TWO—WHEEL DRIVE



NO.	LUBRICATION AND MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVALS	NO.	LUBRICATION AND MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVALS
6	Engine Oil Level	x					Every 10 Hours or Daily	8	Fuel Filter	x					Every 100 Hours
18	Radiator Coolant	x						6	Engine Oil				x		Every 200 Hours
13	Air Cleaner Dust Pan	x						13	Air Cleaner	x					Every 300 Hours
6	Engine Oil				x		First 50 Hours Only	4	Hyd. Oil Filter	x					
10	Transmission and Rear Axle Oil		x					7	Engine Oil Filter	x			x		Every 200 Hours
4	Hyd. Oil Filter	x						3	Fan Belt				x		
3	Fan Belt					x		9	Brakes				x		
								11	Steering Free Play					x	
10	Transmission and Rear Axle Oil Level	x					Every 50 Hours	5	Injection Pump Oil			x			Every 300 Hours
8	Fuel Filter				DRAIN			10	Transmission and Rear Axle Oil				x		
1	Battery	x						22	Steering Gear Oil	x					Every 600 Hours
15	Tires	x						19	Fuel Injectors	x	x				
21	Clutch Pedal					x		14	Valve Clearance	x					
	Lubrication Fittings:							17	Front Wheel Bearings				x		
20	Steering Linkage				x			18	Radiator Coolant				x		Seasonal
2	Pivot Shaft				x			13	Air Cleaner Element				x		
16	King Pins				x										
12	Hyd. Lift Linkage				x										

LUBRICATION AND MAINTENANCE

LUBRICATION AND MAINTENANCE CHART—SD4340 SD5040T FOUR-WHEEL DRIVE



NO.	LUBRICATION AND MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVALS	NO.	LUBRICATION AND MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVALS
8	Engine Oil Level	x					Every 10 Hours or Daily	13	Fuel Filter	x					Every 100 Hours
20	Radiator Coolant	x						8	Engine Oil	x			x		
16	Air Cleaner Dust Pan	x						15	Air Cleaner	x					
								16	Front Diff Oil	x					
9	Engine Oil				x		First 50 Hours Only	18	Front Final Gear Oil	x					
12	Transmission and Rear Axle Oil				x			4	Hyd. Oil Filter	x					
4	Hyd. Oil Filter	x	x			x									
3	Fan Belt	x				x		9	Engine Oil Filter	x			x		Every 200 Hours
								3	Fan Belt	x				x	
12	Transmission and Rear Axle Oil Level	x						11	Brakes					x	
10	Fuel Filter			DRAIN			Every 50 Hours	13	Steering Free Play					x	
14	Power Steering Oil Level	x						5	Injection Pump Oil			x			Every 300 Hours
1	Battery	x						12	Transmission and Rear Axle Oil				x		
7	Tires	x						16	Front Diff Oil				x		
23	Curb Pedal Lubrication Fittings					x		18	Front Final Gear Oil				x		
21	Steering Linkage					x		6	Front Axle Dust Seals				x		
2	Pivot Shaft					x									
17	King Pins					x		14	Power Steering Oil	x			x		Every 600 Hours
24	Hyd. Lift Linkage					x		22	Fuel Injectors	x					
								19	Valve Clearance	x					
								20	Radiator Coolant				x		Seasonal
								15	Air Cleaner Element				x		

FUEL AND LUBRICANTS

DIESEL FUEL

Type of fuel to use:

When operating in temperature above -6.7°C (20°F), use diesel fuel oil No. 2 (No. 2D) with a minimum cetane rating of 45. When operating in temperatures below -6.7°C (20°F) use diesel fuel oil No. 1 (No. 1D) with a minimum cetane rating of 50.

Fuel represents a major portion of your tractor operating costs; therefore, it is important to use it efficiently. Do not let low price tempt you to use inferior diesel fuel. The initial savings is a false economy when you consider the damage poor fuel can do to your tractor fuel system.

NOTE: Use only fuel designated for diesel engines. Some heating fuels contain harmful chemicals that, if used, can seriously affect tractor efficiency and performance. Refer to the "Engine Oil Recommendations" on page 24 for additional fuel information.

FUEL STORAGE

Extremely small clearances exist between the fuel delivering elements of the fuel injection pump and the fuel delivering elements of the injectors. Therefore, it is of vital importance that precautions be taken to make sure the fuel is kept free of dirt and water. See Figure 33.

Diesel fuel should be stored in black iron tanks or containers. Do not store diesel fuel in a galvanized tank, as the zinc coating will react with the fuel and form undesirable compounds that may interfere with the proper operation of the fuel injection pump and injectors.

The most satisfactory arrangement is a bulk storage installation with either a tank and pump, Figure 34, or a gravity feed installation located high enough for the tractor tank to be filled direct. The tank should slope downward at the rear to allow sediment to settle away from the take-off point. Whenever the tank is refilled, allow the fuel to settle for 12 hours before using. A drain valve should be positioned at the lowest point in the tank so the moisture and sediment can be drained periodically.

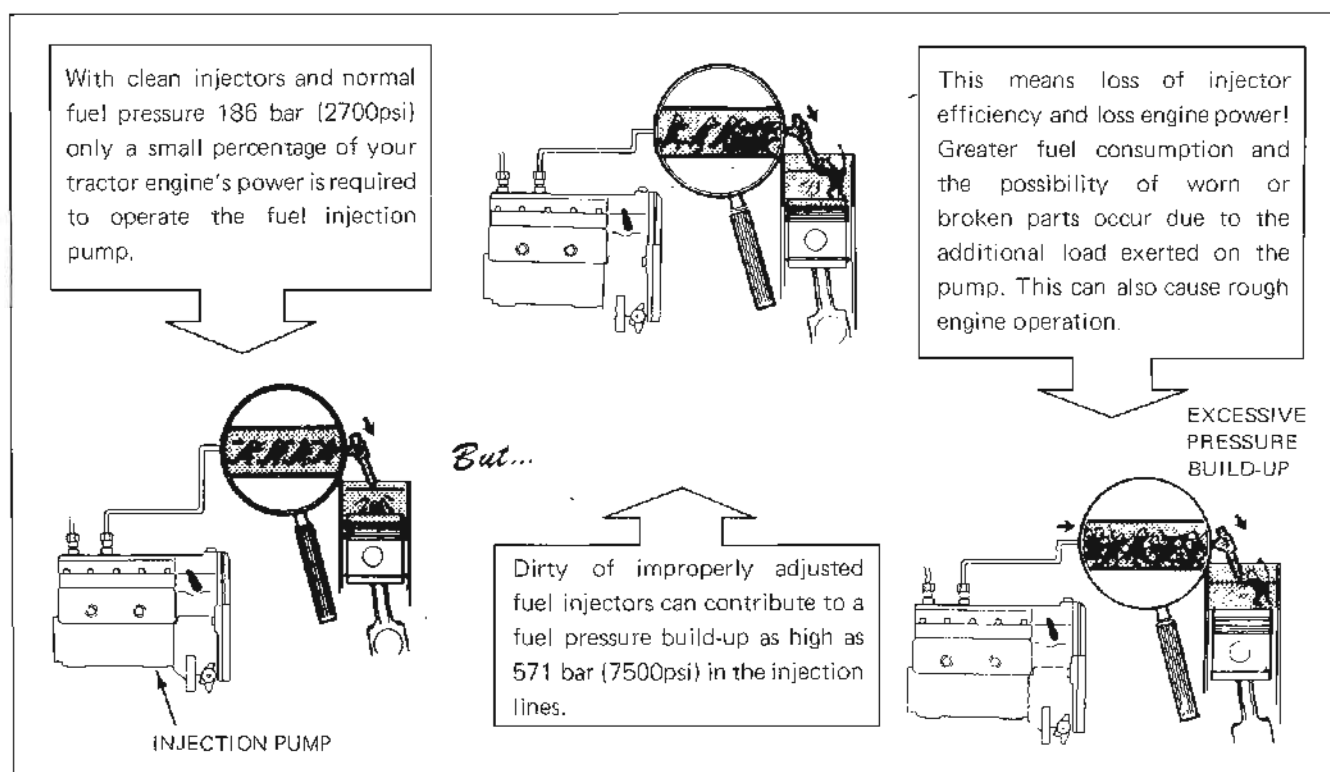


Figure 33 — Dirt vs. Injectors

LUBRICATION AND MAINTENANCE

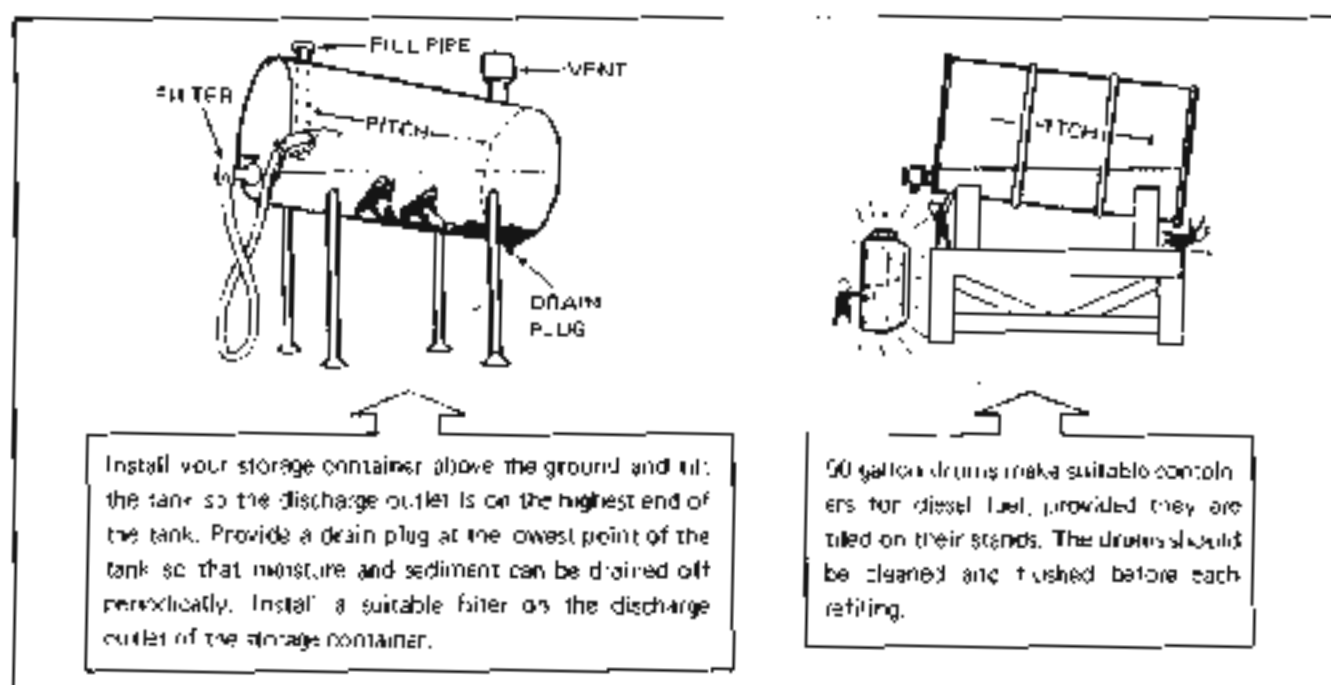


Figure 34 - Diesel Fuel Storage

A fuel outlet filter should be used, as shown in Figure 34. Use the largest tank feasible and keep it as full as possible to minimize condensation.

If bulk storage is not possible and the fuel is stored in barrels, keep them in a clean, dry place. The barrel in use should be fitted with a fuel outlet filter and a drain tap, and should be supported so it slopes downward 1/32 in. per in. length away from the tap.

After use install the cap at the top of the barrel and clean up fuel which may have been spilled. Diesel fuel will not evaporate and thus will collect dust and dirt.

REFUELING THE TRACTOR

If there is no filter on the outlet of the storage tank, filter the fuel through a 100-mesh screen or finer when filling the tractor fuel tank. Keep the tractor tank as full as possible to minimize condensation.

NOTE: It is a good practice to fill the tractor fuel tank with fuel at the end of each day, as this will reduce overnight condensation. Also, any fuel which may have been spilled should be cleaned up.

LUBRICANTS

Type of lubricant to use:

Engine Oil
Service Grade CD
SAE 10W/30, 10W/40 for year around use

or

SAE 10W in severe cold below 0°C (32°F)
SAE 20W for winter use 0°C (32-50°F)
SAE 30W for summer use above 10°C (50°F)

NOTE: When using diesel fuel with a sulfur content below 1.0%, diesel engine oil with an API classification of CC may be used instead of a CD oil, but the oil change interval must be reduced to 50 hours and the filter must be changed every 100 hours. When the sulfur content of a fuel is greater than 1.0% but less than 1.3%, a CD oil must be used (except for temperatures of -2°C, and below) and the oil change interval must be reduced to 50 hours and the filter must be changed every 100 hours. The use of a fuel with a sulfur content above 1.3% is not recommended.

Transmission,
Rear Axle,
Hydraulic System SAE 80
Power Steering Oil Hyd. System Oil ISO VG37-E6
Front Wheel Bearings
and All Lubrication Fittings NLGI No. 2

4YFD17 80

LUBRICANT STORAGE

SHIBAJRA Tractor is equipped with lubricant filters to protect vital points from damage caused by dirt which may enter under normal operating conditions. Precautions must, however, be taken by you to prevent lubricant contamination by dirt or water during storage. Service intervals in this section are based on the assumption that only new oil, of the type specified is used.

Barrels of lubricant should be kept under cover, preferably in a clean, dry place, and should be clearly marked to indicate the lubricant which they contain.

When a barrel is kept in an exposed location, it should be tilted to allow any moisture to run away from the filler cap. Always use a clean container when transferring oil from a barrel to the tractor and make sure that any cap or bung, which has been removed, is installed as soon as possible.

FUEL AND LUBRICANT SERVICE PROCEDURES

ENGINE

Checking Oil Level: Check the engine oil level daily or every 10 hours.

1. With the tractor standing level, and after the engine has been stopped for a period of time, check the oil level with the dipstick. Figure 35.

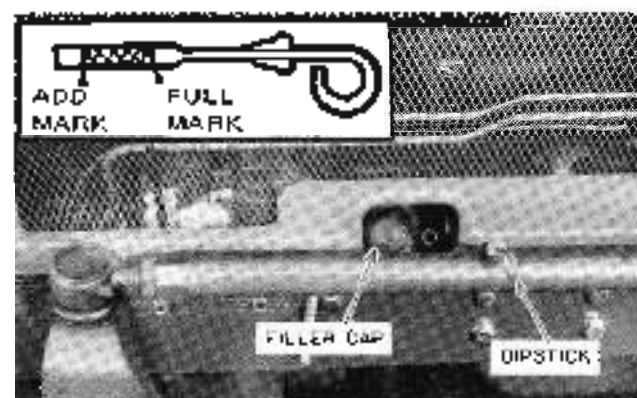


Figure 35 — Engine Oil Level Dipstick and Filler Cap

2. If the oil level is low, remove the filler cap and add oil to the engine through the filler hole to bring the oil level between the marks on the dipstick. Be careful not to overfill.

3. Install the oil filter cap.

Changing Oil and Filter. Change the engine oil every 100 hours and the engine oil filter every 200 hours.

NOTE: More frequent engine oil and filter changes are recommended if the tractor is operated for extended periods of time at maximum rated power and speed. Under such conditions, or other types of continued severe operating conditions, the engine oil should be changed 70 hour intervals and the filter at 140 hour intervals.

1. With the engine off, but at normal operating temperature, drain the engine oil by removing the drain plug. Figure 36. Reinstall the plug after the oil has drained and discard the oil.

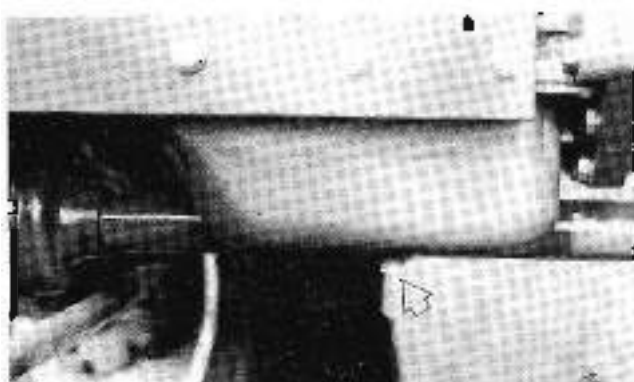


Figure 36 — Engine Oil Drain Plug

2. Unscrew the oil filter. Figure 37, catching the used oil in a suitable container placed below the filter. Discard the filter.
3. Coat the gasket on the new filter with a film of oil. Screw the filter into place until the gasket contacts its mating surface, then turn the filter approximately 3/4 of a turn by hand. Do not over-tighten.
4. Add new oil of the type specified, page 24. Start the engine and check the filter for leaks after adding the oil. Be sure the oil level is at the proper level.

LUBRICATION AND MAINTENANCE

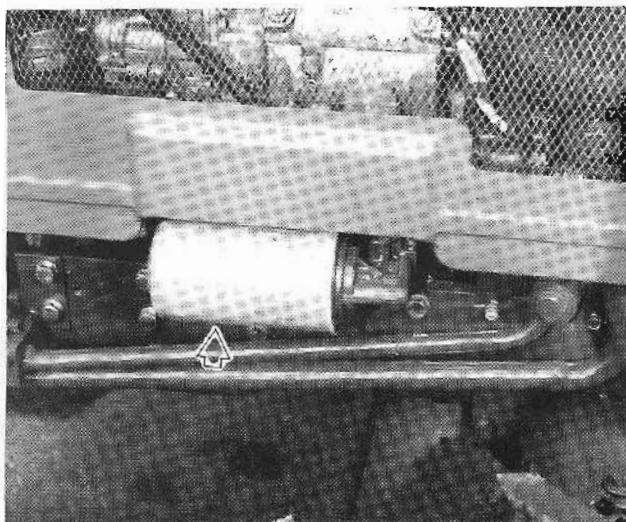


Figure 37 — Engine Oil Filter

THE FUEL INJECTION PUMP

Add oil to the injection pump approximately 280 cc every 300 hours, Figure 38.

Remove the filter plug and add new engine oil as specified on page 24.

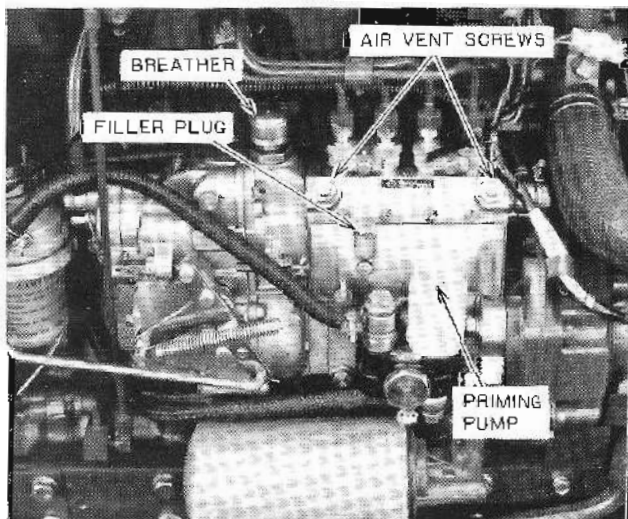


Figure 38 — Fuel Injection Pump

FUEL FILTER

Draining the Filter: Drain the diesel fuel filter when condensation is evident.

Cleaning the Fuel Filter: Clean the fuel filter every 100 hours in a container of clean diesel fuel.

1. Be sure there is adequate fuel in the fuel tank, then remove the fuel sediment bowl, Figure 39.

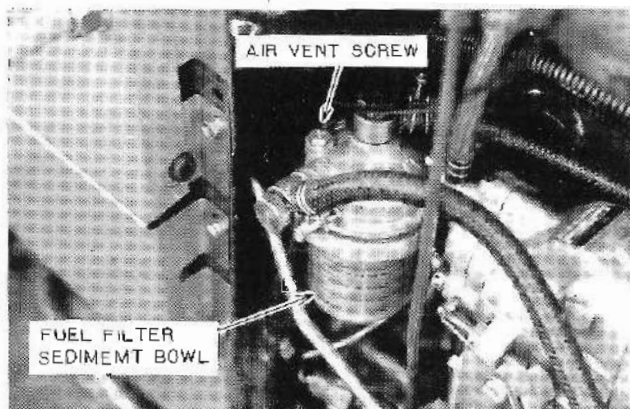


Figure 39 — Fuel Filter

2. Clean the filter element and sediment bowl with diesel fuel to remove water and etc.
3. Install the fuel element and sediment bowl and bleed the system as "Bleeding the Fuel System" on the next page.

Changing the Fuel Filter: Change the diesel fuel filter in extreme dirty conditions.

1. Remove the sediment bowl, Figure 39.
2. Discard the old element and install a new element.
3. Install and securely tighten the sediment bowl.
4. Bleed the fuel filter and injection pump as outlined in the following procedure.

BLEEDING THE FUEL SYSTEM

Bleed the fuel system if:

- it has been drained,
- a new filter element has been installed,
- the tractor has run out of fuel,
- the lines leading to or from the filter have been disconnected,
- the injection pump has been removed and reinstalled.

Bleed the fuel system as follows:

1. Be sure there is adequate fuel in the fuel tank.
2. Loosen the fuel filter air vent screw, Figure 39, on top of the filter. Bleed the filter by actuating the priming pump plunger, Figure 38, until air-free fuel flows from the filter, then tighten the air vent screw.
3. Loosen the injection pump air vent screws, Figure 38, and actuate the priming pump plunger until air-free fuel flows from the screws, then tighten the screws.
4. Pull the hand throttle to the high speed position. Turn the engine over for a few seconds to bleed the high pressure fuel lines.

AIR CLEANER ELEMENT AND DUST PAN

Remove the dust pan and clean the inside to remove sand, dust, etc. Untighten the wing nut and remove the element. Blow the air from the inside of the element or shake it holding by hand to remove dust and other foreign matter. If the element is stained remarkably, immerse it in neutral detergent solution about 15 minutes, shake it several times, rinse in clean water fully and dry in the room temperature completely.

Clean the element every 100 hours and replace every year or after cleaning it 6 times.

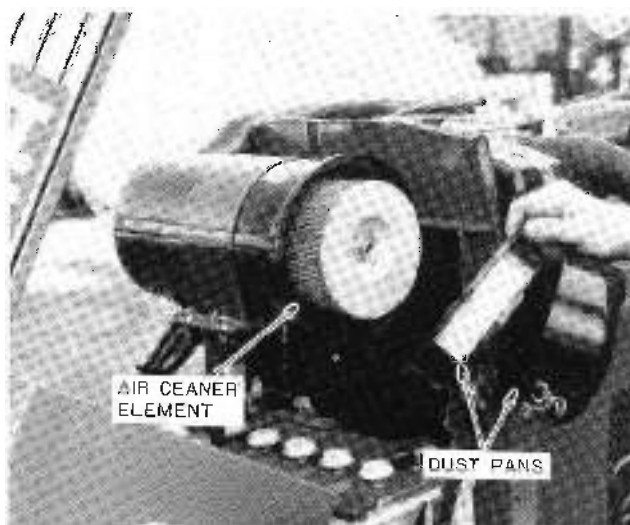


Figure 40 — Air Cleaner

IMPORTANT: Install the dust pan with the TOP mark directed upward. Improper installation allows sand, dust etc. to attach to the element directly without accumulating in the dust pan, reducing the service life of the element remarkably.