CG161 COMPACT GARDEN TRACTOR

OPERATORS INSTRUCTIONS

GB

RANSOMES

Ransomes Way, Ipswich, England, IP3 9QG

Publication No. 24077G (rev.1) (RSJ 001 071997)

TEXTRON
TURF CARE AND SPECIALTY PRODUCTS

PLEASE READ CAREFULLY:

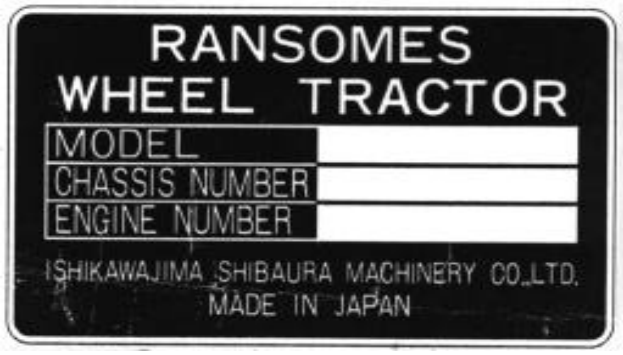
This operator's manual has been prepared to provide the information you need to correctly assemble, operate and maintain your tractor. For maximum satisfaction carefully read and follow the instructions in this manual. Should you ever need repair parts or service contact your RANSOMES TRACTOR DEALER.

Be sure safety precautions are observed. They are for your benefit.

Any references made in this Operator's Manual concerning the right-or left-hand sides are deter-mined by the direction the operator is facing when in the tractor seat.

The replacement of any part on this product by other than the manufacturer's authorised replacement part may adversely affect the performance, durability or safety of this product.

The manufacturer reserves the right to make changes on and to add improvements upon its product at any time without notice or obligation. The manufacturer also reserves the right to discontinue manufacture of any product at its discretion at any time.



A VEHICLE IDENTIFICATION PLATE is located on the left-hand side of the tractor below the engine. 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.

CONTENTS

SAFETY

SAFETY RULES

Please pay particular attention to all boxed-parts in the text which have the sign

This sign warns you to be careful when carrying out certain functions.

DANGER:
Indicates serious injury or death WILL result if instructions are not followed.

WARNING:
indicates a strong possibility that serious injury or death could re suit if instructions are not followed.

CAUTION:
Indicates a possibility that minor injury can result if instructions are not followed.

NOTE: Gives helpful information.

Labels attached to certain parts of the Garden-tractor give important safety information.

Please read them carefully. Should a label detach itself or become illegible, contact your dealer for a replacement.

SAFETY INSTRUCTIONS

TRAINING

1) Read the instructions carefully. Be familiar with the controls and the proper use of the equipment. Learn how to stop the engine quickly.

2) Only use the Garden-tractor for the purpose for which it was made, that is, the cutting and collection of grass. Any use not specifically indicated in the instruction handbook can be dangerous and result in damage to the machine, and will also result in the annulling of the warranty and the manufacturer declining all responsibility.

3) Never allow children or people unfamiliar with these instructions to use the Garden-tractor. Local regulations may restrict the age of the operator.

4) Never use the Garden-tractor:

- When people, especially children, or pets are nearby.
- If the operator has taken medicine or substances that can affect his ability to react and concentrate.

5) Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or their property.

6) Do not carry passengers.

7) The operator of a Garden-tractor must carefully follow the driving instructions, particularly:

- The need for care and concentration when using Garden-tractors;
- That control of a Garden-tractor sliding on a slope will not be regained by the application of the brake.

The main reasons for loss of control are:

- Insufficient wheel grip;
- Being driven too fast;
- Inadequate braking;
- The type of machine is unsuitable for its task;
- Lack of awareness of the effect of ground conditions, especially slopes;
- Incorrect hitching and load distribution.

8) The Garden-tractor is equipped with a series of safety microswitches and devices which must never be removed, altered or tampered with. Removing these devices invalidates the warranty and the manufacture declines any responsibility.

SAFETY

PREPARATION

1) While mowing, always wear substantial footwear and long trousers. Do not operate the equipment when barefoot or wearing open sandals.

2) Thoroughly inspect the area where the equipment is to be used and remove all objects which may be thrown by the machine (stones, sticks, metal wire, bones, etc.)

3) WARNING: - Engine fuel is highly flammable:

- Store fuel in containers specifically designed for this purpose.
- Refuel using a funnel and outdoors only. Do not smoke while refuelling or whenever handling the fuel.
- Add fuel before starting the engine. Never remove the cap of the fuel tank or add fuel while the engine is running or when the engine is hot.
- If fuel is spilled, do not attempt to start the engine but move the machine away from the area of spillage and avoid creating any source of ignition until the fuel has evaporated and the fumes dispersed.
- Tighten caps of all fuel tanks and containers securely.

4) Replace faulty silencers.

5) Before using, always carry out a visual inspection, particularly of the blades, seeing that the screws and cutter assembly are not worn or damaged. Replace worn or damaged blades and screws in sets to preserve balance.

6) Before mowing, attach the discharge opening guards (grass-catcher or deflector).

7) Take care as the rotation of one blade can cause the other blade to turn.

OPERATION

1) Do not operate the engine in a confined space where dangerous carbon monoxide fumes can collect.

2) Mow only in daylight or good artificial light.

3) Avoid operating the equipment in wet grass, where feasible.

4) Before starting the engine, disengage the blades, shift into neutral and engage the parking brake.

5) Do not use on slopes of more than 100(17%).

6) Remember there is no such thing as a “safe” slope.

Travel on grass slopes requires particular care. To guard against overturning:

- Do not stop or start suddenly when going up or downhill;
- Always keep the machine in gear, especially when travelling downhill;
- Machine speeds should be kept low on - slopes and during tight turns;
- Stay alert for humps and hollows and other hidden hazards;
- Never mow across the face of the slope.

7) Stop the blades rotating before crossing surfaces other than grass. When moving the Garden-tractor away from the lawn disengage the blades and put the cutting plate into the highest position.

8) Never operate the Garden-tractor as a Cutter-deck with defective guards, or without safety devices, for example deflectors and/or grass catchers, in place.

9) Do not change the engine governor settings or over speed the engine. Operating the engine at excessive speed can increase the hazard of personal injury.

SAFETY

10) Before leaving the operator's position:

- Disengage the blades and lower the Cutter Deck.
- Charge into neutral and set the parking brake.
- Stop the engine and remove the key.

11) Disengage blades, stop the engine and remove key:

- Before carrying out any work beneath the cutting deck or unclogging the chute;
- Before checking, cleaning or working on Garden-tractor;
- After striking a foreign object. Inspect the Garden-tractor for damage and make repairs before restarting and operating the Garden-tractor;
- If the Garden-tractor starts to vibrate abnormally (immediately check and remove the cause of the vibration)

12) Disengage drive to blades when transporting or not in use. Disengage the blades for them to stop before emptying the grass-catcher.

13) Stop the engine and disengage blades:

- Before refuelling.
- Every time the grass-catcher is removed or replaced.
- Before making height adjustment.

14) Reduce the throttle setting during engine shut down and turn the fuel off at the conclusion of mowing, following the instructions in the handbook.

15) Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times.

16) Use care when pulling loads or using heavy equipment.

- Use only approved drawbar hitch paints.
- Limit loads to those you can safely control.
- Do not turn sharply. Use care when reversing.

1 7) Watch out for traffic when crossing or near roadways.

18) When using any attachments, never direct discharge of material toward bystanders nor allow anyone near the machine while in operation.

MAINTENANCE AND STORAGE

1) Keep all nuts, bolts and screws tight to be sure the equipment is in safe working condition. Regular maintenance is essential for safety and for maintaining performance levels.

2) Never store the equipment with fuel in the tank inside a building where fumes may reach a flame or a spark or a source of extreme heat.

3) Allow the engine to cool before storing in an enclosed space.

4) To reduce the fire hazard, keep the engine, exhaust silencer, battery compartment and fuel storage area free of grass, leaves, or excessive grease. Always empty the grass-catcher and do not leave garden rubbish containers within a room.

5) Check the deflector and grass-catcher frequently for wear and deterioration.

6) For reasons of safety, do not use the equipment with worn or damaged parts. Parts are to be replaced and not repaired. Use genuine spare parts. Parts which are not of an equivalent quality can damage the equipment and be dangerous for your safety.

7) If the fuel tank has to be drained, this should be done outdoors and when the engine is cool.

8) Wear strong work gloves when removing and reassembling the blades.

9) Check the blades' balance after sharpening.

SAFETY

10) Take care as the rotation of one blade can cause the other blade to turn.

11) When the machine is to be parked, stored or left unattended, lower the cutting means.

12) The ignition key must never be left inserted in the machine, or where children or persons not familiar to the machine may reach them. Before any maintenance or repair, remove the ignition key.

CONTROLS AND INSTRUMENTS

SEAT

The seat is adjustable to obtain the most comfortable position

To move the seat fore and aft, move the seat release lever upward and slide the seat fore or aft as desired, Figure 1.

Figure 1 - Tractor Seat

INSTRUMENT PANEL

LIGHT SWITCH

The light switch, shown in Figure 2, is located on the right side of the instrument panel.

KEY START SWITCH

The key start switch is shown in Figure 2.

Turning the key to the left wilt activate the cold-start aid. Turning the key 10 the right to the “ON” position will activate the warning lights. Turning the key further right to the “START” position will start the engine. Upon release, the key will spring return to the “ON” position.

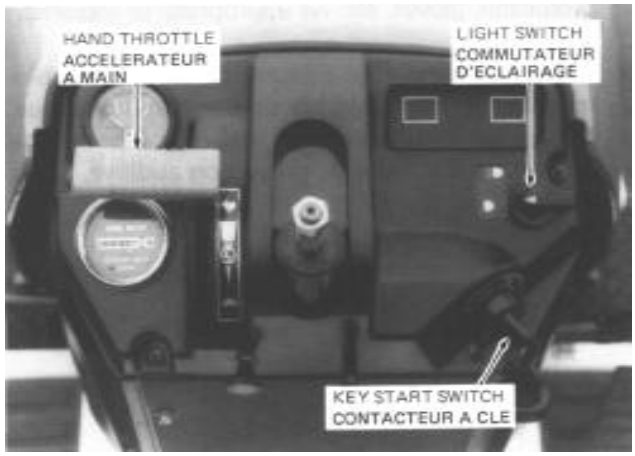


Figure 2 - Instrument Panel

The starting circuit can only be activated when

1. Operator is seated,
2. H.S.T foot pedal is released.
3. P.T.O clutch lever is in the “OFF” position.
4. Brake pedal is depressed or parking brake lever is locked.
   Always check to make certain the range shift lever and lift control lever are in neutral before attempting to start engine. Refer to page 19 for complete starting instructions.

IMPORTANT : The key start 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

WARNING LIGHTS

The light switch, shown in Figure 3 is located on the right side of the instrument panel.

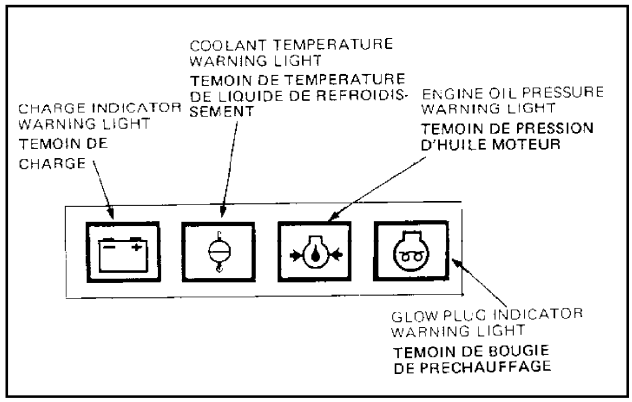


Figure 3-Warning Lights

CONTROLS AND INSTRUMENTS

The engine temperature, oil pressure, glow plug and charge indicator warning lights are located as shown in Figure 3, When the key start switch is turned “ON” the oil pressure and charge lights come on. After the engine has been started, the lights should go out within a few seconds. If they do not go out:

- Engine oil pressure warning light: Stop the engine immediately and investigate the cause. It is important to remember that this light indicates OLI pressure only. The operator must regularly check the crankcase for proper oil level.

- Charge indicator warning light: This is an indication that the charging system is not operating normally. Investigate the cause as soon as possible, otherwise the battery will become fully discharged.

- Coolant temperature warning light: The warning light is not on under normal operating conditions. If the light comes on, stop the engine and investigate. Regularly check the radiator for proper coolant level. Function of the indicator light bulb can be checked by grounding this light at the thermostat.

WARNING: When engine is at operating temperature always relieve pressure in the cooling system before removing the radiator cap.

- Glow plug indicator warning light : This light comes on when turning the key switch to the “HEAT” position or “START” position. Refer to page 19 for ‘starting engine information.

NOTE: Make certain that three warning lights except for the coolant temperature turn on when turning the key switch to the “ON” position. If one of them does not turn on, the bulb should be replaced.

PROOF-METER

The Proof-Meter is located on the left side of the instrument panel, Figure 4. Turn the key start switch to the “ON” to operate proof meter.

FUEL GAUGE

The fuel gauge is located on the left side of the instrument panel, Figure 4.

Figure 4 - Proof Meter, Fuel Gauge and Hand Throttle

HAND THROTTLE CONTROLS

The hand throttle is shown in Figure 2. Push the throttle forward to increase engine rpm Pull the throttle rearward to decrease engine rpm

BRAKE CONTROLS BRAKE PEDAL

Brake pedal is shown in Figure 5.
Speed control lever will be returned to the “RELEASE” position by depressing the brake pedal suddenly, if the speed control lever is in the “SET” position

PARKING BRAKE CONTROL

The parking brake latch, shown in Figure 5, is used for locking the brake pedal in the applied position. The parking brake should be applied whenever the tractor is parked.

CONTROLS AND INSTRUMENTS

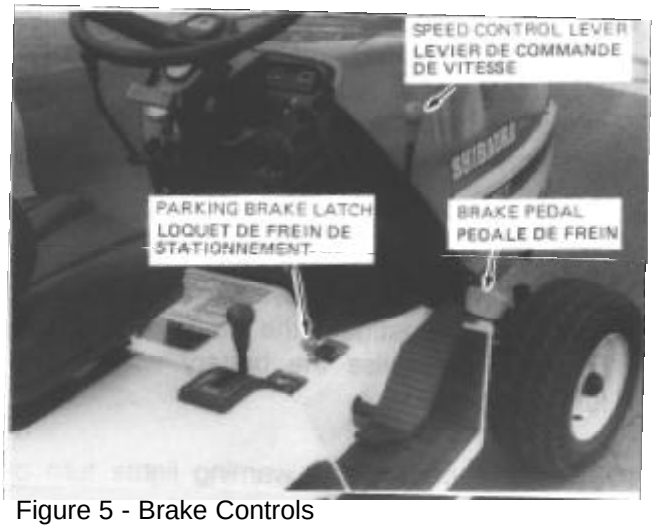


Figure 5 - Brake Controls

To apply the parking brake:

- Pull up the parking brake latch while depressing the brake pedal. The pawl on the control will engage the teeth on the brake pedal and will retain the pedal in the applied position.

To release the parking brake

- Depress the brake pedal to release the pawl.

WARNING: Do not park on an incline. If necessary to park there be sure to chock the wheels to prevent accidental rolling of the machine.

NOTE: The parking brake must be applied to start the engine

H.S.T. CONTROLS & GEARSHIFT

H.S.T.FOOT PEDAL

The ground speed of tractors equipped with the hydrostatic transmission Is continuously variable, from zero to full rated speed in each range. Speed is controlled by the H.S.T. foot pedal on the right side of the transmission, Figure 6. Depress the forward pad on the pedal for forward travel, to the position that provides the desired ground speed. For reverse travel, depress the rear pad on the pedal.

Releasing the pedal returns the transmission to Neutral, and stops the tractor, unless the speed control lever is in the “SET” position.

NOTE: The H.S.T. foot pedal must be in neutral to start the engine

Figure 6 - HST Control

SPEED CONTROL LEVER

The speed control lever, Figure 6, may be used to maintain a constant forward speed when desired. After attaining the desired speed with the forward pedal pad, move the lever to the “SET” position, and the tractor will maintain the set speed even if the pedal is released.

To cancel the speed setting or stop the tractor move the speed control lever to the “RELEASE” position or firmly depress the brake pedal. If a higher or lower set speeds is desired, release and reset the lever.
WARNING: To avoid injury, the lever should not be put in the “SET” position when operating at high speed or when in reverse.

Do not move the speed control lever to the SET position while applying the parking brake.

CONTROLS AND INSTRUMENTS

GEARSHIFT - RANGE SHIFT LEVER

The range shift lever, on the left side of the fender, shown in Figure 7, can be shifted when the H.S. T foot pedal is in the Neutral position, to High range “H”, Low range “L” or Neutral “N”. In “H”, forward speed ranges from zero to 13 kph, and reverse from zero to 6.5 kph. In “L”, forward speed ranges from zero to 6..5 kph, and the reverse range is zero to 3 kph.

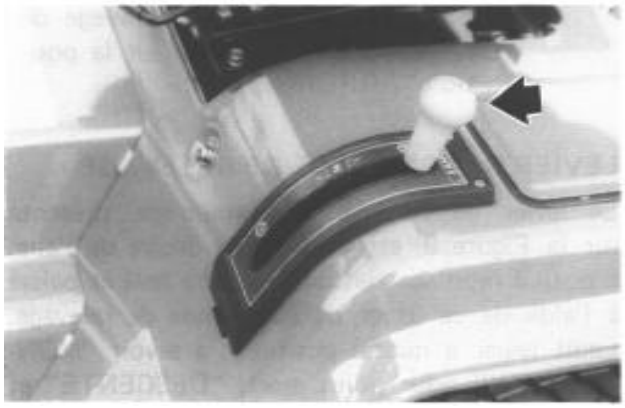


Figure 7 Range Shift Lever

P.T.O. AND HYDRAULIC LIFT CONTROLS

P.T.O. CLUTCH LEVER

P.T.O. clutch lever shown in Figure 8. is used to control power input to equipment.

Figure 8 - P.T. 0 Clutch Lever

Push the P.T.O. clutch lever forward to operate the equipment. Pull the lever rearward to stop the equipment. Mid mounted equipment is driven with V-belts from the engine.

NOTE: The P.T.O. clutch lever must be placed in the “OFF” position to start the engine.

WARNING: To avoid injury when the P.T.O. driven equipment is not used, the P.T.O. clutch lever must be placed in the “OFF” position.

LIFT CONTROL LEVER

The lift control lever is shown in Figure 9, and is located on the right side of the fender. The mid-mounted equipment can be raised and lowered by the lift control lever. Four positions are provided in the lift control lever, i.e. RAISE, LOCK, LOWER, and MOW for mowing operation.

Figure 9 - lift Control Lever

Set the lift control lever in MOW only for mowing operation. The lever will hold at this position. Floating of the mower is obtained in this position permitting the mower to touch the ground lightly during mowing operation. This position transfers maximum weight to the tractor rear wheels for increased traction.

It is necessary to set the lever in MOW after gauge wheels have touched the ground while pushing the lever from LOCK to LOWER. Passing directly from LOCK to MOW may not allow the deck to go down to the cutting height set by the gauge wheels. Be sure to hold the lever in the LOWER position momentarily before going into the MOW position.

CONTROLS AND INSTRUMENTS

NOTE: The lift control lever must be placed in the "LOCK" position to start the engine.

NOTE: The hydraulic oil flows to the power steering system first so that the mid mounted equipment may not raise when operating the power steering, even if the lift control lever has been moved to the RAISE position.

WARNING: To avoid personal injury never operate mower with the lift control lever in raised position. Mower must be lowered completely before operating.

STEERING WHEEL

The steering wheel is adjustable to obtain the most comfortable position

To move the steering wheel fore and aft, push the steering wheel release lever downward and move the steering wheel fore or aft as desired, Figure 10.

Figure 10 - Steering Wheel

OPERATION

BREAK-IN PROCEDURES

Your RANSOMES 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”, which is indicated when the engine will not respond to a throttle increase.

2. Use the lower gear ratios when pulling heavy loads and avoid continuous operation at constant engine speeds. You will save fuel and minimise 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
- Air cleaner
- Belt tension
- Radiator coolant

STARTING THE ENGINE

Neutral start switches on the tractor allow the starting motor to be used only when the H.S.T. foot pedal is released, the P.T.O. clutch lever is in the “OFF” position when the brake pedal is depressed and the operator is in the seat. For safe operation the shift lever and lift control lever should be in “LOCK” position prior to starting the engine.

WARNING: To avoid injury, never attempt to start the engine while standing beside the tractor always sit in the seat when starting the engine.

IMPORTANT: Do not engage the starting motor continuously for more than 10 seconds; doing so may cause starting motor failure.

STARTING

To start the engine:

1. Move the shift lever and lift control lever to the neutral position
2. Move the hand throttle forward to a near full open position.
3. Turn the key start switch to the “HEAT” to preheat the precombustion chambers and wait until the glow plug indicator warning light on the instrument panel goes out. (for 4 seconds approximately)
4. Turn the key start switch to the “START” position, Figure 11. \/\/hen the engine starts, release the key. Check to be sure the warning lights go out.

Figure 11- Key Start Switch

WARNING: To avoid injury, do not use ether with the thermostart starting aid.

NOTE: A coolant immersion heater which provides for easier starting in temperatures below O°F (-1 7-70°C) by warning the engine oil and coolant is available as a dealer installed option.

NOTE: If the engine develops sufficient speed to disengage the starter but does not keep running (a “false start”), the engine rotation must be allowed to come to a complete stop before attempting to restart the engine. If the starter is engaged while the flywheel is rotating, the starter pinion and flywheel ring gear may clash, resulting in damage to the starter.

OPERATION

If the starter does not turn the engine over, shut off starter immediately. Do not make further attempts to start the engine until the condition is corrected.

SAFETY INTERLOCK SWITCHES

Your RANSOMES tractor is equipped with three interlock switches, P T 0 clutch lever, brake and seat. The engine can be started only when the P.T.O. clutch lever is in the “OFF” position and when the brake pedal is depressed. If even one of them is not applied the engine cannot be started. The engine will continue to run without an operator in the seat only if the brake pedal is locked down and P.T.O. clutch is disengaged.

STARTING THE TRACTOR WITH JUMPER CABLES

WARNING: To avoid injury always start engine from the operator’s seat. If safety start switch is bypassed, engine can start with transmission in gear.

If it is necessary to use jumper cables to start the tractor, follow the instructions below;

1 Shield eyes.

2. 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 tractor starter ground terminal. Follow the starting procedures above after the jumper cables are connected as instructed.

Idle the engine and turn on 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.

WARNING: Batteries contain sulphuric acid and produce explosive gases. 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.
- If ice is present or the battery is cracked, DO NOT ATTEMPT TO “JUMP START” vehicle.
- Bring helper vehicle with a battery of the same voltage as disabled machine within easy cable reach “THE VEHICLES MUST NOT TOUCH”.

STOPPING THE ENGINE

Stopping the engine should be done according to the following procedures,

Pull the throttle lever fully rearward.

2. Place the speed control lever in the “RELEASE” position, and release the H.S.T. foot pedal.

3. Set and lock the brake pedal.

4. Place the range shift and lift control levers in the “LOCK” position.

5. Turn the key start switch to the “OFF” position.

6. Remove the key

IMPORTANT: Failure to turn the key start switch to the “OFF” position after the engine stops will allow the warning lights to remain on, causing the battery to discharge.

OPERATION

OPERATING THE HYDROSTATIC TRANSMISSION

HYDROSTATIC TRANSMISSION

The hydrostatic transmission is controlled by the H.S.T.foot pedal, speed control lever, shown in Figure 13. and range shift lever shown in Figure 7.

Figure 13 - HST Controls

When operating the range shift lever, place the H.S. T. foot pedal in neutral position. If it is difficult to engage, slightly depress the foot pedal for smooth engagement.

Never engage or disengage the shift lever when the tractor is in motion.

With the shift lever in “H” range, ground speed can be varied from zero to maximum by depressing the forward or reverse pad on the foot pedal. In L” range, speeds are about 50% of maximum. Maximum speeds in reverse are about a half of maximum forward speeds.

For prolonged operation at a fixed forward speed, use the forward pedal pad to attain the desired speed, then move the speed control lever to the “SET” position. The speed will remain at the set value when the pedal is released. To change the tractor speed, move the speed control lever to the “RELEASE” position, use the foot pedal to attain the desired speed. then move the speed control lever to the “SET” position again.

To stop the tractor, place the speed control lever in the “RELEASE” position without depressing the foot pedal. When the speed control lever is in the “RELEASE” position, release the foot pedal, and it will return to the neutral position automatically, stopping the tractor.
Or to stop the tractor, depress the brake pedal, and the speed control lever returns to the “RELEASE’: position (if in SET position) and the H.S. T. foot pedal returns to the neutral position.

DRIVING THE TRACTOR

WARNING: To prevent personal injury, 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.
- If the tractor is stuck, back out to prevent upsetting the unit.
- Do not pull from any other part than the draw-bar of the tractor since it may tip backward.
- Reduce speed before turning quickly or applying brake.
- Use extreme caution and avoid hard applications of the tractor brake 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 tractor seat while starting or driving the tractor

OPERATION

DRAWBAR

Warning: Pull only from drawbar. Pulling from any other point can cause rear overturn

The maximum drawbar load

Pulling - load: 340 kg
Vertical - load: 140 kg

Towing
Towing this machine, set the gear shift lever to the neutral position. If not, damage to the transmission may result.

Figure 22 - Drawbar

TYRE PRESSURE

Tire pressure must be considered when adding weight to the tractor. The following “TYRE INFLATION vs. PERMISSIBLE LOAD” table lists the tire size available and shows the maximum load the tire can carry for a given air pressure. Note that the load capacities decrease as inflation pressures decrease.

TYRES

Inflation and Service

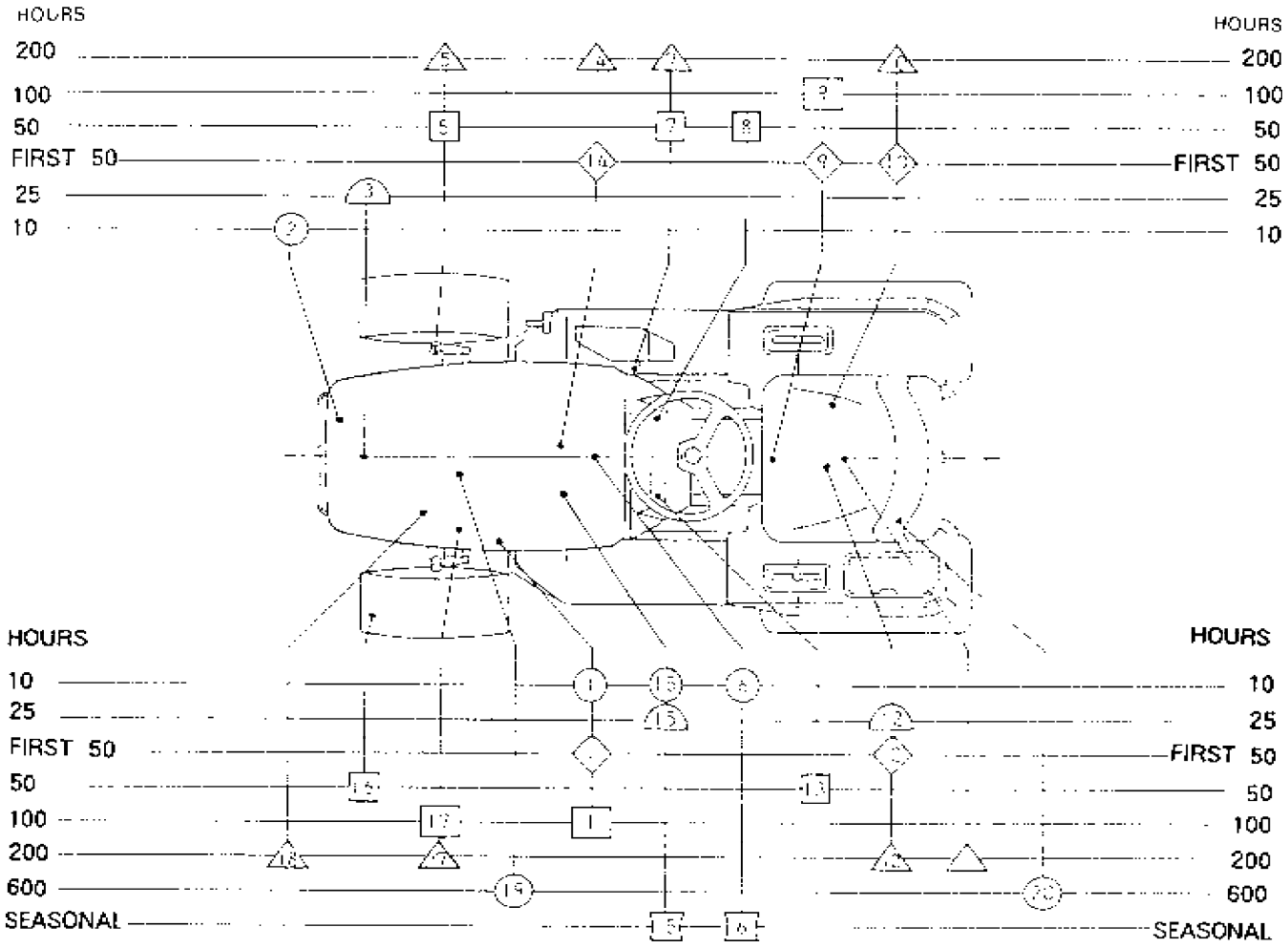
- Upon receiving your tractor, check the air pressure in the tires as indicated in the tables.
- Check the tire pressure every 50 hours, or weekly.
- Tire inflation pressure affects the amount of weight which a tire may carry. Locate the tires for your tractor in the “ TIRE INFLATION vs. PERMISSIBLE LOAD” chart below. Do not over or under inflate the tires.
- Do not Inflate a tire above the manufacturer’s maximum pressure shown on the tire or the maximum pressure shown in the “TIRE INFLATION vs. PERMISSIBLE LOAD” chart, below if the tire is not marked.
- Do not inflate a tire that has been run flat or seriously under-inflated until the tire has been inspected for damage by a qualified person.
- When checking tire pressure, inspect tire for damaged side walls and tread cuts. Neglected damage will lead to early tire failure.

WARNING: Inflating or servicing tires can be dangerous. Trained personnel should be called to service and/or mount tires when possible. In any event to avoid possible serious or fatal injury, follow the safety precautions below.

- Be sure the rim is clean and free of rust.
- Lubricate both tire beads and rim flanges with soap solution. Do not use oil or grease.
- Use a clip-on tire chuck with a remote hose and gauge which allows the operator to stand clear of the tire while inflating it.
- NEVER INFLATE TO OVER 35 psi (241 kpa). TO SEAT BEADS. If beads have not seated by time pressure reaches 35 psi, deflate the assembly, reposition tire on rim, relubricate both tire beads and rim flanges and re-inflate. Inflation beyond 35 psi with unseated beads may break the bead or rim with explosive force sufficient to cause serious injury.
- After seating the beads, adjust inflation pressure to recommended operating pressure.
- Do not inflate a tire unless the rim is mounted on the tractor or is secured so that it will not move if the tire or rim should suddenly fail.
- Do not weld, braze, otherwise repair, or use a damaged rim.
- Never attempt tire repairs on a public road or highway.
- Use jack stands or other suitable blocking to support the tractor while repairing tires.
- Insure jack has adequate capacity to lift your tractor.
- Insure jack is placed on a firm level surface.
- Do not put any part of your body under the tractor or start the engine while the tractor is on the jack.

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

LUBRICATION AND MAINTENANCE



LUBRICATION AND MAINTENANCE

NO	LUBRICATION AND MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVALS
6	Radiator Coolant	X					Every 10 Hours or Daily
1	Engine Oil Level	X					
15	Air Cleaner	X					
2	Belt Tension	X					
12	Transmission and Rear Axle Oil	X					Every 10 Hours or Daily
3	Battery	X					
15	Air Cleaner Element		X				
9	HST Line Filter				X		Hours
10	HST Suction Filter				X		
12	Transmission and Rear Axle Oil				X		
1	Engine Oil				X		
14	Fan Belt	X				X	
17	Fuel Filter	DRAIN					50 Hours
16	Tyres	X					
7	Brake Pedal	X		X		X	
	Lubrication Fittings						
7	Pedal Shaft			X			
8	Speed Control Lever			X			

NO	LUBRICATION AND MAINTENANCE ITEMS	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVALS
	Lubrication Fittings						Every 50 Hours
13	PTO Clutch Lever			X			
2	Belt Tension Pulley			X			
5	Steering Linkage			X			
17	Fuel Filter		X				Every 100 Hours
1	Engine Oil				X		
9	HST Line Filter				X		
17	Fuel Filter Element				X		Every 200 Hours
14	Fan Belt	X				X	
18	Engine Oil Filter				X		
11	Brake					X	
10	HST Suction Filter				X		
12	Transmission and Rear Axle Oil				X		
19	Fuel Injectors	X					Every 600 Hours
20	Fuel Pre-Filter				X		
6	Radiator Coolants				X		Seasonal
15	Air Cleaner Element				X		

LUBRICATION AND MAINTENANCE

FUEL AND LUBRICANTS

FUEL (DIESEL
Type of fuel to use
When operating in temperatures above 20~F (-6.7C), use diesel fuel oil No.2-D with a minimum cetane rating of 40. When operating in temperatures below 20F (-6.7C), use diesel fuel oil No. 1 -D with a minimum cetane rating of
40. Low ambient temperatures as well as engine operation or high altitudes may require use of fuels with higher cetane ratings.
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.

FUEL USAGE SAFETY

Fuel is becoming very expensive and scarce. As a result, many of our customers are trying new fuels or blends to reduce costs and conserve energy. Today's new fuels or blends are frequently more volatile and there is a need to handle them carefully. Furthermore, some of the blends are dangerous and should not be used at all.

The following new or blended fuels are becoming available or are sometimes recommended by certain sources. Our recommendations are as follows:

Diesel oil

Under no circumstances should gasoline, alcohol or gasohol be added to diesel fuel. These combinations can create an increased fire hazard and under certain circumstances an explosive hazard. They are more dangerous (explosive) than pure gasoline in a closed container such as fuel tank. Do Not Use These Blends.

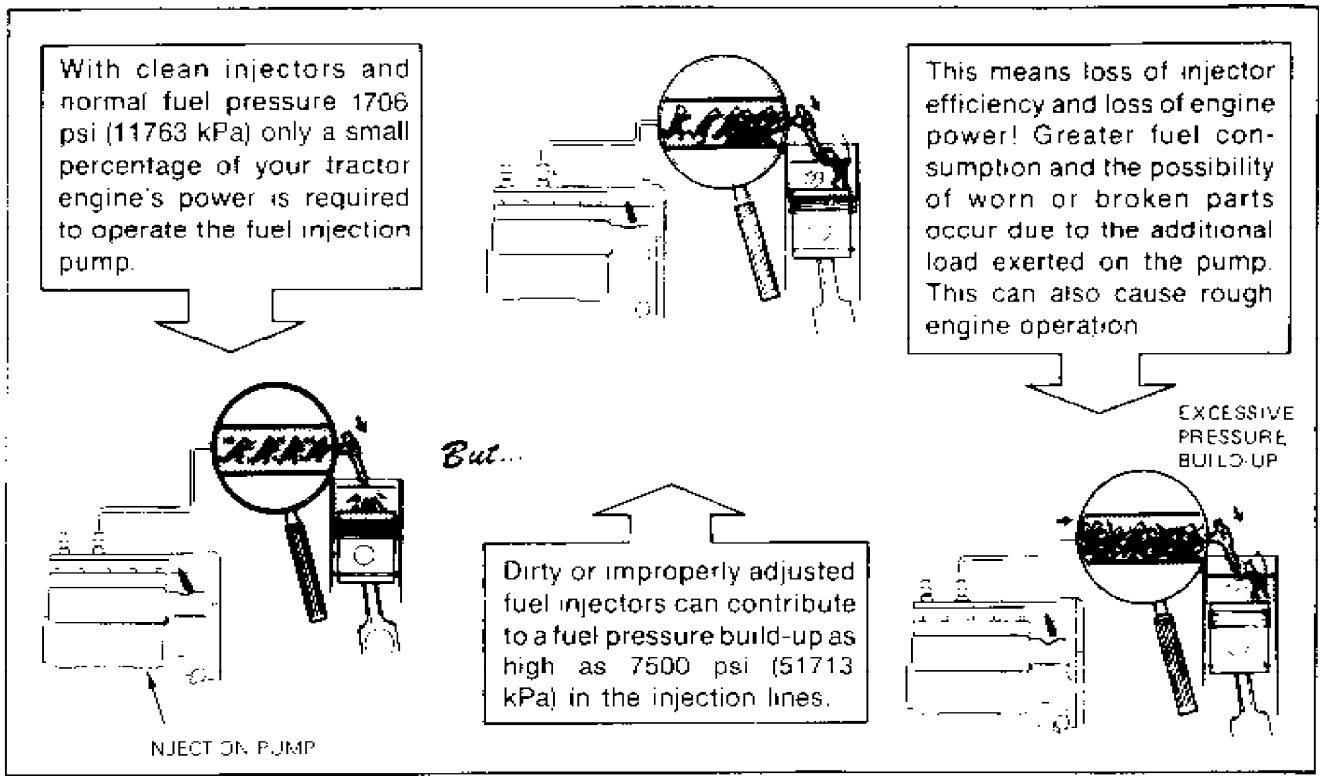
WARNING: Fuel oil in the injection system is under high pressure and can penetrate the skin. Unqualified persons should not remove or attempt to adjust a pump injector, nozzle or any part of the fuel injection system.
Failure to follow these instructions can result in serious injury.
DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.
If any fluid is injected into the skin, obtain medical attention immediately or gangrene may result.

WARNING

- Never remove the fuel cap or refuel the tractor when the engine is running or is hot.
- Don't smoke while refuelling or while anywhere near fuel.
- When filling the tank, maintain control of the nozzle.
- Don't fill the fuel tank to capacity "allow room for expansion.
- Wipe up spills immediately.
- Always tighten the fuel tank cap securely
- If the original equipment fuel tank cap is lost, always replace it with an approved cap. A will-fit cap may not be safe.
- Keep equipment properly maintained.
- Keep equipment clean - free of trash and oil.
- Don't drive equipment near open fires.
- Never use gasoline for cleaning parts.

LUBRICANTS

LUBRICATION AND MAINTENANCE

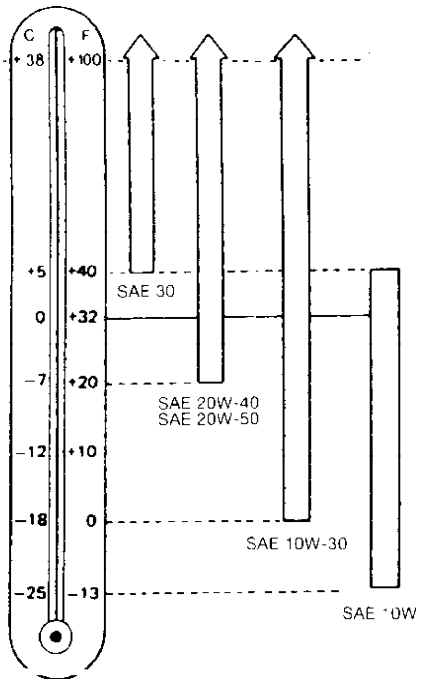


LUBRICATION AND MAINTENANCE

Type of lubricant to use;
Transmission, Rear Axle, Final Reduction, Hydraulic System Oil - ISO VG46 - 56

Engine Crankcase - Service Grade SF/CD

Lubrication Fittings - NLGI GRADE 2 EP GREASE WITH LITHIUM SOAP



NOTE: SHIBAURA Tractor engine oil is a super premium, heavy-duty engine oil compounded specifically to meet the rigid requirements of RANSOMES Tractor engines. SHIBAURA engine oil exceeds both SF and CD requirements. It is available from your RANSOMES Dealer. Use the above chart to determine which SAE Grade engine oil to use;
In areas where prolonged periods of extreme temperatures are encountered, local lubricant practices are acceptable, such as the use of SAE 5W in extremely cold temperatures or the use of SAE 40 or SAE 50 in extremely high temperatures.

Consult your dealer for details of Engine Crankcase Oil usage.

LUBRICANT STORAGE

Your RANSOMES 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.

OPENING HOOD

Turn the nut to open position by tool, and open the Hood. Figure 1 4.

WARNING
To avoid personal injury from contact with moving parts;

- Never open the hood while the engine is running.
- Do not touch muffler or exhaust pipes while they are hot; severe burns could result.

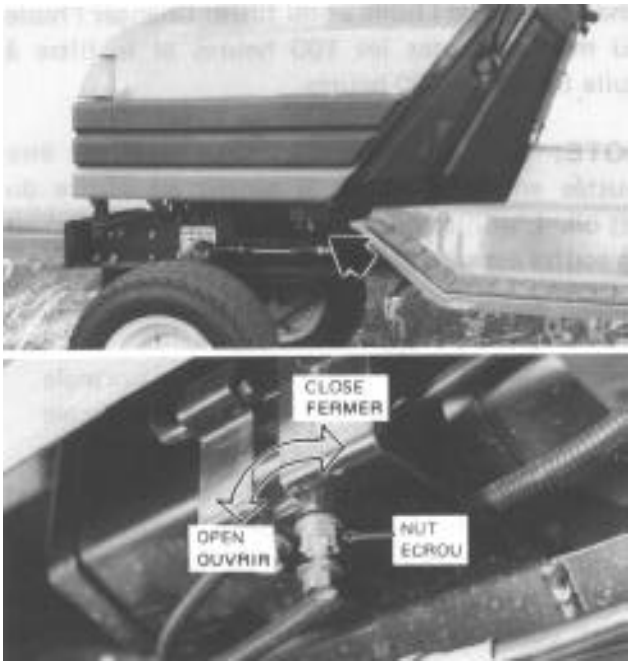


Figure 14 - Opening Hood

LUBRICATION AND MAINTENANCE

IMPORTANT
After lubrication and maintenance before operating. must close and lock the hood

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 15.

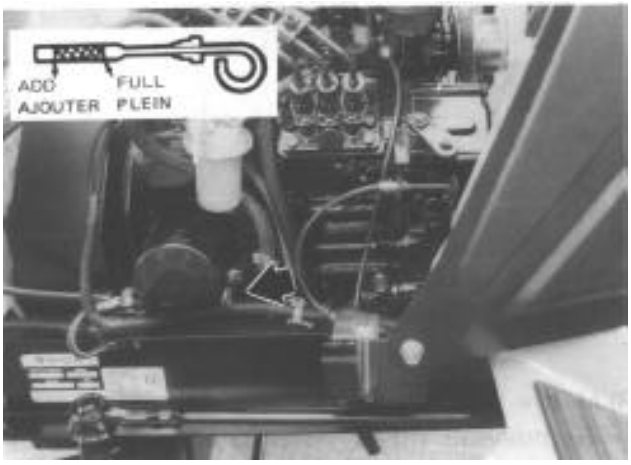


Figure 15 Engine Oil Level Dipstick

2. If the oil level is low, remove the filler cap, Figure 16, 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 over-fill.

3. Install the oil filler cap.

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

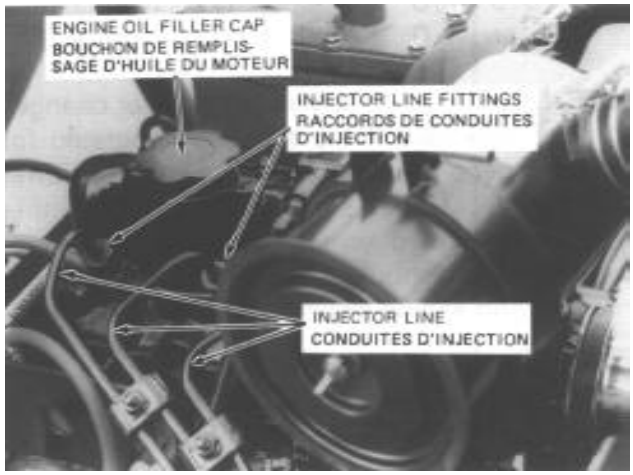


Figure 16 - Engine Oil Filler Cap

Figure 17 Engine Oil Drain Plug

NOTE: Oil intervals should be adjusted according to sulphur content of diesel fuel. The use of fuel with a sulphur content over 1 ‘3% 5 not recommended.

Sulphur Content %	**Oil Change Interval**
Below 0.5	Normal
0.5-1.0	1/2 Normal
Over 1.0	1/4 Normal

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 at 70 hour intervals and engine oil filter at 40 hour intervals.

1. With the engine off, but at normal operating temperature, drain the engine oil by removing the drain plug, Figure 17. Reinstall the plug after the oil has drained and discard the oil.

2. Unscrew the oil filter, Figure 18, catching the used oil in a suitable container placed below the filter. Discard the filter.

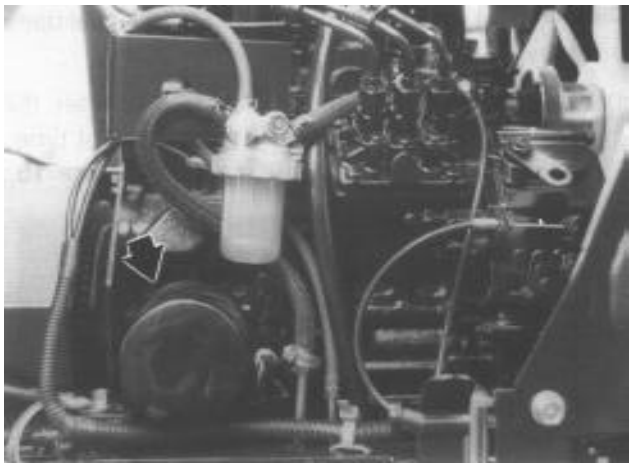


Figure 18 - Engine Oil Filter

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 overtighten.

4. Add new oil of the type specified, page 35. Start the engine and check the filter for leaks after adding the oil. Be sure the oil is at the proper level.

FUEL FILTER

Draining the Filter: Drain the diesel fuel filter when water is visible in the sediment bowl.

Cleaning the Fuel Filter: Clean the fuel filter every100 hours by rinsing in a container of clean diesel fuel.

1. Be sure there is adequate fuel in the fuel tank, close the fuel shut-off valve, then remove the fuel sediment bowl, Figure 23.

2. Install the fuel sediment bowl and bleed the system as outlined under “BLEEDING THE FUEL SYSTEM.”

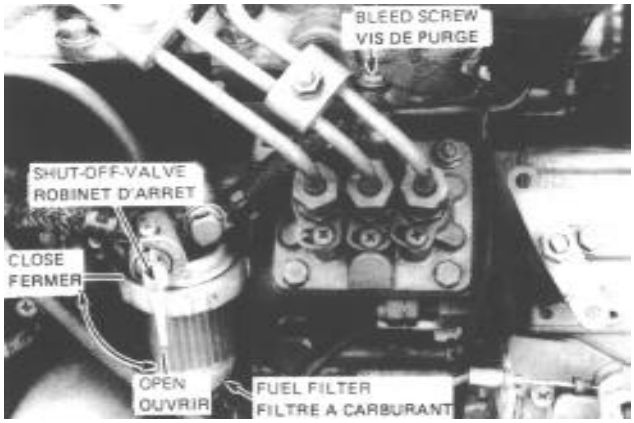


Figure 23 - Fuel Filter and Fuel Injection Pump

Changing the Fuel Filter: Change the diesel fuel filter every 200 hours.

1. Close the shut-off valve, Figure 23.

2. Remove the sediment bowl, Figure 23.

3. Discard the old element and install a new element.

4. Install and securely tighten the sediment bowl.

5. Bleed the fuel filter and injection pump as covered under “BLEEDING THE FUEL SYSTEM.”

Changing the fuel pre-filter; change the diesel fuel pre-filter every 600 hours.

1. Empty the fuel tank.

2. Remove the fuel pre-filter, Figure 24.

3. Discard the old pre-filter and install a new one.

4. Bleed the pre-filter as covered under “BLEEDING THE FUEL SYSTEM”

LUBRICATION AND MAINTENANCE

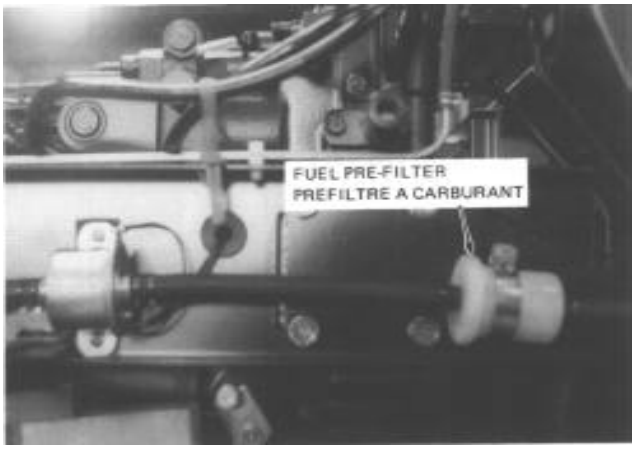


Figure 24 - Fuel pre-filter

Draining Fuel

1. Place the tractor standing level and keeping away from fire.

2. Provide a suitable pan to catch fuel under the fuel pump located at the rear left hand side of the tractor.
3. Disconnect inlet side hose of fuel pump, Figure
   24 and catch the fuel in the pan.

Bleeding the Fuel System

Bleed the fuel system after it has been drained:

- If a new filter element or prefilter has been installed,

- If the tractor has run out of fuel,

- If the lines leading to or from the filter have been disconnected.

- If the injection pump has been removed and reinstalled.

Bleed the fuel system as follows:

WARNING: Fuel oil in the injection system is under high pressure and can penetrate the skin.

Unqualified persons should not remove or attempt to adjust a pump injector, nozzle or any part of the fuel injection system.
Failure to follow these instructions can result in serious injury.
DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.

If any fluid is injected into the skin, obtain medical attention immediately or gangrene may result.

Never fail to check the fuel line periodically. The fuel line is subject to wear and ageing. fuel may leak out onto the running engine, causing a fire.

1. Be sure there is adequate fuel in the fuel tank.

2. Open the fuel shut-oft valve, Figure 23.

3. Open the bleed screw, Figure 23.

4. Turn the key start switch to the “ON” position without starting the engine to escape the air bubbles by the electric pump.
   Then tighten the bleed screw.

5. Push the hand throttle to the high speed position. Turn the engine over for a few seconds to bleed the high pressure fuel tube.

Injector Lines: Bleed the injector lines if the tractor has run out of fuel, if new injectors have been installed, or if the injection pump has been removed for service.

1. Loosen the injector line fittings at the injectors, Figure 16 and Figure 23.

2. Move the hand throttle control lever to its wide open position.

3. Crank the engine until air-free fuel flows from each connection, then tighten the fittings to 18-22 lbs. ft. (24-29Nm).

IMPORTANT : Do not crank the engine continuously for more than 10 seconds. Doing so may cause starting motor failure. If air is not purged from the system, repeat the procedure.

AIR CLEANER

Checking Dirt Level : Check the dirt level of filter element daily or every 10 hours,

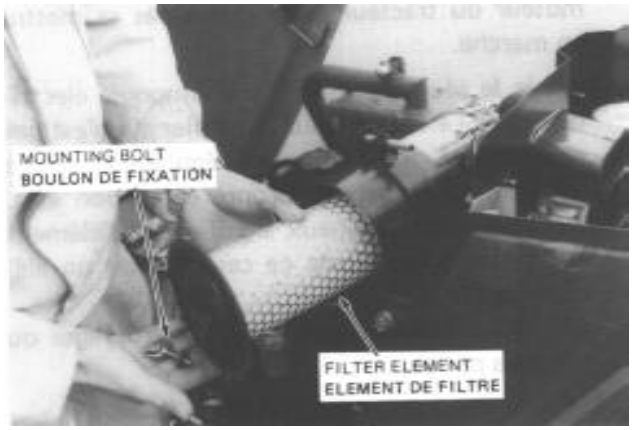


Figure 27 - Air Cleaner - Disassembled

Clean the element every 25 hours of service.

1. Loosen the mounting bolt, Figure 27.

2. Remove the filter element from the body.

3. Pat the sides of the element with the palm of the hand to remove dust trapped in the pleats.

IMPORTANT: Tapping the element against a hard surface or with hard objects may dent or break the element end cap seals.

4. Using low air pressure (not over 30 psi, 207 kPa), blow out remaining dust from the inside out opposite normal air flow through the element.

IMPORTANT: Be careful not to rupture the filter element. Maintain d reasonable distance between the air nozzle and the filter element when directing air up and down the clean air side of the element pleats.

5. Clean the fins and the inside of the air cleaner body with a dry cloth.

6. Check with a light bulb inside the element for leaks in the paper or bonding of paper to end plate. Replace element if any leaks are found.

7. Reassemble the air cleaner using the mounting bolt and gasket.

WASHING ELEMENT

1. Washing may be necessary to remove soot or oily materials

2. Agitate the element in warm water containing a small amount of non sudsing type detergent.

IMPORTANT: Do not use water hotter than the hand can stand, as the element will be damaged. Never wash the element with fuel oil, gas or solvent. Do not oil the element.

3. Rinse the element with clean water. Shake excess water from the element and allow it to air dry.

IMPORTANT: Do not dry the element with compressed air, as the air will rupture a wet element. Also, do not install a wet element as the tractor engine will not start.

4. After drying, check for damage by holding a light bulb inside the element. If an even, fine pattern of light is seen, the element is clean and undamaged. A bright spot of light indicates the element is damaged, and a new element must be installed.
   Change the element after six cleanings or once a year.

TRANSMISSION, REAR AXLE AND HYDRAULIC SYSTEM

Checking Oil Level: Check the oil level every 25 hours

1 With the tractor standing level and the engine off, check the oil level with the dipstick located below the tractor seat, Figure 29.

2. The oil is at the correct level when the oil level is between the marks on the dipstick. If low, add new oil of the type specified, page 35, through the combined dipstick/filler plug. Do not fill beyond the full mark on the stick.

3. Install the dipstick/filler plug.

LUBRICATION AND MAINTENANCE

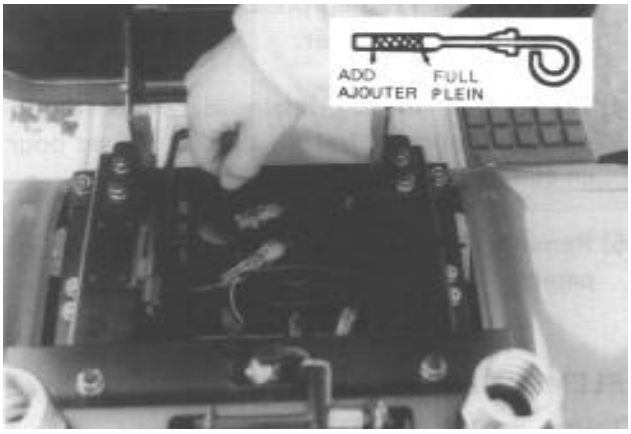


Figure 29 - Transmission, Rear Axle and Hydraulic System Oil Level Dipstick / Filler Plug

Changing Oil: Change the oil every 200 hours.

1. With the oil at normal operating temperature, drain the oil by removing the transmission and rear axle drain plug, Figure 30. Reinstall the plug after the oil has drained. Discard the oil.

2. Remove the filler plug, Figure 29, and fill with new oil of the type specified, page 35.

3. The transmission is filled to the correct level when the oil level is between the marks on the dipstick. Do not fill beyond the full mark on the stick.

4. Install the dipstick/filler plug.

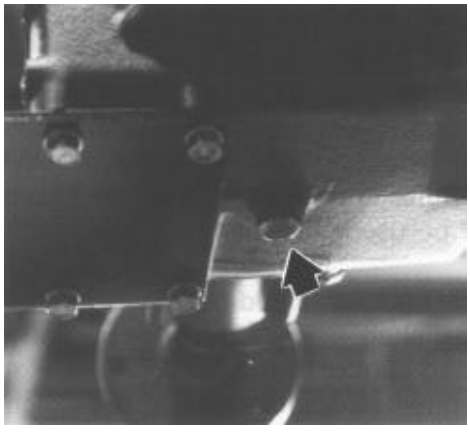


Figure 30 - transmission, Rear Axle Centre Housing and Rear Axle Oil Drain Plug

IMPORTANT: The transmission, rear axle, hydraulic system and power steering system operate from a common oil sump. Special attention must be paid to keeping the oil clean.

H.S.T.SYSTEM OIL FILTERS

The H S T system is provided with two cartridge type filters. They are used as line filter and suction filter. The filters are located on the right side and front side of transmission housing, Figure 31. Change the two filters after first 50 hours. Thereafter change the line filter every 100 hours and the suction filter every 200 hours.

IMPORTANT: These fillers are two different sizes and not interchangeable. They are also different than the engine filter. Use the correct filter.

Changing the Line or Suction Filter:

1. Unscrew the oil filter and discard.

2. Coat the gasket on the new filter with a film of oil. Screw the filter into place until the gasket contacts the sealing surface, then tighten the filter approximate 3/4 of a turn by hand. Do not overtighten.

3. Start the engine and check the hydraulic oil filter for leaks.

4. Stop the engine and check the hydraulic oil level. Replenish if necessary.

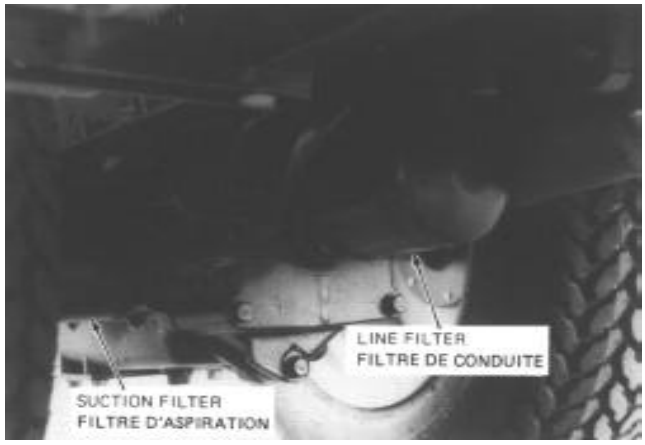


Figure 31 - H. S .T. System Filters

LUBRICATION AND MAINTENANCE

LUBRICATION FITTINGS

The following lubrication points (refer to the Lubrication Chart, page 28 or 30) require the application of a good quality grease every 50 hours. In extremely dirty conditions, lubrication should be more often. Refer to page 35 for the type of grease that should be used.

- Steering linkage and gear
- Pedal shaft
- P.T.0. belt tension pulley
- Speed control lever
- Front wheel spindles
- P.T,0. clutch lever

1. Wipe away all old grease and dirt from the lubrication fittings to prevent dirt or foreign material from entering the fittings when new grease is applied.

2. Use a high pressure grease gun to force in the new grease until clean grease oozes from the assembly being lubricated.

3. Wipe away any excess grease.

GENERAL MAINTENANCE

COOLING SYSTEM

The cooling system in your RANSOMES Tractor has been filled with one year life antifreeze.

To obtain maximum efficiency and service life from the engine, it must operate at the correct temperature. This is dependent on the cooling system. The system should be kept filled with a 50/ 50 solution of permanent antifreeze and clear water.

Checking Coolant Level: Check the coolant level daily or every 10 hours. This check should be made when the engine is cold.

1. Remove the radiator cap and visually check the level of the coolant, Figure 32.

Figure 32 Radiator Cap

WARNING: The cooling system operates under pressure which is controlled by the radiator cap. It is dangerous to remove the cap while the system is hot. Always cover the cap with a thick cloth and turn the cap slowly counterclockwise to the first stop. Allow all pressure to escape before removing the cap completely.

2. If the coolant level is more than 1-1/2 to 2 inches (3.8 to 5cm) below the bottom of the filler neck, add clean water or antifreeze solution as necessary. If the cooling system already contains antifreeze, add only antifreeze solution of the correct water/ antifreeze mixture (50/50). Plain water will dilute the solution and weaken its protection.

IMPORTANT: Alcohol-type antifreeze is not recommended. Do not mix alcohol-type solution with permanent antifreeze.

3. Keep the radiator fins and screens clear of chaff or dirt to allow free passage of air.

Draining and Flushing the Cooling System: Drain and flush the radiator and engine block every 1 2 months. Refill with a 50/50 mixture of long life (RANSOMES) antifreeze, or equivalent, and clear water.

To Drain the System:

1. Remove the radiator cap and open the drain valves at both the radiator and the engine block. The radiator drain valve is located on the bottom left side of the radiator, Figure 33. The engine block drain valve is located on the left side of the engine. See Figure 34.

2. After the coolant has drained, place a water hose in the radiator filler neck and run water through the system with the engine running. Make sure water is flowing from the block drain valve before starting the engine. When the water flowing from the drain valve is free of discoloration and sediment, stop the engine and remove the hose. Allow all water to drain from the system through drain valves.

3. Close the two drain valves and slowly refill the system with a 50/50 solution of permanent antifreeze and clear water. Fill until the coolant level is approximately 1 - 1/2 to 2 inches (3.8 to 5cm) below the bottom of the filler neck. Do not fill beyond this level.

IMPORTANT: Bleed the cooling system to make sure that no pocket remain.

4. Clean the radiator cap and cap seal. Install the cap.

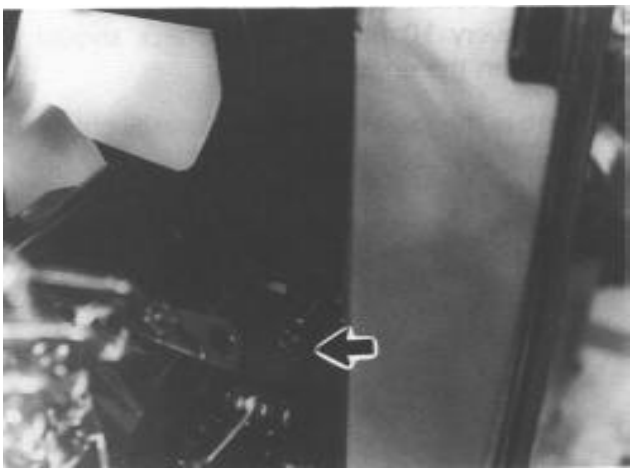


Figure 33 - Radiator Drain Valve

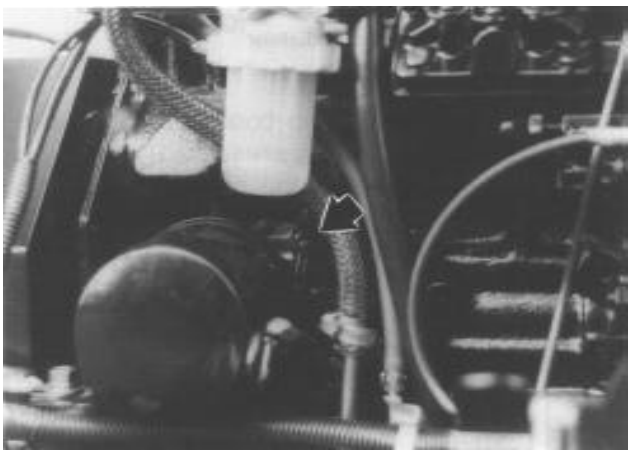


Figure 34 - Engine Block Drain Valve

5. Clean the radiator screen, Figure 35.

6. Run the engine until normal operating temperature is reached, then stop the engine and recheck the coolant level. Add coolant as required.

IMPORTANT: Never run the engine when the cooling system is empty, and do not add cold water or cold antifreeze solution if the engine is hot.

Thermostat: The thermostat is located in the coolant outlet connection in the rear of the cylinder head, Figure 36.

Figure 35 - Radiator Screen

Figure 36 - Thermostat Housing

When the engine is cold, the thermostat, which is a heat sensitive valve, shuts off the flow of coolant to the radiator , thus allowing rapid engine warm up. A recalculating bypass allows the coolant to circulate within the engine whenever the thermostat shuts off flow to the radiator.

LUBRICATION AND MAINTENANCE

IMPORTANT: Do not remove the thermostat in an attempt to improve the cooling. This will cause the engine to run below normal working temperatures, resulting in excessive engine wear.

If it ever becomes necessary to install a new thermostat, it should be positioned in the recess of the water outlet connection so that the heat element (spring end) will be in the cylinder head of the engine.

Fan Belt: A belt-driven fan on the engine draws air through the fins of the radiator to cool the coolant in the radiator. A slipping fan belt will lower the efficiency of the fan, resulting in the engine running too hot. If the belt is too tight, it will shorten the alternator bearing life. A correctly tightened belt will deflect10 to 15mm when 9 to 11kg thumb pressure is applied midway between the belt pulleys. Check the condition and tension of the fan belt every 200hours. If the belt shows signs of cracking or fraying, install a new belt.

To Adjust Belt Tension:

1. Loosen the alternator mounting bolts, Figure 37.

WARNING: To avoid personal injury never attempt to loosen or tighten the bolts when the engine is running.

2. Pry the alternator away from the engine and tighten the mounting bolts.

3. Recheck belt deflection.

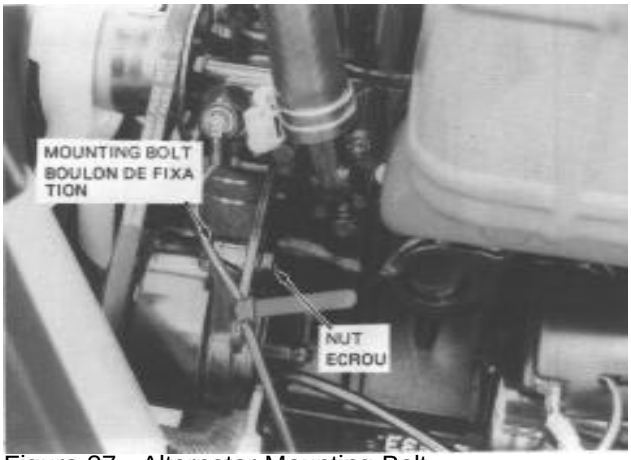


Figure 37 - Alternator Mounting Bolt

ENGINE SPEED
The adjustment for idle and maximum no load speed settings on your tractor were made at the factory Normally the engine maintains its speeds. However, the low idle speed only may be adjusted as follows

1. Move the throttle lever fully rearward. This is the idle position.

2. Start the engine and when at normal operating temperature, adjust the stop bolt to obtain an engine speed of 1400-1 500 rpm. Tighten the lock nut to secure the stop bolt, Figure 39.

NOTE: Make sure to be no free-travel between the wire and stop bolt with the turn buckle when adjusting the low idle speed.

The maximum no load speed is 3350-3450 rpm. If it is necessary to adjust the maximum speed, consult with your RANSOMES Dealer.

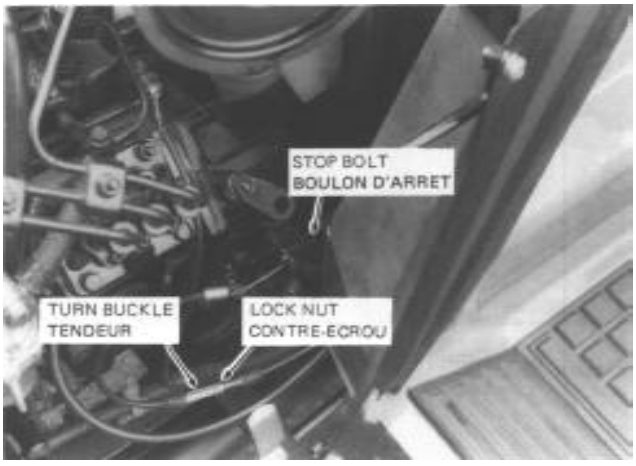


Figure 39 - Engine Speed Adjustment

LUBRICATION AND MAINTENANCE

BATTERY
Keep the battery connections tight and free of corrosion. An ammonia or baking soda-water solution is good for washing the outside surface and terminals of the battery. Make sure the solution does not enter the battery. After cleaning, wash the battery with clean water.

Apply a small amount of petroleum jelly to the terminals to protect them from corrosion.

In freezing temperatures, the battery must be maintained in a good state of charge. When a battery is discharged or run down, the electrolyte is weak and may freeze, causing damage to the case: If it becomes necessary to add water (distilled), it should be done just before using the tractor so the charging will mix the water with the electrolyte and prevent the water from freezing.

Determine the battery charge by checking the specific gravity of the electrolyte.

Checking Electrolyte Level : Check the electrolyte level in the battery every 50 hours.

WARNING: When the alternator is charging, an explosive gas is produced inside the battery. Therefore, always check the electrolyte level with the engine stopped. Do not use an exposed flame and do not smoke when checking the battery electrolyte level.

1. Clean the top of the battery, then remove the vent plugs.
2. If the electrolyte level is low, add distilled water. The level is correct when the liquid is 6.35mm above the plates.

NOTE : Keep distilled water in a clean, well-covered, non-metallic container.

3. Install the vent plug after making sure the vent holes are not blocked. At below freezing temperatures, be sure to run the engine for a period of time, after adding water, so the battery will charge and prevent the water from freezing.

NOTE : Reverse polarity will destroy the rectifier diodes in the regulator.

CAUTION

- Never take the battery cap off 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 immediately.
- Gas given off by batteries is explosive. To avoid injury or battery damage, avoid sparks near the battery.

CAUTION
To avoid personal injury:

- When connecting the battery, do not reverse the polarities. Connection with reverse polarities will cause spark and troubles to the battery and electrical system in the tractor.
- When disconnecting the cable 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.

ALTERNATOR
The alternator, Figure 41, is belt-driven from the engine crankshaft pulley. It is important that belt slippage does not occur, otherwise, the charging rate will be affected. Details of belt adjustment are given on page 54.

Other than belt adjustment, the only maintenance required on the alternator is to periodically inspect the terminals and keep them clean and tight.

When working on or checking the alternator, comply with the following precautions to prevent alternator damage.

- DO NOT, under any circumstances, short the FIELD terminal of the alternator to ground.
- DO NOT disconnect the voltage regulator while the alternator is operating.
- DO NOT disconnect the alternator output lead or battery cables while the alternator is operating.
- DO NOT remove the alternator from the tractor without first disconnecting the negative (-) battery cable. If the battery is to be removed, disconnect the negative cable first.

LUBRICATION AND MAINTENANCE

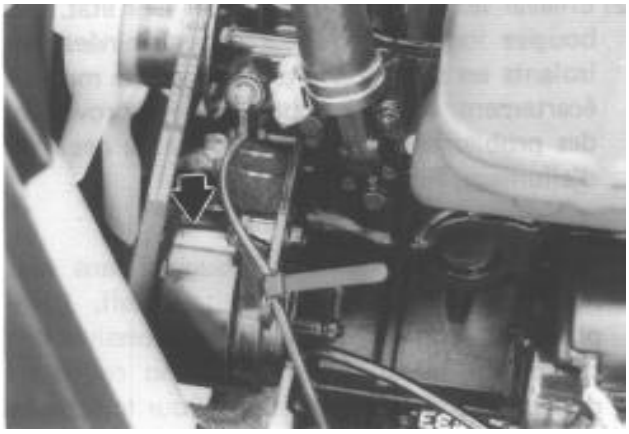


Figure 41 - Alternator

VOLTAGE REGULATOR / RECTIFIER
The voltage regulator (Figure 44) automatically controls the alternator charging rate. No attempt should be made to adjust the setting of the regulator.

If the charge indicator warning light indicates that the alternator is not charging the battery, check the wiring connections and/or fan belt. If these are satisfactory and the warning light continues to indicate no charge, consult your RANSOMES Dealer.

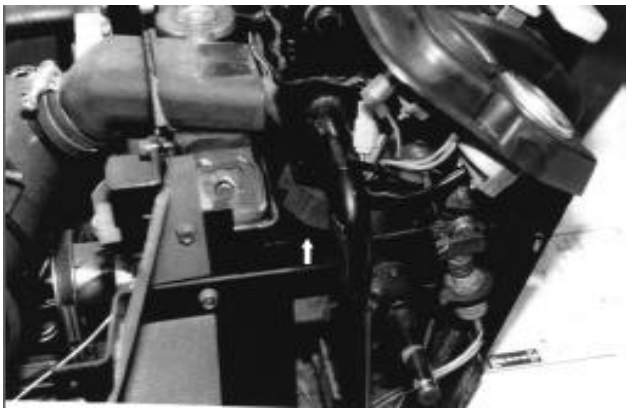


Figure 44 - Voltage Regulator

NOTE: If a battery is being installed, MAKE CERTAIN that the positive (+) cable is connected first and that the negative terminal is connected to ground. Reverse polarity will destroy the rectifier diodes in the regulator.

FUSES
The fuse box is shown in Figure 45. The plastic fuse cover is easily removed by pulling it off. Always replace blown fuses with the specified fuse. If the new fuse happens to quickly blow out, contact your dealer for inspection and repair. Never use any wire or foil.

Figure 45 Fuses

HEADLAMP
Should a headlamp failure occur, the bulb must be replaced. To change the bulb;
1. Turn the socket counter-clockwise and remove the socket from the housing. Figure 47.
2. Remove the bulb.

3. Install a new bulb in the socket and install the socket with bulb in the housing.

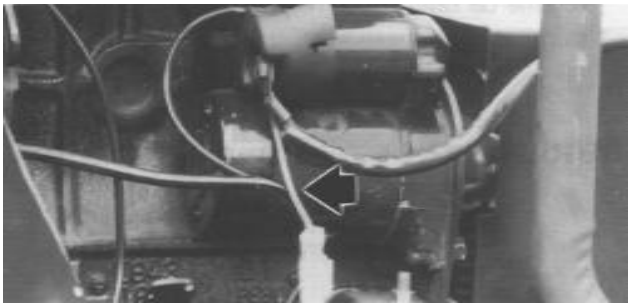


Figure 46 - Fuse Link

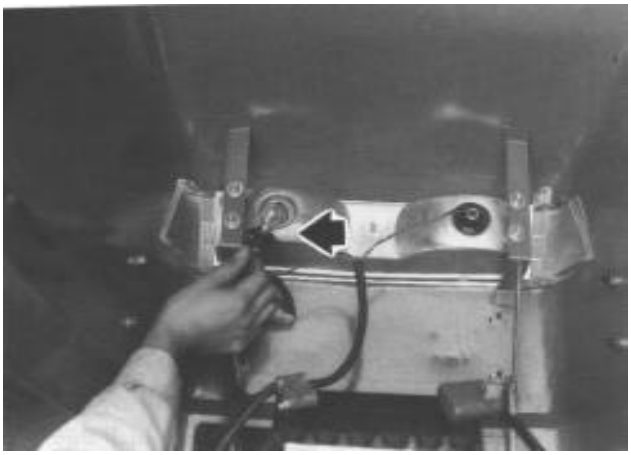


Figure 47 - Headlamp Socket

LUBRICATION AND MAINTENANCE

INSTRUMENT LIGHTS

To change an instrument bulb:

1. Pull out the socket downward from the light holder.
2. Remove the bulb from the socket by pushing in and twisting counter-clockwise.
3. Assemble the socket with new bulb and install the socket to the light holder reversing the above procedure.

Figure 48 - Warning Lamp

TYRES

Inflation and Service

- Upon receiving your tractor, check the air pressure in the tyres as indicated in the tables.
- Check the tyre pressure every 50 hours, or weekly.
- Tyre inflation pressure affects the amount of weight which a tyre may carry. Locate the tires for your tractor in the “Tyre inflation vs. Permissible Load” chart on page 27. Do not over-or-under inflate the tyres.
- Do not inflate a tyre above the manufacturer’s maximum pressure shown on the tyre or the maximum pressure shown in the “Tyre Inflation vs. Permissible Load” chart, page 27 if the tyre is not marked.
- Do not re-inflate a tyre that has been run flat or seriously under-inflated until the tyre has been inspected for damage by a qualified person.

WARNING: Inflating or servicing tyres can be dangerous. Trained personnel should be called to service and/or mount tyres when possible. In any event to avoid possible serious or fatal injury, follow the safety precautions below.

- When checking tyre pressure, inspect the tyre for damaged side walls and tread cuts. Neglected damage will lead to early tyre failure.
- Be sure the rim is clean and free of rust.
- Lubricate both tyre beads and rim flanges with soap solution’. Do not use oil or grease.
- Use a clip-on tyre chuck with a remote hose and gauge which allows the operator to stand clear of the tyre while inflating it.
- NEVER INFLATE TO OVER 35 psi (241 kPa) TO SEAT BEADS. If beads have not seated by time pressure reaches 35 psi deflate the assembly, reposition tyre on rim, relubricate both tyre beads and rim flanges and re-INFLATE. INFLATION BEYOND 35 PSI with unseated beads may break the bead or rim with explosive force sufficient to cause serious injury.
- After seating the beads, adjust inflation pressure to recommended operating pressure.
- Do not inflate a tyre unless the rim is mounted on the tractor or is secured so that it will not move if the tyre or rim should suddenly fail.
- Do not weld, braze, otherwise repair, or use a damaged rim.
- Never attempt tyre repairs on a public road or highway.
- Use jack stands or other suitable blocking to support the tractor while repairing tires.
- Insure jack has adequate capacity to lift your tractor.
- Insure jack is placed on a firm level surface.
- Do not put any part of your body under the tractor or start the engine while the tractor is on the jack.

LUBRICATION AND MAINTENANCE

BRAKE PEDAL ADJUSTMENT

1. Loosen the lock nut on the brake rod and remove the spring from the long nut, Figure 49.

2. Screw the long nut and adjusting nut until the brake pedal travel becomes 25-4Omm.

3. Attach the spring to the long nut, and make sure the pedal maintains the travel as the above.

4. Tighten the lock nut.

5. Test drive the tractor to make sure the brake pedal is operating properly.

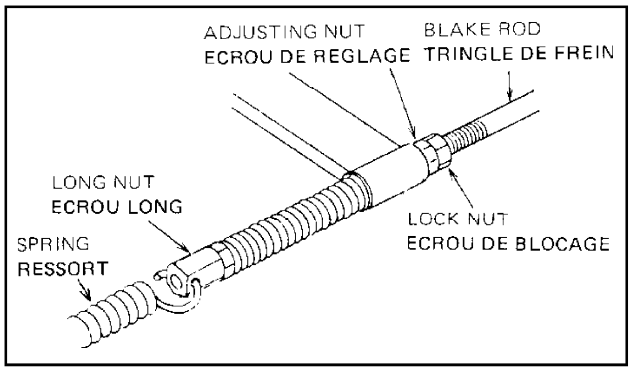


Figure 49 - Brake Pedal Adjustment

BRAKE PEDAL SAFETY SWITCH ADJUSTMENT

If the engine will not start because the brake pedal safety switch requires adjustment, adjust the switch as follows:

1. Make sure the brake pedal is in release position.
2. Loosen the lock nut on the safety switch and turn the adjusting nut until the length of spring becomes 33mm, Figure 50.
3. Tighten the lock not.
4. Latch the parking brake and be sure the switch works properly.

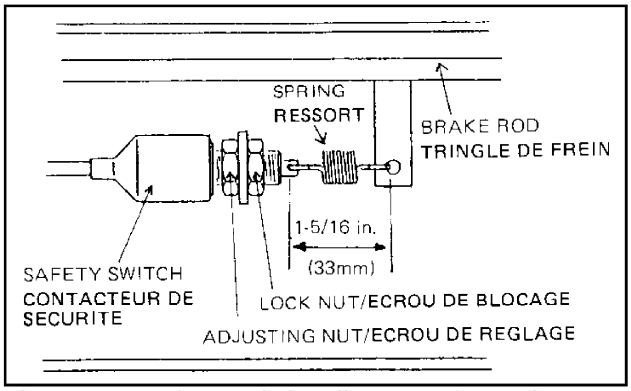


Figure 50 - Safety Switch Adjustment for Brake Pedal.

PTO BELT TENSION ADJUSTMENT

If the front PTO belt slips, adjust the belt tension as follows:

1 Stop the engine and remove the starter key.

2. Move the PTO clutch lever to the “ON” position and measure the spring. The spring should measure 98 mm. If the spring is shorter than 94 mm, adjust as follows.

3. Move the PTO clutch lever to the “OFF~ position, loosen the locknut and adjust the wire while turning the nut

4. Repeat step 2. Tighten the locknut when the length of the spring is correct.

5. Start the engine and test the PTO.

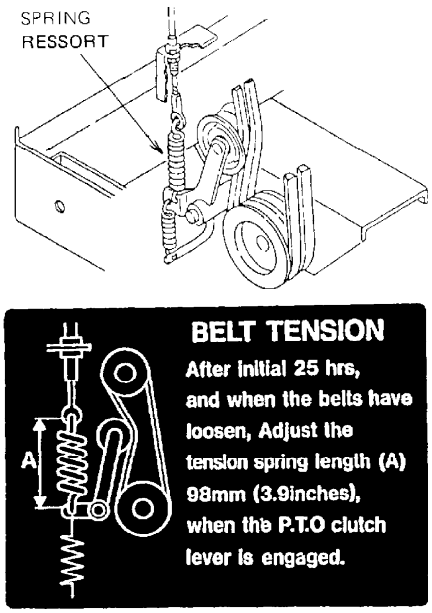


Figure 51 - P.T.O Belt Tension Adjustments

LUBRICATION AND MAINTENANCE

PTO SAFETY SWITCH ADJUSTMENT

If the engine will not start because the PTO safety switch requires adjustment, adjust the switch as follows:

1. Stop the engine and remove the starter key.

2. Remove the access panel.

3. Move the PTO clutch lever slightly toward the “ON” position. This will release the switch knob from the PTO clutch arm, Figure 52.

4. The safety switch knob is retracted by pulling the PTO clutch lever to the “OFF” position. Loosen the locknut, Figure 52. The safety switch should be adjusted by screwing the adjusting nut out or in so that the knob may retract 1/5 in. (5mm) when the PTO clutch lever is moved from the “ON” to the “OFF” position.

5. After adjusting the switch be sure that it works properly and tighten the locknut. If the clutch lever does not move freely, lubricate the clutch lever wires.

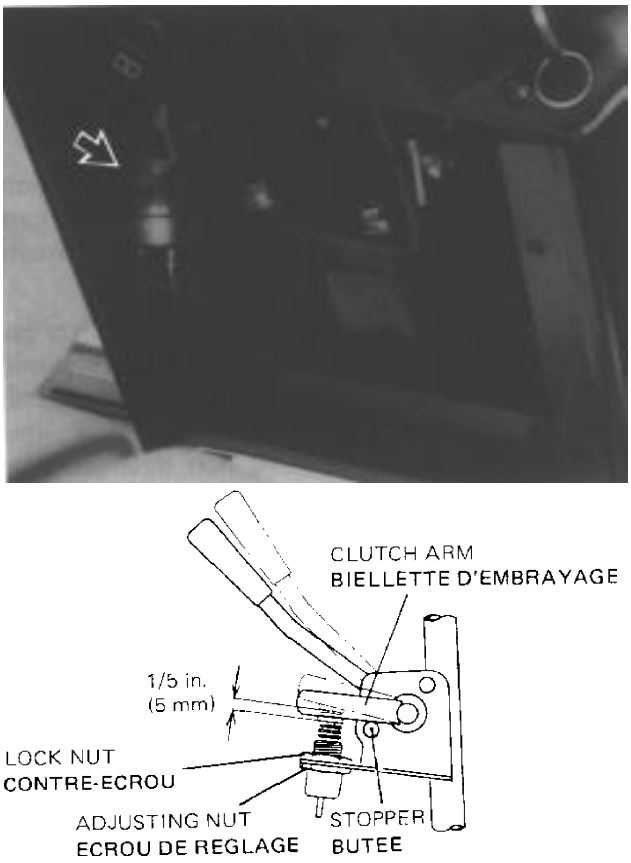


Figure 52 P.T.O. Safety Switch Adjustment

NOTE: When the engine cannot be started even if the adjustments of brake pedal safety switch and/or PTO safety switch have been made, con consult with your RANSOMES Dealer.

TRACTOR STORAGE

Tractors that are to be stored for an extended period should be protected during storage. The following is a suggested list of operations to be carried out.

1. Thoroughly clean the tractor. Use touch-up paint where necessary to prevent rust.

2. Check the tractor for worn or damaged parts. Install new parts as required.

3 Lower the equipment hydraulically so the lift piston 5 in a fully retracted position. This will protect the piston surface from corrosion and rust.

4. Lubricate the tractor. Drain and refill the transmission, hydraulic system and rear axle with new oil. Drain the engine oil and refill with new lubricating oil. Also clean the air cleaner.

5. Remove the battery and clean it thoroughly. Be sure that it is fully charged, and that the electrolyte is at the proper level. Place it in storage in a cool, dry place above freezing temperature. The battery should be charged periodically during storage.

6. Place blocking under the tractor axles.

7. Use the following storage procedure.

- Before storing, the fuel system should be flushed with a special oil, a quantity of which will remain in the system when the engine is shut down for storage.

- Special diesel fuel system flushing oils are available from most oil companies. If special flushing oil is not readily obtainable, mix 0.24 litres of SAE 1 0 non-detergent engine oil 4.73 litres of No.2 diesel fuel.

- Drain the fuel tank and pour two U.S. gallons 7.57 litres of the special flushing oil (or lubricating mixture) in the fuel tank.

- Run the engine for 10 minutes to ensure complete distribution of the special oil through the injection pump and fuel injectors. There is no need to remove the injector nozzles.
- Fill the fuel tank with No.1 diesel fuel.

IMPORTANT: Do not use No.2 diesel fuel for winter storage because of wax separation and setting at low temperatures.

- Drain the radiator and engine block. Flush the system, close the drain valves, and fill with a 50/50 solution of permanent antifreeze and clear water.

Tractors that have been placed in storage should be completely serviced in the following manner before using.

1. Inflate the tires to the recommended pressures, and remove the blocking.
2. Check the oil level in the engine crankcase, the common sump (for the hydraulic lift, transmisson and rear axle.)
3. Install a fully charged battery.
4. Check the cooling system for proper level of 50% solution of antifreeze and clear water.
5. Start the engine and allow it to idle a few minutes. Be sure the engine is receiving lubrication and that each control is functioning correctly.
6. Drive the tractor without a load and check to be sure it is operating satisfactorily.

CAUTION

To avoid personal injury:

- To reduce fire hazards, allow the engine and exhaust system to cool before storing the vehicle in an enclosed space or near combustible materials.
- Do not operate the engine in a closed room. The air will be polluted with exhaust gas which is very dangerous.
- Do not clean the machine with engine running.
- When storing, remove the key from the key switch to avoid unauthorised persons from operating the machine and getting injured.

GENERAL TORQUE SPECIFICATION TABLE
(Revised 2-74)

USE THE FOLLOWING TORQUES WHEN SPECIAL TORQUES ARE NOT GIVEN

NOTE: These values apply to fasteners as received from supplier, dry, or when lubricated with normal engine oil. They do not apply if special graphite or moly disulphide greases or other extreme pressure lubricants are used. This applies to both UNF and UNC threads.

SAE Grade No.		2				5				8 *			
Bolt head identification marks as per grade NOTE: Manufacturing Varies Will Vary		Torque				Torque				Torque			
Bolt Size		Pounds Feet		Newton-Meters		Pounds Feet		Newton-Meters		Pounds Feet		Newton Meters	
Inches	Millimeters	Min	Max	Min	Max	Min	Max.	Min	Max.	Min.	Max	Min.	Max.
1/4	6.35	5	6	6.8	8.10	9	11	12.2	14.9	12	15	16.3	30.3
5/16	7.94	10	12	13.6	16.3	17	20.5	23.1	27.8	24	29	32.5	39.3
3/8	9.53	20	23	27.1	31.2	35	42	47.5	57.0	45	54	61.0	73.2
7/16	11.11	30	35	40.7	47.4	54	64	73.2	86.8	70	84	94.9	113.9
1/2	12.70	45	52	61.0	70.5	80	96	108.5	130.2	110	132	149.2	179.0
9/16	14.29	65	75	88.1	101.6	110	132	149.2	179.0	160	192	217.0	260.4
5/8	15.88	95	105	128.7	142.3	150	180	203.4	244.1	220	264	298.3	358.0
3/4	19.05	150	185	203.3	250.7	270	324	366.1	439.3	380	456	515.3	618.3
7/8	22.23	160	200	216.8	271.0	400	480	542.4	650.9	600	720	813.6	976.3
1	25.40	250	300	338.8	406.5	580	696	786.5	943.8	900	1080	1220.4	1464.5
1-1/8	25.58	—	—	—	—	800	880	1084.8	1193.3	1280	1440	1735.7	1952.6
1-1/4	31.75	—	—	—	—	1120	1240	1518.7	1681.4	1820	2000	2467.9	2712.0
1-3/8	34.93	—	—	—	—	1460	1680	1979.8	2278.1	2360	2720	3227.3	3688.3
1-1/2	38.10	—	—	—	—	1940	2200	2630.6	2983.2	3160	3560	4285.0	4827.4

* Thick nuts must be used with Grade 8 bolts

METRIC BOLT TORQUE SPECIFICATIONS

Bolt Size	Grade No.	Coarse Thread Pitch (mm)	Coarse Thread Pounds-Feet	Coarse Thread Newton-Meters	Fine Thread Pitch (mm)	Fine Thread Pounds-Feet	Fine Thread Newton-Meters
M6	4T	1.0	3.6– 5.1	4.9 – 6.9	–	–	
	7T		6.1 – 8.3	8.3– 11.3			
	10T		8.7 – 11.6	11.8– 15.7			
M8	4T	1.25	9.4– 12.3	12.7 – 16.7	1.0	11.2 – 14.8	15.2– 20.1
	7T		16.6– 21.0	22.6 – 28.4		18.5– 25.3	26.5– 34.3
	10T		21.0– 26.8	28.4– 36.3		22.4– 29.7	30.4– 40.2
M10	4T	1.5	18.8– 24.6	25.5– 33.3	1.25	21.1 – 26.8	28.4– 36.3
	7T		32.5– 41.2	44.1 – 55.9		36.2– 46.3	49.0– 62.8
	10T		39.6– 51.4	53.9– 69.6		42.7– 54.2	57.9– 73.5
M12	4T	1.75	27.5– 34.7	37.3– 47.1	1.25	31.8– 40.5	43.1– 54.9
	7T		48.5– 61.5	65.7– 83.4		55.0 – 69.4	74.5– 94.1
	10T		68.0– 85.4	92.2– 115.8		73.1 – 93.3	99.0–127
M14	4T	2.0	46.3– 59.3	62.8– 80.4	1.5	61.4– 84.4	83.8– 87.3
	7T		76.7 – 98.9	104 – 134		86.1 – 109	117 – 148
	10T		102 – 129	139 – 175		108 – 137	147 – 186
M16	4T	2.0	63.6– 81.0	86.3– 110	1.5	67.3– 84.6	91.2– 115
	7T		110 – 138	149 – 184		116 – 142	157 – 192
	10T		152 – 188	206 – 255		163 – 199	221 – 270
M18	4T	2.0	83.9– 104	114 – 141	1.5	96.9– 120	131 – 163
	7T		146 – 174	196 – 235		170 – 206	230 – 279
	10T		203 – 246	275 – 333		221 – 271	299 – 368
M20	4T	2.5	108 – 132	144 – 179	1.5	127 – 156	172 – 211
	7T		177 – 213	240 – 289		203 – 246	275 – 333
	10T		268 – 325	363 – 441		293 – 358	397 – 485

SPECIFICATIONS

The specifications on the following pages are provided for your information. For additional information, see your RANSOMES Dealer.

Properly Maintained Equipment is Safe Equipment

RANSOMES, whose policy is one of continuous improvement, reserves the right, to make changes in design and specifications at any time without notice and without obligation to modify units previously built."

SPECIFICATIONS

ENGINE

Type	Shibaura E673
Horsepower (SAE J1349)	16(11.9kw)
Number of Cylinders	3
Bore	2.64 in.(6.7cm)
Stroke	2.52 in.(6.4cm)
Displacement	41.3 cu. in. (676cc)
Compression Ratio	23.5 to 1
Firing Order	1-2-3
Low Idle Speed	1400-1500 rpm
Maximum Speed:	
High Idle	3350-3450 rpm
Rated	3200 rpm
Valve Clearance (Cold Engine):	
Intake	0.008 in. (.2Omm)
Exhaust	0.008 in. (.2Omm)

CAPACITIES

Fuel lank	4.2 U.S. Gals. 3.5 Imp. Gals. 16 Litres
Rear Axle and Transmission (Includes Hydraulics and Power Steering)	10.1 U.S. Qts. 8.5 Imp. Qts. 9.6 Litres
Engine Crankcase:	
Less Filter	2.6 U.S. Qts. 2.2 Imp. Qts. 2.5 Litres
With Filter	3.2 U.S. Qts. 2.6 Imp. Qts. 3.0 Litres
Cooling System	3.5 U.S. Qts. 2.9 Imp. Qts. 3.3 Litres

COOLING SYSTEM

Type	Pressurised Liquid with Recalculating Bypass
Water Pump:	
Type	Centrifugal
Drive	V-Belt
Water Pump Belt Deflection	7/16 to 9/16 (10/lSmm) when 20-25 lbs. (9/11kg) Thumb Force is Applied Midway Between Pulleys.
Fan Diameter	9.45 in. (24cm)
Thermostat:	
Start to Open	1 67~F (75~C)
Fully Open	194F (90C)
Radiator Cap	1 3 psi (.9bar)

ELECTRICAL SYSTEM

Alternator	12-volt, 14 amps
Regulator (Alternator)	Thyrister
Battery	12-volt, 332 amps at 0°F cold cranking Reserve Capacity 52 minutes
Starting Motor	Solenoid Engaged

FUEL SYSTEM

Type of Fuel to Use	Temperature	Type
Diesel	Above 20°F (-6.7°C)	No.2D Cetane Rating 40
	Below 20°F (-6.7°C)	No. 1 D Cetane Rating 40

Injection Pump:	
Type	In-Line
Timing	25°BTDC
Fuel Pump	electric

P.T.O CLUTCH

Type	Belt Drive

BRAKES

Type	Disc
Size	5.5 in. Diameter (14cm)

STEERING

Turn Lock to Lock	2.1 - 2.6
Steering Wheel Free-play	30mm - 40mm
Front Wheel Toe-In	0-13/64 in.(0-5cm)
Turning Radius at centre line of inside rear tire (Without Brake)	32 in (81 cm)

POWER TAKE-OFF

Type	Belt Drive
Pie Speed	2719 rpm
Horsepower PTO Observed	13

HYDRAULIC LIFT SYSTEM

Pump Type	Gear
Pump Capacity	3.0 Gpm (11.5 Litres pm)
System Relief Valve	@3200 rpm Setting 471 psi (3244 kpa)
Power Steering System Relief Valve Setting	889 psi (6123 kpa)

SPECIFICATIONS

TYRES

Front:
Standard (TURF) 16x6.50-8 G2 2PR
Rear:
Standard (TURF) 23x10.50-12 G2 2PR

LUBRICANTS

Engine Oil

Temperature	Viscosity Grade and API Class
Year Around	SAE 10w30, 10w40 SF/CD
Below 32°C (0°F)	SAE 10w SF/CD
32 to 50°F (0 - 10°C)	SAE 20w SF/CD
Above 50°F (10°C)	SAE 30w SF/CD

Transmission, Rear Axle;
Hydraulic System and Power
Steering System Oil — Hyd. System Oil ISO VG 46 - 56

Lubrication Fittings — NLGI No.2

GENERAL DIMENSIONS

Length 74.4in. (189cm)
Height
Top of Seat ... 47.6in. (121cm)

	Mm.	Max.
Width	37in. (94cm)	39in. (99cm)

Minimum Ground Clearance 6.3in. (16cm)
Wheelbase 50in. (127cm)
Tread Width
Front 30.3in. (77 cm)
Rear 26.2 - 28.1in. (66.5 - 71.3cm)
Weight
(Less Mower) 382 kg

TORQUES

Front Wheel
Wheel Boss to Axle — 19 - 25 lbs. ft. (26 - 34 Nm)
Rear Wheel
Disc-to-Axle — 33 - 41 lbs. ft. (44 - 56 Nm)

TEST DATA

SOUND MEASUREMENTS

Sound Power dB(A) @ rpm
Sound Pressure dB(A) @ rpm

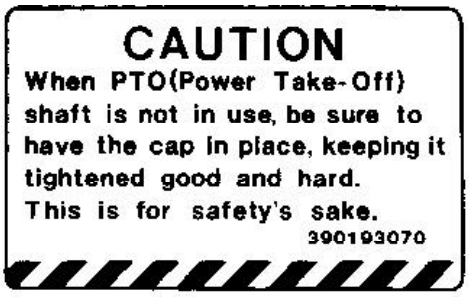
VIBRATION

Condition at engine speed 3200 rpm
At steering wheel
On cutter deck - Operating 6.9m/s2
On cutter deck stopping 3.9m/s2
At operators step
On cutter deck - Operating 16.6m/s2
On cutter deck stopping 13.7m/s2
At operators seat
On cutter deck - Operating 0.7m/s2
On cutter deck stopping 0.3m/s2

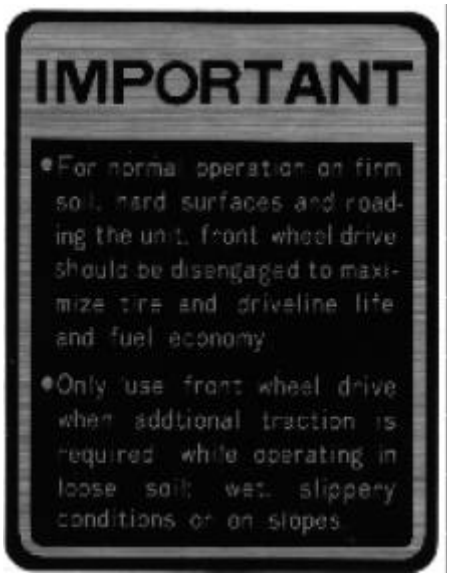
SAFETY DECALS

In the event that decals become damaged or illegible, they should be replaced with new decals at their original position. Replacement decals are available from your RANSOMES Tractor Dealer.

CAUTION - Battery
PART NO. - SBA-390193110
LOCATION - Inside of front hood



CAUTION - PTO cap
PART NO, - SBA-390193070
LOCATION - On the master shield

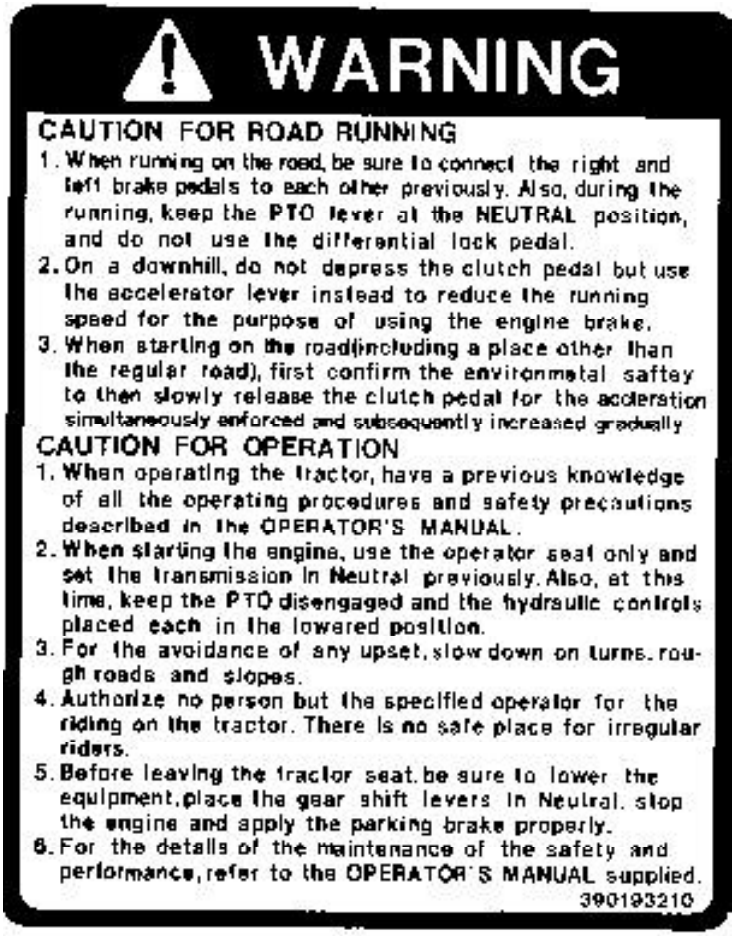


IMPORTANT - For normal operation
PART NO, - SBA-390192410
LOCATION - Centre of RH fender

SAFETY DECALS

WARNING - TO JUMP START
PART NO - SBA-490990571
LOCATION - Inside of hood

WARNING - Keep hands and clothing away from rotating fan .
PART NO. - SBA-390191352
LOCATION - Rear of radiator.

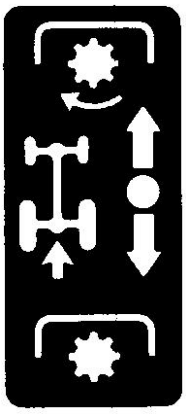


WARNING - Caution for road running
PART NO. - SBA-3901g3210
LOCATION - L.H. fender

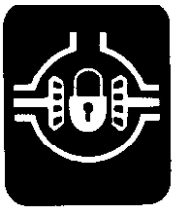
INSTRUCTION DECALS

Range Selector Lever - Manual
PART NO. - 5BA-390171890
LOCATION - Centre of L. H. fender

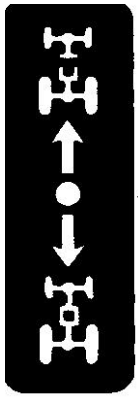
Range Selector Lever - Hydrostatic
PART NO. - SBA-39017190Q
LOCATION Centre of L. H. fender



P.T.O. Control Lever
PART NO. - SBA-3g0171940
LOCATION - Left & below seat-right of control

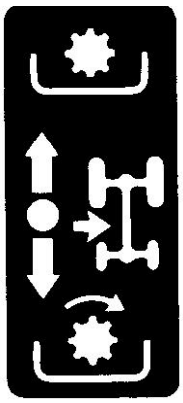


Differential Lock
PART NO. - SBA-390191690
LOCATION - Above pedal below Seat



Four-Wheel Drive Control Lever
PART NO. - SBA-390170630
LOCATION - Left of lever, right and below seat

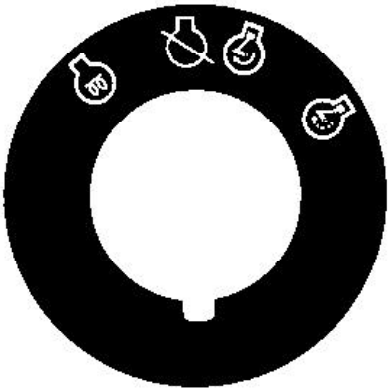
P. T. O. Control Lever
PARTNO. - SBA-390172240
LOCATION - Left & below seat right of control



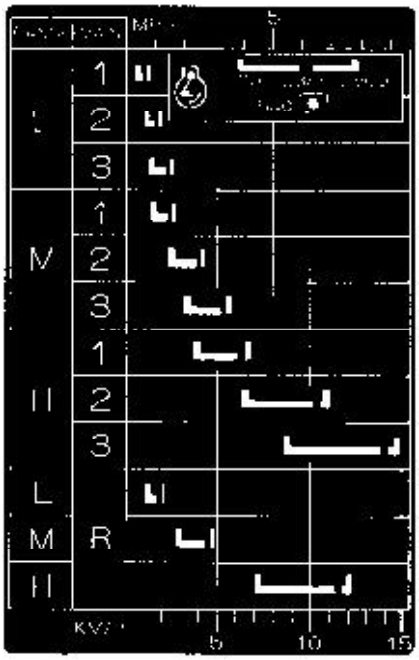
Mid P. T. O. Control Lever
PARTNO. - SBA-390171g50
LOCATION - Left & below seat right of control

P. T. O. Control Lever
PARTNO. - SBA-390172250
LOCATION - Left & below seat right of control

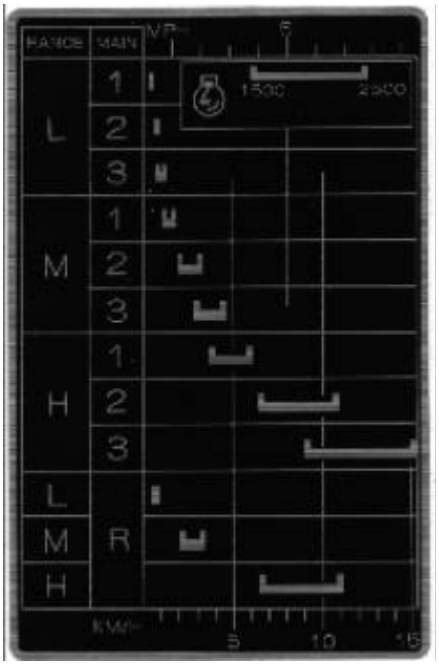
INSTRUCTION DECALS



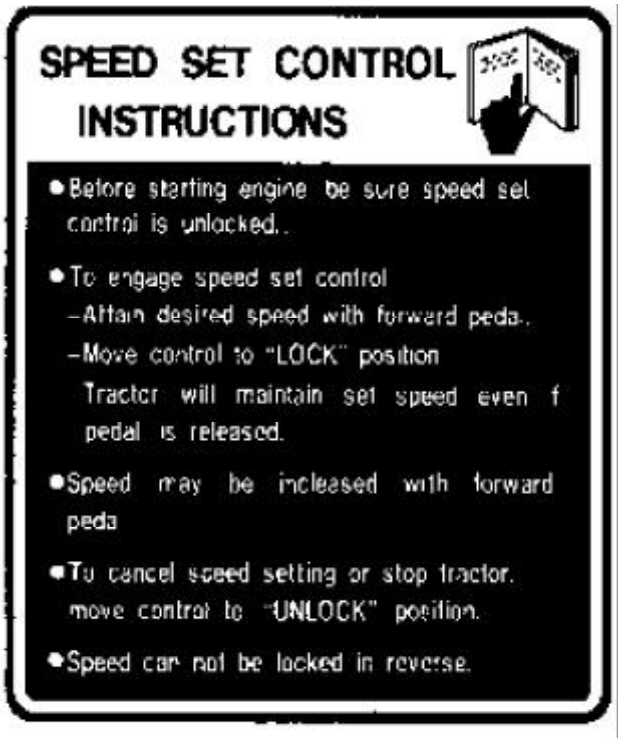
Starter Switch
PART NO. SBA-390194290
LOCATION Starter Switch
right side of instrument panel



Ground Speed Diagram - Single PTO
PART NO. - SBA-390171920
LOCATION - Centre of L. H. fender

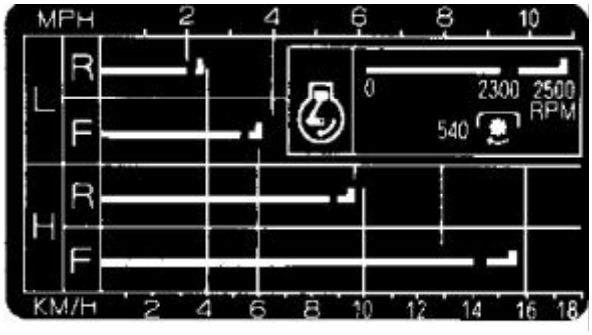


Ground Speed Diagram - Multi PTO
PART NO. - SBA-390172320
LOCATION - Centre of L. H. fender



Speed Set Control Instruments
PART NO, - SBA-390194320
LOCATION - On steering cowl below dash

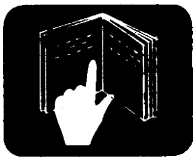
Multi PTO speed
PART NO. - SBA-390172360
LOCATION - Left of cover, below seat



Ground Speed Diagram - Hydrostatic
PARTNO. - SBA-390171910
LOCATION - Centre of LH fender

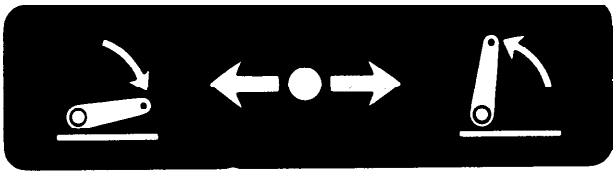
INSTRUCTION DECALS

Row Control valve
PART NO. - SBA-390370290
LOCATION - Top of flow control knob



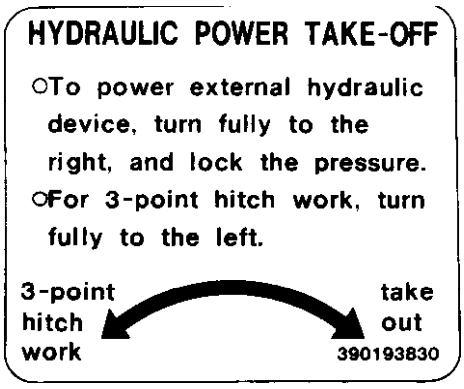
HYD Manifold Operation
See Operator S Manual
PART NO - SBA-390192850
LOCATION - R H side of Hyd. Manifold

Power Steering Fluid
PART NO. - SBA-390230130
LOCATION - Top of P.S. reservoir



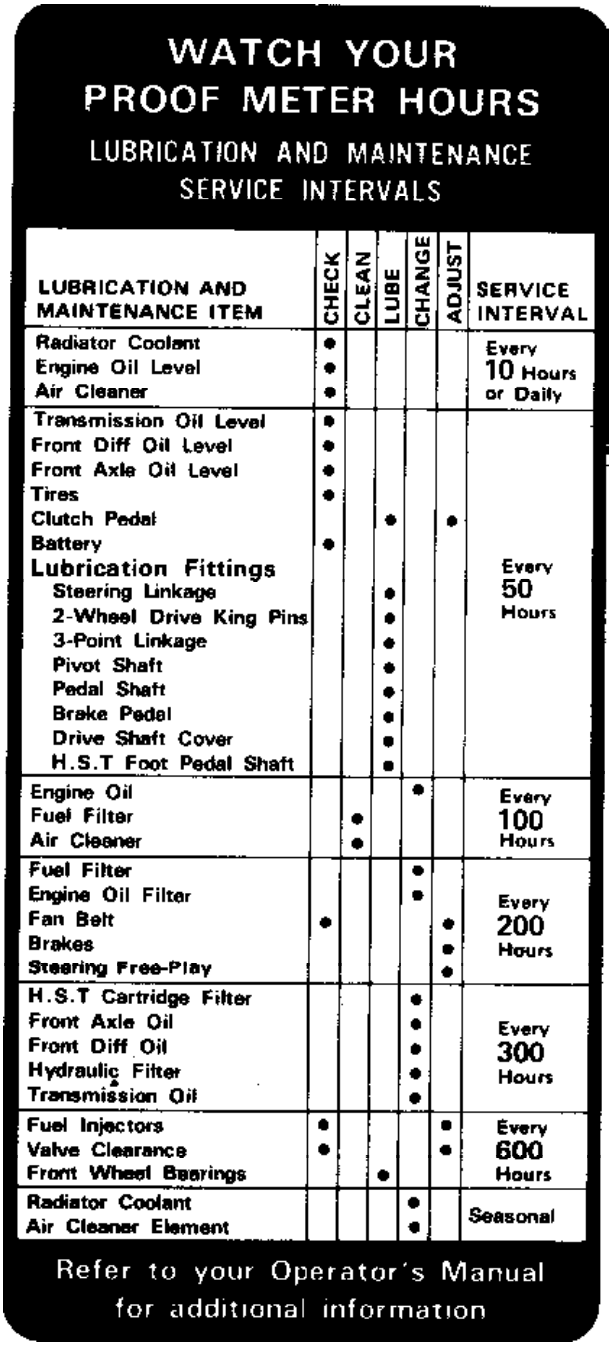
Hydraulic Lift Control Lever
PART NO. - SBA-390370280
LOCATION - Centre of R. H. fender

Fuel Oil
PART NO. - SBA-390192910
LOCATION - On the front hood



Hydraulic Power Take off
PART NO. - SBA-390193830
LOCATION - On the floor

INSTRUCTION DECALS



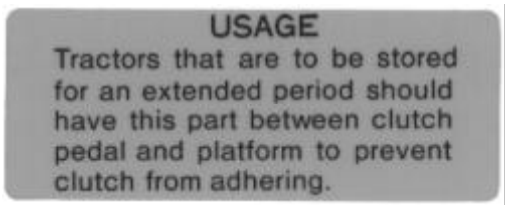
WATCH YOUR
PROOF METER HOURS

LUBRICATION AND MAINTENANCE
SERVICE INTERVALS

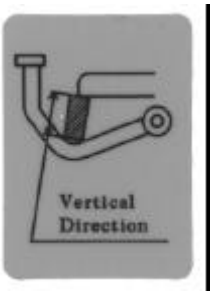
LUBRICATION AND MAINTENANCE ITEM	CHECK	CLEAN	LUBE	CHANGE	ADJUST	SERVICE INTERVAL
Radiator Coolant	●					Every 10 Hours or Daily
Engine Oil Level	●					
Air Cleaner	●					
Transmission Oil Level	●					
Front Diff Oil Level	●					
Front Axle Oil Level	●					
Tires	●					
Clutch Pedal			●		●	
Battery	●					
Lubrication Fittings						Every 50 Hours
Steering Linkage			●			
2-Wheel Drive King Pins			●			
3-Point Linkage			●			
Pivot Shaft			●			
Pedal Shaft			●			
Brake Pedal			●			
Drive Shaft Cover			●			
H.S.T Foot Pedal Shaft			●			
Engine Oil				●		Every 100 Hours
Fuel Filter		●				
Air Cleaner		●				
Fuel Filter				●		Every 200 Hours
Engine Oil Filter				●		
Fan Belt	●				●	
Brakes					●	
Steering Free-Play					●	
H.S.T Cartridge Filter				●		Every 300 Hours
Front Axle Oil				●		
Front Diff Oil				●		
Hydraulic Filter				●		
Transmission Oil				●		
Fuel Injectors	●				●	Every 600 Hours
Valve Clearance	●				●	
Front Wheel Bearings			●			
Radiator Coolant				●		Seasonal
Air Cleaner Element				●		

Refer to your Operator's Manual
for additional information

Lubrication and Maintenance Intervals
PART NO. - SBA-390194651
LOCATION - On inside of hood



USAGE - Tractors that are to be stored
PART NO, - SBA-390190300
LOCATION - On plastic block



Installing Pedal Spacer
PART NO. - SBA-390190290
LOCATION - On plastic block

NOTES

NOTES

PRE-DELIVERY SERVICE
CHECK AND ADJUST AS REQUIRED

PRE-DELIVERY SERVICE

CHECK AND ADJUST AS REQUIRED
INOPERATIVE SERVICE CHECKS

1. Tire pressure ..... ☐
2. Air cleaner element and hose connections ..... ☐
3. Radiator coolant level ..... ☐
4. Fan belt tension ..... ☐
5. Battery cleanliness, vent openings, electrolyte level, and charge ..... ☐
6. Engine oil level ..... ☐
7. Power steering reservoir oil level . ☐
8. Transmission and rear axle ..... ☐
9. Front axle and front differential oil level (4WD) ..... ☐
10. Hydraulic Lift control adjustment .. ☐
11. upper link, and hitch ..... ☐
12. Brake adjustment and pedal equalisation ..... ☐
13. Rear wheel disc and hub bolts for tightness ..... ☐
14. Front wheel hub bolts fo tightness (4WD) ..... ☐
15. Front wheel toe-in ..... ☐
16. Fuel level ..... ☐
17. Sheet metal and paint condition ... ☐
18. check lift rod for proper operation ☐
19. Drain diesel fuel filter ..... ☐

SAFETY ITEMS CHECKS

1. ROPS installed ..... ☐
2. Seat belts installed ..... ☐
3. Bolt torque check of ROPS and seat belt ..... ☐
4. PTO master shield installed ..... ☐
5. Safety decals installed ..... ☐
6. Neutral start switches operation ..... ☐
7. Parking brake & latch operation ..... ☐
8. Flashing lights/tail lights operation .. ☐
9. Operator's Manual ..... ☐

OPERATIVE SERVICE CHECKS

All operating checks are to be performed with the tractor at normal operating temperature

1. Lights and instruments for proper operation, and fuel shut down with key switch OFF ..... ☐
2. Fluid and oil leaks ..... ☐
3. Maximum no-load speed and idle speed adjustments ..... ☐
4. P.T.O. engagement and disengagement ..... ☐
   - clutch pedal and P.T.O. lever ..... ☐
5. Hydraulic System:
   - Selector lever for position control ..... ☐
   - Flow control operation ..... ☐
6. 4-wheel drive lever operation ..... ☐
7. Low speed (creeper) lever ..... ☐
8. Operation of H.S.T ..... ☐

TRACTOR MODEL NO. ..... **TRACTOR SERIAL NO. .....**

INSPECTION PERFORMED

WARRANTY EXPLAINED

OWNER'S SIGNATURE **DATE** **DEALER'S Signature** **DATE**

50 - HOUR SERVICE
CHECK AND ADJUST AS REQUIRED

INOPERATIVE SERVICE CHECKS

1. Tire pressure ..... ☐
2. check air cleaner hose connection ☐
3. Replace diesel fuel filter(s) ..... ☐
4. Tighten in-line pump delivery valve holders ..... ☐
5. Radiator coolant level ..... ☐
6. Fan belt tension ..... ☐
7. Battery cleanliness and vent openings, electrolyte level and charge ..... ☐
8. All electrical cables, terminals and wires ..... ☐
9. Drain and refill engine oil ..... ☐
10. Replace engine oil filter ..... ☐
11. Power steering reservoir oil level .. ☐
12. Transmission and rear axle oil level ☐
13. Front differential and front axle ..... ☐
14. Injection pump timing ..... ☐
15. cylinder head bolt torque ..... ☐
16. Replace hydraulic system oil filter . ☐
17. Replace H.S.T. cartridge oil filter .. ☐
18. Bolt torque check of ROPS and seat belt ..... ☐

OPERATIVE SERVICE CHECKS

1. Lights and instruments for proper operation, and fuel shut down with key switch OFF ..... ☐
2. Fluid and oil leaks ..... ☐
3. Maximum no-load speed and idle speed adjustments ..... ☐
4. Starting and starter safety switches ☐
5. Valve lash ..... ☐
6. Hydraulic system:
   - Selector lever for position control operation ..... ☐
   - Flow control operation ..... ☐

Note: Flow control only on
H.P.L lowering rate speed can be adjusted

PERFORMANCE SERVICE CHECKS

1. Engine operation including throttle and governor operation ..... ☐
2. Transmission including clutch ..... ☐
3. Steering control ..... ☐
4. Differential lock engagement and disengagement ..... ☐
5. Brake action ..... ☐
6. All optional equipment and accessories ☐
7. Hydrostatic Transmission ..... ☐

TRACTOR MODEL NO. ..... **TRACTOR SERIAL NO. .....**

INSPECTION PERFORMED

OWNER'S SIGNATURE **DATE** **DEALER'S Signature** **DATE**

PRE-DELIVERY SERVICE
CHECK AND ADJUST AS REQUIRED

PRE-DELIVERY SERVICE

CHECK AND ADJUST AS REQUIRED
INOPERATIVE SERVICE CHECKS

1. Tire pressure ..... ☐
2. Air cleaner element and hose connections ..... ☐
3. Radiator coolant level ..... ☐
4. Fan belt tension ..... ☐
5. Battery cleanliness, vent openings, electrolyte level, and charge ..... ☐
6. Engine oil level ..... ☐
7. Power steering reservoir oil level . ☐
8. Transmission and rear axle ..... ☐
9. Front axle and front differential oil level (4WD) ..... ☐
10. Hydraulic Lift control adjustment .. ☐
11. upper link, and hitch ..... ☐
12. Brake adjustment and pedal equalisation ..... ☐
13. Rear wheel disc and hub bolts for tightness ..... ☐
15. Front wheel hub bolts fo tightness (4WD) ..... ☐
15. Front wheel toe-in ..... ☐
16. Fuel level ..... ☐
17. Sheet metal and paint condition ... ☐
18. check lift rod for proper operation ☐
19. Drain diesel fuel filter ..... ☐

SAFETY ITEMS CHECKS

1. ROPS installed ..... ☐
2. Seat belts installed ..... ☐
3. Bolt torque check of ROPS and seat belt ..... ☐
4. PTO master shield installed ..... ☐
5. Safety decals installed ..... ☐
6. Neutral start switches operation ..... ☐
7. Parking brake & latch operation ..... ☐
8. Flashing lights/tail lights operation .. ☐
9. Operator's Manual ..... ☐

OPERATIVE SERVICE CHECKS

All operating checks are to be performed with the tractor at normal operating temperature

1. Lights and instruments for proper operation, and fuel shut down with key switch OFF ..... ☐
2. Fluid and oil leaks ..... ☐
3. Maximum no-load speed and idle speed adjustments ..... ☐
4. P.T.O. engagement and disengagement ..... ☐
   - clutch pedal and P.T.O. lever ..... ☐
5. Hydraulic System:
   - Selector lever for position control ..... ☐
   - Flow control operation ..... ☐
6. 4-wheel drive lever operation ..... ☐
7. Low speed (creeper) lever ..... ☐
8. Operation of H.S.T ..... ☐

TRACTOR MODEL NO. ..... **TRACTOR SERIAL NO. .....**

INSPECTION PERFORMED

WARRANTY EXPLAINED

OWNER'S SIGNATURE **DATE** **DEALER'S Signature** **DATE**

50 - HOUR SERVICE
CHECK AND ADJUST AS REQUIRED

INOPERATIVE SERVICE CHECKS

1. Tire pressure ..... ☐
2. check air cleaner hose connection ☐
3. Replace diesel fuel filter(s) ..... ☐
4. Tighten in-line pump delivery valve holders ..... ☐
5. Radiator coolant level ..... ☐
6. Fan belt tension ..... ☐
7. Battery cleanliness and vent openings, electrolyte level and charge ..... ☐
8. All electrical cables, terminals and wires ..... ☐
9. Drain and refill engine oil ..... ☐
10. Replace engine oil filter ..... ☐
11. Power steering reservoir oil level .. ☐
12. Transmission and rear axle oil level ☐
13. Front differential and front axle ..... ☐
14. Injection pump timing ..... ☐
15. cylinder head bolt torque ..... ☐
16. Replace hydraulic system oil filter . ☐
17. Replace H.S.T. cartridge oil filter .. ☐
18. Bolt torque check of ROPS and seat belt ..... ☐

OPERATIVE SERVICE CHECKS

1. Lights and instruments for proper operation, and fuel shut down with key switch OFF ..... ☐
2. Fluid and oil leaks ..... ☐
3. Maximum no-load speed and idle speed adjustments ..... ☐
4. Starting and starter safety switches ☐
5. Valve lash ..... ☐
6. Hydraulic system:
   - Selector lever for position control operation ..... ☐
   - Flow control operation ..... ☐

Note: Flow control only on
H.P.L lowering rate speed can be adjusted

PERFORMANCE SERVICE CHECKS

1. Engine operation including throttle and governor operation ..... ☐
2. Transmission including clutch ..... ☐
3. Steering control ..... ☐
4. Differential lock engagement and disengagement ..... ☐
5. Brake action ..... ☐
6. All optional equipment and accessories ☐
7. Hydrostatic Transmission ..... ☐

TRACTOR MODEL NO. ..... **TRACTOR SERIAL NO. .....**

INSPECTION PERFORMED

OWNER'S SIGNATURE **DATE** **DEALER'S Signature** **DATE**

The following warning is for users of this product in California USA and is as required by proposition 65.

CALIFORNIA
Proposition 65 Warning
Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

RANSOMES

Ransomes Way, Ipswich, England, IP3 9QG

TEXTRON
TURF CARE AND SPECIALTY PRODUCTS