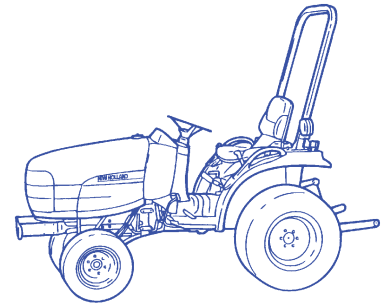


NEW HOLLAND TC21D

Serial Number UF33357 and Above

TC24D

Serial Number UG30001 and Above



TO THE OWNER

This manual contains information concerning the adjustment and maintenance of your New Holland TC21D and TC24D. You have purchased a dependable machine, but only by proper care and operation can you expect to receive the performance and long service built into this tractor. Please have all operators read this manual carefully and keep it available for ready reference.

This machine was designed to power and propel itself. It is intended to pull or carry tractor attachments or load and move materials when equipped with a front end loader with a variety of buckets. Only attachments recommended and approved by New Holland should be used with your tractor.

Your New Holland dealer will instruct you in the general operation of your tractor. (Refer to the "Delivery Report" at the back of this manual.) Your dealer's staff of factory-trained service technicians will be glad to answer any questions that may arise regarding the operation of your tractor.

Your New Holland dealer carries a complete line of genuine New Holland service parts. These parts are manufactured and carefully inspected to insure high quality and accurate fitting of any necessary replacement parts. Be prepared to give your dealer the model and serial number of the engine and tractor, when ordering parts. Locate these numbers now and record them below. Refer to the "General Information" section of this manual for the location of the model and serial numbers of your skid steer.

Model _____

Serial Number _____

_____  **CAUTION**  _____
This safety alert symbol indicates important safety messages in this manual. When you see this symbol, carefully read the message that follows and be alert to the possibility of personal injury or death.

_____  **CAUTION**  _____
Pictures in this manual may show protective shielding open or removed to better illustrate a particular feature or adjustment.
Be certain, however, to close or replace all shielding before operating the machine.

IMPROVEMENTS

New Holland North America, Inc. is continually striving to improve its products. We reserve the right to make improvements or changes when it becomes practical and possible to do so, without incurring any obligation to make changes or additions to the equipment sold previously.

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NOT FOR REPRODUCTION

FEDERAL EMISSIONS WARRANTY

(North America Only)

(California owner's emissions warranty is covered elsewhere)

New Holland warrants that your new 1996 and later heavy-duty off-road diesel engine was designed, built, and equipped to conform to applicable U.S. Environmental Protection Agency regulations for a period of use of five years or 3,000 hours of operation, whichever occurs first.

The new model year, class of diesel engine, and emission application determination for your engine are identified on the emission control information label affixed to the top of your engine's rocker arm cover. The warranty period begins on the date the new equipment is sold to the first retail purchaser.

Any emission control system parts which are proven defective during normal use will be repaired or replaced during the warranty period. The warranty repairs and service will be performed by any authorized New Holland dealer at the dealer's place of business, with no charge for parts or labor (including diagnosis).

As the engine owner, you are responsible to perform all the required maintenance listed in your owner's manual. New Holland will not deny an emission warranty claim solely because you have no record of maintenance; however, a claim may be denied if your failure to perform maintenance resulted in the failure of a warranted part. Receipts covering regular maintenance should be retained in the event of questions and these receipts should be passed on to each subsequent owner of the engine.

It is recommended replacement parts used for maintenance or repairs be New Holland Service Parts to maintain the quality originally designed into your emission certified engine. The use of non-New Holland parts does not invalidate the warranty on other components unless the use of such parts causes damage to warranted parts.

New Holland wishes to assure the emission control systems warranty is being properly administered. If you believe you have not received the service entitled to under this warranty, you should contact the nearest New Holland Branch Office for assistance. The address and phone number of each Branch Office is in your vehicle owner's manual. If additional assistance or information is needed, contact:

Service Department
New Holland North America, Inc.
500 Diller Avenue
New Holland, PA 17557
(717) 355-1121

Please note that the Emission Warranty does not cover:

1. Systems and parts that were not first installed on the new equipment or engine as original equipment by New Holland.
2. Part malfunctions caused by abuse, misuse, improper adjustment, modification, alteration, tampering, disconnection, improper or inadequate maintenance, or use of non-recommended fuels and lubricating oils.
3. Accident caused damage, acts of nature, or other events beyond New Holland's control.
4. Replacement of expendable items made in connection with scheduled maintenance.
5. Parts requiring replacement, inspection or adjustment maintenance intervals for reasons other than being defective.
6. Parts which are not New Holland Service Parts.
7. Loss of time, inconvenience, loss of use of equipment/engine or commercial loss.
8. Equipment with altered or disconnected hourmeter where the hours cannot be determined.
9. Equipment normally operated outside the United States.
10. Non-defective parts replaced by other than New Holland dealers.

Coverage

This emission control system warranty applies to the following emission control parts.

Fuel Injection Pump
Fuel Injectors
Turbocharger
Intake Manifold
Exhaust Manifold
Boost Pressure Tubing-connection to Aneroid Device ON F.I.P.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

(North America Only)

(California Only)

Your Warranty Rights and Obligations

The California Air Resources Board and New Holland are pleased to explain the emission control system warranty on your engine. In California, new 1997 and later heavy-duty off-road engines from 100 to 150 HP must be designed, built, and equipped to meet the State's stringent anti-smog standards. New Holland must warrant the emission control system on your engine for the periods of time listed below, provided there has been no abuse, neglect, or improper maintenance of your engine.

Your emission control system includes parts such as the fuel injection system and the air induction system.

Where a warrantable condition exists, New Holland will repair your heavy-duty off-road engine at no cost to you, including diagnosis, parts, and labor.

Manufacturer's Warranty Coverage:

The 1997 and later heavy-duty off-road engines are warranted from the original date of delivery for five years or 3,000 hours of operation, whichever occurs first. If any emission-related part on your engine is defective, the part will be repaired or replaced by New Holland.

Owner's Warranty Responsibilities:

- As the heavy-duty off-road engine owner, you are responsible for the performance of the required maintenance listed in your owner's manual. New Holland recommends that you retain all receipts covering maintenance on your heavy-duty off-road engine, but New Holland cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the heavy-duty off-road engine owner, you should, however, be aware that New Holland may deny you warranty coverage if your heavy-duty off-road engine or a part has failed due to abuse, neglect, improper maintenance, or unapproved modifications.
- Your engine is designed to operate on commercially available diesel fuel only. Use of any other fuel may result in your engine no longer operating in compliance with California's emissions requirements.
- You are responsible for initiating the warranty process. The ARB suggests that you present your heavy-duty off-road engine to a New Holland dealer as soon as a problem exists. The warranty repairs should be completed by the dealer as expeditiously as possible.

If you have questions regarding your warranty rights and responsibilities, you should contact your Branch Office at the address and phone number listed on the Owner Assistance page of your equipments operator manual.

- Prior to the expiration of the warranty, you must give notice of any failure of an emission control warranted part. Such notice must be given to New Holland or an authorized dealer, and you must deliver the engine to the repair location.
- You, the owner, are responsible for incidental costs incurred by yourself or your employees as a result of a warrantable failure. Examples of such costs are communication expenses, meals and lodging.
- The owner is responsible for any business costs or losses, any "downtime" expenses and any "cargo" damage which result from the failure of a warranted part. New Holland is not responsible for other incidental or consequential damages, including but not limited to fines, theft, vandalism or collisions.

Parts covered:

This emission control system warranty applies to the following emission control parts.

Fuel Injection Pump
Fuel Injectors
Turbocharger
Intake Manifold
Exhaust Manifold
Boost Pressure Tubing-connection to Aneroid Device ON F.I.P.

Any replacement part, equivalent in performance and durability, may be used in the performance of any maintenance or repairs and must be provided without charge to the owner. The use of these parts does not reduce the warranty obligations of New Holland. However, New Holland recommends the use of new, genuine New Holland service parts or New Holland approved rebuilt parts and assemblies. New Holland also recommends that the engine be serviced by a New Holland authorized dealer.

New Holland Responsibilities

Warranty work will be provided at no charge to the owner at any authorized dealer, using new genuine New Holland service parts or New Holland approved rebuilt parts or assemblies..

The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work was performed at a warranty station.

New Holland is liable for damages to other engine components caused by the failure under warranty of any warranted part.

Warranty Limitations

New Holland is not responsible for failures resulting from abuse or neglect by owner or operator.

New Holland warrants to the ultimate purchaser and each subsequent purchaser that the engine is designed, built, and equipped so as to conform with all applicable regulations adopted by the Air Resources Board, and that it is free from defects in materials and workmanship which cause the failure of a warranted part.

Any warranted part which is not scheduled for replacement as required maintenance, or which is scheduled only for regular inspection to the effect of "repair or replace as necessary" is warranted for the warranty period.

Any warranted part which is scheduled for replacement as required maintenance is warranted for the period of time prior to the first scheduled replacement point for that part.

New Holland is liable for damages to other engine components caused by the failure under warranty of any warranted part.

**(North America Only)
(California Only)**

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.

Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

NOT FOR REPRODUCTION

PRECAUTIONARY STATEMENTS

PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements (“**DANGER**”, “**WARNING**”, and “**CAUTION**”) followed by specific instructions. These precautions are intended for the personal safety of you and those working with you. Please take the time to read them.



DANGER



This word “**DANGER**” indicates an immediate hazardous situation that, if not avoided, will result in death or serious injury. The color associated with Danger is RED.



WARNING



This word “**WARNING**” indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury. The color associated with Warning is ORANGE.



CAUTION



This word “**CAUTION**” indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. The color associated with Caution is YELLOW.

FAILURE TO FOLLOW THE “**DANGER**”, “**WARNING**”, AND “**CAUTION**” INSTRUCTIONS MAY RESULT IN SERIOUS BODILY INJURY OR DEATH.

MACHINE SAFETY

The precautionary statement (“**IMPORTANT**”) is followed by specific instructions. This statement is intended for machine safety.

IMPORTANT: The word “**IMPORTANT**” is used to inform the reader of something he needs to know to prevent minor machine damage if a certain procedure is not followed.

INFORMATION

NOTE: Instructions used to identify and present supplementary information.

SAFETY

PRECAUTIONARY STATEMENTS

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

Carefully review the procedures given in this manual with all operators. It is important that all operators be familiar with and follow safety precautions.

THE TRACTOR

1. Read the Operator's Manual carefully before using the tractor. Lack of operating knowledge can lead to accidents.
2. Use an approved roll bar and seat belt for safe operation. Overturning a tractor without a roll bar can result in death or injury. If your tractor is not equipped with a roll bar and seat belt, see your New Holland Dealer.
3. Always use the seat belt. The only instance when the seat belt should not be used is if the roll bar has been removed from the tractor.
4. If a front end loader is to be installed, always use a FOPS (Falling Object Protective Structure) canopy to avoid injury from falling objects.
5. Use the handholds and step plates when getting on and off the tractor to prevent falls. Keep steps and platform cleared of mud and debris.
6. Do not permit anyone but the operator to ride on the tractor. There is no safe place for extra riders.
7. Keep all safety decals clean of dirt and grime, and replace all missing, illegible, or damaged safety decals. See the list of decals in the Decal section of this manual.
3. Keep the tractor and equipment, particularly brakes and steering, maintained in a reliable and satisfactory condition to ensure your safety and comply with legal requirements.
4. Keep open flame or cold weather starting aids away from the battery to prevent fires or explosions. Use jumper cables according to instructions to prevent sparks which could cause explosion.
5. Stop the engine before performing any service on the tractor.
6. Escaping hydraulic/diesel fluid under pressure can penetrate the skin causing serious injury. If fluid is injected into the skin, obtain medical attention immediately or gangrene may result.
 - DO NOT use your hand to check for leaks. Use a piece of cardboard or paper to search for leaks.
 - Stop the engine and relieve pressure before connecting or disconnecting lines.
 - Tighten all connections before starting the engine or pressurizing lines.
7. Do not modify or permit anyone else to modify or alter this tractor or any of its components or functions without first consulting a New Holland Dealer.

SERVICING THE TRACTOR

1. 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 turn the cap slowly to the first stop and allow pressure to escape before removing the cap entirely.
2. Keep any type of open flame away from the tractor and do not smoke while refueling. Wait for the engine to cool before refueling.
8. The 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 other part of the fuel injection system. Failure to follow these instructions can result in serious injury.
9. Continuous long-term contact with used engine oil may cause skin cancer. Avoid prolonged contact with used engine oil. Wash skin promptly with soap and water.

10. Some components of your tractor, such as gaskets and friction surfaces (brake linings, clutch linings, etc.) may contain asbestos. Breathing asbestos dust is dangerous to your health. You are advised to have any maintenance or repair on such components carried out by an authorized New Holland Dealer. However, if service operations are to be undertaken on parts that contain asbestos, the essential precautions listed below must be observed:

- Work out of doors or in a well ventilated area.
- Dust found on the tractor or produced during work on the tractor should be removed by extraction, not by blowing.
- Dust waste should be dampened, placed in a sealed container, and marked to ensure safe disposal.
- If any cutting, drilling, etc. is attempted on materials containing asbestos, the item should be dampened and only hand tools or low speed power tools used.

OPERATING THE TRACTOR

1. Before starting the tractor, apply the parking brake, place the PTO lever in the "OFF" position, the lift control lever in the down position, the remote control valve levers in the neutral position, and the transmission in neutral.
2. Always sit in the tractor seat when starting the engine or operating controls. Do not start the engine or operate controls while standing beside the tractor.
3. Do not bypass the neutral start switches. Consult your New Holland Dealer if your neutral start controls malfunction. Use jumper cables only in the recommended manner. Improper use can result in tractor runaway.
4. Avoid accidental contact with the gear shift lever while the engine is running, as this can cause unexpected tractor movement.
5. Before getting off the tractor, disengage the PTO, turn the engine off, and apply the parking brake. Never get off the tractor while it is in motion.
6. Do not park the tractor on a steep incline.
7. Do not operate the tractor engine in an enclosed building without adequate ventilation. Exhaust fumes can cause death or illness.
8. If the power steering or engine ceases operating, stop the tractor immediately.
9. Pull only from the drawbar or the lower link drawbar in the down position. Use only a drawbar pin that locks in place. Pulling from the tractor rear axle or any point above the axle may cause the tractor to upset.
10. If the front end of the tractor tends to rise when heavy implements are attached to the three-point hitch, install front end or front wheel weights. Do not operate the tractor with a light front end.
11. Always set the hydraulic selector lever in position control when attaching or transporting equipment. Ensure hydraulic couplers are properly mounted and will disconnect safely in case of accidental detachment of implement.
12. Do not leave equipment in the raised position.
13. Use the flasher/turn signal lights and SMV signs when traveling on public roads both day and night (unless prohibited by law).
14. When operating at night, adjust lights to prevent blinding oncoming drivers.

DRIVING THE TRACTOR

1. Watch where you are going, especially at row ends, on roads, around trees and low hanging obstacles.
2. To avoid upsets, drive the tractor with care and at a safe speed. Use extra caution when operating over rough ground, when crossing ditches or slopes, and when turning corners.
3. To provide two-wheel braking, lock tractor brake pedals together when transporting on roads.
4. Do not coast or free wheel down hills. Use the same gear when going downhill as is used when going uphill.
5. Any towed vehicle with a total weight exceeding that of the towing tractor should be equipped with brakes for safe operation.
6. If the tractor becomes stuck or the tires become frozen to the ground, back up the tractor to prevent upset.
7. Always check overhead clearance, especially when transporting the tractor.
8. When operating at night, adjust lights to prevent blinding oncoming drivers.

OPERATING THE PTO

1. When operating PTO driven equipment, shut off the engine and wait until the PTO stops before getting off the tractor and disconnecting the equipment.
2. Do not wear loose clothing when operating the power take-off or when near rotating equipment.
3. When operating stationary PTO driven equipment, always place both gear shift levers in neutral, apply the tractor parking brake, and block the rear wheels front and back.
4. To avoid injury, do not clean, adjust, unclog, or service PTO driven equipment when the tractor engine is running.
5. Ensure the PTO master shield is installed at all times. Always replace the PTO shield cap when the PTO is not in use.

DIESEL FUEL

1. UNDER NO CIRCUMSTANCES should gasoline, alcohol, or blended fuels be added to diesel fuel. These combinations can create an increased fire or explosive hazard. Such blends are more explosive than pure gasoline in a closed container such as a fuel tank. DO NOT USE THESE BLENDS.
2. Never remove the fuel cap or refuel with the engine running or hot.
3. Do not smoke while refueling or when standing near fuel.
4. Maintain control of the fuel filler pipe nozzle when filling the tank.
5. Do not fill the fuel tank to capacity. Allow room for expansion.

6. Wipe up spilled fuel immediately.
7. Always tighten the fuel tank cap securely.
8. If the original fuel tank cap is lost, replace it with a New Holland approved cap. A non-approved, proprietary cap may not be safe.
9. Keep equipment clean and properly maintained.
10. Do not drive equipment near open fires.
11. Never use fuel for cleaning purposes.
12. Arrange fuel purchases so that winter grade fuels are not held over and used in the spring.

SAFETY FRAME (ROPS)

Your New Holland tractor is equipped with a safety frame. It must be maintained in a serviceable condition. Be careful when driving through doorways or working in confined spaces with low headroom.

UNDER NO CIRCUMSTANCES should you:

- modify, drill, or alter the safety frame in any way. Doing so may render you liable to legal prosecution.
- attempt to straighten or weld any part of the main frame or retaining brackets which have suffered damage. Doing so may weaken the structure and endanger your safety.
- secure any parts on the main frame or attach your safety frame with anything other than the special high tensile bolts and nuts specified.
- attach chains or ropes to the main frame for pulling purposes.
- take unnecessary risks even though your safety frame affords you the maximum protection possible.



WHEN YOU SEE THIS SYMBOL

IT MEANS:

ATTENTION!

BECOME ALERT!

YOUR SAFETY IS INVOLVED!

SAFETY DECALS

If safety or instruction decals become damaged or illegible, new decals should be obtained from your New Holland Dealer and placed at their original positions.

SAFETY DECALS



WARNING

- Pull only from drawbar. Pulling from any other point can cause rear overturn.
- Do not operate with unshielded PTO.
- Disengage PTO and stop engine before servicing tractor or implements or attaching and detaching implements.
- When towing equipment use a safety chain.

FAILURE TO FOLLOW ANY OF THE INSTRUCTIONS ABOVE CAN CAUSE SERIOUS INJURY TO THE OPERATOR OR OTHER PERSONS.

WARNING: Pull Only From Drawbar
PART NO: SBA390194661
LOCATION: On Back of Toolbox



WARNING

- Before starting and operating
 - Know the operating and safety instructions in the operators manual and on the tractor.
 - Clear the area of bystanders.
 - Locate and know operation of controls.
 - Fasten your seat belt.
- Start engine only from operators seat with transmission in neutral, PTO disengaged and hydraulic controls in lowered position.
- Slow down on turns, rough ground and slopes to avoid upset.
- Do not permit anyone but the operator to ride on the tractor. There is no safe place for riders.
- Lock brakes together, use warning lights and SMV emblem while driving on roads.
- Lower equipment, place gear shift levers in neutral, stop engine and apply parking brake before leaving tractor seat.
- Avoid accidental contact with gear shift lever while engine is running. Unexpected tractor movement can result.

FAILURE TO FOLLOW ANY OF THE INSTRUCTIONS ABOVE CAN CAUSE SERIOUS INJURY TO THE OPERATOR OR OTHER PERSONS.

[Replacement manuals are available from your FORD NEW HOLLAND dealer or FORD NEW HOLLAND INC., —New Holland, PA17557]



WARNING

Do Not operate with shield removed. Failure to comply could result in death or serious injury.

WARNING: Do Not Operate With Shield Removed
PART NO: SBA390198480
LOCATION: Inside of Engine Side Shields

WARNING: Start Engine Only from Operator's Seat
PART NO: SBA190196682
LOCATION: On the Starting Motor



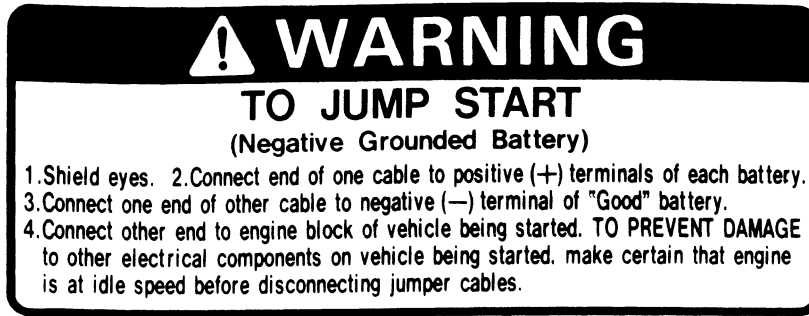
WARNING

- Start engine only from operators seat, if safety start switch is bypassed engine can start with transmission in gear.
- Do not connect or short across terminals on starter solenoid.
- Attach booster cables as shown on battery decal.

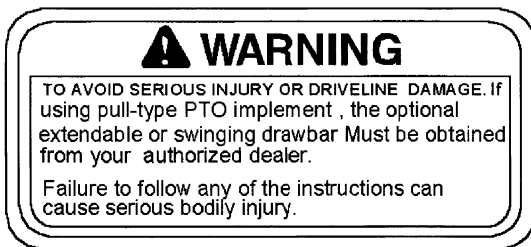
Starting in gear causing runaway can result in serious injury.

WARNING: Before Starting and Operating
PART NO: SBA390192273
LOCATION: Front of L.H. Fender

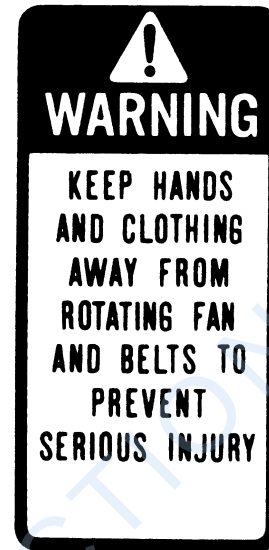
SAFETY DECALS



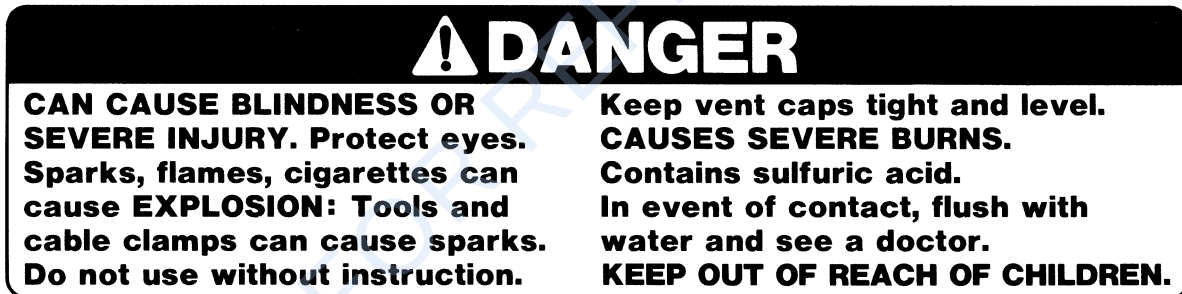
WARNING: To Jump Start
PART NO: SBA490990571
LOCATION: Right Side of Battery Support



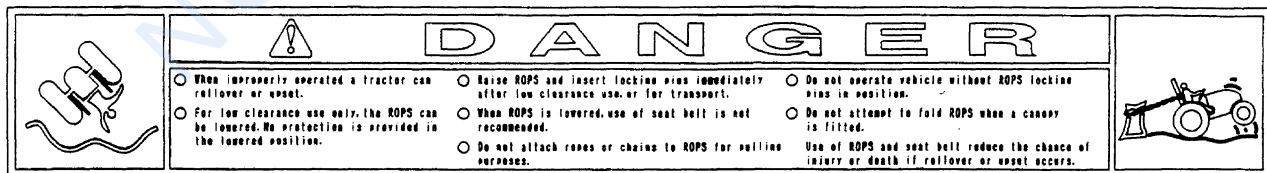
WARNING: Drawbar
PART NO: SBA390198391
LOCATION: Top of PTO Shield



WARNING: Keep Hands and Clothing
 Away from Rotating Fan
PART NO: SBA390191352
LOCATION: Each Side of Radiator



DANGER: Explosive/Acid - Poison
PART NO: SBA390194390
LOCATION: Top of Battery



DANGER: ROPS
PART NO: SBA390197530
LOCATION: Overhead on ROPS

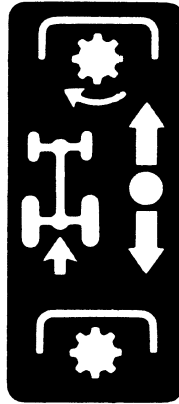
INSTRUCTION DECALS



Range Selector
Lever - Gear
PART NO: SBA390171890
LOCATION: Left Control Pod



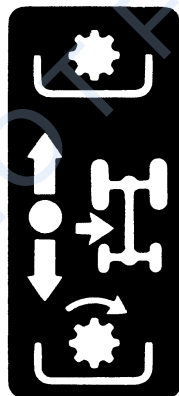
Range Selector Lever -
Hydrostatic
PART NO: SBA390173490
LOCATION: Left Control Pod



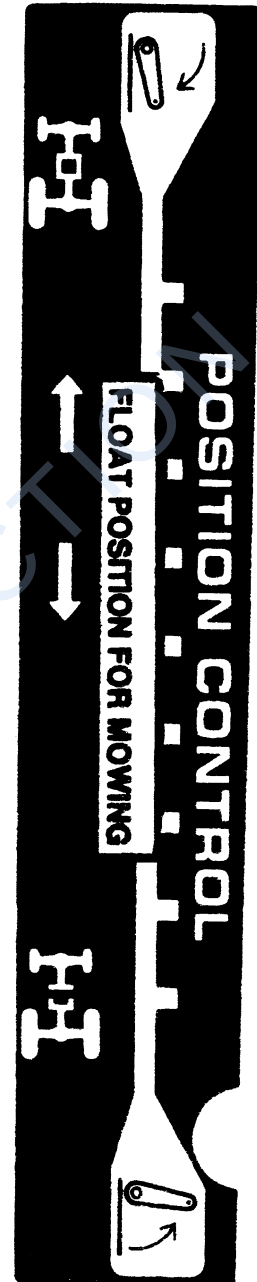
PTO Control Lever
PART NO: SBA390171940
LOCATION: L.H. Fender -
Near Control



Differential Lock
PART NO: SBA390191690
LOCATION: On Fender
Near Pedal

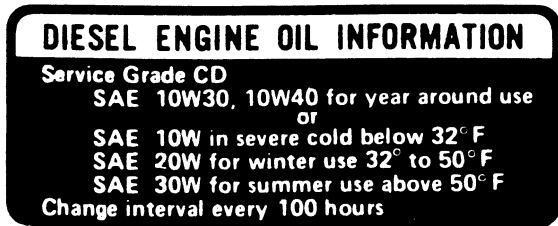


Mid PTO Control Lever
PART NO: SBA390171950
LOCATION: L.H. Fender -
Left of Control



HPL Position Control, FWD Lever
PART NO: SBA390372341 - 4WD
LOCATION: Between HPL and
FWD Levers (RH Control Pod)

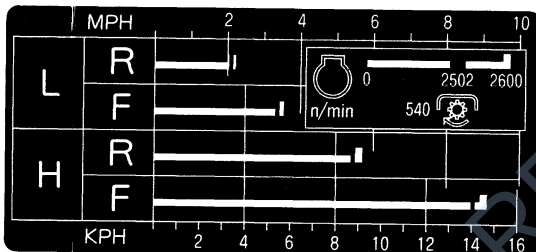
INSTRUCTION DECALS



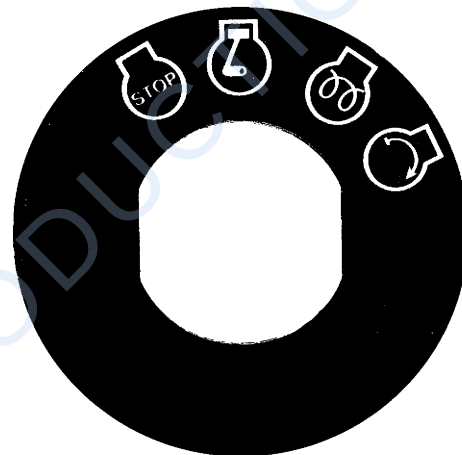
Diesel Engine Oil Information
 PART NO: SBA190196490
 LOCATION: Underside of Hood



Engine Oil
 PART NO: SBA390230120
 LOCATION: On Engine Oil Filler Cap



HST - Speed Chart
 PART NO: SBA390173400
 LOCATION: On LH Fender Under Seat



Starter Switch
 PART NO: SBA390197280
 LOCATION: On the R.H. of Dash



Hand Throttle
 PART NO: SBA390430250
 LOCATION: RH Side of Console

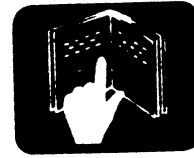
INSTRUCTION DECALS



Parking Brake

PART NO: SBA390194270

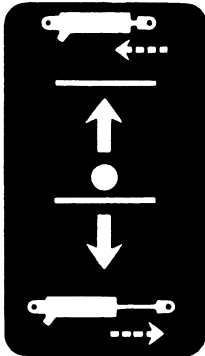
LOCATION: On L.H. Side of Parking
Brake Lever



Hydraulic Manifold Operation

PART NO: SBA390192850

LOCATION: Side of Hydraulic
Manifold and Air Filter Cap

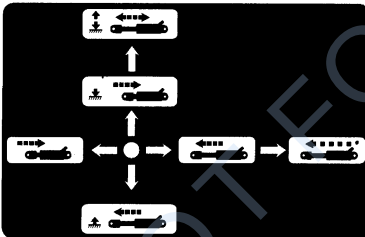


(Optional)

Operating Remote Control Valve - Single

PART NO: SBA390370300

LOCATION: R.H. Side Under Seat
(next to control handle)



(Optional)

Two Spool Remote Operation

PART NO: SBA86532911

LOCATION: On Remote Control Cover

WATCH YOUR PROOF METER HOURS LUBRICATION AND MAINTENANCE SERVICE INTERVALS				
LUBRICATION AND MAINTENANCE ITEM	CHECK	CLEAN	LUBE	SERVICE INTERVAL
Radiator Coolant	•			Every 10Hours or Daily
Engine Oil Level	•			
Air Cleaner	•			
Transmission Oil Level	•			
Power Steering 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			•	
Power Steering			•	
Engine Oil			•	Every 100 Hours
Engine Oil Filter			•	
Fuel Filter		•		
Air Cleaner		•		
Fuel Filter		•		Every 200 Hours
Fan Belt		•		
Brakes		•		
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			•	
Power Steering Oil			•	
Radiator Coolant			•	Seasonal
Air Cleaner Element			•	

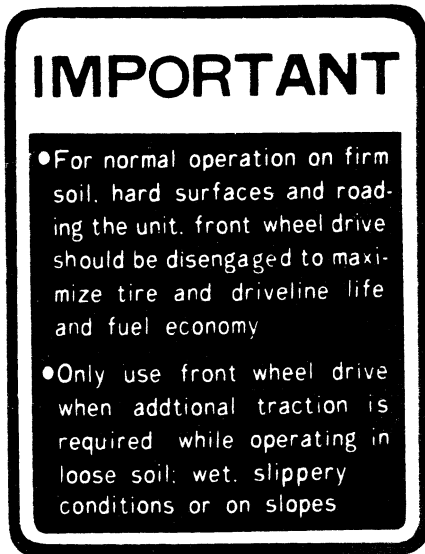
Refer to your Operator's Manual
for additional information

Lubrication and Maintenance Intervals

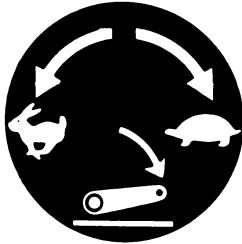
PART NO: SBA390198350

LOCATION: Underside of Hood

INSTRUCTION DECALS



Important - For Normal Operation
PART NO: SBA390192410
LOCATION: R.H. Fender Under Seat

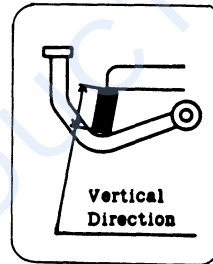


Flow Control Knob
PART NO: SBA390370290
LOCATION: End of Flow Control Knob

USAGE

Tractors that are to be stored for an extended period should have this part between clutch pedal and platform to prevent clutch from adhering.

Usage - Tractors That Are to Be Stored
PART NO: SBA390190300
LOCATION: On Clutch Pedal Spacer Block



Installing Pedal Spacer
PART NO: SBA390190290
LOCATION: On Clutch Pedal Spacer Block

ECOLOGY AND THE ENVIRONMENT

Soil, air, and water are vital factors of agriculture and life in general. When legislation does not yet rule the treatment of some of the substances which are required by advanced technology, common sense should govern the use and disposal of products of a chemical and petrochemical nature.

The following are recommendations which may be of assistance:

- Become acquainted with and ensure that you understand the relative legislation applicable to your country.
- Where no legislation exists, obtain information from suppliers of oils, filters, batteries, fuels, antifreeze, cleaning agents, etc., with regard to their effect on man and nature and how to safely store, use and dispose of these substances. Agricultural consultants will, in many cases, be able to help you as well.

HELPFUL HINTS

1. Avoid filling tanks using cans or inappropriate pressurized fuel delivery systems which may cause considerable spillage.
2. In general, avoid skin contact with all fuels, oils, acids, solvents, etc. Most of them contain substances which may be harmful to your health.

3. Modern oils contain additives. Do not burn contaminated fuels and or waste oils in ordinary heating systems.
4. Avoid spillage when draining off used engine coolant mixtures, engine, gearbox and hydraulic oils, brake fluids, etc. Do not mix drained brake fluids or fuels with lubricants. Store them safely until they can be disposed of in a proper way to comply with local legislation and available resources.
5. Modern coolant mixtures, i.e. antifreeze and other additives, should be replaced every two years. They should not be allowed to get into the soil but should be collected and disposed of safely.
6. Do not open the air-conditioning system yourself. It contains gases which should not be released into the atmosphere. Your dealer or air conditioning specialist has a special extractor for this purpose and will have to recharge the system properly.
7. Repair and leaks or defects in the engine cooling or hydraulic system immediately.
8. Do not increase the pressure in a pressurized circuit as this may lead to a component failure.
9. Protect hoses during welding as penetrating weld splatter may burn a hole or weaken them, allowing the loss of oils, coolant, etc.

INTERNATIONAL SYMBOLS

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

	Thermostart starting aid		Radio		P.T.O.		Position Control
	Alternator charge		Keep alive memory		Transmission in neutral		Draft Control
	Fuel level		Turn signals		Creeper gears		Accessory socket
	Automatic Fuel shut-off		Turn signals -one trailer		Slow or low setting		Implement socket
	Engine speed (rev/min x 100)		Turn signals -two trailers		Fast or high setting		%age slip
	Hours recorded		Front wind-screen wash/wipe		Ground speed		Hitch raise (rear)
	Engine oil pressure		Rear wind-screen wash/wipe		Differential lock		Hitch lower (rear)
	Engine coolant temperature		Heater temperature control		Rear axle oil temperature		Hitch height limit (rear)
	Coolant level		Heater fan		Transmission oil pressure		Hitch height limit (front)
	Tractor lights		Air conditioner		FWD engaged		Hitch disabled
	Headlamp main beam		Air filter blocked		FWD disengaged		Hydraulic and transmission filters
	Headlamp dipped beam		Parking brake		Warning!		Remote valve extend
	Work lamps		Brake fluid level		Hazard warning lights		Remote valve retract
	Stop lamps		Trailer brake		Variable control		Remote valve float
	Horn		Roof beacon		Pressurized! Open carefully		Malfunction! See Operator's Manual
			Warning! Corrosive substance				Malfunction!(alternative symbol)

NOT FOR REPRODUCTION

SECTION 1

GENERAL INFORMATION

PLEASE READ CAREFULLY:

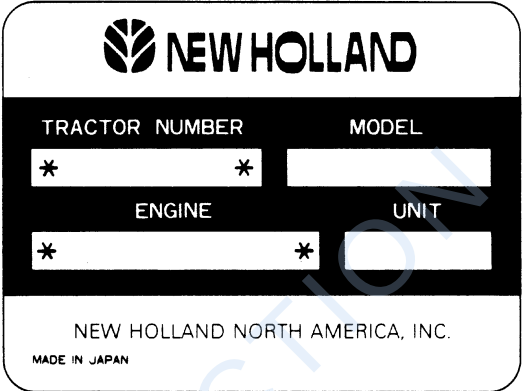
For a complete list of the pre-delivery service checks performed by your dealer, refer to the PRE-DELIVERY SERVICE checklist found at the back of this manual. Keep one copy as your record of the service performed. The other copy should be removed from the manual and kept by your dealer. **MAKE SURE THAT BOTH COPIES ARE COMPLETED AND THAT YOU AND THE DEALER SIGN BOTH COPIES.**

A **PRODUCT IDENTIFICATION PLATE** is located on the right-hand side of the tractor front end. The numbers on the plate are important in the event your tractor should require future service. For your convenience, have your dealer record these numbers in the appropriate spaces below.

New Holland North America, Inc. is continually striving to improve its products. We reserve the right to change prices, specification, or equipment at any time without notice.

All data given in this book is subject to production variations. Dimensions and weights are approximate only, and the illustrations do not necessarily depict tractors in standard condition. For exact information about any particular tractor, please consult your New Holland dealer.

This tractor has been designed for doing light work, such as mowing, light tilling, blowing snow, and light loader work. Do not attempt to use implements that were not designed for this tractor, as they may cause damage to the tractor.

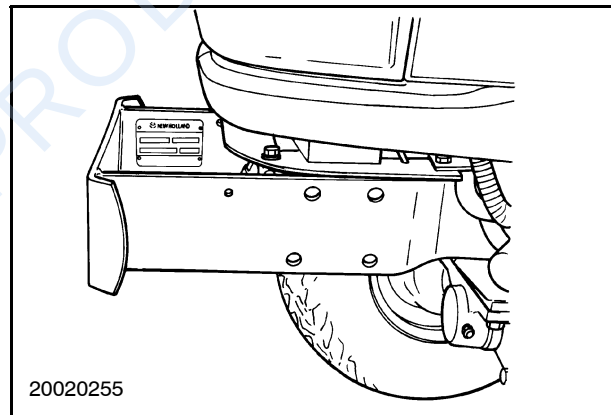


The image shows a rectangular identification plate with a black header containing the New Holland logo and name. Below the header, there are four fields for recording information: 'TRACTOR NUMBER' and 'MODEL' in the top row, and 'ENGINE' and 'UNIT' in the bottom row. Each field has a star symbol on either side of a blank space for writing. At the bottom of the plate, it reads 'NEW HOLLAND NORTH AMERICA, INC.' and 'MADE IN JAPAN'.

TRACTOR NUMBER		MODEL
*		*
ENGINE		UNIT
*		*

NEW HOLLAND NORTH AMERICA, INC.
MADE IN JAPAN

1



2

MINIMUM HARDWARE TIGHTENING TORQUES

IN FOOT POUNDS (NEWTON-METERS) FOR NORMAL ASSEMBLY APPLICATIONS

INCH HARDWARE AND LOCKNUTS

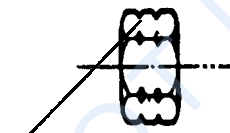
NOMINAL SIZE	SAE GRADE 2		SAE GRADE 5		SAE GRADE 8		LOCKNUTS		NOMINAL SIZE
	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	UNPLATED or PLATED SILVER	PLATED W/ZnCr GOLD	GR.B w/GR5 BOLT	GR.C w/GR8 BOLT	
1/4	55* (6.2)	72* (8.1)	86* (9.7)	112* (13)	121* (14)	157* (18)	61* (6.9)	86* (9.8)	1/4
5/16	115* (13)	149* (17)	178* (20)	229* (26)	250* (28)	324* (37)	125* (14)	176* (20)	5/16
3/8	17 (23)	22 (30)	26 (35)	34 (46)	37 (50)	48 (65)	19 (26)	26 (35)	3/8
7/16	27 (37)	35 (47)	42 (57)	54 (73)	59 (80)	77 (104)	30 (41)	42 (57)	7/16
1/2	42 (57)	54 (73)	64 (87)	83 (113)	91 (123)	117 (159)	45 (61)	64 (88)	1/2
9/16	60 (81)	77 (104)	92 (125)	120 (163)	130 (176)	169 (229)	65 (88)	92 (125)	9/16
5/8	83 (112)	107 (145)	128 (174)	165 (224)	180 (244)	233 (316)	90 (122)	127 (172)	5/8
3/4	146 (198)	189 (256)	226 (306)	293 (397)	319 (432)	413 (560)	160 (217)	226 (306)	3/4
7/8	142 (193)	183 (248)	365 (495)	473 (641)	515 (698)	667 (904)	258 (350)	364 (494)	7/8
1	213 (289)	275 (373)	547 (742)	708 (960)	773 (1048)	1000 (1356)	386 (523)	545 (739)	1

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION CAP SCREWS AND CARRIAGE BOLTS



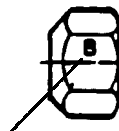
LOCKNUTS



GRADE IDENTIFICATION
 GRADE A NO NOTCHES
 GRADE B ONE CIRCUMFERENTIAL NOTCH
 GRADE C TWO CIRCUMFERENTIAL NOTCHES



GRADE IDENTIFICATION
 GRADE A NO MARKS
 GRADE B THREE MARKS
 GRADE C SIX MARKS
 MARKS NEED NOT BE LOCATED AT CORNERS



GRADE IDENTIFICATION

GRADE A NO MARK
 GRADE B LETTER B
 GRADE C LETTER C

MINIMUM HARDWARE TIGHTENING TORQUES

IN FOOT POUNDS (NEWTON-METERS) FOR NORMAL ASSEMBLY APPLICATIONS

METRIC HARDWARE AND LOCKNUTS

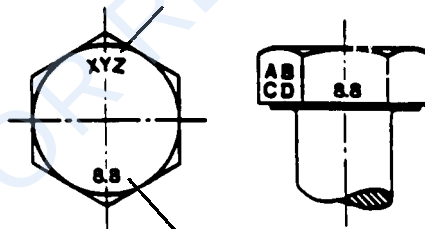
NOMINAL SIZE	CLASS 5.8		CLASS 8.8		CLASS 10.9		LOCKNUT CL.8 W/CL8.8 BOLT
	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	UNPLATED	PLATED W/ZnCr	
M4	15* (1.7)	19* (2.2)	23* (2.6)	30* (3.4)	33* (3.7)	42* (4.8)	16* (1.8)
M6	51* (5.8)	67* (7.6)	79* (8.9)	102* (12)	115* (13)	150* (17)	56* (6.3)
M8	124* (14)	159* (18)	195* (22)	248* (28)	274* (31)	354* (40)	133* (15)
M10	21 (28)	27 (36)	32 (43)	41 (56)	45 (61)	58 (79)	22 (30)
M12	36 (49)	46 (63)	55 (75)	72 (97)	79 (107)	102 (138)	39 (53)
M16	89 (121)	117 (158)	137 (186)	177 (240)	196 (266)	254 (344)	97 (131)
M20	175 (237)	226 (307)	277 (375)	358 (485)	383 (519)	495 (671)	195 (265)
M24	303 (411)	392 (531)	478 (648)	619 (839)	662 (897)	855 (1160)	338 (458)

NOTE: Torque values shown with * are inch pounds.

IDENTIFICATION

HEX CAP SCREW AND CARRIAGE BOLTS CLASSES 5.6 AND UP

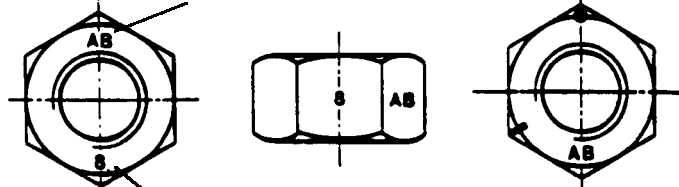
MANUFACTURER'S IDENTIFICATION



PROPERTY CLASS

HEX NUTS AND LOCKNUTS CLASSES 05 AND UP

MANUFACTURER'S IDENTIFICATION



PROPERTY CLASS

CLOCK MARKING

NOT FOR REPRODUCTION

SECTION 2

OPERATION

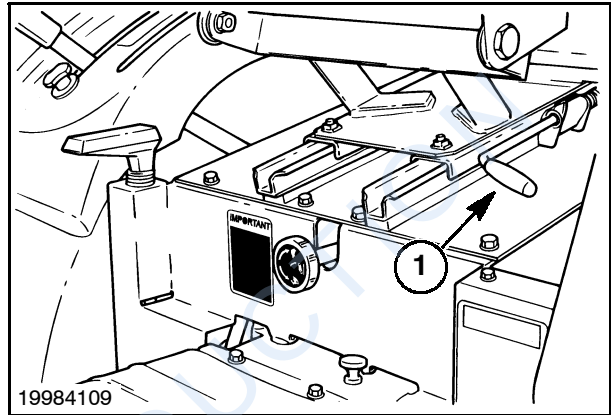
CONTROLS AND INSTRUMENTS

SEAT, SEAT BELT, AND ROLLOVER PROTECTIVE STRUCTURE (ROPS)

Adjusting the Tractor Seat

Your New Holland tractor is equipped with an adjustable suspension seat.

To move the seat fore and aft, raise the release lever, 1. Because the seat is on an inclined base, more effort is required to move the seat rearward than forward.



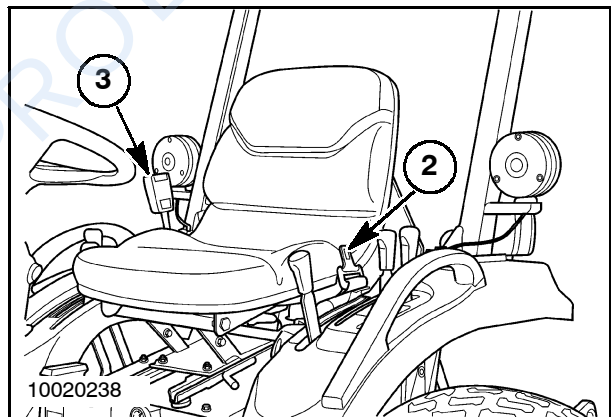
1

ADJUSTING THE SEAT BELT

The male end of the seat belt, 2, is part of a retraction mechanism, located on the left side of the seat. To extend length of seat belt, pull out on male end until correct length is obtained. To latch belt, insert male end, 2, into belt latch, 3, located on right side of seat. Be sure belt is securely latched and belt length is adjusted correctly for size of operator.

Use soap and water to clean the seat belt if necessary. Do not use carbon tetrachloride, naphtha, etc., as these substances will weaken the webbing. Additionally, do not bleach or redye the webbing, as these products will also weaken the webbing.

Replace the seat belt if it becomes damaged or worn.



2

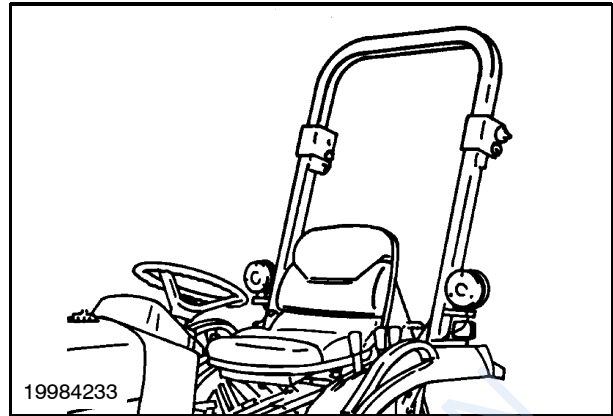
SECTION 2 - OPERATION

Rollover Protective Structure (ROPS)

A Rollover Protective Structure (ROPS) and seat belts are standard equipment on this tractor at the time of factory assembly. If the ROPS was deleted by the original purchaser or has been removed, it is recommended that you equip your tractor with a ROPS and seat belts.

ROPS are effective in reducing injuries in the event of tractor overturn. Overturning a tractor without a ROPS installed can result in serious injury or death. The Rollover Protective Structure and seat belts are available from your New Holland Dealer.

Additionally, the safety offered by the ROPS and seat belt is minimized if your seat belt is not buckled. Always use your seat belt: it can save your life.



3

⚠ WARNING ⚠

Do not operate the tractor with the rollover protective structure folded as a standard operating mode. A folded ROPS does not provide rollover protection.

Always wear the seat belt when the tractor is equipped with a ROPS. However, if the ROPS has been removed from the tractor, or if the ROPS is in the folded position, the seat belt should not be used.

SECTION 2 - OPERATION

Foldable ROPS

A foldable Rollover Protective Structure is available factory installed on the TC21D and TC24D. Operate with the ROPS in the “up” position whenever possible. Use the ROPS in the “folded” position only when absolutely necessary.

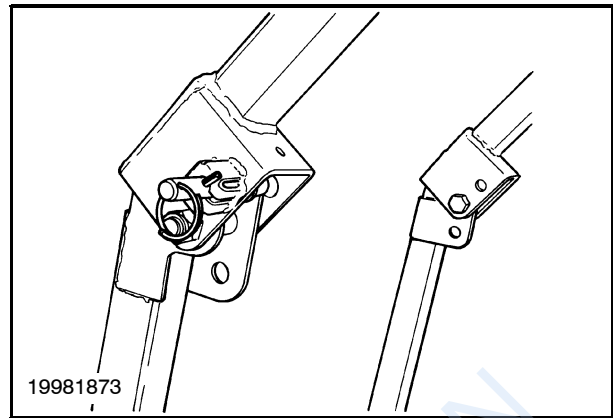
⚠ WARNING ⚠

Do not operate the tractor with the rollover protective structure folded as a standard operating mode. A folded ROPS does not provide rollover protection.

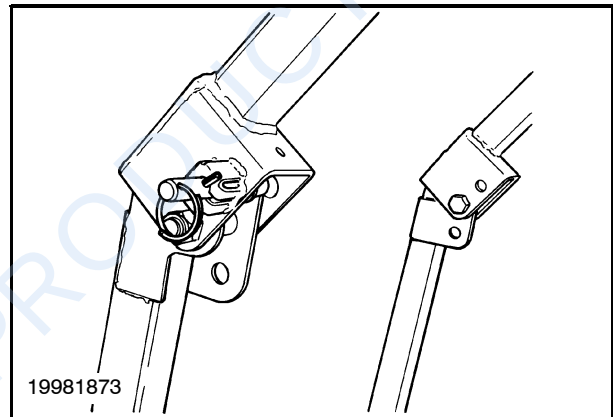
Always wear the seat belt when the tractor is equipped with a ROPS. However, if the ROPS has been removed from the tractor, or if the ROPS is in the folded position, the seat belt should not be used.

Always pull from the tractor drawbar. Do not attach chains or ropes to the ROPS for pulling purposes, as the tractor can tip backwards.

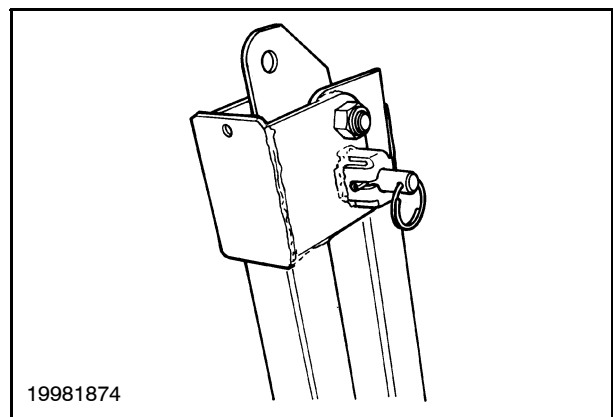
When driving through door openings or under low overhead objects, make sure there is sufficient clearance for the ROPS.



4

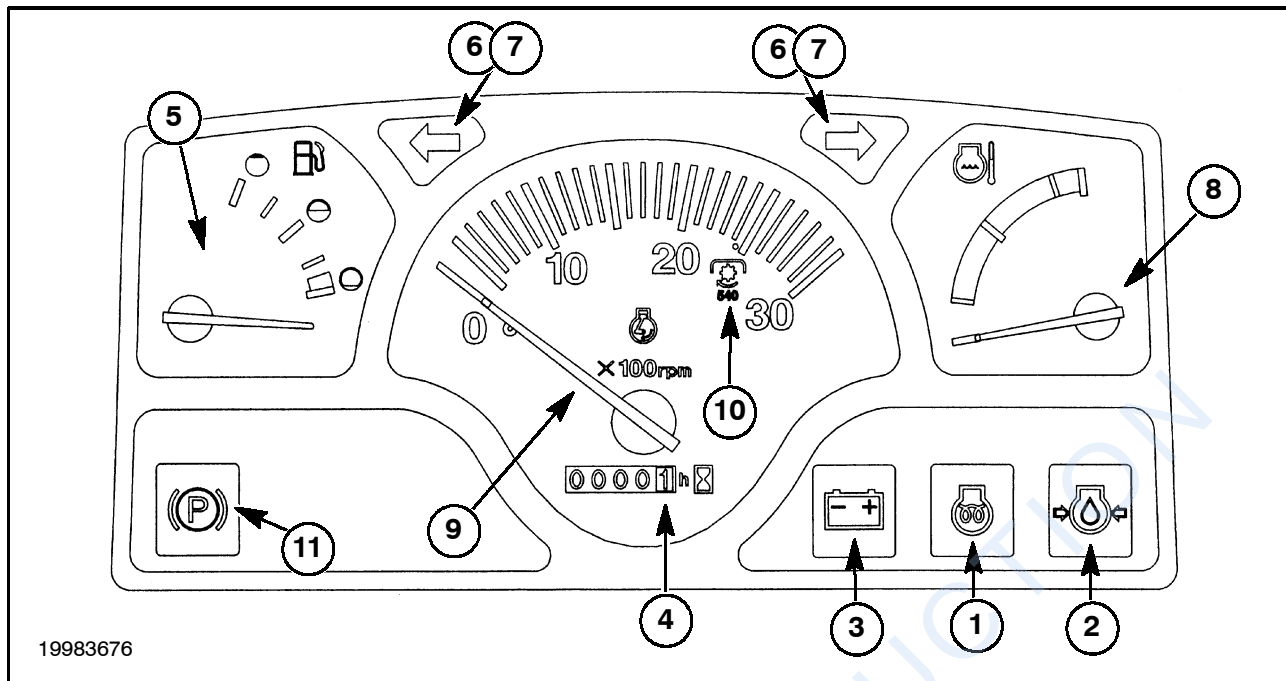


5



6

SECTION 2 - OPERATION



7

INSTRUMENT PANEL

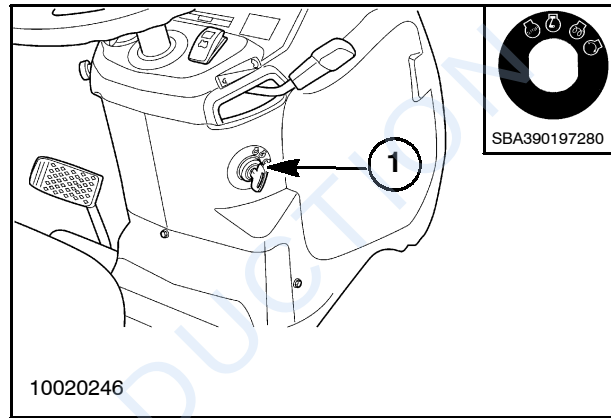
1. **Cold Starting Indicator Light**— Illuminates when the key switch is turned to the "HEAT" position. It remains lit for approximately 5 seconds when the key is held in position, during which time the glow plugs are heating the precombustion chambers.
2. **Engine Oil Pressure Warning Light**—Illuminates with the key switch in the "ON" or "HEAT" positions and remains lit for a short period of time after the engine is started. The light indicates oil pressure only and goes out when sufficient oil pressure is present at the oil sender. If the bulb becomes lit during operation, stop the tractor engine immediately and investigate the cause.
3. **Battery Charge Warning Light**— Illuminates when the key switch is in the "ON" or "HEAT" positions and goes out when the engine is started. If this bulb becomes lit during operation, it indicates that the charging system is not operating normally. As the battery can become fully discharged under these conditions, the problem should be investigated as soon as possible.
4. **Proof Meter**—Records the hours and portions of hours that your tractor has been operated based on an average engine speed of 1833 RPM. Engine speeds below 1833 RPM accumulate engine hours at a slower rate than clock hours. Engine speeds above 1833 RPM accumulate engine hours faster than clock hours. Use the proof meter as a guide to determine hourly service and maintenance intervals.
5. **Fuel Gauge**—Indicates the amount of diesel fuel remaining in the tank. The gauge is activated when the key switch is in the "ON" or "HEAT" positions. It will register empty with the key switch in the "STOP" position.
6. **Flasher Warning Lights**—Operate when the flasher switch is turned on, regardless of the key switch position. Use the flasher warning lights and the SMV emblem when traveling on public roads, day or night.
7. **Flasher Turn Lights**—Operate when the turn signal switch is activated. Rotate the switch counterclockwise for right turns, the right arrow will flash. Rotate the switch clockwise for left turns, the left arrow will flash. The key switch has to be in the "RUN" position.
8. **Temperature Gauge**—Indicates coolant temperature. It is activated when the key switch is turned to the "ON" or "HEAT" positions. The gauge will register cold with the key switch in the "STOP" position. If the needle registers in the green range of the gauge, this indicates a normal operating temperature. If the needle moves to the red portion of the gauge, this indicates an overheated condition. Stop the tractor engine immediately and investigate the cause.
9. **Tachometer**—Registers engine RPM (Revolutions Per Minute). The gauge is marked in increments of 100 and will return to zero when the engine is not running.

SECTION 2 - OPERATION

10. **Rear PTO Speed**—Determined by the position of the needle on the tachometer. The tachometer is marked to indicate 540 PTO RPM. Engine RPM should remain close to this mark while using the rear PTO; running the engine faster than this results in a dangerous overspeed condition.
11. **Parking Brake Light**—Illuminates if the parking brake is engaged when the key switch is turned from the “OFF” position.

KEY SWITCH

The key switch, 1, is located on the right-hand side of the console just below the hand throttle. Turning the key right to the “ON” position activates the warning lights and instruments. The pre-heat system is activated when the key is turned further to the right to the “HEAT” position, and the engine starts when the key is turned to the extreme right. The key spring returns to the “ON” position when released.



8

PRE-HEATING THE SYSTEM

Your tractor has a diesel engine. Before starting a cold engine, the precombustion chambers must be heated.

To pre-heat the engine, turn the key switch to the “HEAT” position and hold the key in this position for approximately 5 seconds. The glow plugs heat the precombustion chambers during this time, and the engine will start.

NOTE: When ambient temperatures are colder, a longer pre-heat time is necessary. Even after the cold start indicator light has gone out, the glow plugs will continue to heat if the key is held in the “HEAT” position.

⚠ WARNING ⚠

Do not use ether with the thermostat starting aid.

NOTE: A coolant immersion heater is available as a dealer-installed option. This heater allows for easier starting in temperatures below 0°F (-17.7°C) by warming the engine coolant.

SECTION 2 - OPERATION

STARTING THE ENGINE

The key switch, 1, allows activation of the starter motor and fuel delivery only when:

1. The rear PTO, 2, and Mid PTO, 3, (if equipped) are in the "OFF" position.
2. The range lever, 4, is in the "NEUTRAL" position.
3. The operator is sitting in the seat OR the parking brake is engaged.

NOTE: Without the operator in the seat or the parking brake not engaged. The starter motor will be activated but the engine will not start, because the fuel solenoid is not energized and not allowing fuel to flow to the injection pump.

Always use safe practices when starting your tractor. Turn the key to the extreme right. Position the hand throttle forward so that it is one-fourth to one-third open.



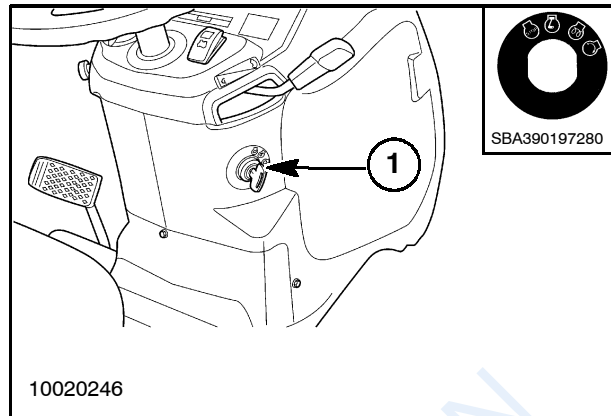
WARNING

Always sit in the operator's seat when starting the tractor. Never attempt to start the engine while standing beside the tractor.

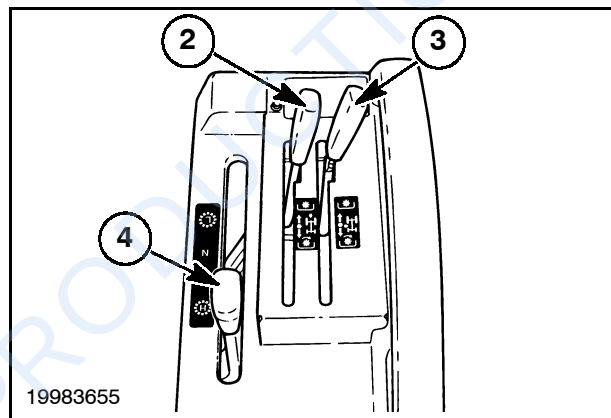
IMPORTANT: Do not engage the starting motor continuously for more than 30 seconds. Doing so may cause starting motor failure.

The engine will shut off in approximately two seconds if the operator leaves the seat without the parking brake engaged and without the range lever in the neutral position.

NOTE: The parking brake **MUST** be engaged and the range lever must be in the neutral position to allow the operator to leave the seat, when the tractor engine is in operation.



9



10

STARTING THE TRACTOR WITH JUMPER CABLES



Start the engine only from the operator's seat. If safety start switches are bypassed, the engine can start with the transmission and/or PTO in gear.

If you must use jumper cables to start the tractor:

1. Shield your eyes.
2. Connect one end of the jumper cable to the tractor battery positive (+) terminal and the other to the auxiliary battery positive (+) terminal. Next, connect one end of the other jumper cable first to the auxiliary battery negative (-) terminal, then the other end to the tractor starter ground terminal. Finally, start the tractor by following the safe starting procedures outlined under "Starting the Engine." Idle the engine and turn on all electrical equipment (lights, etc.), then disconnect the jumper cables in the reverse order in which they were connected. This helps protect the alternator from damage due to extreme load changes.



Batteries contain sulfuric acid and produce explosive gases. To prevent personal injury:

- Wear eye and skin protection.
 - Keep sparks and flame away.
 - Ensure there is adequate ventilation while charging or using the battery.
 - Follow the manufacturer's instructions found on the battery.
-

STOPPING THE ENGINE

Turn the key switch to the "OFF" position to stop the engine.

BREAK-IN PROCEDURES

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

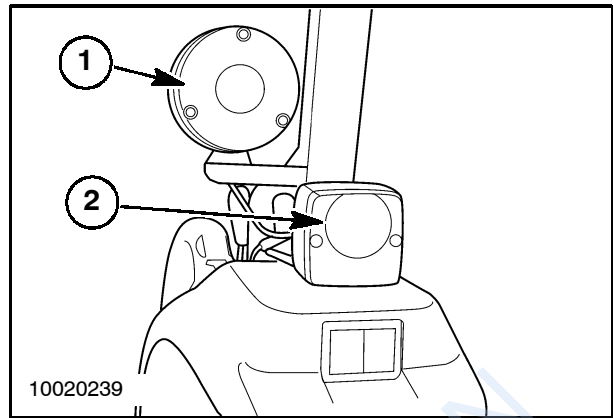
1. Avoid "lugging" the engine. Operating in too high a gear under heavy load may cause engine lugging, which is indicated when the engine will not respond to a throttle increase.
2. Use the lower gear ratios when pulling heavy loads and avoid continuous operation at constant engine speeds. You will save fuel and minimize engine wear by selecting the correct gear ratio for a particular operation. Operating the tractor in low gear with a light load and high engine speed wastes 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 recommended levels. Daily checks include the engine oil level, radiator coolant, and air cleaner.
5. After the first 50 hours of use, be sure to perform the maintenance items listed in the maintenance schedule.

SECTION 2 - OPERATION

LIGHTING

Your tractor is equipped with:

- Flasher warning lights, 1, Figure 11
- Taillight, 2, Figure 2-9
- Headlights, 3, Figure 13
- Rear work light (optional), 4, Figure 13



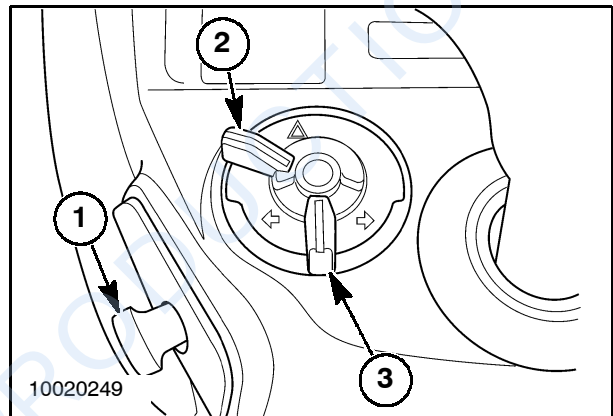
11

Headlights and Taillights

The four headlight halogen bulbs and the taillight are turned on and off using push/pull type light switch, 1. Pull the switch out for the lights to be on, push in for off position. (Key must be in the "ON" position for the lights to operate.)

Flasher Warning Lights

The two flasher warning lights are activated by turning the flasher warning light switch, 2, in the clockwise direction. For your protection, use the flasher warning lights and the SMV (Slow Moving Vehicle) emblem when traveling on public roads, day or night.



12

Flasher Turn Lights (Turn Signals)

The turn signal lights are activated by moving the turn signal switch, 3, to the right for right turns and to the left for left turns. The key switch does have to be in the ACC/RUN position for the turn signal to operate.

When signaling a turn, the designated turn side amber light and red taillight will flash.

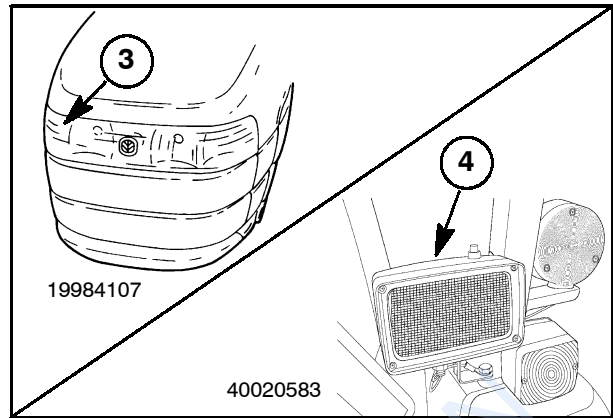
NOTE: If the Flashing Warning (Hazard) lights are operated at the same time when the turn signal is activated, the hazard light for the opposite side of turning direction will stop flashing and illuminate continuously.

SECTION 2 - OPERATION

Rear Work Light (Optional)

The optional rear halogen work light is mounted to the ROPS base and is operated by a push-button switch located on the light. Key switch and headlight switch must be in the "ON" position for the rear work light to operate.

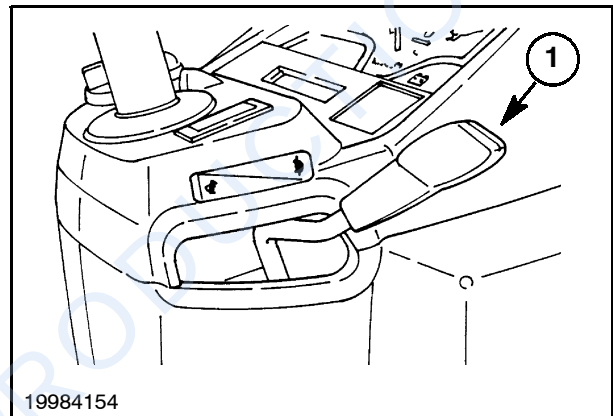
NOTE: To mount a rear work light to ROPS base, Bracket #SBA355761281 is required.



13

THROTTLE CONTROLS

The hand throttle, 1, is located on the right-hand side of the console. Pull the throttle rearward to increase engine RPM. Push the throttle forward to decrease engine RPM.

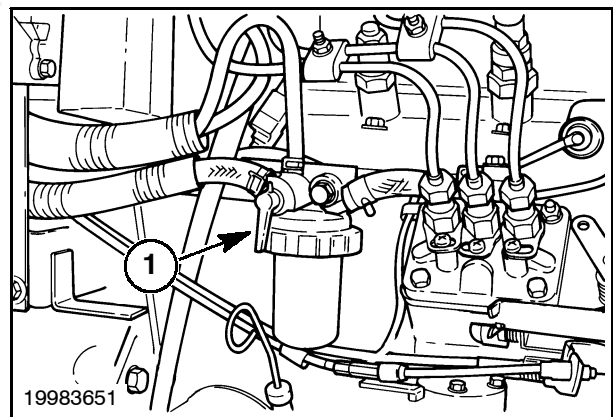


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FUEL SHUTOFF VALVE

The fuel shutoff valve, 1, is found in the fuel line on top of the fuel filter. The fuel filter is located on the right-hand side of the engine.

To open the fuel shutoff valve, move the handle until it points straight up and down. To close the valve, move the handle to the horizontal position. Always close the fuel shutoff valve when servicing any part of the fuel system.



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SECTION 2 - OPERATION

BRAKE CONTROLS

Brake Pedals

The right brake pedal controls the braking action of the right rear wheel. The left brake pedal controls the left rear wheel brake.

Depress both pedals simultaneously to stop the tractor. To assist in making sharp turns at slow speed, depress the right or left brake pedal as required.



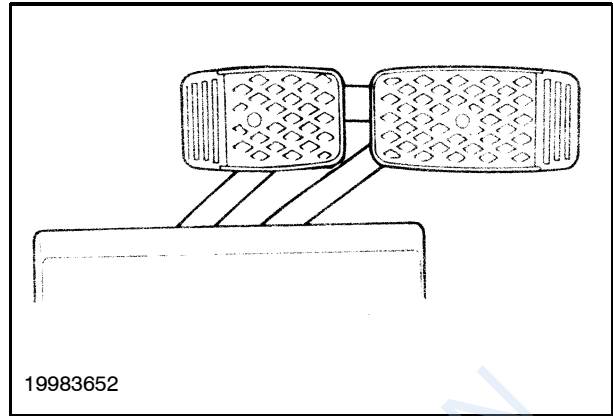
WARNING

When operating the tractor at high speeds, never attempt to make sharp turns by using the brakes.

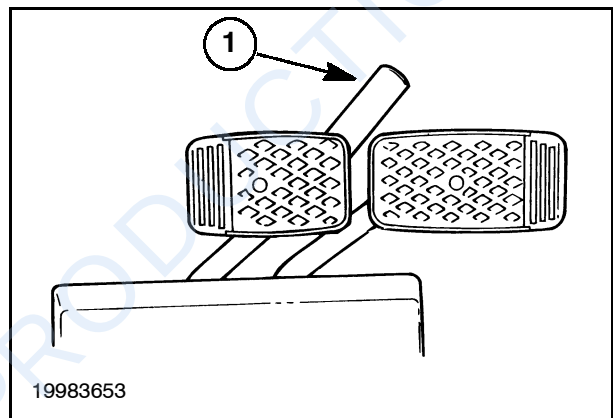
Brake Pedal Lock

The brake pedal lock, 1, is used to secure the brake pedals together. Lock the pedals together, as shown, whenever the tractor is operated at high speeds or when the tractor is used on the highway.

NOTE: *Unlock the brake pedals if operating conditions require independent rear wheel braking action.*



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Parking Brake Control

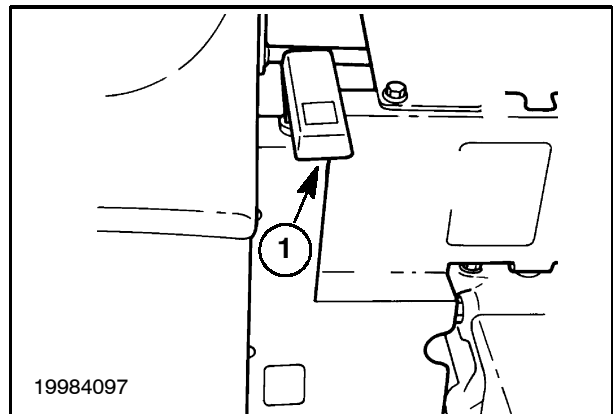
The parking brake, 1, is used to lock the brake pedals in the applied position. Use the parking brake whenever the tractor is parked or when the operator is out of the seat.

To apply the parking brake:

1. Lock the brake pedals together using the brake pedal lock.
2. Depress both brake pedals.
3. Pull up on the park brake handle and both brake pedals will remain in the applied position.

To release the parking brake:

Depress the brake pedals to release the retainer.



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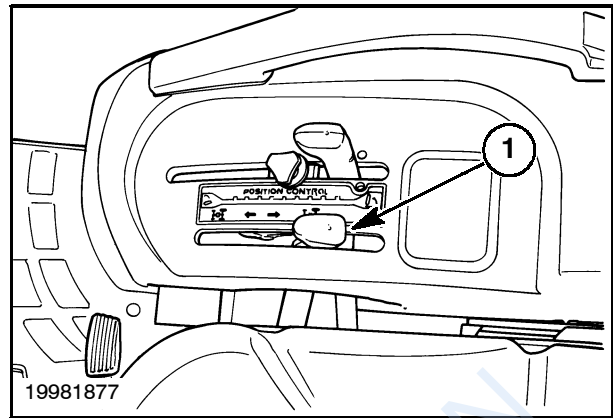
SECTION 2 - OPERATION

FRONT-WHEEL DRIVE

The front-wheel drive option is controlled by a lever, 1, located on the right-hand control pod.

To engage front-wheel drive, depress the clutch pedal fully and push the lever fully forward. To disengage front-wheel drive, depress the clutch pedal and pull the lever fully rearward.

IMPORTANT: Use front-wheel drive when additional traction is required while operating on loose soil, in wet, slippery conditions, or on slopes. For normal operation on firm soil, level hard surfaces, or when roading the unit at high speeds, disengage the front-wheel drive to maximize tire and driveline life and to economize on fuel.

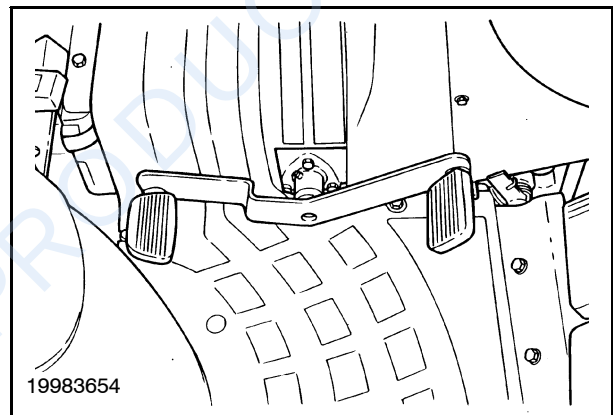


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HYDROSTATIC TRANSMISSION (H.S.T.) MODEL**H.S.T. FOOT PEDAL**

The ground speed of tractors equipped with a hydrostatic transmission is continuously variable, from zero to full rated speed in each range. Speed is controlled by the H.S.T. rocker pedal located on the right-hand foot platform.

For forward travel, depress the forward pad on the pedal until the desired ground speed is reached. For reverse travel, depress the rear pad on the pedal. Unless the H.S.T. speed cruise control switch, Figure 2-20, is in the engaged position, the transmission returns to neutral and the tractor stops when the pedal is released.

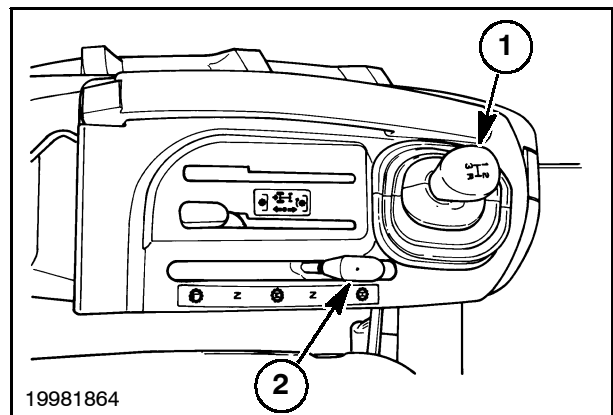


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GEAR TRANSMISSION**TRANSMISSION MAIN SHIFT LEVER AND RANGE LEVER**

The transmission main shift lever, 1, and range lever, 2, are located on the left-hand control pod. The shift pattern of the main shift lever is molded into the knob. The range lever has three ranges and two neutral positions. Each range has three forward gears and one reverse gear, providing a total of nine forward and three reverse speeds.

IMPORTANT: Do not attempt to change gears while the tractor is moving. The 9 x 3 transmission is not synchronized. The clutch pedal must be depressed and tractor motion stopped to change gear ratios with the main shift lever or the range shift lever.



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SECTION 2 - OPERATION

H.S.T. RANGE LEVER

The range selector lever, 1, is located on the left-hand control pod. It has two speed ranges and one neutral position.

NOTE: The range selector lever must be in the neutral position to activate the safety start system and allow the engine to start.

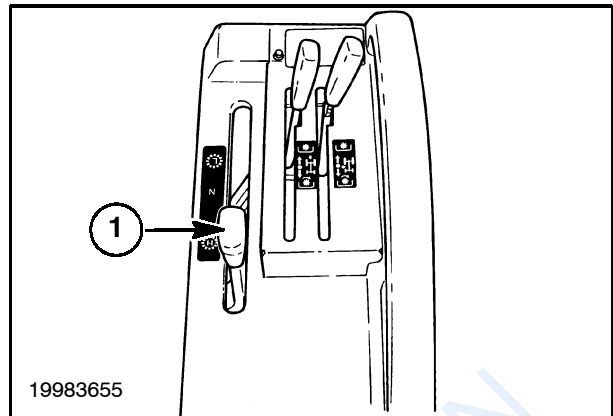
To select the desired operating range, the H.S.T. pedal must be in the neutral position and the clutch pedal depressed.

IMPORTANT: Never attempt to engage or disengage the range lever when the tractor is in motion.

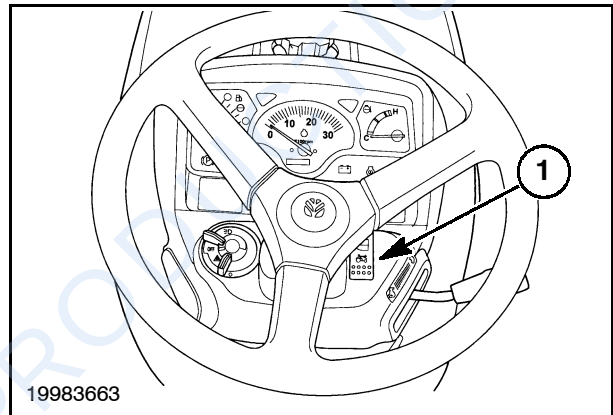
H.S.T. SPEED CONTROL

The H.S.T. speed control rocker switch, 1, is located on the right-hand side of the console. It is used to maintain a constant forward or reverse speed.

When the desired travel speed is reached, depress the top half of the speed control switch. A green light will illuminate inside the switch indicating the speed control is engaged. To disengage the speed control, depress the bottom half of the switch or depress the brake pedal. The green light will extinguish, indicating the speed control is off.



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CAUTION

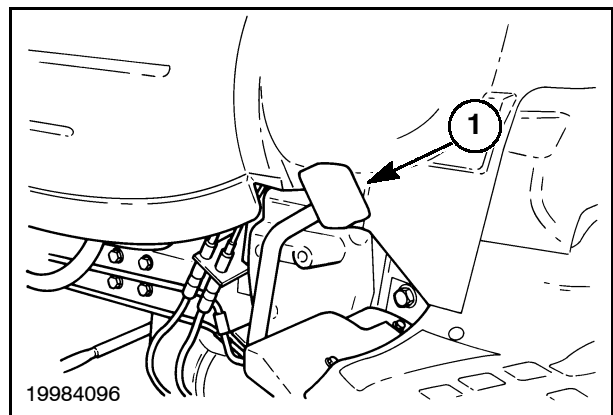
To avoid personal injury and maintain optimum control of the tractor, do not use the speed control at high speeds or when roading the tractor.

CLUTCH PEDAL (All Models)

The foot operated clutch pedal, 1, is located on the left-hand foot platform. The pedal controls operation of a single-stage clutch.

When the clutch pedal is depressed, the tractor stops moving and the PTO shaft stops rotating. Depress the pedal fully when changing gear ratios and when engaging or disengaging front-wheel drive or the rear PTO or mid PTO.

When starting the tractor, always depress the clutch pedal to ensure a safe start-up. The clutch pedal must be fully depressed to disengage the neutral lock on the gearshift to allow a range gear change.



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SECTION 2 - OPERATION

DIFFERENTIAL CONTROL

The differential lock pedal, 1, is located on the left-hand foot platform on HST tractors and right-hand foot platform on gear tractors. The differential lock is used to obtain additional traction in wet or loose soil.

When the differential lock pedal is depressed, both final drive pinion gear shafts are locked together, preventing one wheel from rotating independently of the other.

Whenever one wheel begins to slip in wet or loose soil, use the lock to obtain additional traction from the opposite wheel.



WARNING

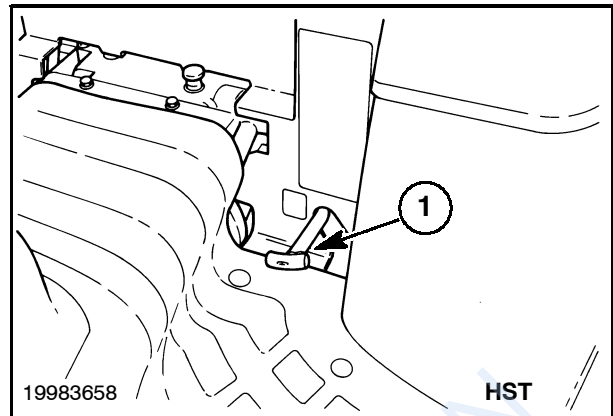
Steering the tractor is very difficult with the differential locked.

Do not engage the differential lock when driving the tractor on the highway, when ground speed is above 8 kph (5 mph), or when turning the tractor. If the lock is engaged when turning, a loss of steering control will result.

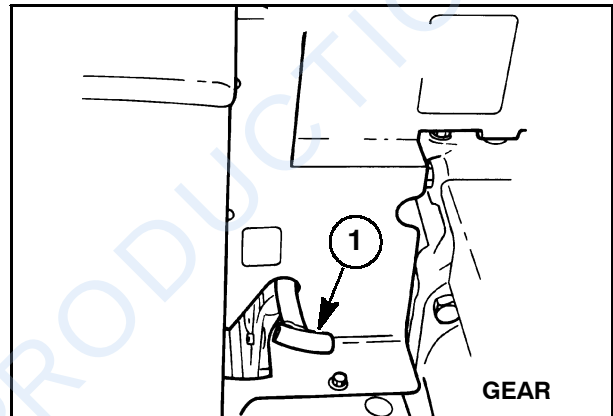
To operate the differential lock, depress and hold the pedal down until the lock is positively engaged. It is best to engage the lock while the wheels are turning slowly to minimize shock loads to the driveline. If a wheel spins at high speed, such as on ice, reduce engine speed to idle before engaging the lock or damage may result. Release the pedal to disengage the differential lock.

NOTE: In some instances, the lock may remain engaged after the pedal is released. This can occur if one rear wheel is turning at a faster speed than the other. The lock can be disengaged in one of two ways if this occurs.

- Decrease the drawbar pull by raising or disengaging the implement so that neither wheel tends to slip.
- Rapidly apply and release a light braking load to the slipping rear wheel.



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SECTION 2 - OPERATION

PTO LEVER CONTROL

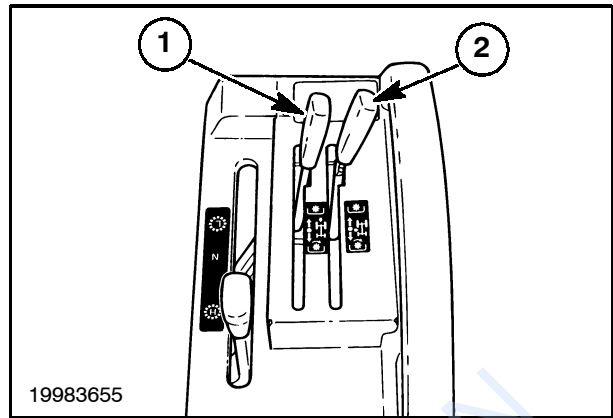
The rear PTO lever, 1, and mid PTO lever, 2, are located on the left-hand control pod.

NOTE: Both the rear PTO and mid PTO must be disengaged to start the tractor engine.

The clutch pedal must be fully depressed to engage or disengage either PTO. Move the lever forward to engage the PTO, or rearward to disengage.

IMPORTANT: Most PTO equipment is designed to operate efficiently at 540 RPM $\pm$ 10 RPM. The tachometer has a mark which indicates the correct engine RPM for 540 PTO operation. Operating equipment faster than this decreases efficiency, and may be dangerous.

NOTE: Mid PTO is optional equipment on gear transmission model tractors.



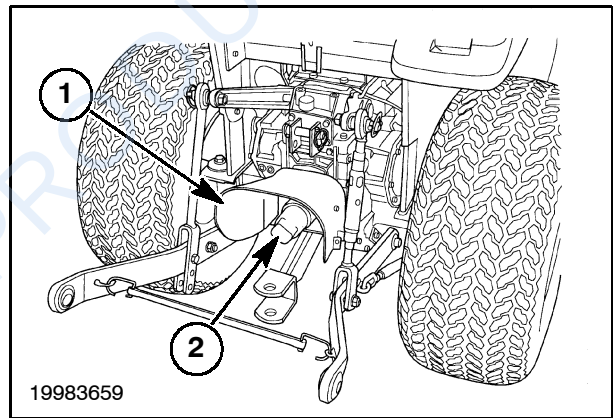
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PTO SHIELD AND CAP

The PTO shield, 1, and cap, 2, are standard equipment.

Use the PTO shield with both mounted and pull-type equipment. The shield rotates upward, allowing for easy implement attachment to the PTO stub shaft.

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



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SECTION 2 - OPERATION

OPERATION OF THE POWER TAKE-OFF (PTO)

1. Before attaching the PTO, stop the tractor engine.

WARNING

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

- Depress the clutch pedal completely and move the transmission range lever to the “NEUTRAL” (N) position.
- Set the parking brake.
- Disengage the PTO using the PTO control lever.
- Remove the PTO cap.
- Wait until the PTO shaft stops turning.
- Attach the mounted or drawn equipment. Make sure the equipment-driven shaft is properly aligned and locked to the tractor PTO drive shaft and that the PTO shield is down in the guarded position.

2. With the PTO disengaged, start the engine. For mounted equipment, raise and lower the equipment to ensure there are proper clearances.
3. With the transmission in neutral, depress the clutch pedal completely, then engage the rear PTO by moving the PTO control lever forward. To engage the optional mid PTO, move the mid PTO forward.

IMPORTANT: The PTO may be damaged if the PTO lever is not moved through its full range.

4. Check the PTO-driven equipment for proper operation by gradually releasing the clutch pedal and increasing engine RPM.

5. If the equipment is operating properly, depress the clutch pedal and shift to the desired operating gear. Release the pedal gradually to start the PTO and tractor in motion.
6. Control the PTO speed using the throttle. Never operate in an overspeed condition.
7. When making sharp turns with pull-type equipment or with mounted equipment in the fully raised position, disengage the rear PTO using the PTO control lever.
8. When traveling on highways or for any great distance, disconnect the PTO-driven shaft at the tractor PTO shaft.
9. Reinstall the PTO shaft cap when PTO-driven equipment is disconnected from the tractor, or when the PTO is not being used.

WARNING

To avoid inadvertent movement of PTO implement, disengage the PTO after each use.

REAR PTO OPERATION (WITHOUT OPERATOR IN SEAT)

To operate the rear PTO, without the operator in the seat the following operations must be performed:

- Transmission range lever in **NEUTRAL** position
- Parking brake in “**ON**” position
- Mid PTO in “**OFF**” position (if equipped)
- Rear PTO in “**ON**” position.

NOTE: The Mid PTO cannot be operated without an operator present in seat.

IMPORTANT: The engine will shut off in approximately two seconds if the operator leaves the seat, without the parking brake engaged and the range lever in the neutral position.

SECTION 2 - OPERATION

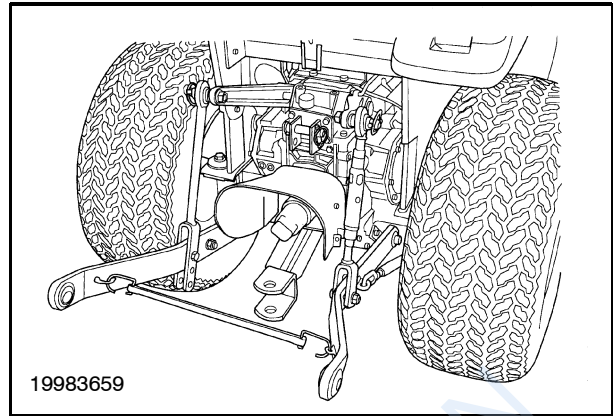
FIXED/CLEVIS DRAWBAR

Your tractor is equipped with a fixed/clevis drawbar for towing equipment behind the tractor.

IMPORTANT: When transporting equipment on highways, a safety chain with a tensile strength equal to the gross weight of the implement should be installed between the tractor and implement hitch.

⚠ WARNING ⚠

Pull only from the drawbar. Always use the drawbar or lower links in the lowered position when performing pull-type work.



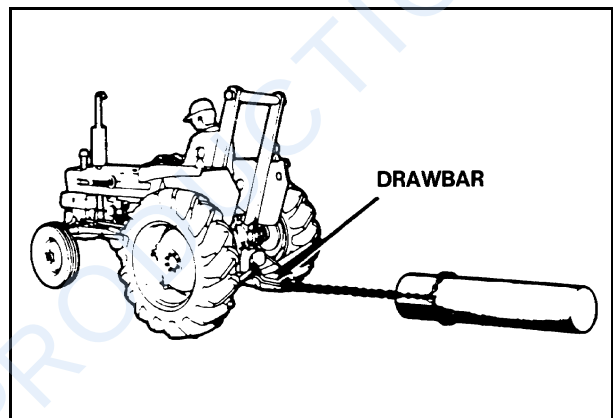
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TOWING THE TRACTOR

Place the transmission gearshift levers in neutral to tow the tractor. Do not exceed 20 KPH (12 MPH).

⚠ WARNING ⚠

For safety reasons, never attempt to start the engine by towing. Additionally, towing the tractor on highways is not recommended for safety reasons.



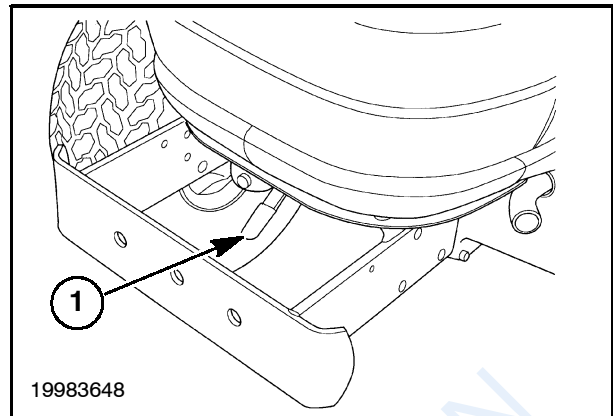
30

SECTION 2 - OPERATION

HOOD LATCH

As viewed from the front of the tractor:

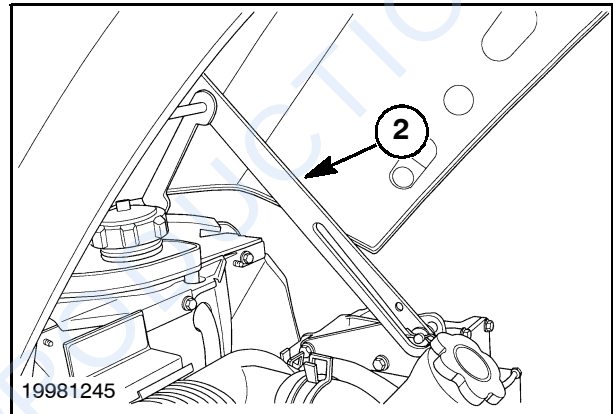
1. To raise the hood, move the latch release lever, 1, to the right and lift the hood to its fully raised position. A support link, 2, will automatically hold the hood in the fully raised position.
2. To lower the hood, lift up on the hood slightly and pull the support link towards you, so that the support pin is no longer in the catch position. Lower the hood until it is retained by the latch mechanism.



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IMPORTANT: Do not attempt to lower the hood without moving the support link. Attempting to force the hood down can result in bending or breaking of the hood and support linkage.

NOTE: Keep the latch mechanism free of dirt and debris so that the latch assembly will operate properly.

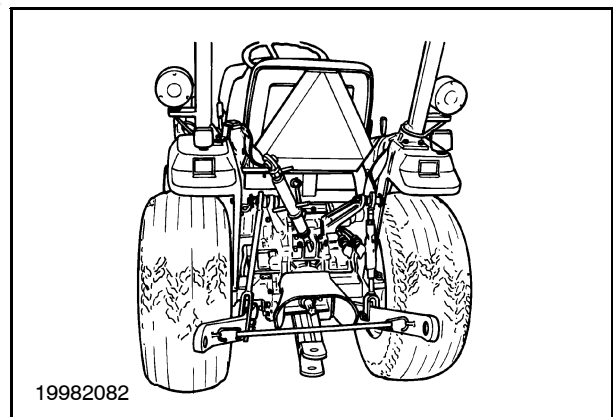


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THREE-POINT LINKAGE

The tractor's three-point linkage is used to attach three-point mounted equipment which is usually PTO operated, such as rotary mowers, tillers, flail mowers, snowblowers, etc. The three linkage points are the two lower lift arms and the top link.

The standard three-point linkage has easy to adjust sway bars to control lateral movement of the lift arms. The height of the right-hand lift arm and the top link can be adjusted by loosening the jam nut and turning the level crank pin.



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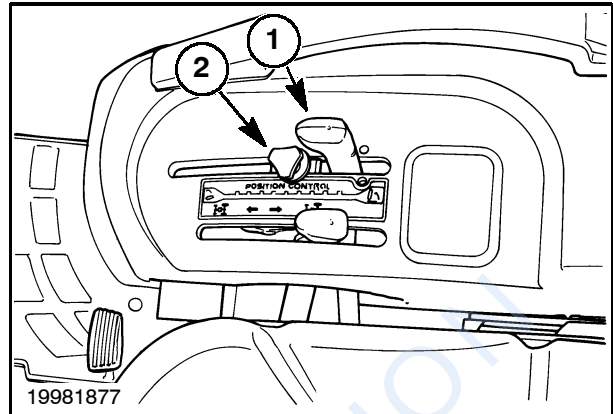
TRACTOR HYDRAULICS

HYDRAULIC POWER LIFT (H.P.L.)

The H.P.L. lever, 1, is located on the right-hand control pod. The lever controls the position of the two lift arms.

To lower the lift arms, move the H.P.L. lever forward. To raise the lift arms, move the lever rearward. An adjustable stop, 2, is located in this quadrant for returning the lever to a preset position.

The hydraulic lift system provides accurate, smooth, and instant hydraulic power for raising a variety of compatible equipment whenever the engine is running. The system's position control feature maintains the selected height or depth of three-point linkage equipment in relation to the tractor. When the hydraulic lift control lever is moved to a higher or lower setting in the quadrant, the system repositions the equipment to a higher or lower position and maintains the selected position.



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WARNING

Make sure the area is clear of people before lowering equipment.

POSITION CONTROL

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

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

SINGLE-LEVER POSITION ADJUSTMENTS

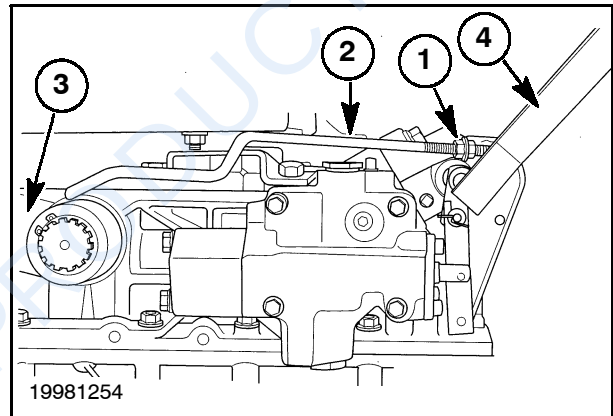
LINKAGE ADJUSTMENTS

The length of the position control rod is critical and careful adjustment must be observed for proper operation. If the control rod is adjusted too short, the control valve spool will remain in the raised position when the lift arms have reached their maximum height and the system relief valve will blow. If the control rod is too long, the control valve spool will return to neutral before the lift arms reach their full height.

The position control rod should be adjusted any time the link is disconnected for service to the hydraulic system, or any time the relief valve operation is noticed while the lift arms are at the full raise position.

ADJUSTMENT PROCEDURE

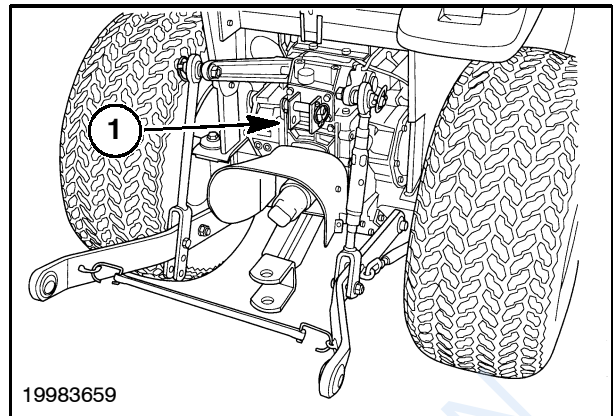
1. Loosen the locknut, 1, on the position control rod, 2, and remove the rod from the lift arm, 3.
2. Set the control lever, 4, to the highest position.
3. Start the engine. The lift arms should raise and the relief valve should operate.
4. Move the control lever forward until the relief valve stops operating.
5. Adjust the length of the position control rod to align the rod with the hole in the lift arms. Then extend the rod one additional complete turn. Install the cotter pin and tighten the nuts.
6. Check the operation. The relief valve should not operate with the lift arms fully raised.



SECTION 2 - OPERATION

HYDRAULIC LIFT ROCKER

The hydraulic lift rocker, 1, has two holes for attaching the upper link. Attach the link using the lower hole for light draft loads, such as mowers. Attach the link to the top hole for heavier draft loads, such as ground engaging equipment.



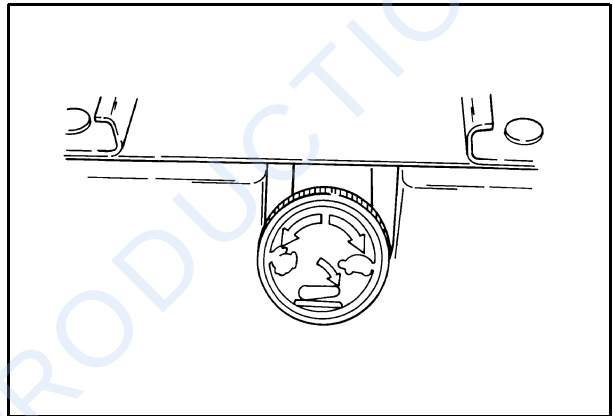
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FLOW CONTROL VALVE

The flow control valve provides an adjustment to regulate the flow of oil from the lift cylinder. This allows the operator to slow or increase the rate of drop of the lower links.

Turn the flow control valve "IN" (clockwise) to decrease the rate of drop. Turn the valve "OUT" (counterclockwise) to increase the rate of drop.

The flow control valve must be opened before the hydraulic lift control will lower. If the valve is turned all the way "IN" (clockwise), the lower links can be raised to maximum height but cannot be lowered.

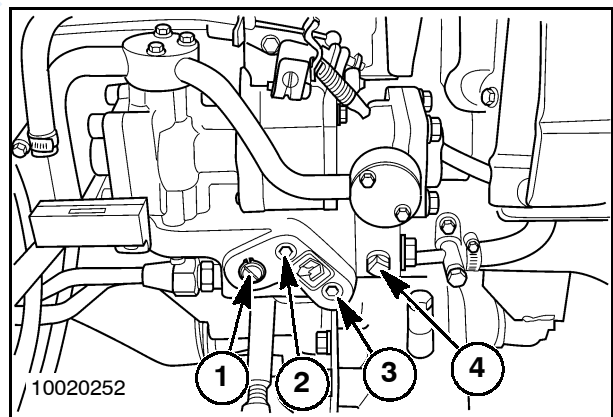


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HYDRAULIC MANIFOLD BLOCK/ DIVERTER VALVE

The hydraulic manifold block/diverter valve is located on the right-hand side of the tractor below the engine oil dipstick. The manifold block supplies hydraulic oil to optional remote valves to allow for operation of implements such as front end loaders, blades, backhoes, etc.

The diverter valve, 1, can be turned with a blade screwdriver. In this position, 10 o'clock, hydraulic fluid is directed to the H.P.L. valve and rear remotes (optional). When a remote valve is plumbed to the three ports pressure out, 2, pressure return, 3, and sump or tank, 4, the diverter valve must be turned clockwise to 1 o'clock position for hydraulic fluid to flow to the remote valve and then to the H.P.L. valve and rear remote valve (optional).



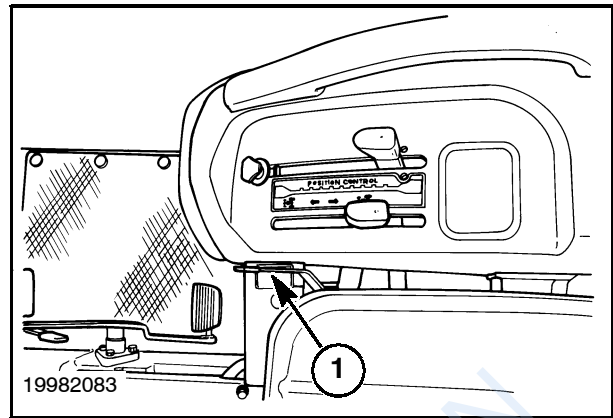
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SECTION 2 - OPERATION

REAR REMOTE CONTROL VALVE (OPTIONAL)

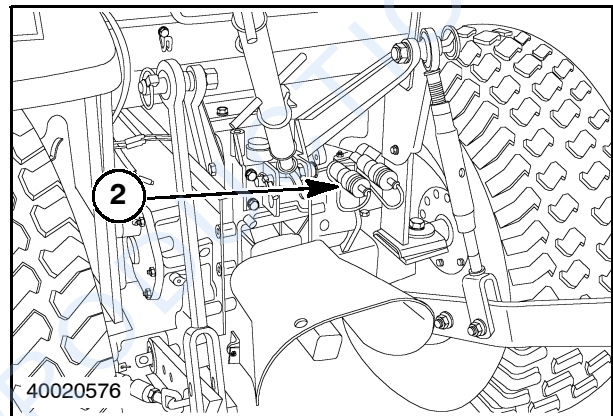
Your New Holland tractor can be equipped with one rear remote valve. The control lever, 1, is located on the right between the fender and the seat.

To operate the single-spool valve, pull the control lever rearward to extend the cylinder. Push the control lever forward to retract the cylinder. Release the control lever to stop the cylinder in any position before it is fully extended. The lever automatically returns to neutral.



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The rear remote is standard with 1/2" quick couplers, 2.



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TWO-SPOOL CONTROL VALVE (OPTIONAL)

The optional two-spool control valve is mounted on the right side of the clutch housing beside the engine hood. This valve is used mainly for front end loader operation, but may also be used to operate other front-mounted implements.

To operate the two-spool valve, pull the control lever to the rear or push it sideways to the right to extend the cylinder.

NOTE: When the control lever is pushed right to the second position, a regenerative feature is activated and the exhaust oil from one end of the cylinder is transferred to the other end of the cylinder. When this feature is used, the cylinder will operate at a faster rate. This regenerative feature cannot be used with single-acting cylinders.

Push the control lever forward or pull it sideways to the left to retract the cylinder. Release the control lever to stop the cylinder in any position before it is fully extended. The lever automatically returns to neutral. Fully forward past the detent position is a "FLOAT" position which allows a cylinder to extend or retract freely.

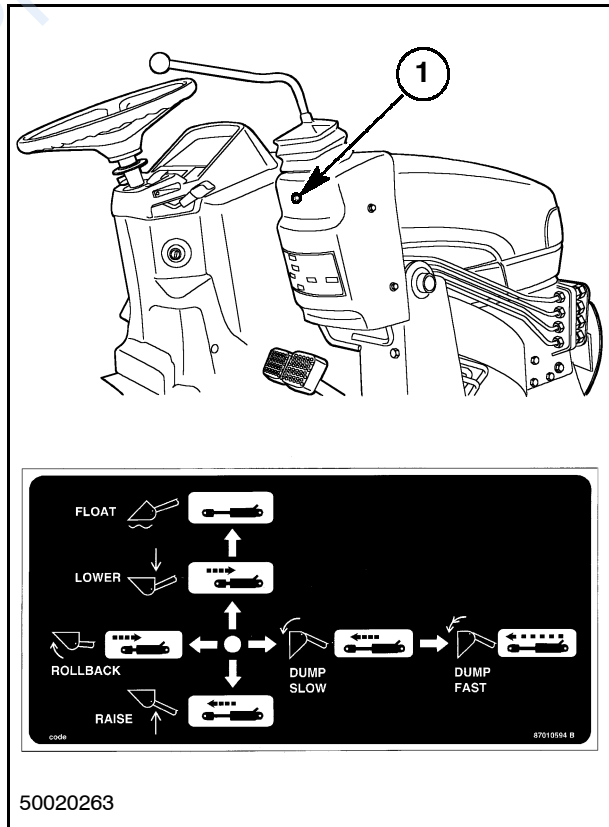
The two spool valve is equipped with a valve lock feature. The valve lock, mechanically locks the boom spool linkage in the neutral position, (if loader is installed), the lock does not affect the bucket spool linkage. To operate lock, pull and turn the knob, 1, to release valve lock. To engage lock, turn knob and release, the lock mechanism is spring loaded to the engaged position.

NOTE: The valve lock is recommended to be used to prevent accidental activation of the boom spool during operation of the tractor. The lock is not intended and will not prevent leak down of loader boom during periods of storage.

WARNING

Before disconnecting cylinders or equipment, make sure that the implement or equipment is supported securely.

Remote couplers must be properly mounted and securely fastened to the tractor mounting bracket for proper functioning of the safety disconnect feature.



SECTION 2 - OPERATION

DRIVING THE TRACTOR

Observe the following precautions when driving the tractor:

- Watch where you are going at all times, especially at row ends, on roads, and around trees.
- Keep the tractor in gear when going downhill. Use a low gear to maintain control with minimum braking.
- If the tractor becomes stuck, back out to prevent upsetting the unit.
- Always use the drawbar for pull-type work. Do not pull from any other part of the tractor, since it may tip backward.
- Use headlights as needed. Do not blind the operators of oncoming vehicles.
- Engage the clutch slowly when driving out of a ditch, gully, or up a steep hillside. Immediately disengage the clutch if the front wheels should rise off the ground.
- Reduce speed before turning quickly or applying brakes. Lock the brake pedals together when traveling at high speeds. Brake both wheels simultaneously when making an emergency stop.
- Never apply the differential lock when turning.
- Use extreme caution and avoid hard applications of the tractor brakes when pulling heavy, towed loads at road speeds.
- Any towed vehicle with a total weight exceeding that of the towing tractor should be equipped with brakes for safe operation.
- Always sit in the driver's seat while starting or driving the tractor. Always wear the seat belt.
- Always use a Slow Moving Vehicle (SMV) emblem and turn flasher lights on when traveling on public roads.
- Always check overhead clearance, especially when transporting the tractor.

SECTION 2 - OPERATION

WHEEL TREAD SETTINGS

NOTE: Tread settings are measured from center of tire to center of tire.

Front Wheel Settings

Tire Type	Tractor Model	Setting	NOTE
Agricultural 5-12 6-12	Front-Wheel Drive	820 mm (32.3") 845 mm (33.3")	Not Adjustable
Turf 22 x 9.00-12	Front-Wheel Drive	930 mm (36.6")	Not Adjustable
Industrial (R4) 23 x 8.5-12	Front-Wheel Drive	919 mm (36.2")	Not Adjustable

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

NOTE: Torque front wheel bolts to 44 - 56 N·m (33 - 41 ft. lbs.).

Rear Wheel Settings

Tire Type	Tractor Model	Setting	NOTE
Agricultural 8-16 9.5-16	Front-Wheel Drive	850 mm - 999 mm (33.5" - 39.3") 895 mm - 955 mm (35.2" - 37.6")	Adjustable by switching— Dish in or dish out
Turf 31 x 13.5-15	Front-Wheel Drive	916 mm-988 mm (36.1"-38.9")	Adjustable by switching— Dish in or dish out
Industrial R4, 12-16.5	Front-Wheel Drive	900 mm-956 mm (35.4"-37.6")	Adjustable by switching— Dish in or dish out

NOTE: Torque rear wheel bolts to 71 - 84 N·m (52 - 62 ft. lbs.).

SECTION 2 - OPERATION

TRACTOR WEIGHTING

For sufficient traction and maximum performance in heavy draft operations, and to counterbalance rear-mounted equipment, weight should be added to the tractor in the form of liquid ballast, cast iron weights, or a combination of both. Only enough weight should be added to provide good traction and stability. Adding more weight than is needed results in unnecessary soil compaction, increased rolling resistance, and higher fuel consumption.

NOTE: When adding weight to the tractor, tire pressures may need to be increased. Refer to the Tire Inflation Pressure chart found in this manual.

WEIGHTING FOR STABILITY

Front end ballast may be required for stability and steering control when weight is transferred from the front wheels to the rear wheels as an implement is raised by the tractor three-point hitch.

As a general guide:

Ballast the tractor (less implement) so that approximately one-third of the tractor weight is on the front wheels. For optimum traction, tractors equipped with front-wheel drive should be ballasted so that 40-45% of machine weight is on the front wheels.

When a mounted implement is raised to the transport position, the front wheel reaction should be at least 20% of tractor weight.

Add additional front end ballast as required for stability during operation and transport. Tractor front end ballast may not always maintain satisfactory stability if the tractor is operated at high speed on rough terrain. Reduce tractor speed and exercise caution under these conditions.

When using front-mounted equipment, add weight to the rear axle to maintain good traction and stability. Front-mounted equipment varies in weight. Refer to equipment manual for ballasting.

WEIGHTING LIMITATIONS

The weighting limitations that follow are limitations only. They do not imply that the tractor should be weighted to attain the weights given. Use only enough weight to obtain good performance.

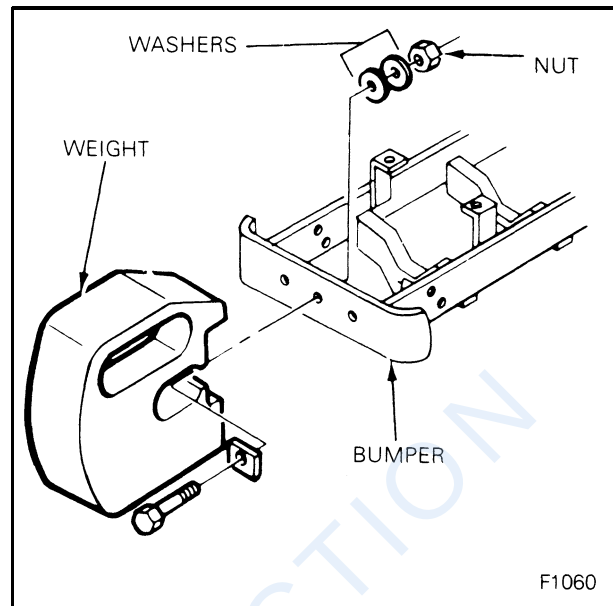
SECTION 2 - OPERATION

CAST IRON WEIGHTS (OPTIONAL)

Cast iron weights are available as accessories from your New Holland Dealer. Weights can be mounted on the front end of the tractor and on the rearmost wheels.

Front End Weights

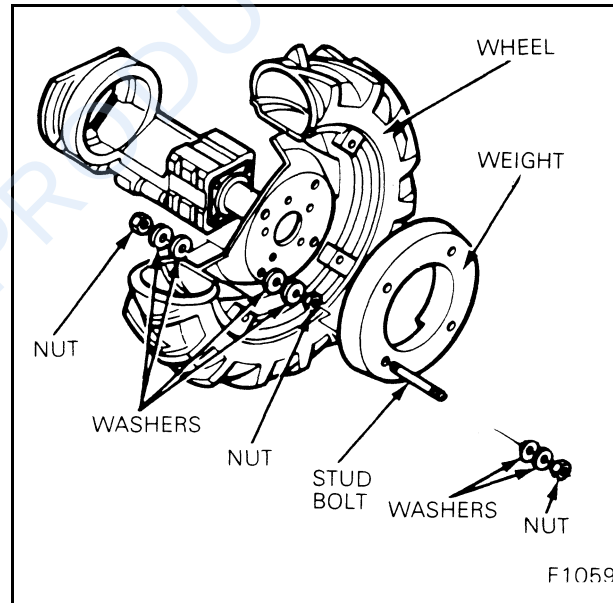
Tire Type	Weight(s)
Agricultural, Turf, & Industrial	Maximum of (3) weights per tractor @ 25.7 kg (57 lbs.) each— 77 kg (171 lbs.) total



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Rear Wheel Weights

Tire Type	Weight(s)
Agricultural	Maximum of (1) weight per wheel @ 45.4 kg (101 lbs.) each— 91 kg (202 lbs.) total
Turf	Not Available
Industrial (R4)	Maximum of (1) weight per wheel @ 45.4 kg (101 lbs.) each— 91 kg (202 lbs.) total



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NOTE: Rear wheel weights can be used with liquid ballast.

NOTE: Hardware to mount weights should be obtained locally. Use a standard 1/2" cap screw instead of the stud bolts.

SECTION 2 - OPERATION

LIQUID BALLAST (OPTIONAL)

It is a common practice to add weight to the tractor by filling the rear tires with liquid. A calcium chloride (CaCl_2) and water solution is recommended due to its low freezing point and greater density (weight per gallon) than pure water.

Never exceed the total recommended weight for the tractor. Because special equipment is required to fill the tires, consult your New Holland Dealer.

Tires should never be filled beyond 75%. At 75% full, the liquid will come to the valve stem when the valve stem is at its highest point at the top of the wheel.

TIRE PRESSURE

Tire pressure must be considered when adding weights, implements, or attachments to the tractor or damage to the tractor may occur.

The chart below outlines tire inflation pressures.

FRONT TIRE INFLATION PRESSURES		
Tire Type	Tire Size	Inflation Pressure
Agricultural: FWD	5-12, 4PR, R1 6-12, 4PR, R1	0.6-1.4 bar (8-20 PSI)
Turf: FWD	22 X 9.00-12, 4PR, R3	0.55-1.4 bar (8-20 PSI)
Industrial (R4) (FWD Only)	23 X 8.50-12, 6PR, R4	1.8 - 2.7 bar (26.1 - 37.7 PSI)
REAR TIRE INFLATION PRESSURES		
Agricultural	8x16, 4PR, R1 9.5-16, 4PR, R1	0.8-1.7 bar (12-24 PSI) 0.8-1.4 bar (12-20 PSI)
Turf	31 X 13.5-15, 4PR, R3	0.83-1.4 bar (12-20 PSI)
Industrial (R4)	12-16.5, 6PR, R4	1.8 - 2.7 bar (26.1 - 37.7 PSI)

NOTE: Do not underinflate or overinflate tires. Do not exceed maximum inflation pressure listed.

NOT FOR REPRODUCTION

SECTION 3

LUBRICATION AND MAINTENANCE

LUBRICATION

Adequate lubrication and maintenance on a regular schedule is vital to maintaining your equipment. To ensure long service and efficient operation, follow the lubrication and maintenance schedules outlined in this manual. The use of proper fuels, oils, grease and filters, as well as keeping the systems clean, will also extend machine and component life.

IMPORTANT: Always use genuine **New Holland** replacement parts, oils and filters to ensure proper operation, filtration of engine and hydraulic systems. See your **New Holland** dealer for additional oil quantities.

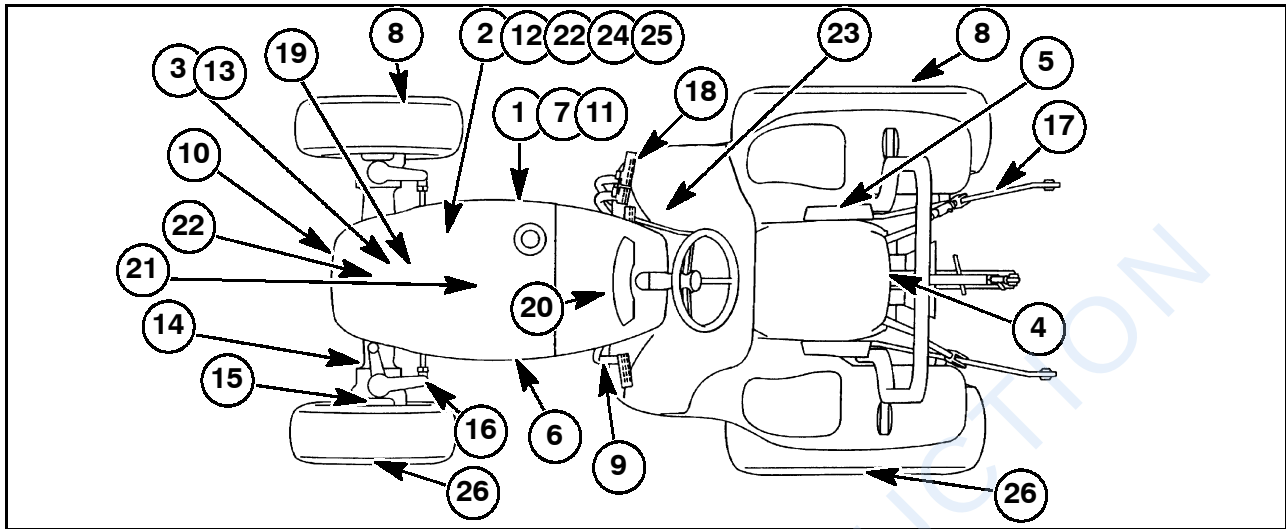
RECOMMENDED LUBRICANTS AND COOLANTS

Lubricant	Location Used	Type and Description	Part Number	Quart or Liter	Gallon or Tube
Oil	Engine and Pivot Points without Grease Fittings, Chains	SAE 30 API CF-2SJ	9613286	1Qt.	
		SAE 30 API CF-2SJ	9613289		2.5 Gal.
		SAE 30 API CF-2SJ	9613366*	4 L	
		5W-30 API SG/CD	9673589DS	1 Qt.	
		5W-30 API SG/CD	9624590*	4 L	
		10W-30 API SG/CD	9613313	1 Qt.	
		10W-30 API SG/CD	9613314		2.5 Gal.
		10W-30 API SG/CD	9673508DS		5 Gal.
		10W-30 API SG/CD	9613358*	1 L	
		10W-30 API SG/CD	9613359*	4 L	
		15W-40 API CF-4	9613290	1 Qt.	
		15W-40 API CF-4	9673730DS		1 Gal.
		15W-40 API CF-4	9613303		2.5 Gal.
		15W-40 API CF-4	9613292		5 Gal.
		15W-40 API CF-4	9613350*	1 L	
		15W-40 API CF-4	9613351*	4 L	
Coolant	Engine	ESE-M97B18-D, Ethylene Glycol New Holland Spec. Coolant Concentrate	FGCC2701DS		1 Gal.
		Propylene Glycol Concentrate	FGCC2711DS		1 Gal.
Hydraulic Oil	Hydraulic System, Hydrostatic System Front Axle Oil	134D – ESN-M2C134-D New Holland Spec. Hydraulic oil	9624450		2.5 Gal.
		134D – ESN-M2C134-D	9624451		5 Gal.
		134D – ESN-M2C134-D	9613367*	4 L	
		134D – ESN-M2C134-D	9624785*	10 L	
Hydraulic Oil	Optional, Multi-Seasonal Use, Recommended for Low Temperatures	F200	86523625DS	1 Qt.	
		F200	86523626DS		5 Gal.
		F200	86509446*	20 L	
Gear Oil	Gearboxes	80W90 EP Gear Oil API GL5	9613295	1 Qt.	
		80W90 EP Gear Oil API GL5	9613294		2.5 Gal.
		80W90 EP Gear Oil API GL5	9613375*	5 L	
		85W140 EP Gear Oil API GL5	9613297	1 Qt.	
		85W140 EP Gear Oil API GL5	9613296		2.5 Gal.
		85W140 EP Gear Oil API GL5	9613376*	4 L	
Grease	All Grease Fittings	Lithium base EP high temperature	9861804DS		Tube
		Lithium base EP high temperature	9861804CDS*		Tube
Brake Fluid		Mineral Based Oil	1QM6C34A or 86541699DS	1 Qt.	

* **NOTE:** Canada Part Numbers ONLY.

SECTION 3 - LUBRICATION AND MAINTENANCE

**LUBRICATION AND MAINTENANCE CHART
NEW HOLLAND TC21D/24D — FRONT-WHEEL DRIVE**



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NO.	LUBRICATION & MAINTENANCE ITEMS	C H E C K	C L E A N	L U B E	C H A N G E	A D J U S T	SERVICE INTER-VALS
1 2 3 4	Engine Oil Level Air Cleaner Radiator Coolant Transmission Oil Level	X X X X					Every 10 Hours or Daily
5 6 1, 7 8 11 26 —	Hydraulic Filter H.S.T. Filter Engine Oil & Filter Tire Pressure Fuel Filter Wheel Bolt Torque All Fluid Levels				X X X X X X X		First 50 Hours
8 9 10 11 12 13 14 15	Tires Clutch Pedal Battery Fuel Filter Power Steering Oil Level Fan Belt Front Axle Oil Level Final Reduction Gear Cases Oil Level	X X X D X X X X		X X X R X X X X		X X X I N	Every 50 Hours
16 17 18 19 20 21 22 23	Lubrication Fittings: Steering Linkage 3-Point Linkage Brake Pedal Power Steering Cylinder Pedal Shaft Drive Cover Shaft Pivot Shaft H.S.T. Pedal Pivot				X X X X X X X X		

NO.	LUBRICATION & MAINTENANCE ITEMS	C H E C K	C L E A N	L U B E	C H A N G E	A D J U S T	SERVICE INTER-VALS
1, 7 2 11	Engine Oil & Filter Air Cleaner Element Fuel Filter		X X		X X		Every 100 Hours
8 11 13 26	Brake Fuel Filter Element Fan Belt Wheel Bolt Torque Steering Free Play	X X			X X X X		Every 200 Hours
4 5 6 14 15	Transmission Oil Hydraulic Filter H.S.T. Filter Front Axle Oil Final Reduction Gear Cases Oil				X X X X X		Every 300 Hours
12 24 25	Power Steering Oil Fuel Injector Valve Clearance	X X			X X X		Every 600 Hours
2 3	Air Cleaner Element Radiator Coolant				X X		Seasonal
2	Safety Air Filter Element				X		Every 3 rd Primary Element Change or Every 1000 Hours, Whichever Comes First

SECTION 3 - LUBRICATION AND MAINTENANCE

LUBRICATION FITTINGS

NOTE: After every 50 hours of normal operation, apply a good quality grease to the lubrication points listed below (refer to the Recommended Lubricants chart). When operating under extremely dirty conditions, lubricate more frequently than every 50 hours.

- Steering Linkage
- Front Axle Pivot
- Front Wheel Spindles (2WD)
- Power Steering Cylinder
- Pedal Shaft—Clutch & Brake Pedals
- 3-Point Linkage

To lubricate these points:

1. Wipe away all old grease and dirt from the lubrication fittings to prevent dirt or foreign material from entering as new grease is applied.
2. Use a high pressure grease gun to force in the new grease. Apply pressure until clean grease oozes from each lubrication point.
3. Wipe away any excess grease.

DIESEL FUEL

- Use clean, quality No. 1-D or No. 2-D fuel (ASTM D975).
- Use No. 1-D fuel if the ambient temperature is expected to be lower than 4°C (40°F) or if the loader is to be used at an altitude exceeding 1524 m (5000 ft.).
- Use No. 1-2 diesel fuel with a pour point of at least -12°C (10°F) below the expected ambient temperature to prevent fuel flow problems in cold weather.
- Keep dirt from entering the fuel tank.

- Sulfur content of the fuel should be no more than 0.5%.
- Sediment and water content should not exceed 0.05%.
- Minimum cetane number is 40. Low temperature or high altitude operation may require use of fuel with a higher cetane number.
- Use properly mixed winter fuel when temperatures are extremely cold. In most areas, diesel fuel is properly blended for summer and winter grades as ambient temperatures change. In winter, use winter grade diesel fuel only. Otherwise, the fuel may cloud and block the fuel system.

Fuel Usage Safety

- UNDER NO CIRCUMSTANCES should gasoline, alcohol, or gasohol be added to diesel fuel. These combinations can create an increased fire or explosive hazard.
- Never remove the fuel cap or refuel the tractor while the engine is running or hot.
- Never smoke while refueling or anywhere near fuel.
- When filling the tank, maintain control of the nozzle.
- Do not fill the fuel tank to capacity. Allow room for expansion.
- Wipe up spills immediately.
- Always tighten the fuel cap securely.
- If the original fuel tank cap is lost, always replace it with a New Holland approved cap. A “will-fit” cap may not be safe.
- Keep equipment properly maintained.
- Do not drive equipment near open fires.
- Never use gasoline for cleaning parts.

SECTION 3 - LUBRICATION AND MAINTENANCE

⚠ 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.

- 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.

Failure to follow these instructions can result in serious injury.

Refueling the Tractor

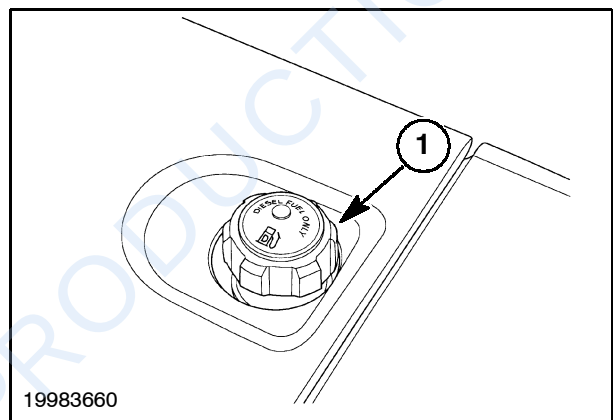
The fuel tank filler cap, 1, is located at the right rear corner of the tractor hood. Before removing the cap, wipe all dust and dirt from around the cap to prevent debris from falling into the tank while filling.

Use an approved fuel container and check the inside of the container periodically for cleanliness. Fuel tank capacity is 20L (5.3 gal).

NOTE: The fuel cap is a vented-type. Use only an approved New Holland replacement cap to prevent fuel system-related problems.

If there is no filter on the storage tank or fuel container, filter the fuel through a 100-mesh or finer screen when filling the tractor fuel tank. Keep the tractor tank as full as possible (without filling to capacity) to minimize condensation.

NOTE: It is a good practice to fill the fuel tank at the end of each day, as this will reduce overnight condensation.



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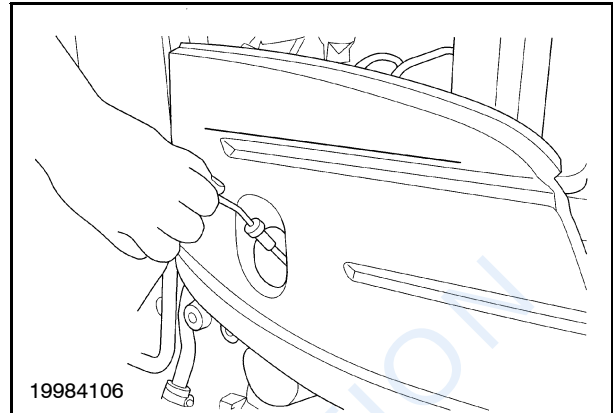
FUEL AND LUBRICANT SERVICE PROCEDURES

ENGINE

Checking the Engine Oil Level

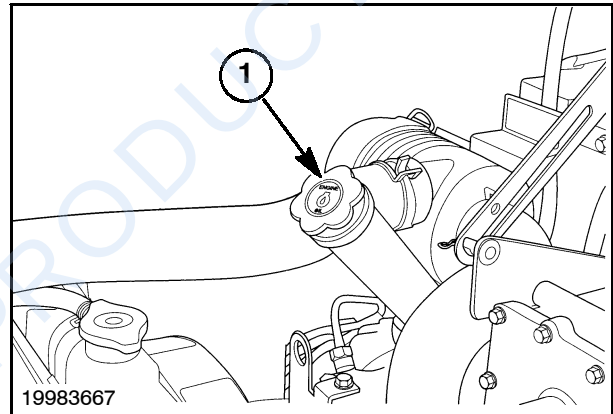
NOTE: Check the engine oil level daily or after every 10 hours of operation.

1. After the engine has been stopped for a period of time and with the tractor standing level, check the oil level using the dipstick.



3

2. If the oil level is low, remove the filler cap, 1, and add oil through the filler hole. Add enough oil so that the level registers between the two marks on the dipstick. Do not overfill.



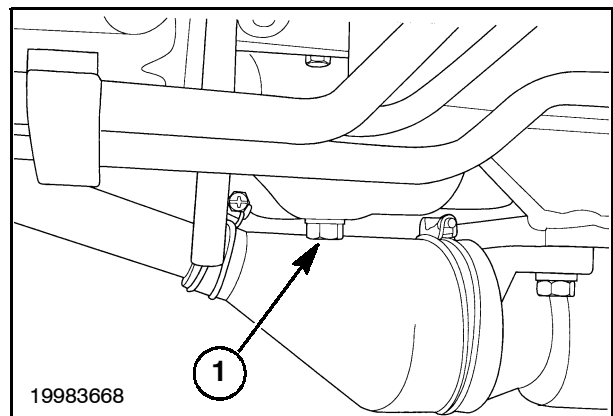
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Changing the Engine Oil

NOTE: Change the engine oil and filter after the first 50 hours of operation, then every 100 hours thereafter. If the tractor is operated for extended periods of time at maximum rated power and speed, or under other types of continuous, severe operating conditions, the engine oil and filter should be changed at 70-hour intervals following the initial oil change.

To change the engine oil:

1. Place a suitable container beneath the drain opening to catch the used oil. With the tractor engine off but at normal operating temperature, remove the drain plug, 1. Reinstall the plug after all of the oil has been drained.



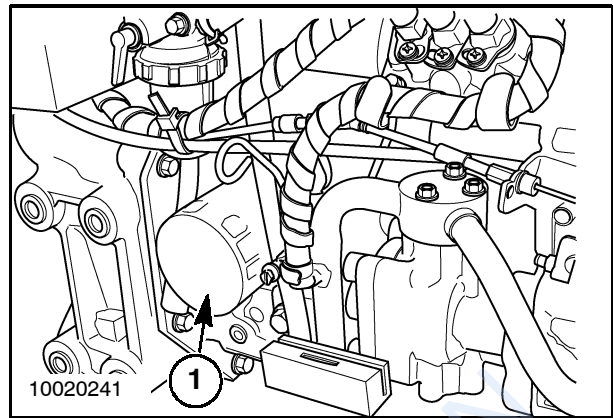
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SECTION 3 - LUBRICATION AND MAINTENANCE

2. Next, place a container below the oil filter, 1, to catch the used oil and unscrew the oil filter. Discard the used oil and filter.
3. Coat the gasket on the new filter with a film of clean oil. Screw the filter into place until the gasket contacts its mating surface, then turn the filter approximately three-quarters of a turn by hand. Do not overtighten.
4. Add the proper type and level of new oil, then start the engine and check the filter for leaks.

Recommended Oils

Ambient Temp (°F)	Recommended Oil
+ 40-120°	SAE 30W
+ 10-120°	SAE 15W-40
- 10-120°	SAE 10W-30
- 20-60°	SAE 5W-30
NOTE: Tractors are originally shipped with 10W-30 oil.	



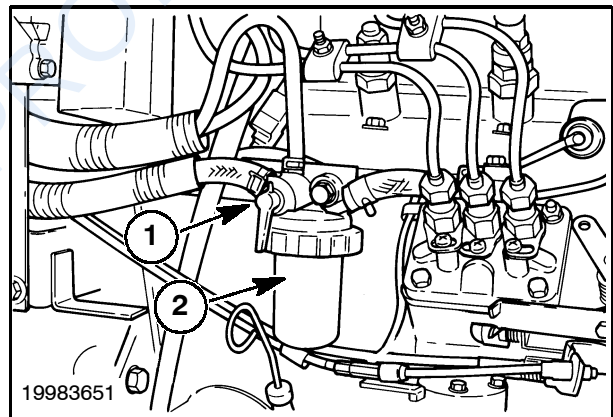
6

FUEL FILTER**Draining the Fuel Filter**

NOTE: The fuel filter should be drained after every 100 hours of operation.

1. Make sure there is adequate fuel in the fuel tank and close the fuel shutoff valve, 1 (the handle should be pointing to the "C" position). Remove the fuel sediment bowl, 2.
2. Open the fuel shutoff valve until all water has been removed and only fuel flows from the filter base.
3. Install the fuel sediment bowl and bleed the system as outlined in "Bleeding the Fuel System."

NOTE: Valve is shown in open position.



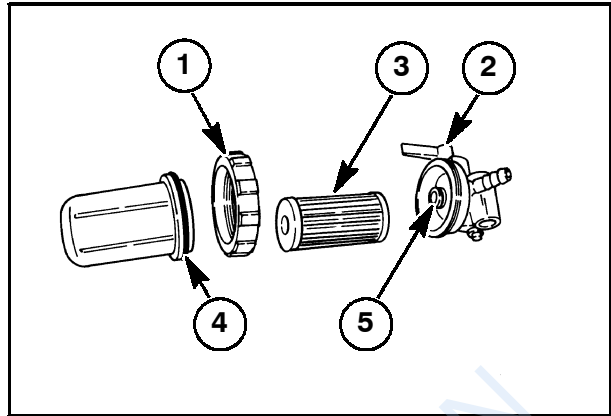
7

SECTION 3 - LUBRICATION AND MAINTENANCE

Changing the Fuel Filter

NOTE: Change the diesel fuel filter after the first 50 hours of operation, then following every 200 operating hours thereafter.

1. Close the shutoff valve (the handle should be pointing to the "C" position).
2. Remove the sediment bowl by rotating the retaining nut, 1.
3. Open the fuel shutoff valve, 2, to drain any remaining water from the tank.
4. Discard the old element, 3, and install a new element.
5. Inspect the O rings, 4 and 5, and replace if necessary.
6. Install and securely tighten the sediment bowl.
7. Open the fuel shutoff valve (the handle should be pointing to the "O" position), 2, so fuel will flow to the filter.
8. Bleed the fuel filter and injection pump as described below in "Bleeding the Fuel System."



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Bleeding the Fuel System

Bleed the fuel system if:

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

SECTION 3 - LUBRICATION AND MAINTENANCE

⚠ WARNING ⚠

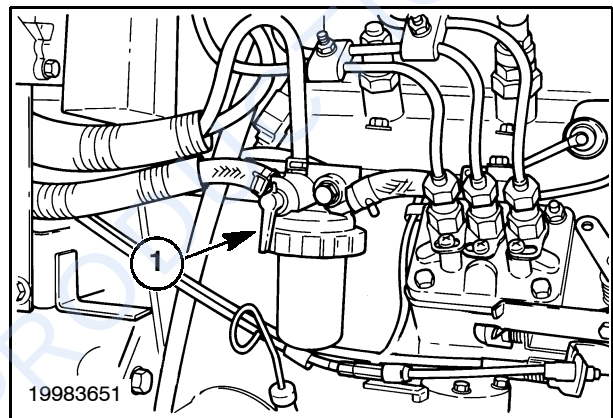
Fuel oil in the injection system is under high pressure and can penetrate the skin. Unqualified persons should not remove or attempt to adjust a pump injector, nozzle, or any part of the fuel injection system.

- 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.

Failure to follow these instructions can result in serious injury.

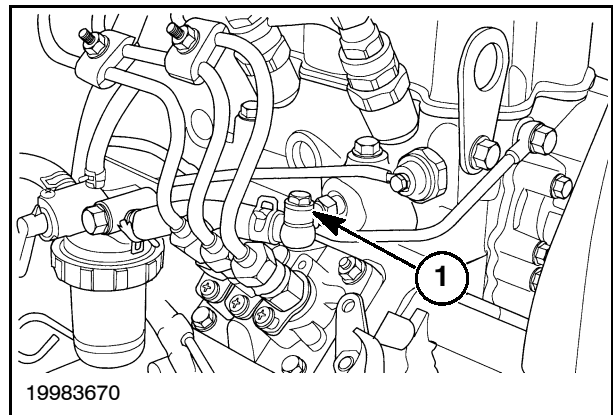
To bleed the fuel system:

1. Make sure there is adequate fuel in the fuel tank.
2. Open the fuel shutoff valve, 1.



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3. Open the bleed screw, 1, at the pump, then close the bleed screw when air-free fuel flows.
4. Push the hand throttle to the high speed position. Turn the engine over for a few seconds to bleed the high pressure fuel tubes.



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SECTION 3 - LUBRICATION AND MAINTENANCE

Bleeding the Injector Lines

Bleed the injector lines if:

- the tractor has run out of fuel.
- new injectors have been installed.
- the injection pump has been removed for service repairs.

To bleed the injector lines:

1. Loosen the injector line fittings, 1, at the injectors.
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 24-29 N·m (18-22 ft. lbs.).

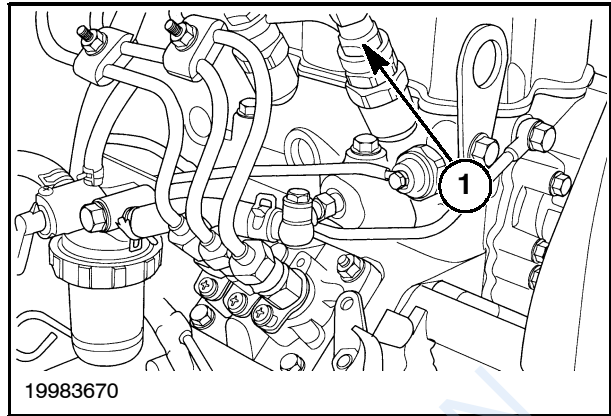
IMPORTANT: If air is not purged from the system, repeat the above procedures.

Do not crank the engine continuously for more than 30 seconds as this may cause starting motor failure.

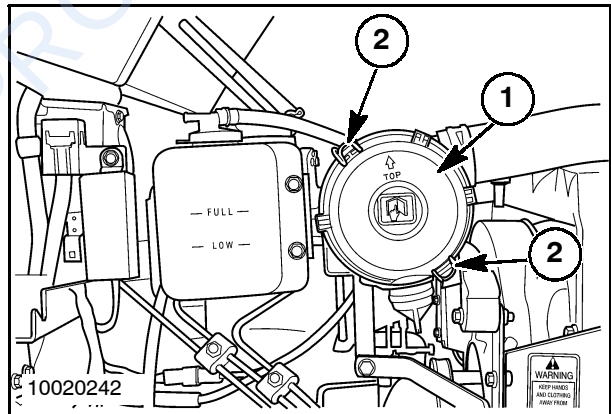
AIR CLEANER

The air cleaner, 1, is accessed by opening the tractor hood.

The air cleaner assembly contains two elements: an outer primary element and an inner safety element.

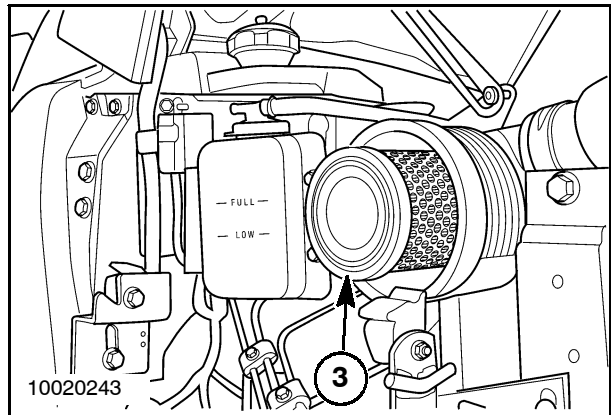


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To remove the primary element, loosen the spring clamps, 2, and remove the end cap from the air cleaner body to expose the primary element, 3.



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SECTION 3 - LUBRICATION AND MAINTENANCE

Air Cleaner Primary Element

NOTE: Clean the primary element after every 100 hours of service. Extremely dusty conditions may require more frequent service intervals.

1. Pull the primary element, 3, from the canister. Clean any loose dirt from the canister and inspect the end of the canister for dirt which may prevent the new element from sealing properly.
2. Clean the primary element using low air pressure (30 PSI or less). Blow dust from the inside to the outside of the element (opposite to normal air flow through element).

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

3. After cleaning the element, check the inner diameter seals for damage. If damage is present, replace the primary element. Change the element after six cleanings or once a year.
4. Reinstall the primary element by inserting it into the canister and pushing on the end of the element until it is seated against the canister.

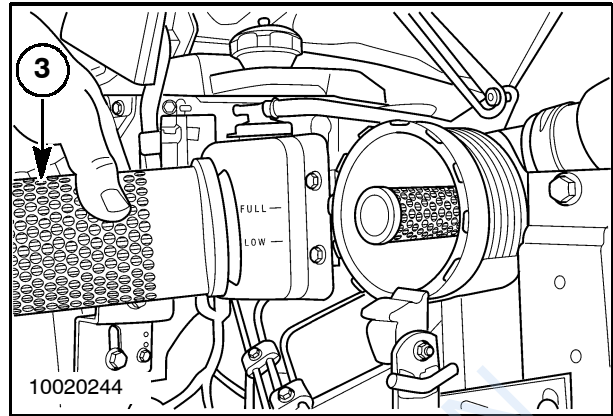
NOTE: Place a light inside the element to check for paper leaks or for bonding of the paper to the end plate. If any leaks are found, replace the element.

NOTE: If element is not inserted far enough into canister, the end cap cannot be installed.

5. Place the end cap onto the canister body and attach spring clamps. Make sure the end cap is locked in place and not loose.

IMPORTANT: Never tap the element with hard objects or against a hard surface. This may dent or break the element end cap seals.

IMPORTANT: Failure to obtain a good seal between elements and the canister may cause major engine damage.



SECTION 3 - LUBRICATION AND MAINTENANCE

Air Cleaner Inner Safety Element

NOTE: For maximum engine protection and air cleaner service life, install a new inner safety element every third primary element change or after every 1000 hours of operation, whichever comes first.

The air cleaner inner safety element, 1, cannot be cleaned. It must be replaced once it becomes partially clogged. A clogged element will cause an air restriction resulting in a loss of engine power or excessive black exhaust smoke.

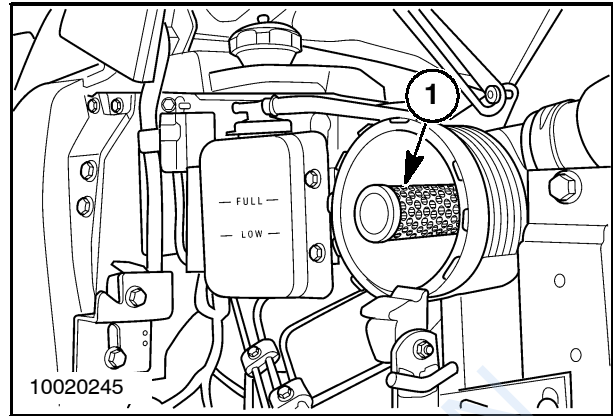
NOTE: Conduct a visual inspection of the inner safety element by placing a light inside the element. Little or no light will shine through the element if it is partially clogged.

To remove the inner safety element, pull it out of the canister body.

To install the new element, push it into the canister until seated.

IMPORTANT: Clean any dirt from the canister before installing the inner safety element. Check element inner diameter seals for damage and replace the safety element if seal damage is present.

IMPORTANT: Failure to obtain a good seal between the filter and canister may cause major engine damage.



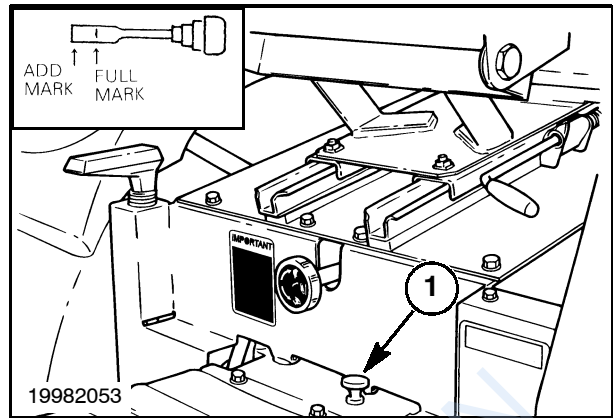
SECTION 3 - LUBRICATION AND MAINTENANCE

TRANSMISSION, REAR AXLE, AND HYDRAULIC SYSTEM

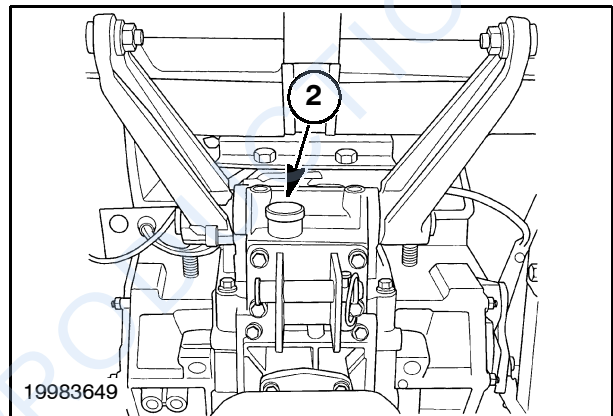
Checking the Transmission, Rear Axle, and Hydraulic System Oil Level

NOTE: Check the transmission, rear axle, and hydraulic system oil level after every 50 hours of operation.

1. With the engine off and the tractor standing level, check the oil level using the dipstick, 1. The oil is at the correct level when it reads between the two marks on the dipstick.
2. If the level is low, remove the filler plug, 2, and add NH 134 hydraulic oil through the filler hole. Do not fill above the dipstick full mark.
3. Reinstall the filler plug and dipstick.

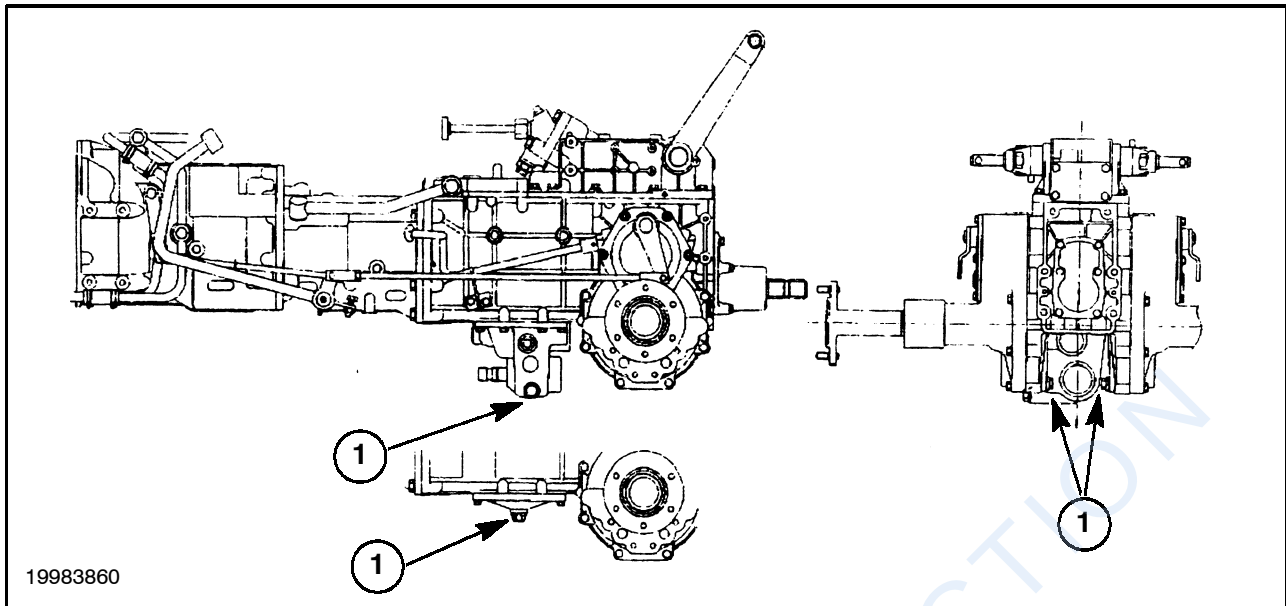


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SECTION 3 - LUBRICATION AND MAINTENANCE

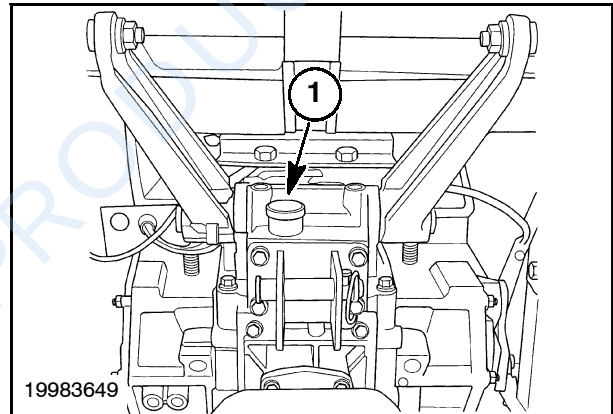


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Changing the Transmission, Rear Axle, and Hydraulic System Oil

NOTE: Change the transmission, rear axle, and hydraulic system oil after every 300 hours of operation.

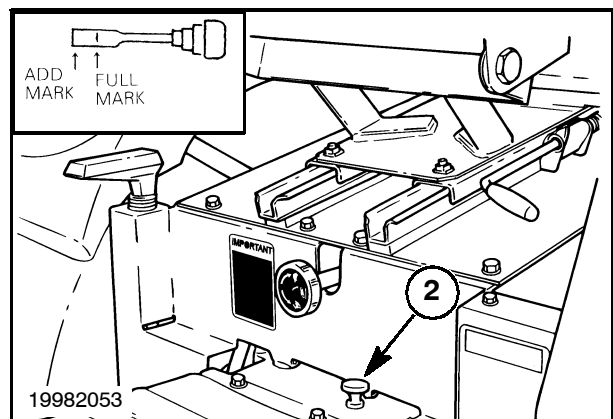
1. Place a suitable container beneath the transmission and rear axle drain plugs to catch the used oil. With the oil at normal operating temperature, drain the system by removing the transmission and rear axle drain plugs, 1. Reinstall the plugs once the oil has drained. Discard the used oil.



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2. Remove the filler plug, 1, and fill with NH 134 hydraulic oil. The transmission is filled to the correct level when the oil registers between the two marks on the dipstick, 2. Do not fill above the dipstick full mark. Capacity for the H.S.T. transmission is 16 liters (16.9 qts.).
3. Reinstall the dipstick and filler plug.

IMPORTANT: There is a common sump for the transmission, rear axle, and hydraulic system. Therefore, extra care should be taken to keep the oil clean.



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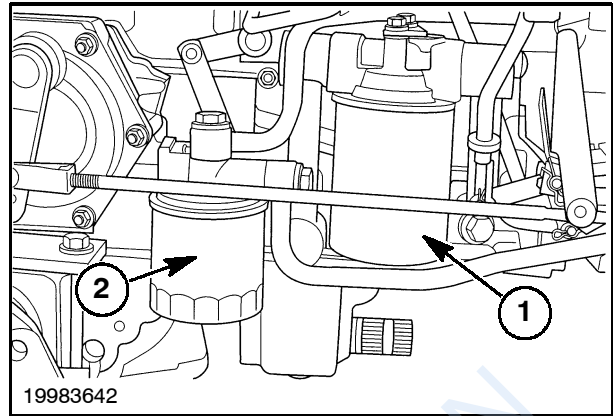
SECTION 3 - LUBRICATION AND MAINTENANCE

HYDRAULIC SYSTEM OIL FILTER

NOTE: Replace the hydraulic system oil filter, 1, after the first 50 hours of operation, and then following every 300 hours of operation thereafter.

The hydraulic system uses a spin-on type oil filter. To replace the filter:

1. Unscrew the used oil filter, 1, and discard.
2. Coat the gasket on the new filter with a film of clean oil. Screw the filter into place until the gasket contacts the sealing surface, then tighten the filter by hand approximately three-quarters of a turn. Do not overtighten.
3. Start the engine and check the filter for leaks.
4. Stop the engine and check the hydraulic system oil level. Add oil if necessary.



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H.S.T. SYSTEM OIL FILTER

NOTE: Change the H.S.T. system oil filter, 2, after the first 50 hours of operation, and then following every 300 hours of operation thereafter.

To change the H.S.T. system oil filter, 2, follow the procedures found above for changing the hydraulic system oil filter.

GENERAL MAINTENANCE

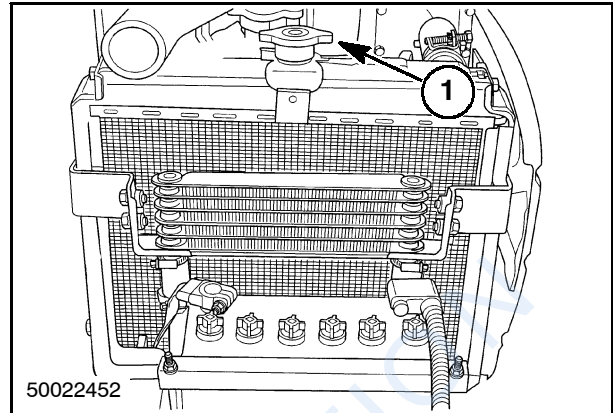
COOLING SYSTEM

The tractor engine must operate at the correct temperature to obtain maximum efficiency and service life. This is dependent on the cooling system.

Always fill the system with a 50/50 solution of permanent antifreeze and clear water.

Checking the Coolant Level

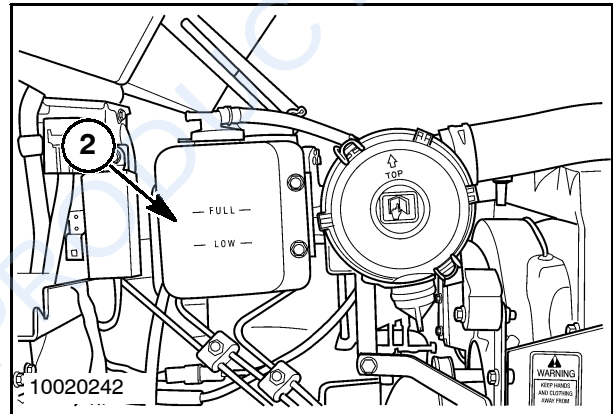
NOTE: Check the coolant level daily or after every 10 hours of operation. The engine should be cold when coolant level is checked.



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Open the hood, and check the coolant recovery reservoir located next to the air cleaner. The fluid should be between the low and the full marks on the reservoir, 2.

If the coolant recovery reservoir is empty, remove the radiator cap, 1, and add a 50/50 solution of water and antifreeze until the radiator is full. Then add the water antifreeze solution to the coolant recovery reservoir until it is to the full level.



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⚠ **WARNING** ⚠

The cooling system operates under pressure 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 it slowly counterclockwise to the first stop. Allow all pressure to escape before removing the cap completely.

If the coolant level is below the low mark on the reservoir, add a 50/50 solution of water and antifreeze to the coolant recovery reservoir bringing the level to the full mark.

Be sure that the radiator fins are clear of chaff and dirt to allow free air movement.

SECTION 3 - LUBRICATION AND MAINTENANCE

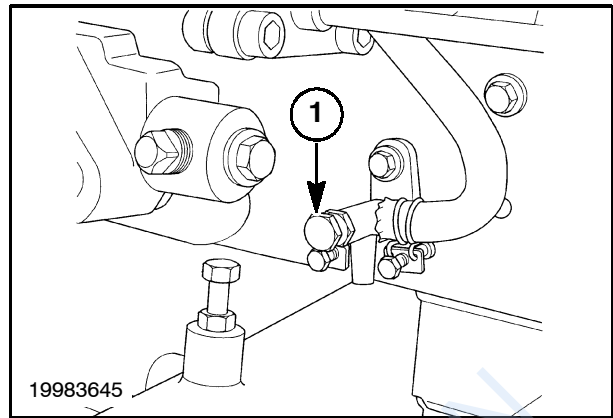
Draining and Flushing the Cooling System

NOTE: Drain and flush the radiator and engine block every 12 months. Refill with a 50/50 mixture of permanent antifreeze and clear water.

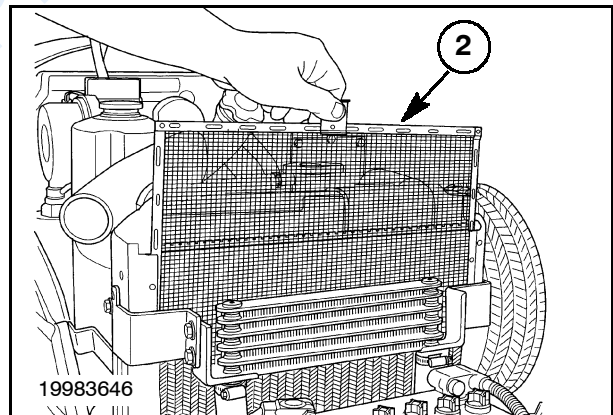
To drain the cooling system:

1. Use a suitable receptacle to catch the used coolant. Remove the radiator cap and open the drain valve, 1, on the right-hand tractor frame to drain the radiator and engine block.
2. After the coolant has drained, place a water hose in the radiator filler neck and run water through the system. When water is flowing from the block drain valve, start 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 the drain valves.
3. Close the drain valve and slowly refill the system with a 50/50 solution of permanent antifreeze and clear water. Fill until the coolant level is approximately 3.8 cm-5 cm (1-1/2"-2") below the bottom of the filler neck. Do not fill beyond this level.
4. Clean the radiator cap and cap seal and install the cap.
5. Fill the coolant recovery reservoir bringing the fluid level up until it is between the full and low marks on the reservoir.
6. Clean the radiator front screen, 2.
7. Run the engine until normal operating temperature is reached, then stop the engine. Recheck the coolant level when the engine is cold and add additional coolant as necessary.

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



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SECTION 3 - LUBRICATION AND MAINTENANCE

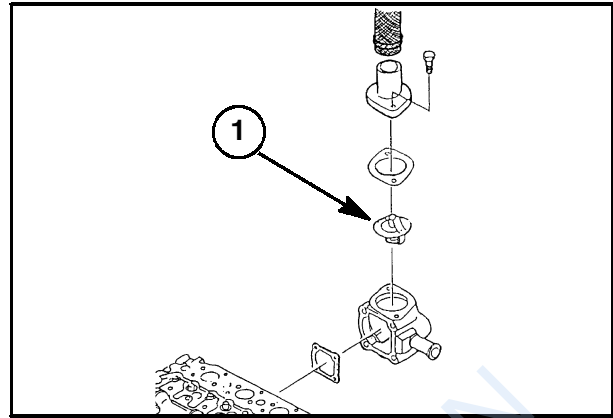
Thermostat

The thermostat is a heat-sensitive valve located in the coolant outlet connection in the front of the cylinder head.

When the engine is cold, the thermostat shuts off the flow of coolant to the radiator, allowing for rapid engine warm-up. A recirculating bypass allows coolant to circulate inside the engine whenever the thermostat shuts off flow to the radiator.

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

To install a new thermostat, 1, position it in the recess of the water outlet connection so that the heat element (spring end) is in the cylinder head of the engine.



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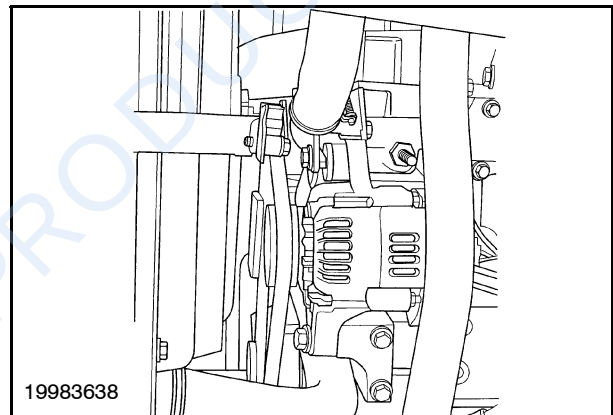
Fan Belt

NOTE: Check the condition of the fan belt after every 50 hours of operation. Check fan belt tension after every 200 hours of operation.

A belt-driven fan located at the front of the engine draws air through the fins of the radiator to lower the temperature of the radiator coolant.

When 9-11 kg (20-25 lbs.) of thumb pressure is applied midway between the belt pulleys, a correctly tightened belt will deflect 10 mm-15 mm (7/16"-9/16").

If the fan belt is slipping, fan efficiency is lowered, resulting in the engine running too hot. If the belt is too tight, the life of the alternator bearing will be shortened. If the fan belt shows signs of cracking or fraying, install a new one.



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SECTION 3 - LUBRICATION AND MAINTENANCE

To adjust fan belt tension:

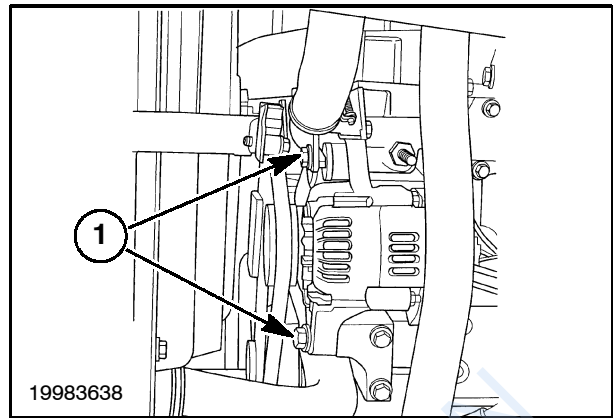
1. Loosen the alternator mounting bolts, 1.



WARNING

Never attempt to loosen or tighten mounting bolts with the engine running.

2. Pry the alternator away from the engine and tighten the mounting bolts.
3. Recheck belt deflection.

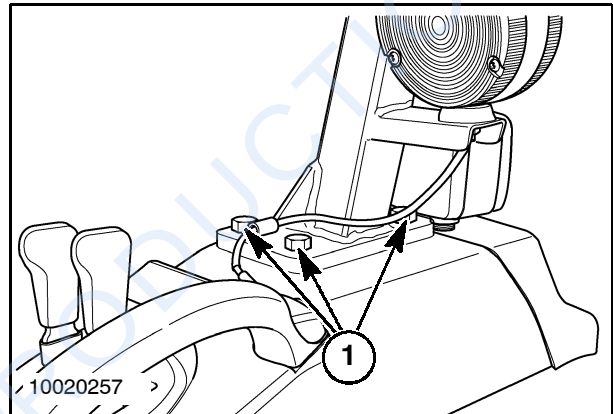


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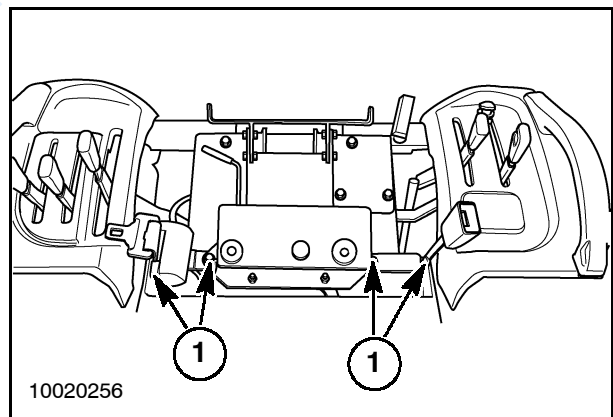
MAINTENANCE AND INSPECTION OF THE ROLLOVER PROTECTIVE STRUCTURE (ROPS)

NOTE: Inspect the ROPS after the first 20 hours of operation. Following the initial inspection, check the ROPS after every 500 hours of operation or every six months, whichever comes first.

1. Check the torque of the ROPS mounting bolts, 1. Tighten the bolts to the correct torque of 54.2 N·m (40 ft. lbs.) if necessary.
2. Inspect the operator's seat and the mounting parts for the seat belt. Tighten the bolts, 1, to the correct torque of 47.4 N·m (35 ft. lbs.) if necessary and replace parts that show wear or damage.



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SECTION 3 - LUBRICATION AND MAINTENANCE

POSSIBLE DAMAGE TO THE ROPS

If the unit has rolled over or the ROPS has been in some other type of accident (such as hitting an overhead object during transport), the ROPS must be replaced to retain the best protection.

Following an accident, check the ROPS, the operator's seat, and the seat belt and seat belt mountings for possible damage. Before operating the machine, replace all damaged parts.

IMPORTANT: Do not attempt to weld or straighten the ROPS.

 WARNING

Always pull from the tractor drawbar. Never attach chains, ropes, or cables to the rops or cab for pulling purposes or the tractor will tip backwards.

 WARNING

If the ROPS or cab is removed or replaced, make sure that the proper hardware is used and the recommended torque values are applied to the attaching bolts.

Always wear your seat belt unless the tractor is not equipped with a ROPS or safety cab. In this case, the seat belt should never be worn.

SECTION 3 - LUBRICATION AND MAINTENANCE

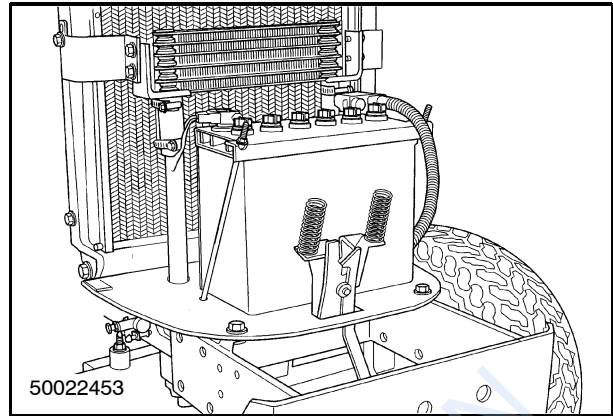
BATTERY

The tractor is equipped with a BCI group 45, 12-volt battery with a minimum cold cranking ability of 325 amps at -18°C (0°F).

Make sure the battery connections are tight and free of corrosion. A solution of baking soda and water may be used to wash the outside surface and terminals of the battery when necessary. However, make sure the solution does not get inside the battery. After cleaning, wash the battery with clean water, then apply a small amount of petroleum jelly to the terminals to prevent corrosion.

In freezing temperatures, a good battery charge must be maintained. If the battery becomes discharged or run down, the electrolyte becomes weak and may freeze, causing damage to the case. If you must add water, use distilled water. Add the water just before using the tractor so that the water will mix with the electrolyte during the charging process, thus preventing the water from freezing.

To determine the battery charge, check the specific gravity of the electrolyte.



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Checking the Electrolyte Level

NOTE: Check the battery electrolyte level after every 50 hours of operation.

⚠ WARNING ⚠

Always check the electrolyte level with the tractor engine off, as an explosive gas is produced inside the battery when the alternator is charging. Do not use an exposed flame and do not smoke when checking the battery electrolyte level.

To check the battery electrolyte level:

1. Clean the top of the battery, then remove the vent plugs.
2. Add distilled water if the electrolyte level is low. The level is correct when the liquid is 6.35 mm (1/4") above the plates.

NOTE: Keep distilled water in a nonmetallic container that is clean and well-covered.

SECTION 3 - LUBRICATION AND MAINTENANCE

3. Install the vent plug after making sure the vent holes are not blocked. At below freezing temperatures, run the engine for a period of time after adding water, allowing the battery to charge, which prevents the water from freezing.

ALTERNATOR

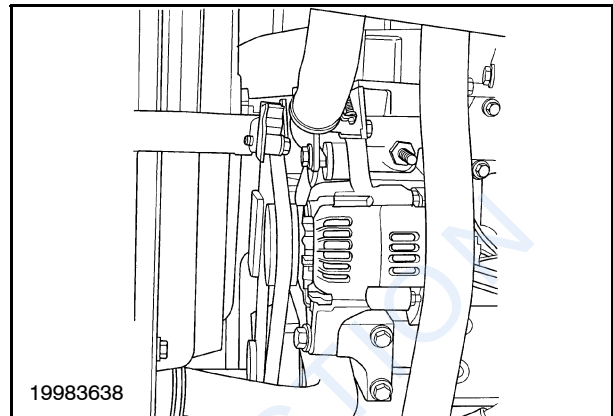
The tractor's 35-amp alternator is belt-driven from the engine crankshaft pulley. It is important that belt slippage does not occur, or the charging system will be affected. To adjust the belt, see the instructions previously given under the "Fan Belt" section.

Other than belt adjustment, the only alternator maintenance required is to periodically inspect the terminals to ensure they are clean and tight. The alternator cooling fan should also be cleaned periodically.

When working on or checking the alternator, adhere to following precautions or alternator damage may occur:

- Do not UNDER ANY CIRCUMSTANCES short the field terminal of the alternator to ground.
- 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. When removing the battery, disconnect the negative (-) cable first.
- To install a battery, MAKE SURE 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 alternator.

If the battery charge warning light illuminates, indicating that the alternator is not charging the battery, check the fan belt and the wiring connections. If these items are in satisfactory condition and the warning light continues to indicate no charge, consult your New Holland Dealer.



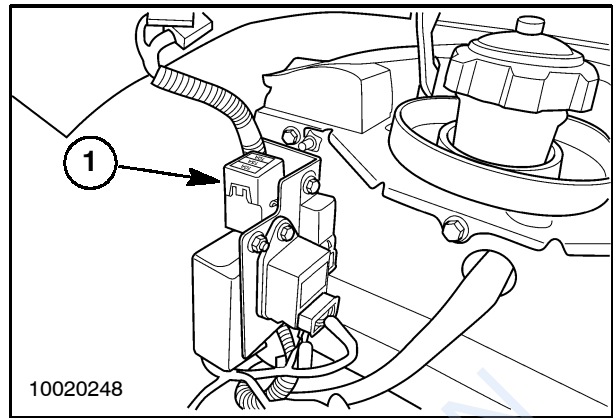
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SECTION 3 - LUBRICATION AND MAINTENANCE

FUSE BLOCK

The fuse block, 1, is located on the right-hand side of the engine compartment fire wall. Always replace blown fuses with the size specified for that circuit.

From top to bottom as viewed from the front of the tractor, the fuse block contains the following fuses:



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Fuse #	Fuse Size	Circuit Protected
1	20 amp	Headlights, taillights
2	15 amp	Flasher warning lights
3	10 amp	Instrument panel/indicator lights, safety start/operator presence, fuel shutoff solenoid, turn signals, optional rear work light

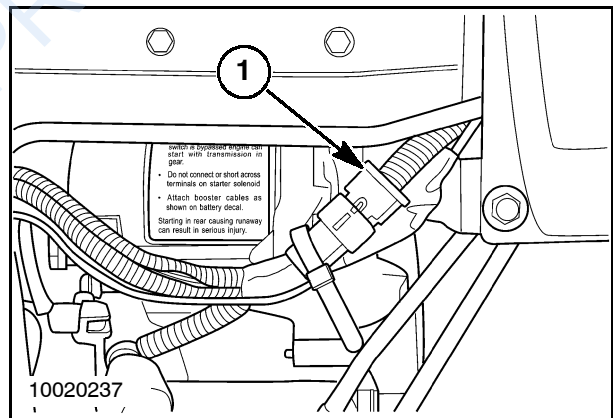
MAIN FUSE

The main 40 amp fuse, 1, is located on the left-hand side of the engine and positioned in the area of the engine starter. This fuse protects the tractor's entire electrical system.

To replace the main fuse:

1. Remove the old fuse from the fuse holder and replace.

IMPORTANT: Always replace this fuse with a similar 40 amp fuse; DO NOT increase amperage rating.



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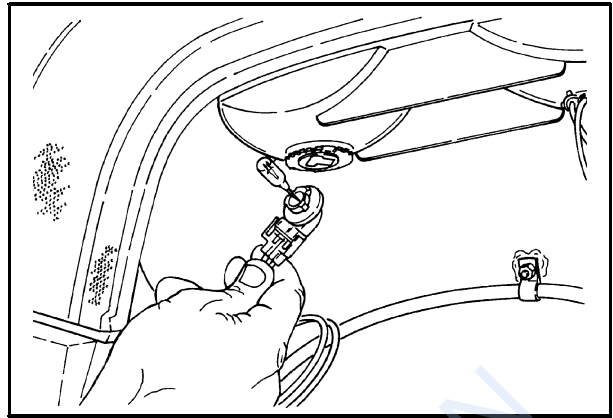
SECTION 3 - LUBRICATION AND MAINTENANCE

HEAD LAMP

If a head lamp fails to operate, the bulb must be replaced. To change the bulb:

1. Open the tractor hood.
2. Rotate the socket counterclockwise a quarter turn and remove the socket from the housing.
3. Remove the bulb assembly from the harness.
4. Place a new bulb in the socket, then reinstall the socket in the housing.

NOTE: Replace with a halogen bulb, size 894.



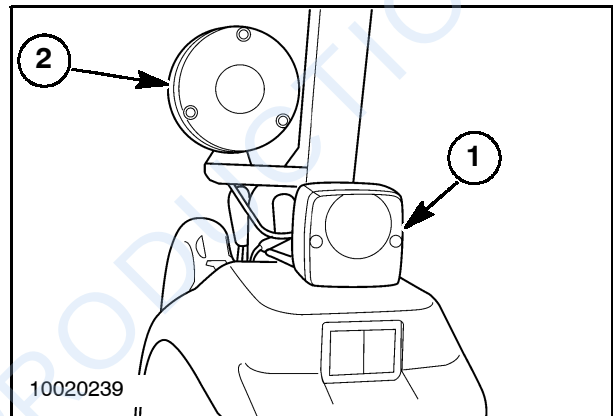
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TAILLIGHT (1, Figure 36)

To replace taillight bulb:

1. Insert a screwdriver between the lens and light body and pry the lens from the body.
2. Push down on the bulb and rotate it counterclockwise in the socket to remove.
3. Insert a new bulb, 3, into the socket and turn in a clockwise direction until the bulb is locked into place.

NOTE: Replace with a 67/10-12-volt bulb.



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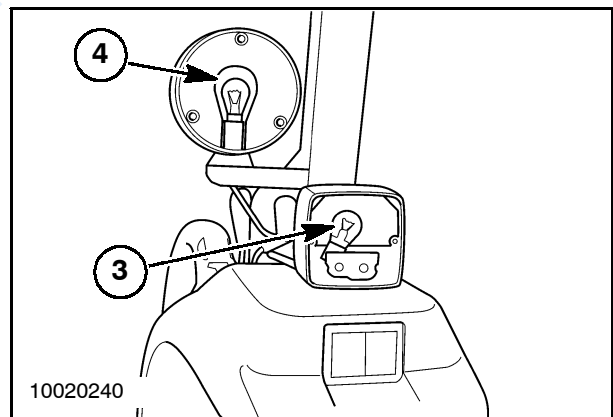
FLASHER WARNING LIGHTS (2, Figure 36)

Two flasher warning lights, 2, are present on the tractor, one attached to the ROPS on each side of the tractor.

To replace a flasher warning light bulb:

1. Remove the three screws from the rear of the lens.
2. Pull the lens away from the body.
3. Push in on the bulb, 4, and rotate it counterclockwise in the socket to remove.
4. Insert a new bulb into the socket and turn it in a clockwise direction until the bulb is locked into place.

NOTE: Replace with a 1156-12-volt bulb.



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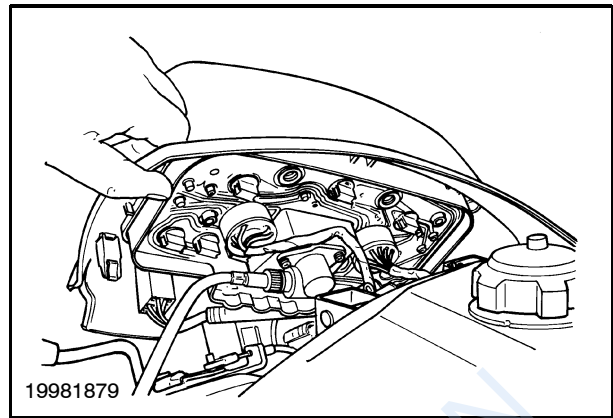
SECTION 3 - LUBRICATION AND MAINTENANCE

INSTRUMENT LIGHTS

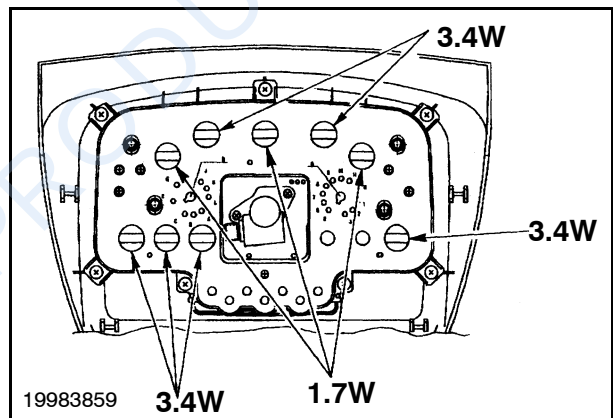
To change a burned out instrument bulb:

1. Move the rubber ring that is around the steering column up the steering column so that it is tight against the steering wheel.
2. Remove the rubber plug that is in the hole on the left side of the dash (the hole that matches the one where the hand throttle is on the right side).
3. The dash is held to the tractor with simple spring clips, and can be pulled away from the console by simply placing one's hands in the holes on each side of the paneling and pulling upward.
4. Once the dash piece, includes the instrument panel, is separated, the bulbs on the instrument panel can be accessed.
5. Rotate the bulb assembly counterclockwise a quarter turn and remove it from the instrument panel.
6. Remove the burned out bulb and replace with a new bulb. Reinsert the bulb assembly into the back of the panel and turn it clockwise a quarter turn.
7. Reassemble the panel.

NOTE: Replace with the appropriate bulb: either a size 758 1.7W bulb for gauge lights, or a size 124 3.4W bulb for indicator lights.



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SECTION 3 - LUBRICATION AND MAINTENANCE

TIRES

NOTE: Check tire pressure after every 50 hours of operation or weekly.

Tire inflation pressure affects the amount of weight a tire can carry. Check the air pressure in your tractor tires, then locate the tires in the "Tire Inflation Pressures" chart found in this manual. If necessary, adjust the tire pressure, being careful not to overinflate or underinflate. Observe the following guidelines:

- Do not inflate a tire above the maximum pressure shown on the tire. If the tire is not marked, do not exceed the maximum pressure shown in the Tire Inflation chart found in this manual.
- Do not reinflate a tire that has been run flat or seriously underinflated until the tire has been inspected for damage by a qualified person.
- When checking tire pressure, inspect the tire for damaged sidewalls and tread cuts. Neglected damage leads to early tire failure.



WARNING

Inflating or servicing tires can be dangerous. Trained personnel should service and/or mount tires whenever possible.

If you must inflate or service tires, follow these safety precautions to avoid injury or fatality:

- Make 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. This allows the operator to stand clear of the tire while inflating.

- NEVER INFLATE TO OVER 2.4 BAR (35 PSI) TO SEAT BEADS. If beads have not been seated by the time pressure reaches 2.4 bar (35 PSI), deflate the assembly, reposition the tire on the rim, relubricate both tire bead and rim flanges, and reinflate. Inflation beyond 2.4 bar (35 PSI) with unseated beads may break the bead or rim with explosive force sufficient enough 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.
- Ensure jack has adequate capacity to lift your tractor.
- Place jack on a firm, level surface.
- Do not place any part of your body beneath the tractor or start the engine while the tractor is on the jack.
- Before adding ballast to the tires, refer to the information in this manual on "Tractor Weighting."

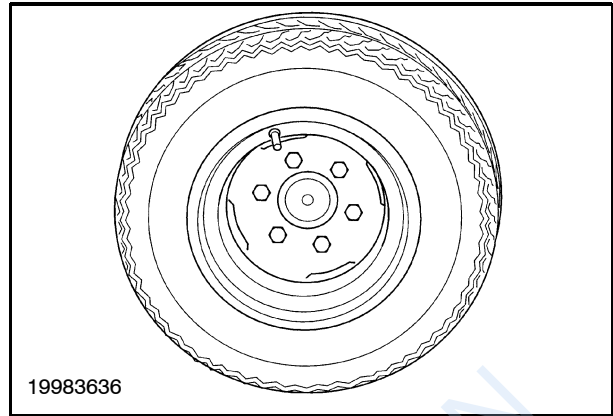
SECTION 3 - LUBRICATION AND MAINTENANCE

WHEEL BOLT TORQUE

Tighten the wheel bolts to the specified torque any time the wheel assembly is removed from the tractor or the wheel bolts are loosened.

Front Wheel Torque
88 N·m (65 ft. lbs.)

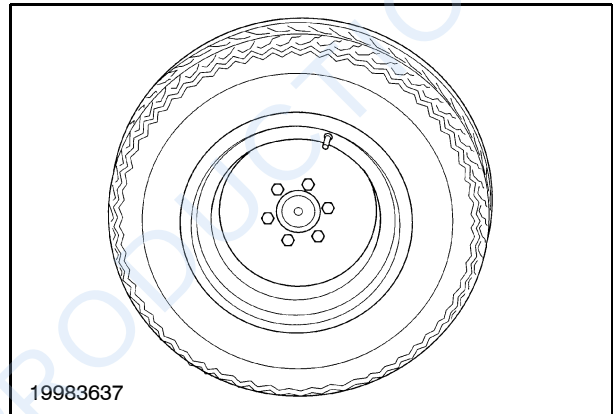
NOTE: Torque for the front wheels is the same for 2WD and FWD axles.



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Rear Wheel Torque
122 N·m (90 ft. lbs.)

Check wheel bolt torque daily until torque stabilizes.



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SECTION 3 - LUBRICATION AND MAINTENANCE

FRONT WHEEL TOE-IN

Front wheel toe-in adjustments were made on your tractor at the factory. Normally, the wheels maintain their toe-in; however, an occasional check should be made.

Checking Toe-In

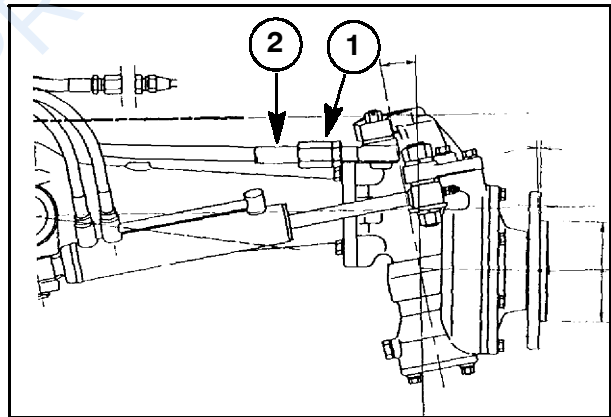
To check toe-in:

1. With the front wheels in the straight ahead position, mark the front of the wheels (not the tires) at wheel hub height.
2. Measure and record the distance between the front of the wheels at the marks, then push the tractor forward or backward until the marks are at wheel hub height on the rear of the wheel.
3. Measure and record the distance between the marks at the rear of the wheels.
4. The difference between the dimensions recorded in step 2 and step 3 should give 0 mm-5 mm (0"-13/64") toe-in. This means that the distance between the marks on the wheels should be 0 mm-5 mm (0"-13/64") greater when the marks are at the rear than at the front.

Adjusting Toe-In

If toe-in is not correct, adjust as follows:

1. Loosen the tie rod locknuts, 1.
2. Adjust the tie rod tube assembly, 2, as required to give 0"-13/64" (0 mm-5 mm) toe-in.
3. After the correct toe-in is obtained, tighten the tie rod locknuts.

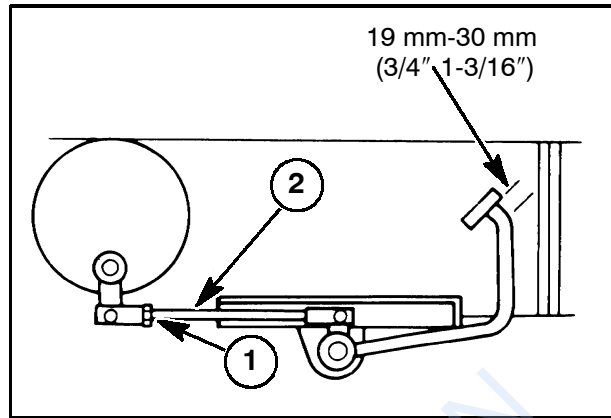


SECTION 3 - LUBRICATION AND MAINTENANCE

BRAKE ADJUSTMENT

Whenever brake pedal travel becomes excessive, or if the travel of one pedal is unequal to that of the other, each pedal should be adjusted.

1. Loosen the locknut, 1, and rotate the brake rod, 2, until there is 19 mm - 30 mm (3/4" - 1-3/16") of pedal free play. Lengthening the rod increases free play. Shortening the rod decreases free play.
2. Test drive the tractor to make sure the braking action of both rear wheels is equal. Readjust as necessary.



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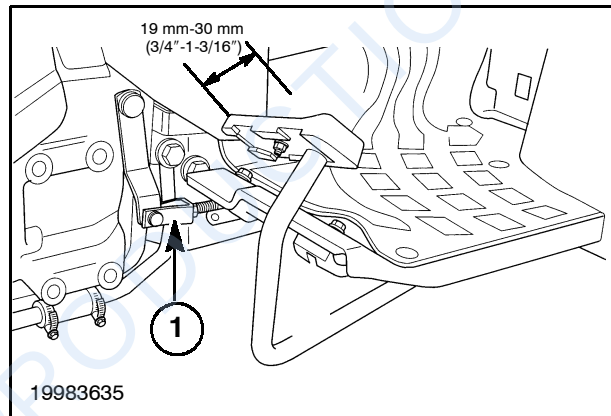
CLUTCH PEDAL ADJUSTMENT

NOTE: Check clutch pedal free travel after every 50 hours of operation.

Clutch pedal free travel should be maintained at 19 mm - 30 mm (3/4" - 1-3/16").

To adjust the clutch pedal:

1. Remove the cotter pin and clevis pin.
2. Turn the clevis, 1, to increase or decrease pedal travel as necessary.
3. Shortening the linkage will decrease free travel. Lengthening the linkage will increase free travel.



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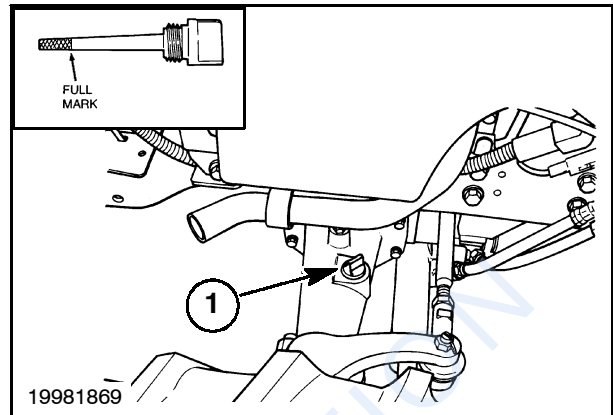
FRONT-WHEEL DRIVE

FRONT AXLE DIFFERENTIAL CASE AND FINAL REDUCTION GEAR CASES

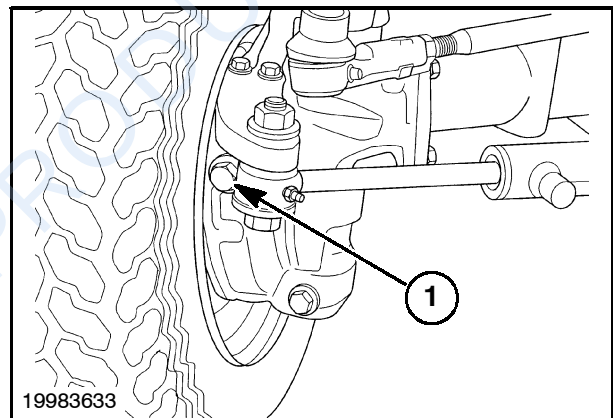
Checking the Front Axle Differential Case and Final Reduction Gear Case Oil Level

NOTE: Check the front axle differential case and final reduction gear case oil level after every 50 hours of operation.

1. With the tractor standing level and the engine off, check the front axle oil level using the dipstick, 1.
2. The oil is at the correct level when it reads between the full mark and the lower end of the dipstick. If capacity is low, add NH 134 hydraulic oil through the combined dipstick/filler plug. Do not fill beyond the dipstick full mark, or the front axle and differential housing will be overfilled.
3. Install the dipstick/filler plug.
4. To check the final reduction gear case oil level, remove the filler plug, 1. The oil is at the correct level when it is at the bottom of the fill port opening.



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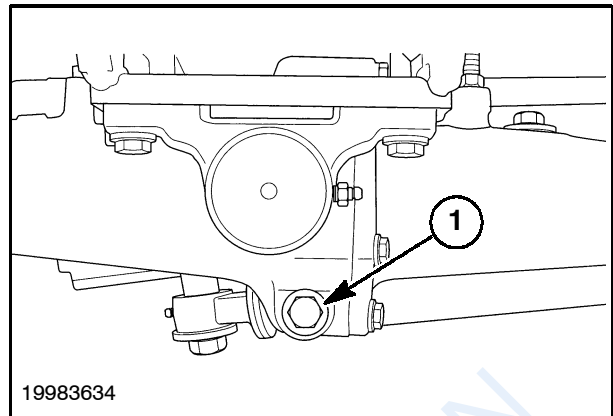
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SECTION 3 - LUBRICATION AND MAINTENANCE

Changing the Front Axle Differential Case and Final Reduction Gear Case Oil

NOTE: The front axle differential case and final reduction gear case oil should be changed after every 300 operating hours.

1. Place a suitable container beneath the oil plug. With the oil at normal operating temperature, drain the oil by removing the drain plug, 1, on the standard FWD axle. After the oil has drained, reinstall the drain plug and discard the used oil.

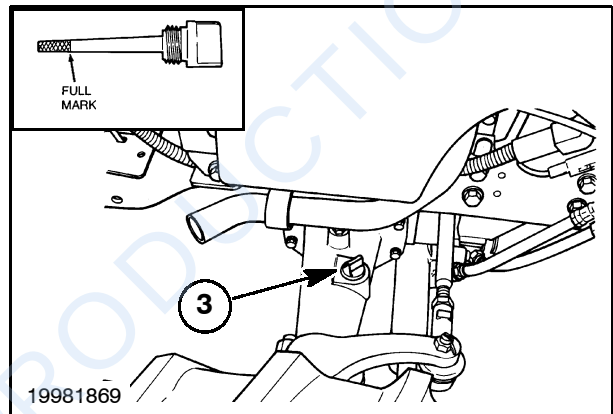


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2. Remove the dipstick/filler plug, 3, on the left-hand side of the axle housing. Fill the axle with NH 134 hydraulic oil until the oil level is between the full mark and the lower end of the dipstick. Reinstall the dipstick/filler plug.

NOTE: Approximate fluid capacity for the differential axle housing is 1 L (1.06 U.S. qts.).

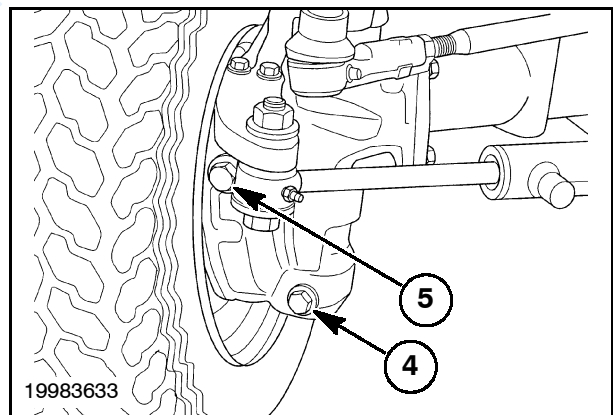
NOTE: To obtain correct oil level reading, do not screw dipstick into axle housing when checking oil level.



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3. Remove the drain plug, 4, from each final reduction gear case. After the oil has drained, reinstall each drain plug and discard the used oil. Remove the filler plug, 5, from each final reduction gear case and fill with NH 134 hydraulic oil so that the oil level is at the bottom of the fill port opening. Reinstall each filler plug.

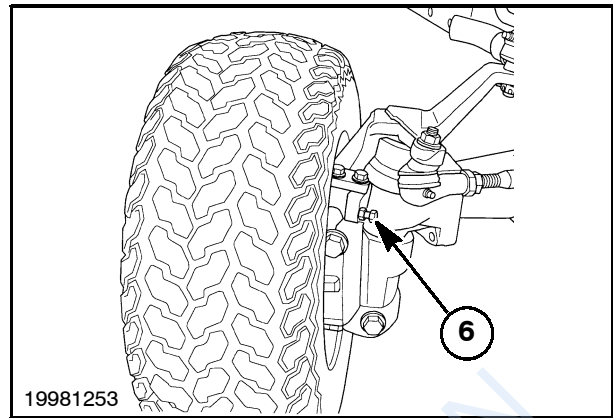
NOTE: Approximate final reduction gear case fluid capacity is 0.4 liter (0.38 U.S. qts.) per side.



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SECTION 3 - LUBRICATION AND MAINTENANCE

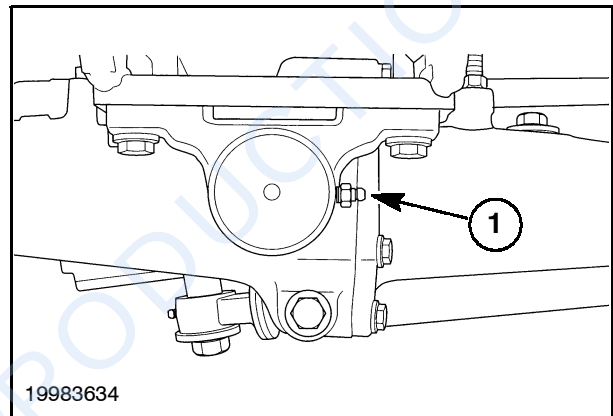
NOTE: To ensure correct steering operation, the stop bolt, 6, should protrude a minimum of 18 mm (0.71 ") from the casing (standard FWD).



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FRONT AXLE PIVOT/STANDARD FWD AXLE

NOTE: The center housing pivot point, 1, should be greased after every 50 hours of operation under normal conditions. Under extremely dirty conditions, lubrication should be carried out more frequently than every 50 hours. Use a good quality, multipurpose, lithium-base grease.



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TRACTOR STORAGE

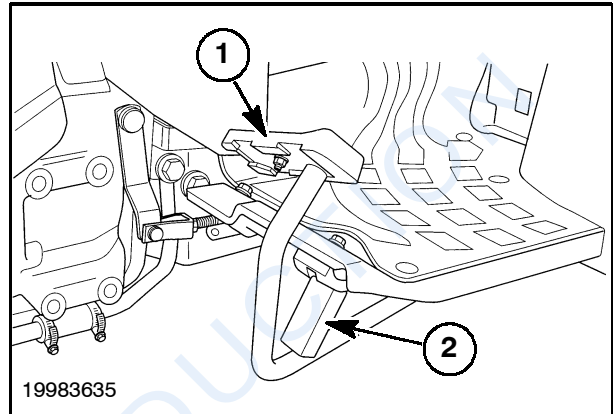
Below is a list of protective measures which should be taken if your tractor is to be stored for an extended period of time:

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. Raise the lift arms hydraulically to their fullest raised position so that the lift piston is in a fully extended position. This fills the cylinder with oil and protects the cylinder wall surfaces from corrosion.
4. Lubricate the tractor.
5. 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 temperature.

SECTION 3 - LUBRICATION AND MAINTENANCE

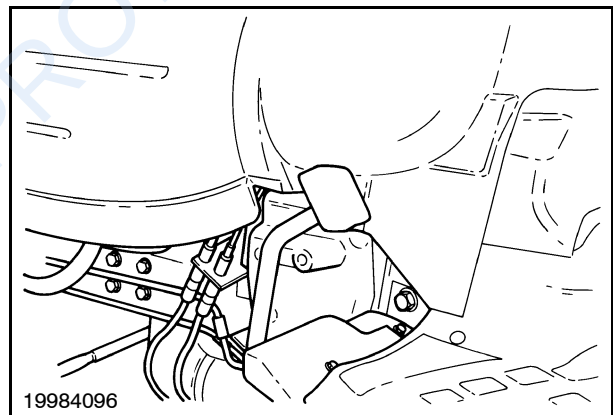
6. Open the drain valve of the radiator and engine block. Flush the system, close the drain valves, and fill with a 50/50 solution of permanent antifreeze and clear water.
7. Remove the battery and clean it thoroughly. Be sure that it is fully charged and that the electrolyte is at the proper level. Store the battery in a cool, dry place above freezing temperature, and charge it periodically during storage.
8. Place blocking under the tractor axles to remove the weight from the tires.
9. Cover the exhaust pipe opening.
10. Depress the clutch pedal, 1, to separate the clutch disc from the flywheel. Place pedal spacer, 2, between the clutch pedal and step plate.



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Tractors which 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, power steering reservoir, the common sump (for the hydraulic lift, transmission, and rear axle), and the optional front-wheel drive axle.
3. Install a fully charged battery and remove the exhaust cover if other than a rain cap.
4. Check the cooling system for the proper level (50/50 solution of antifreeze and clear water).
5. Depress the clutch pedal until there is clearance between the pedal and the pedal spacer. Remove the pedal spacer from between the clutch pedal and the step plate.
6. Start the engine and allow it to idle a few minutes. Ensure the engine is receiving lubrication and that each control is functioning correctly.
7. Drive the tractor without a load and check to make sure it is operating satisfactorily.



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SECTION 3 - LUBRICATION AND MAINTENANCE

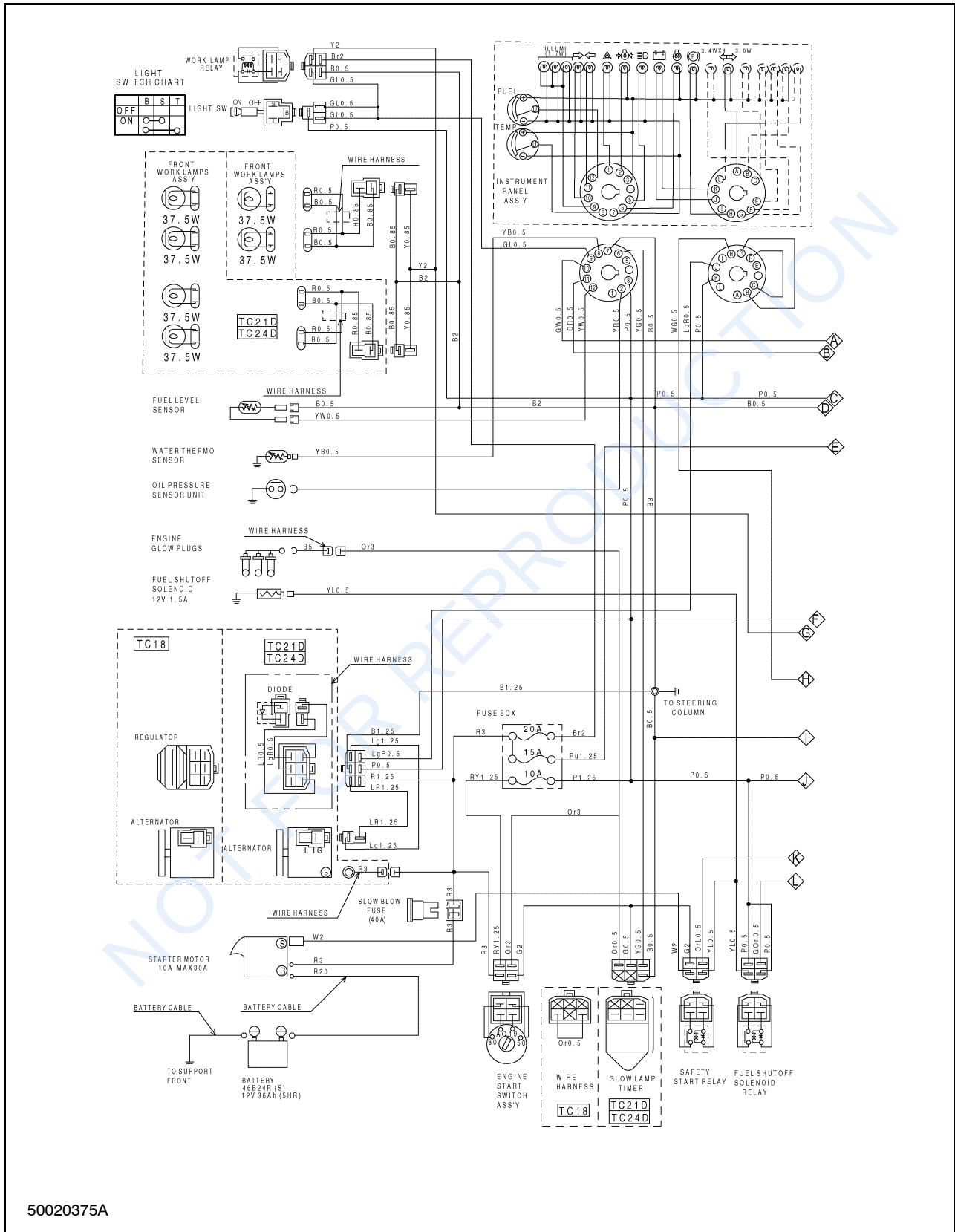
TOUCH-UP PAINT

The following New Holland paints are recommended for touch-up paint repairs.

Color	Part No.	Amount
New Holland Bright Blue	86109144-DS 86109141-DS	16 oz. Spray Quart
CNH Gray	B96025 B96026	16 oz. Spray Quart
Bianco White (Wheels)	9624698-DS 9624699-DS	16 oz. Spray Quart
Med Gloss Black	94792-DS 9624700-DS	16 oz. Spray Quart

SECTION 3 - LUBRICATION AND MAINTENANCE

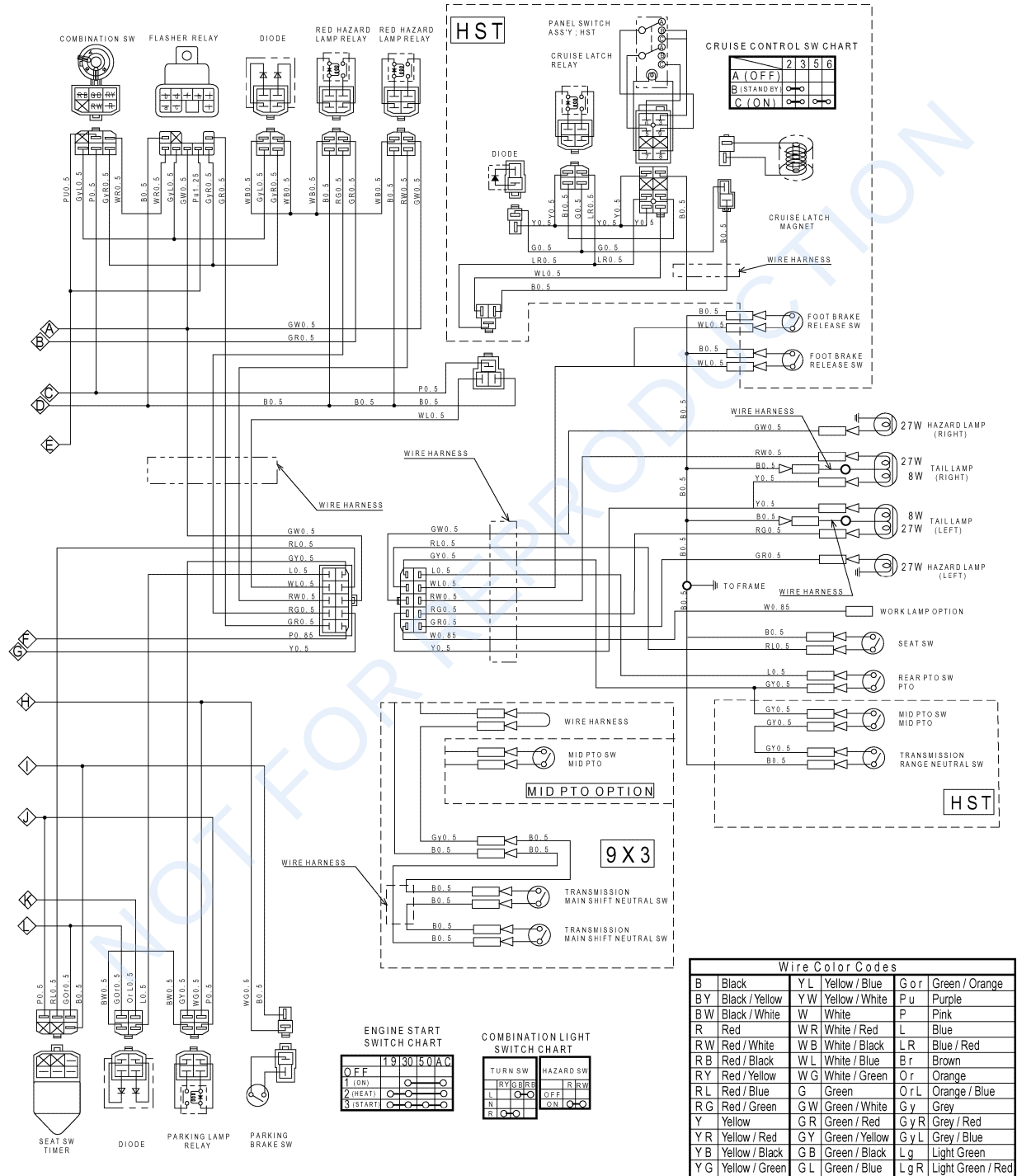
ELECTRICAL WIRING DIAGRAM



50020375A

SECTION 3 - LUBRICATION AND MAINTENANCE

ELECTRICAL WIRING DIAGRAM



50020375B

NOT FOR REPRODUCTION

SECTION 4

SPECIFICATIONS

	Model TC21D— Hydrostatic/Gear	Model TC24D— Hydrostatic/Gear
ENGINE		
Type	Diesel	Diesel
Engine Gross Horsepower	21.0	24.0
Cylinders	3	3
Bore	77 mm (3.03")	77 mm (3.03")
Stroke	72 mm (2.83")	81 mm (3.19")
Displacement	1.005 L (61.3 cu. in.)	1.131 L (69.0 cu. in.)
Compression Ratio	23:1	22:5
Firing Order	1-2-3	1-2-3
Low Idle Speed	1100-1200 RPM	1100-1200 RPM
Maximum Speed:		
High Idle	2800-2850 RPM	2800-2850 RPM
Rated	2600 RPM	2600 RPM
Valve Clearance (Cold):		
Intake	0.20 mm (0.008")	0.20 mm (0.008")
Exhaust	0.20 mm (0.008")	0.20 mm (0.008")
CAPACITIES		
Fuel Tank	20 liters/ 5.3 U.S. gals.	20 liters/ 5.3 U.S. gals.
Cooling System	3.5 liters/ 3.7 U.S. qts.	3.5 liters/ 3.7 U.S. qts.
Engine Crankcase:		
Less Filter	3.0 liters/ 3.2 U.S. qts.	3.0 liters/ 3.2 U.S. qts.
With Filter Change	3.3 liters/ 3.5 U.S. qts.	3.3 liters/ 3.5 U.S. qts.
Rear Axle & Transmission (Includes Hydraulics)	16 liters/ 4.23 U.S. gals.	16 liters/ 4.23 U.S. gals.
Front Axle Final Reduction	0.8 liter/ 0.85 U.S. qt. per side	0.8 liter/ 0.85 U.S. qt. per side
Differential Gear Case	1 liter/ 1.06 U.S. qts.	1 liter/ 1.06 U.S. qts.

SECTION 4 - SPECIFICATIONS

	Model TC21D— Hydrostatic/Gear	Model TC24D— Hydrostatic/Gear
COOLING SYSTEM		
Type	Pressurized Liquid with Recirculating Bypass	Pressurized Liquid with Recirculating Bypass
Water Pump:		
Type	Centrifugal	Centrifugal
Drive	V-Belt	V-Belt
Belt Deflection	10 mm-15 mm (7/16"-9/16") when 9-11 kg (20-25 lbs.) thumb pressure is applied mid- way between belt pulleys	10 mm-15 mm (7/16"-9/16") when 9-11 kg (20-25 lbs.) thumb pressure is applied mid- way between belt pulleys
Fan Diameter	335 mm (13.19")	335 mm (13.19")
Thermostat:		
Start to Open	82°C (200°F)	82°C (200°F)
Fully Open	95°C (228.6°F)	95°C (228.6°F)
Radiator Cap	0.9 bar (13 PSI)	0.9 bar (13 PSI)
ELECTRICAL SYSTEM		
Alternator	12-volt, heavy-duty, 40 amps	12-volt, heavy-duty, 40 amps
Battery	12-volt, w/ negative ground, 325 cca	12-volt, w/ negative ground, 325 cca
Starting Motor	Solenoid Pre-Engaged Reduction	Solenoid Pre-Engaged Reduction
FUEL SYSTEM		
Fuel Type	Diesel	Diesel
Type of Fuel to Use if Above 40°F	No. 2-Diesel, Cetane Rating: Minimum 40	No. 2-Diesel, Cetane Rating: Minimum 40
Type of Fuel to Use if Below 40°F	No. 1-Diesel, Cetane Rating: Minimum 40	No. 1-Diesel, Cetane Rating: Minimum 40
Injection Pump:		
Type	In-Line	In-Line
Timing	21° BTDC	24° BTDC

SECTION 4 - SPECIFICATIONS

	Model TC21D— Hydrostatic/Gear	Model TC24D— Hydrostatic/Gear
CLUTCH		
Type	184 mm (7.25") Dry Disc, Organic Face	184 mm (7.25") Dry Disc, Organic Face
Pedal Free-Travel	19 mm-30 mm (3/4"-1-3/16")	19 mm-30 mm (3/4"-1-3/16")
BRAKES		
Type	Wet Disc	Wet Disc
2 Discs per side	134 mm x 94 mm Diameter (5.27" x 3.70")	134 mm x 94 mm Diameter (5.27" x 3.70")
STEERING		
Type	Power	Power
Turns Lock-to-Lock:		
FWD	2.5	2.5
Front Wheel Toe-In	0 mm - 5 mm (0" - 13/64")	0 mm - 5 mm (0" - 13/64")
Turning Radius w/o Brakes:		
FWD	2464 mm (97.0")	2464 mm (97.0")
POWER TAKE-OFF		
Type	Live	Live
Shaft:		
Rear PTO	35 mm (1-3/8")	35 mm (1-3/8")
Mid PTO	25.4 mm (1")	25.4 mm (1")
Engine Speed for 540 RPM		
PTO Operation	2388 RPM (Gear) 2503 RPM (HST)	2388 RPM (Gear) 2503 RPM (HST)
Horsepower PTO Observed	16 HST 17 Gear	18.0 HST 19.5 Gear
HYDRAULIC LIFT SYSTEM		
Type	Open Center	Open Center
Pump Type	Gear	Gear
Pump Capacity	18.4 L/min (4.9 U.S. GPM)	18.4 L/min (4.9 U.S. GPM)
System Relief Valve Setting	130 bar (1849 PSI)	130 bar (1849 PSI)

SECTION 4 - SPECIFICATIONS

	Model TC21D— Gear	Model TC24D— Gear
TRANSMISSION SPEEDS		
(From 2600 RPM Engine Speed with AG 9.5-16 Rear Tires)		
Gear Position:		
1st (Low)	1.16 KPH (0.72 MPH)	1.16 KPH (0.72 MPH)
2nd (Low)	1.93 KPH (1.20 MPH)	1.93 KPH (1.20 MPH)
3rd (Low)	2.58 KPH (1.60 MPH)	2.58 KPH (1.60 MPH)
1st (Mid)	2.77 KPH (1.72 MPH)	2.77 KPH (1.72 MPH)
2nd (Mid)	4.59 KPH (2.85 MPH)	4.59 KPH (2.85 MPH)
3rd (Mid)	6.16 KPH (3.83 MPH)	6.16 KPH (3.83 MPH)
1st (High)	7.23 KPH (4.49 MPH)	7.23 KPH (4.49 MPH)
2nd (High)	12.00 KPH (7.46 MPH)	12.00 KPH (7.46 MPH)
3rd (High)	16.10 KPH (10.00 MPH)	16.10 KPH (10.00 MPH)
Reverse (Low)	2.15 KPH (1.34 MPH)	2.15 KPH (1.34 MPH)
Reverse (Mid)	5.13 KPH (3.19 MPH)	5.13 KPH (3.19 MPH)
Reverse (High)	13.42 KPH (8.34 MPH)	13.42 KPH (8.34 MPH)

	Model TC21D— Hydrostatic	Model TC24D— Hydrostatic
TRANSMISSION SPEEDS		
(From 2600 RPM Engine Speed with Turf 29x12.00-15 Tires)		
Gear Position:		
Low	0 - 5.71 KPH (0 - 3.55 MPH)	0 - 5.71 KPH (0 - 3.55 MPH)
High	0 - 14.69 KPH (0 - 9.13 MPH)	0 - 14.69 KPH (0 - 9.13 MPH)
(Reverse) Low	0 - 3.57 KPH (0 - 2.22 MPH)	0 - 3.57 KPH (0 - 2.22 MPH)
High	0 - 9.18 KPH (0 - 5.70 MPH)	0 - 9.18 KPH (0 - 5.70 MPH)

SECTION 4 - SPECIFICATIONS

	Model TC21D— Hydrostatic/Gear	Model TC24D— Hydrostatic/Gear
CAST IRON WEIGHTS		
Front End:		
R-4, & Turf Tires—		
. with FWD	(3) weights @ 26 kg (57 lbs.) each	(3) weights @ 26 kg (57 lbs.) each
Rear Wheel (per wheel):		
R-4 Tires	(1) weight @ 45 kg (100 lbs.)	(1) weight @ 45 kg (100 lbs.)
Turf Tires	N/A	N/A
Ag. Tires	(1) weight @ 45 kg (100 lbs.)	(1) weight @ 45 kg (100 lbs.)
DRAWBARS		
Fixed/Clevis	Standard	Standard
TIRES		
FRONT:		
Agricultural:	5-12, 4 PR, R1	5-12, 4 PR, R1
FWD	6-12, 4PR, R1	6-12, 4PR, R1
Turf:		
FWD	22 X 9.00-12, 4PR, R3	22 X 9.00-12, 4PR, R3
Industrial:		
FWD	23 X 8.50-12, 6PR, R4	23 X 8.50-12, 6PR, R4
REAR:	8 X 16.00, 4 PR, R1	8 X 16.00, 4 PR, R1
Agricultural	9.5-16, 4PR, R1	9.5-16, 4PR, R1
Turf	31 X 13.5-15, 4PR, R3	31 X 13.5-15, 4PR, R3
Industrial	12-16.5, 6PR, R4	12-16.5, 6PR, R4
WHEEL BOLT TORQUES		
Front Wheel—		
Disc-to-Hub:		
FWD	88 N·m (65 ft. lbs.)	88 N·m (65 ft. lbs.)
Rear Wheel—		
Disc-to Rim & Disc-to Axle	122 N·m (90 ft. lbs.)	122 N·m (90 ft. lbs.)
ROPS ATTACHING BOLT TORQUES		
ROPS to Rear Axle	54.2 N·m (40 ft. lbs.)	54.2 N·m (40 ft. lbs.)
Seat Belt	47.4 N·m (35 ft. lbs.)	47.4 N·m (35 ft. lbs.)

SECTION 4 - SPECIFICATIONS

GENERAL DIMENSIONS

	Model TC21D— Hydrostatic/Gear	Model TC24D— Hydrostatic/Gear
(1)—LENGTH:		
FWD:	2700 mm (106.3")	2700 mm (106.3")
(2)—WHEEL BASE:		
FWD	1460 mm (57.5")	1460 mm (57.5")
HEIGHT:		
(3)—		
Top of Steering Wheel:		
Turf Tires	1280 mm (50.4")	1280 mm (50.4")
Ag. Tires	1290 mm (50.8")	1290 mm (50.8")
R4 Tires	1284 mm (50.6")	1284 mm (50.6")
(4)—		
Top of ROPS— Folding:		
<u>w/Turf Tires—</u>		
Up Position	2053 mm (80.8")	2053 mm (80.8")
Down Position	1722 mm (67.8")	1722 mm (67.8")
<u>w/Ag. Tires—</u>		
Up Position	2063 mm (81.2")	2063 mm (81.2")
Down Position	1732 mm (68.2")	1732 mm (68.2")
<u>w/R4 Tires—</u>		
Up Position	2057 mm (81.0")	2057 mm (81.0")
Down Position	1726 mm (68.0")	1726 mm (68.0")

SECTION 4 - SPECIFICATIONS

Model TC21D— Hydrostatic/Gear

Model TC24D— Hydrostatic/Gear

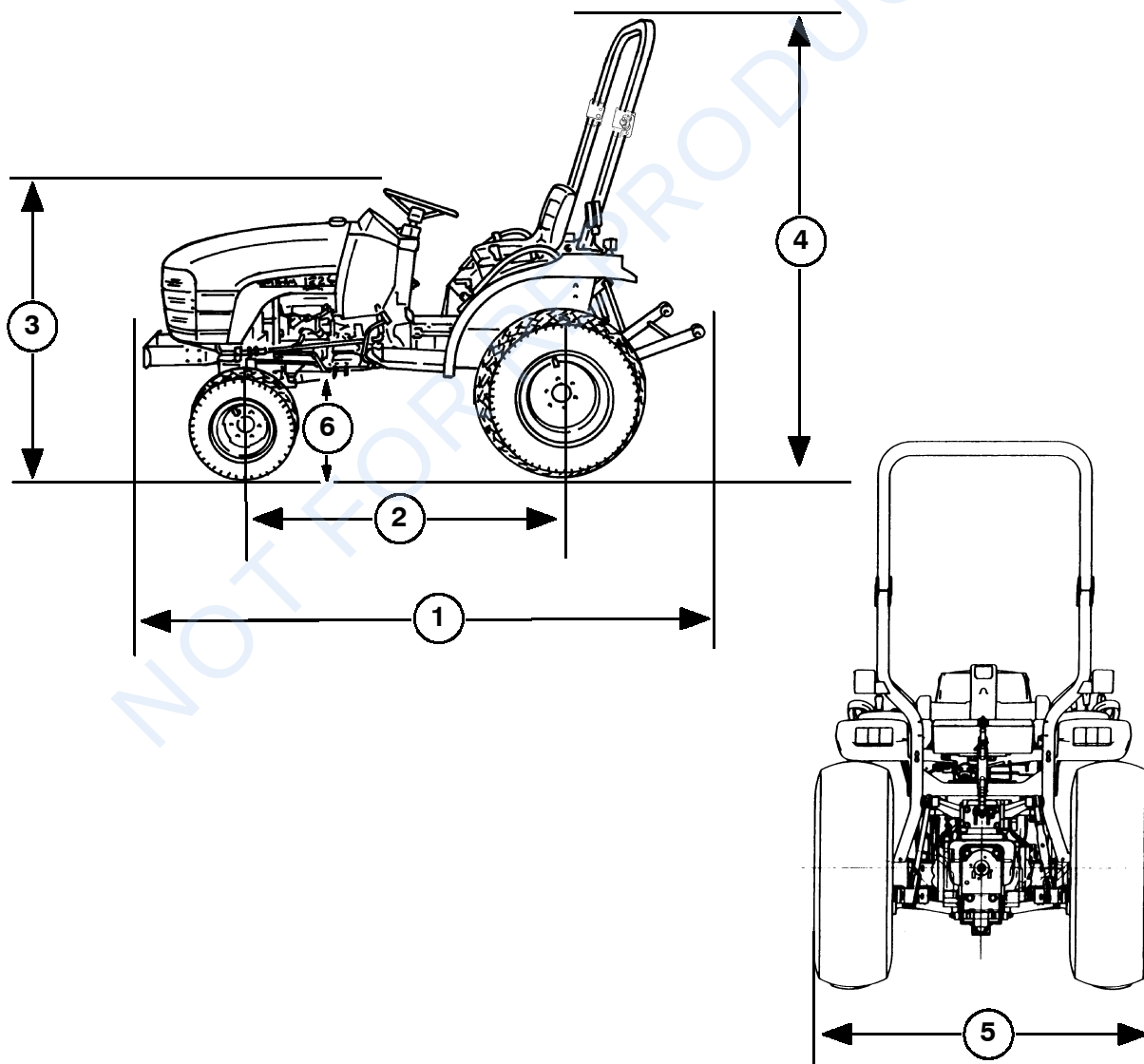
(5)—WIDTH:

Rear Axle—Outside to Outside:

Turf Tires—	1206 mm (47.5")	1206 mm (47.5")
Ag. Tires—	1135 mm (44.7")	1135 mm (44.7")
R4 Tires—	1214 mm (47.8")	1214 mm (47.8")

(6)—MINIMUM GROUND CLEARANCE:

Turf Tires	274 mm (10.79")	274 mm (10.79")
Ag. Tires	273 mm (10.7")	273 mm (10.7")
R4 Tires	278 mm (10.94")	278 mm (10.94")



GENERAL DIMENSIONS

Model TC21D— Hydrostatic/Gear

Model TC24D— Hydrostatic/Gear

WHEEL TREAD SETTINGS:

FRONT:

Agricultural:

FWD 6-12 846 mm (33.3")

846 mm (33.3")

Turf:

FWD 22 x 9.00-12 885 mm (34.8")

885 mm (34.8")

R4

FWD 23 x 8.5-12 919 mm (36.2")

919 mm (36.2")

REAR:

Agricultural 9.5-16 895 mm (35.2")

895 mm (35.2")

Turf 29 x 12-15 890 mm (35.0")

890 mm (35.0")

R4 12-16.5 900 mm (35.4")

900 mm (35.4")

WEIGHT:

Hydro

Gear

Hydro

Gear

With Ag Tires

722 kg
(1592 lbs.)

678 kg
(1495 lbs.)

725 kg
(1599 lbs.)

681 kg
(1502 lbs.)

With Turf Tires (29 x 12.00-15) ..

710 kg
(1565 lbs.)

666 kg
(1469 lbs.)

736 kg
(1623 lbs.)

692 kg
(1526 lbs.)

With R4 Tires

778 kg
(1716 lbs.)

734 kg
(1619 lbs.)

781 kg
(1722 lbs.)

737 kg
(1625 lbs.)

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OWNER COPY

PREDELIVERY SERVICE

Check and Adjust as Required

INOPERATIVE SERVICE CHECKS

1. ____ Tire Pressure
2. ____ Air Cleaner Element & Hose Connections
3. ____ Radiator Coolant Level
4. ____ Fan Belt Tension
5. ____ Battery Cleanliness, Vent Openings, Electrolyte Level, & Charge
6. ____ Engine Oil Level
7. ____ Power Steering Reservoir Oil Level
8. ____ Transmission & Rear Axle Oil Level
9. ____ Front Axle & Final Reduction Gear Case Oil Level (FWD)
10. ____ Hydraulic Lift Control Adjustment
11. ____ Upper Link & Hitch
12. ____ Brake Adjustment & Pedal Equalization
13. ____ Clutch Pedal Free Play
14. ____ Rear Wheel Bolt Torque - 122 N·m (90 ft. lbs.)
15. ____ Front Wheel Bolt Torque - 88 N·m (65 ft. lbs.)
16. ____ Front Wheel Toe-in
17. ____ Fuel Level
18. ____ Sheet Metal & Paint Condition

SAFETY ITEMS CHECKS

1. ____ ROPS Installed

2. ____ Seat Belts Installed
3. ____ ROPS Bolt Torque-74.5 N·m (55 ft. lbs.); Seat Belt Bolt Torque-74.5 N·m (55 ft. lbs.)
4. ____ PTO Shield Installed
5. ____ SMV Emblem Installed
6. ____ Safety Decals Installed
7. ____ Neutral Start Switches Operation
8. ____ Parking Brake & Latch Operation
9. ____ Flashing Lights/Tail Lights Operation
10. ____ Operator's Manual

OPERATIVE SERVICE CHECKS

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

1. ____ Lights & Instruments for Proper Operation, & Fuel Shut Down with Key Switch OFF
2. ____ Fluid & Oil Leaks
3. ____ Maximum No-load Speed & Idle Speed Adjustments
4. ____ PTO Engagement & Disengagement
____ Clutch Pedal & PTO Lever
5. Hydraulic System:
____ Selector Lever for Position Control
____ Flow Control Operation
6. ____ FWD-Drive Lever Operation
7. ____ Operation of H.S.T.

TRACTOR MODEL NO. _____ INSPECTION PERFORMED _____

TRACTOR SERIAL NO. _____ WARRANTY EXPLAINED _____

Owner's Signature _____ Date _____

Dealer's Signature _____ Date _____

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DEALER COPY

PREDELIVERY SERVICE

Check and Adjust as Required

INOPERATIVE SERVICE CHECKS

1. ____ Tire Pressure
2. ____ Air Cleaner Element & Hose Connections
3. ____ Radiator Coolant Level
4. ____ Fan Belt Tension
5. ____ Battery Cleanliness, Vent Openings, Electrolyte Level, & Charge
6. ____ Engine Oil Level
7. ____ Power Steering Reservoir Oil Level
8. ____ Transmission & Rear Axle Oil Level
9. ____ Front Axle & Final Reduction Gear Case Oil Level (FWD)
10. ____ Hydraulic Lift Control Adjustment
11. ____ Upper Link & Hitch
12. ____ Brake Adjustment & Pedal Equalization
13. ____ Clutch Pedal Free Play
14. ____ Rear Wheel Bolt Torque - 122 N·m (90 ft. lbs.)
15. ____ Front Wheel Bolt Torque - 88 N·m (65 ft. lbs.)
16. ____ Front Wheel Toe-in
17. ____ Fuel Level
18. ____ Sheet Metal & Paint Condition

SAFETY ITEMS CHECKS

1. ____ ROPS Installed

2. ____ Seat Belts Installed
3. ____ ROPS Bolt Torque-74.5 N·m (55 ft. lbs.);
Seat Belt Bolt Torque-74.5 N·m (55 ft. lbs.)
4. ____ PTO Shield Installed
5. ____ SMV Emblem Installed
6. ____ Safety Decals Installed
7. ____ Neutral Start Switches Operation
8. ____ Parking Brake & Latch Operation
9. ____ Flashing Lights/Tail Lights Operation
10. ____ Operator's Manual

OPERATIVE SERVICE CHECKS

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1. ____ Lights & Instruments for Proper Operation, & Fuel Shut Down with Key Switch OFF
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____ Selector Lever for Position Control
____ Flow Control Operation
6. ____ FWD-Drive Lever Operation
7. ____ Operation of H.S.T.

TRACTOR MODEL NO. _____ INSPECTION PERFORMED _____

TRACTOR SERIAL NO. _____ WARRANTY EXPLAINED _____

Owner's Signature _____ Date _____

Dealer's Signature _____ Date _____

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