

SECTION 1

OPERATION

CONTROLS, INSTRUMENTS, AND OPERATION

This section details the location and function of the various instruments, switches and controls on your tractor. Before attempting to drive or operate the tractor, study this section carefully and ensure you are thoroughly familiar with all aspects of operation. If in doubt about any aspect of operation of the tractor, consult your Dealer.

Particular attention should be paid to the recommendations for running-in to ensure that your tractor will give the long and dependable service for which it was designed.

NOTE: In the following section, the pictures and text refer mainly to less cab vehicles. For additional information on cabbed vehicles, refer to the information found in this section beneath the “SAFETY CAB” heading.

INSTRUMENT PANEL

The following text describes the function of the various warning lights and gauges on your tractor. Refer to the figure to locate these features on your tractor.

Proofmeter

The proofmeter, 1, indicates engine revolutions per minute. Use the proofmeter in conjunction with the gearshift decal to determine the tractor ground speed.

The proofmeter also registers the hours and portions of hours the tractor has operated, based on an average speed of 2055 RPM. Engine speeds below 2055 RPM accumulate hours at a slower rate than clock hours. Engine speeds above 2055 RPM accumulate hours at a faster rate than clock hours. The hours recorded should be used as a guide to determine hourly service intervals (see “LUBRICATION AND MAINTENANCE”).

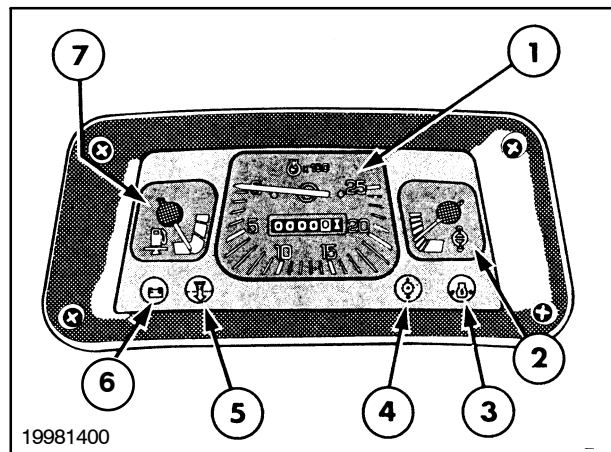


Figure 1-1

SECTION 2

LUBRICATION AND MAINTENANCE



WARNING: ALLOW ENGINE TO COOL TO AMBIENT TEMPERATURE BEFORE CLEANING. CLEANING A HOT ENGINE IN COOL WATER COULD RESULT IN DAMAGE TO THE FUEL INJECTION PUMP AND OTHER COMPONENTS.

This section gives full details of the service procedures necessary to maintain your tractor at peak efficiency. The Lubrication and Maintenance Chart provides a ready reference to these requirements.

In addition to the regular service operations listed, the following items should be checked every 10 hours or daily during the first 50 hours of operation:

- Transmission oil level
- Rear axle oil level
- Hydrostatic steering oil level
- Rear wheel nuts for tightness
- Front axle hub oil level (front-wheel drive option only)

At the first 50 hour service, ensure that the following additional service operations are carried out:

- Change engine oil and filter
- Change hydraulic oil filter (loader)
- Change hydraulic oil filter (tractor)
- Change transmission oil filter (power-reversing transmission)
- Adjust engine valve clearance
- Clean, inspect, and grease front wheel bearings
- Check and adjust fan belt tension
- Check and adjust brakes
- Change differential oil (front-wheel drive option only)
- Change front axle hub oil (front-wheel drive option only)

NOTE: Ensure that the tractor is on level ground and that rams are extended, where applicable, before checking oil levels. See "SPECIFICATIONS" for details of lubricant quantities and types.

To prevent contamination when changing oils or filter, etc., always clean the area around the filler, level and drain plugs, dipsticks and filters.



WARNING: SOME COMPONENTS ON YOUR TRACTOR, SUCH AS THE CYLINDER HEAD GASKET, MAY CONTAIN ASBESTOS. BREATHING ASBESTOS DUST IS DANGEROUS TO YOUR HEALTH. YOU ARE THEREFORE ADVISED TO HAVE ANY MAINTENANCE OR REPAIR OPERATIONS ON SUCH COMPONENTS CARRIED OUT BY YOUR DEALER. IF, HOWEVER, SERVICE OPERATIONS ARE TO BE UNDERTAKEN ON PARTS THAT CONTAIN ASBESTOS, THE ESSENTIAL PRECAUTIONS LISTED BELOW MUST BE OBSERVED:

- WORK OUT OF DOORS 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.

SECTION 3

SPECIFICATIONS

The general specifications given on the following

All data given in this manual is subject to

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PRECAUTIONARY STATEMENTS

PERSONAL SAFETY

Throughout this manual and on machine decals, you will find precautionary statements (“CAUTION”, “WARNING”, and “DANGER”) 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.



CAUTION: THE WORD “CAUTION” IS USED WHERE A SAFE BEHAVIORAL PRACTICE ACCORDING TO OPERATING AND MAINTENANCE INSTRUCTIONS AND COMMON SAFETY PRACTICES WILL PROTECT THE OPERATOR AND OTHERS FROM ACCIDENT INVOLVEMENT.



WARNING: THE WORD “WARNING” DENOTES A POTENTIAL OR HIDDEN HAZARD WHICH HAS A POTENTIAL FOR SERIOUS INJURY. IT IS USED TO WARN OPERATORS AND OTHERS TO EXERCISE EVERY APPROPRIATE MEANS TO AVOID A SURPRISE INVOLVEMENT WITH MACHINERY.



DANGER: THE WORD “DANGER” DENOTES A FORBIDDEN PRACTICE IN CONNECTION WITH A SERIOUS HAZARD.

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

MACHINE SAFETY

Additional precautionary statements (“ATTENTION” and “IMPORTANT”) are followed by specific instructions. These statements are intended for machine safety.

ATTENTION: The word “ATTENTION” is used to warn the operator of potential machine damage if a certain procedure is not followed.

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.

New Holland Warranty Detail

The warranty period will begin on date of original retail sale or date of original use, whichever is earlier.

- The obligation of Company to the purchaser under this warranty is limited to the repair or replacement of defective parts by an authorized New Holland dealer and will be done free of charge for both parts and labor using genuine New Holland replacement parts. Repair or replacement in accordance with this warranty shall constitute fulfillment of all liabilities of Company and the Selling Dealer in respect to such Products.
- Repairs or replacements will be performed by the Selling Dealer, following delivery of the Product by the purchaser to the Dealer's place of business. When the purchaser has moved a long distance from the Selling Dealer, or the Selling Dealer is no longer in business, any New Holland dealer authorized to sell and service the described Products may perform the repair at its dealership.
- The Selling Dealer shall review these warranty provisions with the purchaser prior to retail sale, secure his acknowledgement of delivery of this warranty and record the date of original retail sale or date of original use.
- To obtain warranty service, the purchaser must (1) report the product defect to an authorized New Holland dealer and request repair within the applicable warranty term and (2) present evidence of the warranty start date.

WHAT IS NOT COVERED BY THE WARRANTY?

This warranty shall NOT apply under the following conditions:

- (i) With respect to vendor warranty items such as tires, tubes, and attachments which shall be warranted by their manufacturer, or local representative thereof.
- (ii) If the unit has been subject to misapplication, abuse, misuse, negligence of proper maintenance or other negligence, fire or other accident.
- (iii) If parts or attachments other than those made or marketed by New Holland North America, Inc. or New Holland Canada, Ltd., have been used in connection with the unit, and in the sole judgment of Company such use affects its performance, stability or reliability.
- (iv) If the unit has been altered or repaired outside of a New Holland dealership in a manner which, in the sole judgment of Company, affects its performance, stability or reliability.
- (v) Batteries are covered by a separate pro rata adjustment warranty. The pro-rata plan covers the battery fully for the basic product warranty period as indicated, with any remaining warranty pro-rated according to the months of service.
- (vi) The purchaser shall be responsible for payment of dealer travel time to the machine or to deliver the machine to the dealer's service shop for repair. New Holland warranty does not cover delivery charges or travel time.
- (vii) The Company shall have no liability for used equipment sold beyond the specified coverage period.
- (viii) No warranty shall apply to damage resulting from accident or damage caused by environment (such as exposure to corrosive material). The Company shall not be responsible for rental equipment used to replace the equipment being repaired.
- (ix) This warranty shall NOT apply to normal maintenance services (such as tune-ups, fuel injection system cleaning or wheel, brake and clutch adjustments), to normal replacement of service items (such as filters and brake or clutch linings), or to normal deterioration due to use or exposure (such as belts and exterior finish). New Holland shall not be responsible for normal replacement parts such as cutting knives, chains, belts, clutches, filters, oil, or other parts which are worn out, unless they are determined to be defective in material or workmanship.
- (x) This warranty shall NOT apply to any New Holland Product which is retailed or distributed by anyone other than New Holland North America, Inc. or New Holland Canada, Ltd., through its authorized dealers. This warranty shall NOT apply to any Product which is normally operated outside of the United States, and/or Canada.
- (xi) This warranty shall NOT apply if the purchaser, insurance company, or any other entity or individual acting on behalf of the purchaser seeks reimbursement for the dollar value of the repair(s) or replacement(s) covered under this warranty.

RIGHT TO MAKE DESIGN CHANGES

Company reserves the right to make changes in the design and other changes in its products at any time and from time to time without notice and without incurring any obligation with respect to any product previously ordered from it, sold or shipped by it.

KEY START/STOP SWITCH



WARNING: DO NOT USE ETHER WITH THE THERMOSTART®. IF, IN AN EMERGENCY, IT IS NECESSARY TO USE ETHER WITH THERMOSTART® INSTALLED, DISCONNECT THE TERMINAL WIRE FROM THE GLOW PLUG ON THE INTAKE MANIFOLD AND INSULATE THE FREE END OF THE WIRE. THE GLOW PLUG IS AT THE FRONT OF THE MANIFOLD.

The tractor has a four-position key start/stop switch:

Position 1	Electrical Equipment "OFF"
Position 2	Accessories "ON"
Position 3	Warning Lights and Instruments "ON"
Position 4	Starting Motor Operates

Your tractor is equipped with a Thermostart® cold weather starting aid which is effective in temperatures down to -18°C (0°F). The Thermostart® consists of a glow plug installed in the inlet manifold. With the key start/stop switch turned "ON" and the Thermostart® switch depressed, the Thermostart® will ignite fuel in the manifold, heating indrawn air, prior to it entering the combustion chamber.

If temperatures colder than -18°C (0°F) are encountered, a coolant immersion heater is available as an accessory. The coolant immersion heater is effective to -29°C (-20°F) when used in conjunction with the Thermostart®.

The key start/stop switch on your tractor also activates an electromagnetic solenoid fuel shutoff valve on the fuel injection pump. Turning the key start/stop switch to position 3 energizes and lifts the valve, allowing fuel to enter the pumping head of the fuel pump. Returning the key start/stop switch to position 2 de-energizes the valve, closing the fuel gallery to the pumping elements. Fuel is no longer injected into the engine and the engine stops.

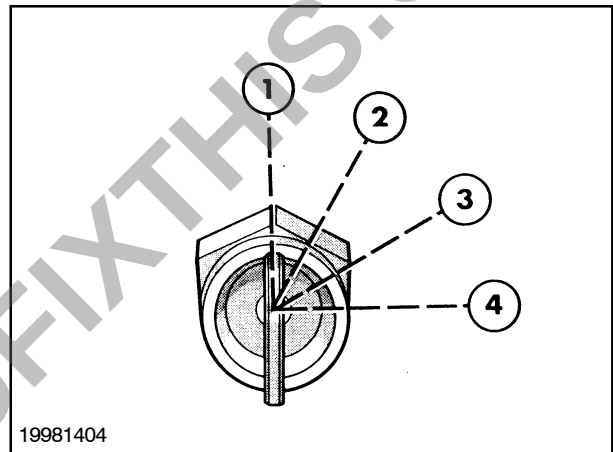


Figure 1-6

Cast Iron Weights

Cast iron weights are available as accessories from your Dealer. Weights can be mounted on the front wheels and on the rear wheels.

Weight added to the tires, together with the weight of the tractor and rear attached equipment, should not exceed the recommended weight to be carried by the tires. In some cases, the tire capacities will exceed the maximum allowable weight of the tractor. In these instances, never exceed the maximum allowable weight of the tractor, including ballast.

The front wheel weights and rear wheel weights are listed below:

Front Wheel Weights	43.1 kg (95 lb) each	Maximum of one per wheel
Rear Wheel Weights	129 kg (284 lb) each	Maximum of two per wheel

NOTE: Do not use the two-piece wheel weights on the inside of the wheels.

When mounting rear wheel weights, it is desirable to balance the number of weights on the inside and outside of the wheels.

Liquid Ballast

Filling the front and rear tires with liquid ballast is a convenient method of adding weight. A solution of calcium chloride and water is recommended. This gives a low freezing point and provides a higher density than plain water.

NOTE: When filling a tire with calcium chloride/water solution, the valve should be at the highest point on the wheel. The valve should be at the lowest point when checking or adjusting air pressure if the tire is liquid ballasted.

The following table shows the quantity of calcium chloride and water required for each tire size option and is based on 0.6 kg (1.3 lbs) of calcium chloride per liter of water to give a 75% fill of the tire. This calcium chloride/water solution will give protection from freezing down to an ambient temperature of -46°C (-51°F).

NOTE: Maximum allowable ballast to be added to each rear tire should not exceed 476 kg (1050 lb).

Tire Size	Water			Calcium Chloride		Total Weight of Solution per Tire	
	US Gals	Imp Gals	Liters	lb	kg	lb	kg
11.00L - 16	12.0	10.0	45	60	27.2	160	72.6
12.00 - 16.5	24.0	19.5	89	84	38	284	130
16.9 - 24	49.0	41.0	185	215	111	655	296
14.9 - 24	38.0	31.5	143	190	86	507	230



WARNING: WHEN MIXING THE BALLAST SOLUTION, IT IS IMPERATIVE THE CALCIUM CHLORIDE FLAKES ARE ADDED TO THE WATER AND THE SOLUTION STIRRED UNTIL THE CALCIUM CHLORIDE IS DISSOLVED. NEVER ADD WATER TO CALCIUM CHLORIDE. IF THE FLAKES SHOULD

CONTACT THE EYES, WASH THE EYES IMMEDIATELY WITH CLEAN COLD WATER FOR AT LEAST 5 MINUTES. SEE A DOCTOR AS SOON AS POSSIBLE.

NOTE: Front tractor tubes do not have air water valves fitted as standard equipment. A suitable air-water valve must be fitted to enable front tires to be filled with calcium chloride solution.

Pull the Draft Control lever to the top of the quadrant to override the flow control valve (manual or automatic) and raise the implement quickly.

NOTE: When grading and backfilling with light equipment, such as a rear blade, it may be necessary to “block out” upper link tension loads to prevent the blade from “diving”. This is accomplished by installing a spacer (available from your Dealer) between the counterbore in the Draft Control mainspring housing and the spring seat. Alternatively, use the Position Control lever in conjunction with the Draft Control lever (see “Draft Control Operation with Position Control”).

Position Control Operation

Set the required implement height/depth using the Position Control lever, 3, Figure 1-60. Pull the lever back to raise the implement; push forward to lower. Implement height/depth is relative to the position of the lever in the quadrant.

NOTE: When operating in Position Control, the Draft Control lever should be pushed down to the bottom of the quadrant.

When the required implement working height/depth has been established, set the adjustable stop adjacent to the Position Control lever to locate the position for repeated use. The lever may be eased sideways when it is required to bypass the adjustable stop.

The adjustable stop is reversible after loosening the center clamp screw so it may also be used when operating in Draft Control.

IMPORTANT: When transporting equipment on the three-point linkage, set the adjustable stop to maintain the Position Control lever in the raise position. This will prevent accidental movement of the lever, which could result in attached equipment lowering and becoming damaged or damaging the road surface.

When operating in Position Control, it is of no advantage to restrict the oil flow in the hydraulic system. However, the manual flow control valve (where fitted) may be used to reduce the rate of lift of the three-point linkage, if required. To reduce the rate of lift, turn the flow control valve forward. Turn the knob rearward to increase the rate of lift.

Draft Control Operation with Position Control

NOTE: When operating the Draft Control, the Position Control lever should normally be at the bottom of the quadrant. However, the Position Control lever may be used in conjunction with Draft Control to limit the maximum depth of correction to achieve a more even depth of cultivation in land with widely varying soil conditions.

Position Control may be used together with the Draft Control as follows:

Set the Position Control lever at the maximum desired implement depth. The hydraulic system will not lower the implement below this depth. (This will also prevent “diving” which may be encountered with light equipment, such as a rear blade, when grading or backfilling.)

Adjust the Draft Control lever for the maximum required draft load (pull).

The hydraulic lift system will now provide normal draft response within the range set by the Position Control. This adjustment provides a more uniform depth while maintaining an even pull in widely varying soil conditions.

SERVICE AS REQUIRED (Cont.)**Hydraulic System Oil Level**

The hydraulic system oil can be checked at the sight glass, 1, on the hydraulic reservoir. The hydraulic oil should be visible in the glass with the loader resting on the ground.

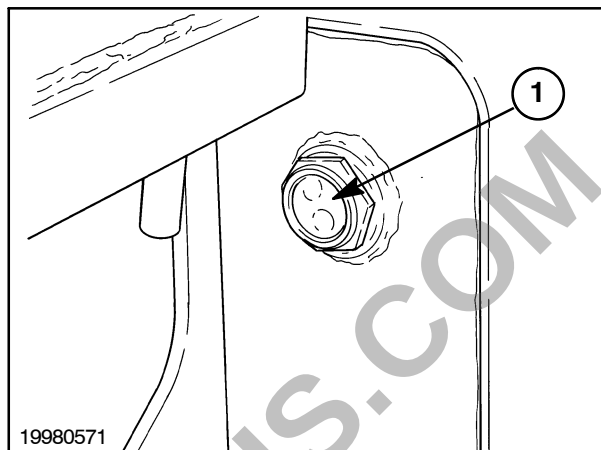


Figure 2-4

Radiator and Oil Coolers

Clean the radiator and the oil cooler with compressed air not exceeding 100 PSI (7 bar). The air filter may be swung outwards to facilitate cleaning.

Fins blocked with oily substances may be cleaned with a detergent solution, preferably applied with a high pressure washer.

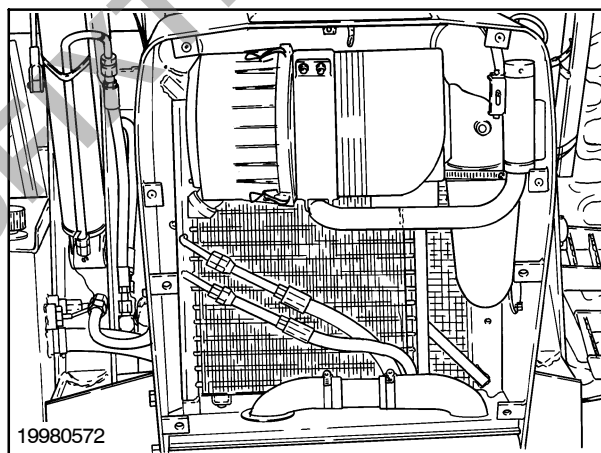


Figure 2-5

Windshield Washer Reservoir

The windshield washer reservoir is located below the windshield inside the cab on the left-hand side. Remove the filler cap, 1, and top up the washer bottle with a solvent solution as required. In cold weather, use a solvent solution with antifreeze properties.

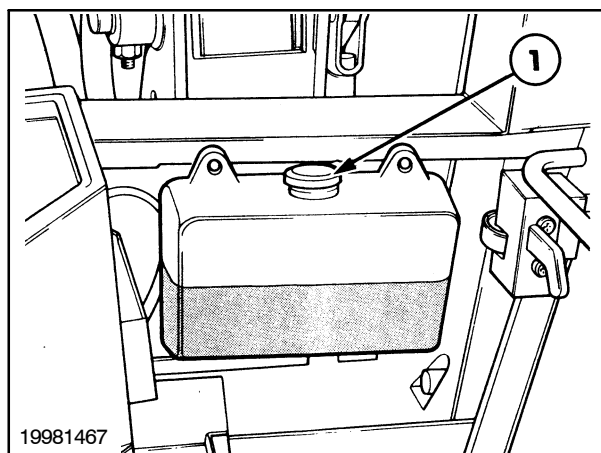


Figure 2-6

EVERY 600 HOURS (Cont.)**Hydrostatic Steering Oil**

Disconnect the inlet tube, 2, from the rear of the hydrostatic steering oil reservoir. Loosen the through bolt, 1, and allow the oil to drain into a suitable receptacle.

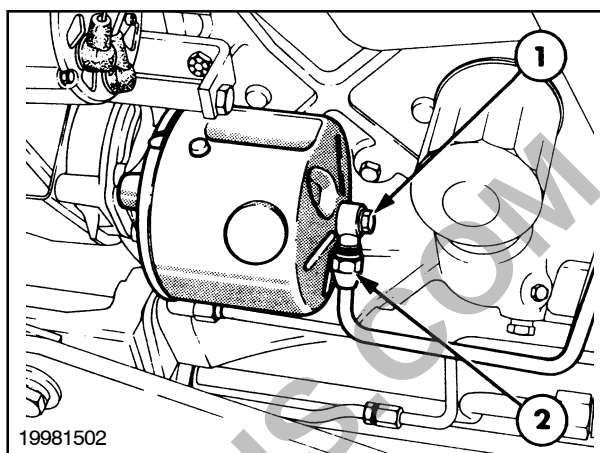


Figure 2-53

Hydrostatic Steering Oil Filter

Separate the reservoir, 1, from the pump, then remove and discard the filter, 3, and O ring seal, 4. Clean the pump and reservoir using a suitable solvent and air dry.

Install a new filter and O ring seal onto the pump. Reassemble the reservoir ensuring that the locating lug, 5, on the pump body aligns with the edge of the indentation in the reservoir.

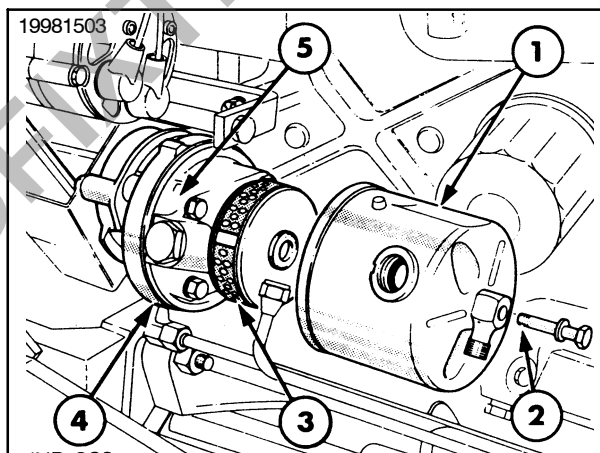


Figure 2-54

Fuel Tank Shutoff Valve and Fuel Filter

Close the fuel tank shutoff valve, 1, by turning in a clockwise direction.

Unscrew the retaining ring, 4, on the sediment separator and remove the glass bowl, 5. Wash out the bowl using a brush and clean fuel then reinstall.

NOTE: Do not use a rag to clean the filter base and head, as absolute cleanliness is essential for this operation.

Unscrew the retaining ring, 2, on the filter and remove the filter element, 3. Discard the filter element and install a new element.

Open the fuel shutoff valve and bleed the system by cracking open the fuel line to the injection pump.

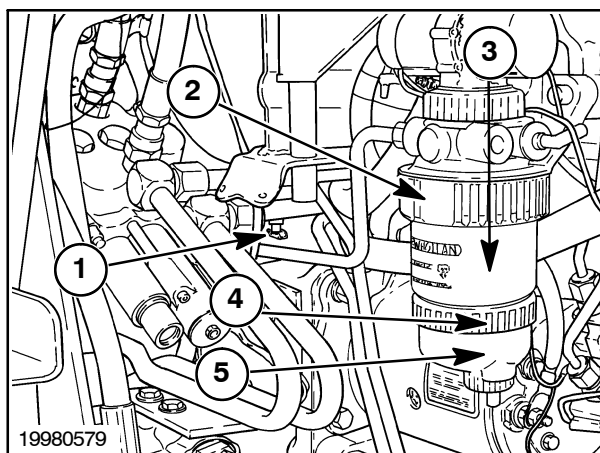


Figure 2-55

GENERAL MAINTENANCE (Cont.)

WARNING: INFLATING OR SERVICING TIRES CAN BE DANGEROUS. WHENEVER POSSIBLE, TRAINED PERSONNEL SHOULD BE CALLED IN TO SERVICE OR INSTALL TIRES. IN ANY EVENT, TO AVOID THE POSSIBILITY OF SERIOUS OR FATAL INJURY, FOLLOW THE SAFETY PRECAUTIONS BELOW:

- TRACTOR WHEELS ARE VERY HEAVY. HANDLE WITH CARE AND ENSURE, WHEN STORED, THAT THEY CANNOT TOPPLE AND CAUSE INJURY.
- NEVER ATTEMPT TIRE REPAIRS ON A PUBLIC ROAD OR HIGHWAY.
- ENSURE THE JACK IS PLACED ON A FIRM, LEVEL SURFACE.
- ENSURE THE JACK HAS ADEQUATE CAPACITY TO LIFT YOUR TRACTOR.
- USE JACK STANDS OR OTHER SUITABLE BLOCKING TO SUPPORT THE TRACTOR WHILE REPAIRING TIRES.
- DO NOT PUT ANY PART OF YOUR BODY UNDER THE TRACTOR OR START THE ENGINE WHILE THE TRACTOR IS ON THE JACK.
- NEVER HIT A TIRE OR RIM WITH A HAMMER.
- ENSURE THE RIM IS CLEAN AND FREE OF RUST OR DAMAGE. DO NOT WELD, BRAZE, OTHERWISE REPAIR OR USE A DAMAGED RIM.
- 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.
- WHEN FITTING A NEW OR REPAIRED TIRE, USE A CLIP-ON VALVE ADAPTER WITH A REMOTE GAUGE THAT ALLOWS THE OPERATOR TO STAND CLEAR OF THE TIRE WHILE INFLATING IT. USE A SAFETY CAGE, IF AVAILABLE.

- DO NOT INFLATE A STEERING TIRE (FRONT TIRE ON A TWO-WHEEL DRIVE TRACTOR) ABOVE THE MANUFACTURER'S MAXIMUM PRESSURE SHOWN ON THE TIRE OR BEYOND THE MAXIMUM SHOWN ON THE "TIRE PRESSURES AND PERMISSIBLE LOADS" TABLES FOUND IN THE "SPECIFICATIONS" SECTION OF THIS MANUAL IF THE TIRE IS NOT MARKED WITH THE MAXIMUM PRESSURE.



WARNING: NEVER INFLATE A TRACTION TIRE (FRONT TIRE ON A FOUR-WHEEL DRIVE TRACTOR OR ANY REAR TIRE) OVER 35 PSI (2.4 BAR). IF THE BEAD DOES NOT SEAT ON THE RIM BY THE TIME THIS PRESSURE IS REACHED, DEFLATE THE TIRE, RELUBRICATE THE BEAD WITH A SOAP/WATER SOLUTION, AND REINFLATE. DO NOT USE OIL OR GREASE. INFLATION BEYOND 35 PSI (2.4 BAR) WITH UNSEATED BEADS MAY BREAK THE BEAD OR RIM WITH EXPLOSIVE FORCE SUFFICIENT TO CAUSE A SERIOUS INJURY.

- AFTER SEATING THE BEADS, ADJUST INFLATION PRESSURE TO THE RECOMMENDED OPERATING PRESSURE.
- DO NOT REINFLATE A TIRE THAT HAS BEEN RUN FLAT OR SERIOUSLY UNDER-INFLATED UNTIL IT HAS BEEN INSPECTED FOR DAMAGE BY A QUALIFIED PERSON.
- TORQUE WHEEL TO AXLE NUTS TO SPECIFICATION AFTER REINSTALLING THE WHEEL. CHECK NUT TIGHTNESS DAILY UNTIL TORQUE STABILIZES.
- REFER TO "TRACTOR WEIGHTING" BEFORE ADDING BALLAST TO THE TIRES.

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